San Rafael Airport Recreational Facility

Final Environmental Impact Report

SCH No. 2006012125

August 2011

City of San Rafael
Community Development Department
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San Rafael, CA 94901 94901

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FINAL ENVIRONMENTAL IMPACT REPORT

SAN RAFAEL AIRPORT RECREATIONAL FACILITY

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RESPONSE TO COMMENTS

A. INTRODUCTION

The San Rafael Airport Recreational Facility Draft Environmental Impact Report (Draft EIR, or DEIR; SCH No. 2006012125) was circulated for a 60-day public review period beginning March 12, 2009 and ending May 12, 2009 (due to a 15-day extension of the review period), as assigned by the State of California Governor's Office of Planning and research State Clearinghouse and consistent with the California Environmental Quality Act Guidelines (*CEQA Guidelines*). Copies of the document were distributed to state, regional and local agencies, as well as organizations and individuals, for their review and comment.

Section 15088(a) of the *CEQA Guidelines* states that:

> "The lead agency shall evaluate comments on environmental issues received from persons who reviewed the Draft EIR and shall prepare a written response. The lead agency shall respond to comments received during the noticed comment period and any extension and may respond to late comments."

In accordance with Section 15088(a) of the *CEQA Guidelines*, the City of San Rafael (City), as the lead agency, has evaluated the comments received on the DEIR for the Airport Recreational Facility Project and has prepared written responses to the comments received.

All comments on the DEIR, and the responses thereto, are presented in this document. Section D of this Chapter provides a list of all agencies, utilities, organizations and persons who submitted comments on the DEIR during the 60-day public review period. Section E contains Master Responses which are related to a number of comments that address the same issues and topic areas of potential impact, as a way to avoid repetition in responding to similar comments on the DEIR. Section F contains all of the comments received on the DEIR along with responses to each. These responses include identifying text revisions in the DEIR. Text changes resulting from comments on the DEIR, as well as staff-initiated text changes, are presented in **Chapter 2** (Revisions to the Draft EIR). Revisions to the DEIR text are indicated by underline text (<u>underline</u>) for text additions and strike out (~~strike-out~~) for deleted text. Revised figures and tables are identified with the word "revised" in front of the figure or table number.

The text changes included in **Chapter 2** do not add significant new information to the DEIR but merely provide clarification or make minor modifications to an adequate EIR. Further, the comments and responses do not result in any new significant impacts that have not been previously identified. New or expanded mitigation measures are included to expand current mitigation in order to further reduce impacts identified in the DEIR. For these reasons, a recirculation of all or portions of the DEIR is not required pursuant to CEQA Guidelines Section 15088(b). The FEIR Appendices has also been included which contains additional information that has been prepared and provided in response to the comments on the DEIR, in order to clarify or amplify the information in the already adequate EIR.

Since the close of the DEIR public review period in May, 2009, City Staff and the EIR consultants have gathered additional information to provide clarification regarding the characteristics of the Project and the types of environmental effects that may be associated with construction and operation of the Project in order to be able to provide detailed responses to comments received on the DEIR. Although the additional information presented in this FEIR provides clarification of some issues addressed in the DEIR, it does not substantially alter either the description of the Project or the environmental effects as discussed in the DEIR.

B. CONTENT OF FINAL EIR

The Final EIR (or FEIR) is composed of the following elements:

- The Draft EIR and Appendices to the Draft EIR
- A list of persons, organizations and public agencies that commented on the Draft EIR (**Chapter 1**, Section D)
- Copies of all comments received (**Chapter 1**, Section F)
- Written responses to those comments (**Chapter 1**, Section E and Section F)
- Revisions to the Draft EIR resulting from comments (**Chapter 2**)
- Appendices to the Final EIR

C. CERTIFICATION OF FINAL EIR AND APPROVAL PROCESS

For a period of at least ten days prior to any public hearing during which the lead agency will take action to certify an EIR, the Final EIR will be made available to, at a minimum, the trustee and responsible agencies that provided written comments on the Draft EIR. Pursuant to Section 15090(a) of the *CEQA Guidelines*, the Final EIR must be certified before the lead agency can take action on the Project.

Following Final EIR certification, but prior to the public agency taking action on the Project (planning applications), the lead agency will prepare a Mitigation Monitoring and Reporting Program (MMRP). Before approving (or conditionally approving) the Project, the City must prepare written CEQA findings for each significant impact identified for the Project, accompanied by a brief explanation of the rationale for the finding, in accordance with Section 15091 of the *CEQA Guidelines*.

Certification of the Final EIR may occur at a public hearing independent of and prior to project approval. Prior to approval of the Project, the City must adopt CEQA findings and a Mitigation Monitoring and Reporting Program. These actions may be considered during one final public hearing. The certification of the Final EIR must be the first in the sequence of approvals.

D. LIST OF COMMENTORS

All commentors on the Draft EIR are listed below. Each comment is identified with a two part numbering system. The first number corresponds to the number assigned to the comment letter. The second number corresponds to the order of the comment within the comment letter.

PUBLIC AGENCIES

LIST OF LETTERS **Page**

GENERAL PUBLIC

LIST OF LETTERS

PLANNING COMMISSION

These were verbal comments made at the Planning Commission Public Hearing on the DEIR on May 12, 2009.

* These comments were received after the close of the 60-day public comment period.

E. MASTER RESPONSES

In reviewing the comments received on the DRAFT EIR, it was evident that many of them addressed the same topic areas or raised similar questions. In the interest of reducing repetition in responding to those similar comments, 24 Master Responses have been provided below.

1. Maximum Number of People at the Project Site/Risks Associated with Single-Acre Use

MASTER RESPONSE PD-1 responds to the question: *What is the maximum number of persons who would be present at the site at the busiest period, and to what extent would that change what has been said in the DEIR about the risks associated with single-acre use and risk reduction design features?*

Several comments raised questions regarding the maximum number of persons who would be present at the site during the period of highest demand. Questions primarily focused attention on the airport hazards impact analysis contained in Chapter 10 of the DEIR, which is based on the technical report prepared by Mead & Hunt, Inc., *San Rafael Airport Sports Center Aeronautical Safety Review*, provided as DEIR **Appendix H**. Comments indicated need for clarification on the maximum intensity assumptions provided in the airport hazards impact analysis, and whether these assumptions were consistent with the assumptions made to evaluate Project-related impacts in other studies, such as the evaluation of traffic impacts.

Data regarding the number of persons anticipated to use the facilities has been provided in several locations of the DEIR and DEIR Volume II: Technical Appendices. The DEIR page 3-13, **Table 3-1** identifies the proposed use schedule, which anticipates a maximum number of users between 700 to 1000 people per day, plus 12 full-time-equivalent employees within all facilities (i.e., indoor and outdoor uses). **Table 3-1** also shows that the recreational facility proposes to operate from 9:00 AM to 11:00 PM Sunday through Thursday, and 9:00 AM and Midnight Friday through Saturday; for a total of 14 hours per day on Sunday through Thursday and 15 hours per day on Friday and Saturday. A description of the proposed use is also contained in DEIR **Appendix K**, page 1, Traffic, Fehr & Peers, *San Rafael Airport Recreational Facility Transportation Impact Report,* September 2007. This description matches the detailed Project Description contained on DEIR pages 3-9 through 3-13. A similar description of use is also found in DEIR **Appendix H**, page 2, Hazards, Mead & Hunt, Inc., *San Rafael Airport Sports Center Aeronautical Safety Review*, April 15, 2008. The components of the use, as described in the DEIR Project description, are summarized as follows:

- 85,700 square foot indoor recreational building , consisting of the following:
    - Two 80' x 180' indoor soccer fields and locker rooms; 44,000 sq. ft. (approx.)

- Mezzanine level with a viewing area, meeting room, café (in 4,092 sq. ft. with 20 seats and serving food, beverages, and beer and wine), restrooms, sports shop and administrative offices; 14,400 sq. ft.

- Dance and gymnastics studios (designed to be large enough to house a third full size indoor field/court/rink in order to provide maximum use flexibility of use over time); 26,000 sq. ft. (approx.)

- Regulation sized, lighted, outdoor soccer field with all weather Field Turf, or an unlighted grass field, and an unlighted grass warm-up and stretching area

The maximum number of persons anticipated to be present on the site during the most intense, or busiest period has been determined in the technical report prepared by Mead & Hunt, Inc., *San Rafael Airport Sports Center Aeronautical Safety Review*, provided as DEIR, **Appendix H**. The maximum intensity assumption for the entire proposed recreational facility that was used for purposes of conducting the aeronautical safety review is 475 occupants (see DEIR pages 10-18 and 10-19, and DEIR Volume II: Technical Appendices, Appendix H, Mead & Hunt, *Aeronautical Safety Review*). This intensity reflects the maximum number of persons anticipated to be present within the entire recreational facility site area at one given time during the period of most intense usage; i.e., including all users within the indoor recreational facility building, and all the outdoor areas including the soccer field and warm-up field. The intensity of use is based on occupancy assumptions using the California Building Code (CBC) methodology. This approach is considered to be a reasonable and conservative estimate of use, and is the appropriate method for determining the building occupancy. . This intensity is also consistent with the assumptions used for the traffic impact analysis, which has based its review on Institute of Traffic Engineers (ITE) *Trip Generation* (7th Edition), 2003, and traffic count data conducted of similar facilities. The purpose of the traffic study is to identify anticipated trip generation, which relies on the trip count data collected for such uses. The traffic study does not provide information that would correspond to building occupancy rates, as that is not its focus. However, both study methodologies use accepted industry approaches for identifying the building occupancy and the traffic generation rates based on the proposed use of the building and site, and they are considered to be compatible approaches for determining intensity of use for purposes of DEIR analysis of potential impacts. Thus, at the estimated maximum occupancy that has been identified for the building in the hazards analysis using the CBC methodology, 130 people would be using the outdoor facilities, and 345 people would be inside the 1.6-acre indoor facility. The 1.6-acre size of the building is derived based on the 71,300 sq. ft. building footprint divided by 43,560 (i.e., the area of one acre). For the purposes of the Single-Acre Intensity analysis discussed in the DEIR Hazards Chapter 10, it was assumed that the highest intensity of use per acre would occur within the indoor facility, with an average of 216 people per acre based upon the estimated maximum capacity of 375 people (i.e., 375 people inside the 1.6-acre structure = 216 people per acre). As indicated in the DEIR, this value would exceed the single-acre criterion of 200 people, which was identified as a potentially significant impact

on DEIR page 10-17 (**Impact Haz-1a**). As indicated on DEIR page 10-20, these impacts would be mitigated through the implementation of the risk-reduction design features identified in **Mitigation Measure Haz-1**, which would reduce impacts associated with the adjacent airport operations to a level considered less than significant. The risk-reduction design features that have been identified as required to mitigate this impact include the following:

- limiting intensity of use to a maximum of 200 people per single acre, or,
- at a minimum, adding one additional emergency exit within the structure beyond the number required by the CBC, providing the structure with an enhanced sprinkler system, and adding a sign at the entrance to the warm-up field indicating the maximum occupancy of the field is 50 people.

The building enhancements and signage restrictions described in the second alternative above would be easily accommodated within the project design and reduce the risk within acceptable thresholds. Further, the proposal to install a sign identifying the occupancy limitation of the warm-up field is a feasible approach given that it would allow for a level of use intensity that would be consistent with the demand anticipated for the warm-up area. For example, the warm-up field would be expected to be used by up to two soccer teams before their upcoming scheduled game on the outdoor field. Two standard sized 11-person soccer teams with 2 coaches and a team manager would result in 28 persons using the warm-up area before their next scheduled game. Most teams also include additional (substitute) players. The 50 person limit would provide the capacity for up to 11 additional players per team, which is more than adequate and anticipated for a standard-sized soccer team. Furthermore, it is worth noting that the soccer field could also be used as a venue for other similar sports, such as lacrosse, which would also field similar team sizes, ranging from 10 to 12 players per team. The field has not been designed or proposed to accommodate baseball or American football games, which typically maintain larger team sizes.

It is important to understand that in estimating maximum site occupancy for the purposes of the hazards analysis, there were three different metrics referenced in the Aeronautical Study and the Traffic Study contained in the DEIR, and that each metric measures different aspects of usage of the proposed facility. While different, the metrics are interrelated and produce consistent results in terms of the total number of people expected to occupy the facility at any given time under *normal busy use*, also referred to as *intensity*. The intensity results show that between 405 and 475 people could be present on the site during normal peak use. A description of each metric and resulting intensity calculations follows:

Metric 1: Vehicle Trips

The Traffic Study uses projected vehicle trips to determine the design requirements for parking, site access, and traffic circulation for the proposed Project. The study indicates that peak use of the proposed sports center would occur on a weekday in the PM. The study

estimates approximately 135 vehicle trips into the facility during PM peak-hour use. It is reasonable to assume that there are also some vehicles present at the site before this peak-hour occurs. In other words, not all vehicles are arriving and departing the facility at the same time. It can also be assumed that some patrons are staying at the facility for more than one hour. For the purposes of the intensity calculations, a conservative approach was taken to assume that patrons are staying on-site for an average of two hours. The next question to be answered is how many people are in each vehicle. Data from the Research and Innovative Technology Administration (RITA), Bureau of Transportation Statistics, indicates that the average vehicle occupancy load for a weekday is 1.5 people per vehicle. Together, this information can be used to calculate the maximum number of people on the site during peak use as follows:

135 PM peak-hour vehicle trips in

2 average hourly stay

x 1.5 people per vehicle

405 maximum number of people on-site during PM peak-hour use

Metric 2: Parking Spaces

Both studies reference a total of 270 parking spaces (184 paved and 86 gravel). Using this date derives the following intensity:

270 parking spaces

x 1.5 people per vehicle

405 maximum number of people on the site at any given time

Metric 3: Occupancy Level

The Aeronautical Study uses the occupancy levels (minimum number of square feet per person) provided in the Building Code to calculate the intensity. The maximum occupancy requirements are established to determine the maximum number of people that can occupy a space and safely evacuate the building in the event of a fire. As indicated in the California Airport Land Use Planning Handbook (January 2002), published by the California Division of Aeronautics, surveys of actual occupancy levels indicate that many retail and office uses are generally occupied at no more than 50 percent of their maximum occupancy levels, even at the busiest times of day. Even with this 50 percent reduction, this methodology typically produces intensities at the high end of the likely range because it assumes that all component uses of a facility are operating at full capacity at the same time. In other words, the dance studio, gymnastic studio, and all of the soccer fields at the proposed recreational facility would be fully occupied at the same time. This scenario is unrealistic. Therefore, for the

purposes of the intensity calculations, the occupancy level methodology represents the most conservative approach of the three methodologies as it generates the highest intensity. Applying the assumptions noted above results in the following intensity:

949 maximum building occupancy

x 50% assumed typical peak occupancy

475 maximum number of people on the site at any given time

As can be seen, all three methodologies generate comparable intensity results. The occupancy level methodology represents the high end of the likely range while the numbers based on the traffic metrics (i.e., vehicle trips and parking spaces) are probably more realistic. However, for the purposes of the Aeronautical Study, the safety analysis took a conservative approach by utilizing the highest intensity number to determine the compatibility of the proposed facility with airport operations. The intensity of use metrics are discussed in the DEIR Chapter 10, pages 10-18 and 10-19 and **Appendix H**, Mead & Hunt, *Aeronautical Safety Review* report, pages 7 and 8.

The hazards analysis in DEIR Chapter 10 and DEIR **Appendix H** (*Mead & Hunt, San Rafael Airport Sports Center Aeronautical Safety Review*) identifies the various safety zones that need to be analyzed, and adequately identifies the maximum occupancy which is anticipated to occur within the proposed recreation facility building. Therefore, no change to single-acre use and risk reduction design features would be warranted, because the hazards analysis adequately assumes the highest-intensity of use using conservative estimates, and the risk reduction design features that are identified in **Mitigation Measure Haz-1** would be required and could be readily accommodated as part of building design enhancements.

2. Declaration of Restrictions

MASTER RESPONSE PD-2 responds to the question: *What does the Declaration of Restrictions say, and how does this affect what can be done at the Project site?*

As indicated on DEIR page 4-6, a Declaration of Restrictions was recorded for the airport site in December 1983, which limited future use of the site to the following:

- Existing uses consisting of the airport and related uses.
- Future utility uses as approved by the appropriate government agencies, including flood control, sanitary sewer, gas and electricity, and public safety facilities.
- Airport and airport-related uses.
- Roadways.

- Open Space.
- Private and public recreational uses.

The Project represents a private recreational use, which is one of the future permitted uses listed in the Declaration of Restrictions. The Declaration of Restrictions identifies limits on the types of future uses at the airport site only, and does not place a limitation on the construction of structures for establishment of any proposed future uses that are consistent with the permitted uses that have been identified in the Declaration of Restrictions.

The land use restriction (i.e. Declaration of Restrictions, recorded at the County of Marin on December 15, 1983, as document no. 83062935) has been analyzed in full in the DEIR in the following areas: a) Chapter 4: Land Use and Planning, pages 4-18 and 4-19; b) Appendix A, Initial Study/Notice of Preparation, on pages 69 and 70; and c) Appendix C, Land Use and Planning *Table Analyzing Project Consistency with San Rafael General Plan 2020*, page 3 of 25 (discussion of Policy LU-23). The Declaration of Restrictions was provided as Source Reference 12 to Appendix A, and identifies six specific uses and improvements that may be allowed for the entire 119.52 acre airport property identified as Parcel B of the Civic Center North Parcel Map. All proposed uses must be consistent with these restrictions. The land use restrictions have been carried forward in the City of San Rafael General Plan 2020. The Project has been found to be consistent with these land use restrictions, and all impacts of the proposed development were found to be fully mitigable, which also supports the less than significant impact finding in DEIR Chapter 4. The Declaration of Restrictions states the following restrictions. (Note: Section 1(f) of the Declaration of Restrictions confirms the DEIR conclusion that the proposed recreational facility use is consistent with the underlying land use restrictions):

Declaration of Restrictions

> This declaration of restrictions is made and entered into by and between the City of San Rafael, a municipal corporation (hereinafter referred to as "City"), the First National State Bank, a national banking association (hereinafter referred to as "Owner"), and the County of Marin, a political subdivision of the State of California (hereinafter referred to as "County"), in connection with the following circumstances:
>
> (a) City is processing at the request of Owner a tentative subdivision map and final subdivision map relating to certain real property of Owner, including the real property designated as "PARCEL B" in the exhibit attached hereto and incorporated herein;
>
> (b) As a condition for approval of said tentative subdivision map and final subdivision map, City has required, and Owner has agreed to, this declaration of restrictions on the terms and conditions hereinafter set forth.

NOW, THEREFORE, the Owner declares that the real property designated as "PARCEL B" in the exhibit hereto shall be held, transferred, encumbered, used, sold, conveyed, leased, and occupied, subject to the restrictions and covenants herein contained, expressly and exclusively for the use and benefit of said real property and for each and every parcel of real property owned by City and by County and by each of them.

1. Limitations On Use. No use of said real property described shall be made or permitted except the following:

(a) Existing uses consisting of an airport and related uses.

(b) Public utility uses as approved by the appropriate government agencies, including flood control, sanitary sewer, gas and electric, and public safety facilities.

(c) Airport and airport related uses.

(d) Roadways.

(e) Open space.

(f) Private and public recreational uses.

~~(g) Any other related uses agreed to by the City, County, and Owner.~~*[This restriction was stricken-out on the recorded document].*

2. Run With Land. This declaration of restrictions and the covenants contained herein are to run with the land, and for the benefit of the City and County, and each of them, and shall be binding on all parties and all persons claiming under them, including the successors and assigns of Owner.

3. Enforcement. Enforcement hereof shall be by proceedings at law or in equity against any person or persons violating or attempting to violate any provision herein contained, either to restrain violation or to recover damages, or both. In the event of litigation arising from or relating to this Declaration of Restrictions, the prevailing party therein shall be entitled to an award in a reasonable amount to be set by the Court for attorney fees and costs incurred.

4. Severability. Invalidation of any one of these covenants by a judgment or court order shall in no way affect any other provision hereof, and the same shall remain in full force and effect.

A copy of the recorded document can also be found in the Project file, and has also been included as an attachment to comment Letter 68, included herein (see recorded document 83062935, December 15, 1983, Official Records of Marin County, Calif.).

3. Story Poles

MASTER RESPONSE AES-1 responds to the question: *Was the placement of the story poles and selection of vantage points adequate?*

Story poles were erected at the Project site as directed by the City of San Rafael, and placement was intended to provide observers with an accurate sense of the relative height of the tallest portions of the proposed structure. Vantage points used in the photo simulations of the proposed Project were intended to provide those reviewing the DRAFT EIR with a sense of the size of the proposed structure and the anticipated visual effects of the placement of the proposed structure at the Project site as seen from several public viewpoints. The vantage points were selected to provide representative views, with the understanding that computer modeling for all possible views toward the Project site from additional locations was beyond the scope of the EIR. The four vantage points used for modeling and analysis in the DEIR were included for review during the EIR scoping sessions, and were selected to represent prominent locations most widely used by the public. These views include the most proximate public views of the building, and longer more distant public views. As discussed and shown on DEIR pages 5-6 through 5-22, this includes, i) views from the McInnis Park trailhead and McInnis Park parking lot that are located directly across the North Fork of Gallinas Creek from the proposed building; ii) a view from the levee trail at the pump house directly across from the proposed building, and; iii) a distant view from the levee trail at the bend in the North Fork of Gallinas Creek near the north end of the airport site. These vantage points were introduced and considered during public hearings before the Design Review Board and during the scoping sessions held on the Project, and were accepted as adequate for purposes of this DEIR analysis. Thus, the analysis was identified as adequate during the scoping session to provide a sufficient and conservative evaluation of the Project visual impacts.

4. Vehicle Headlights

MASTER RESPONSE AES-2 responds to the question: *What would be the effect of vehicle headlights on nearby residences?*

There are several factors which would be expected to limit exposure of nearby residents to light coming from headlights from vehicle traffic moving to and from the Project site at night. Several comments identified concerns with potential glare from vehicle headlights as cars travel along the access road, which would be shining headlights in the direction of homes located within Captains Cove development at the end of Sailmaker Court. Development on Sailmaker Court consists of four, two-story buildings with ground floor carport parking with four-units in each building. The North Fork of Gallinas Creek and the

bridge are visible from this neighborhood, which generally is developed with the front of the buildings oriented to face south/southeast toward the creek and airport property.

The concern with headlight glare was previously identified by the City and residents as a project merits issue that needed to be considered and addressed. The nearest affected building is located within 70 feet of the airport site access roadway, and consists of a four-unit townhouse condominium building at 33, 37, 41 and 45 Sailmaker Court. The residence at 37 Sailmaker Court is a one-story unit which is located closest to the roadway, and vehicles entering the site would be oriented toward the rear side of this unit before making the turn left and crossing over the bridge. Vehicles exiting the site would orient to the sides of the two story units at 37 and 45 Sailmaker Court, before crossing the bridge to leave the site. There is a residential window on the rear of the unit at 37 Sailmaker Court, and several small residential windows on the side of the building that face toward the airport site and bridge.

The buildings are currently landscaped with low hedges and a wall along the southeast facing side of the building (side facing the airport site and bridge). The units closest to the road are oriented at an angle to the access road, and the roadway and affected units are at similar grade elevations. Thus, in consideration of the building orientation and relationship to the existing roadway, including similar grade elevation of the road and affected units, the number, size and height of residential windows facing the roadway, and the existing vegetation around the buildings, it is unlikely that vehicle headlights would significantly affect the existing residential units.

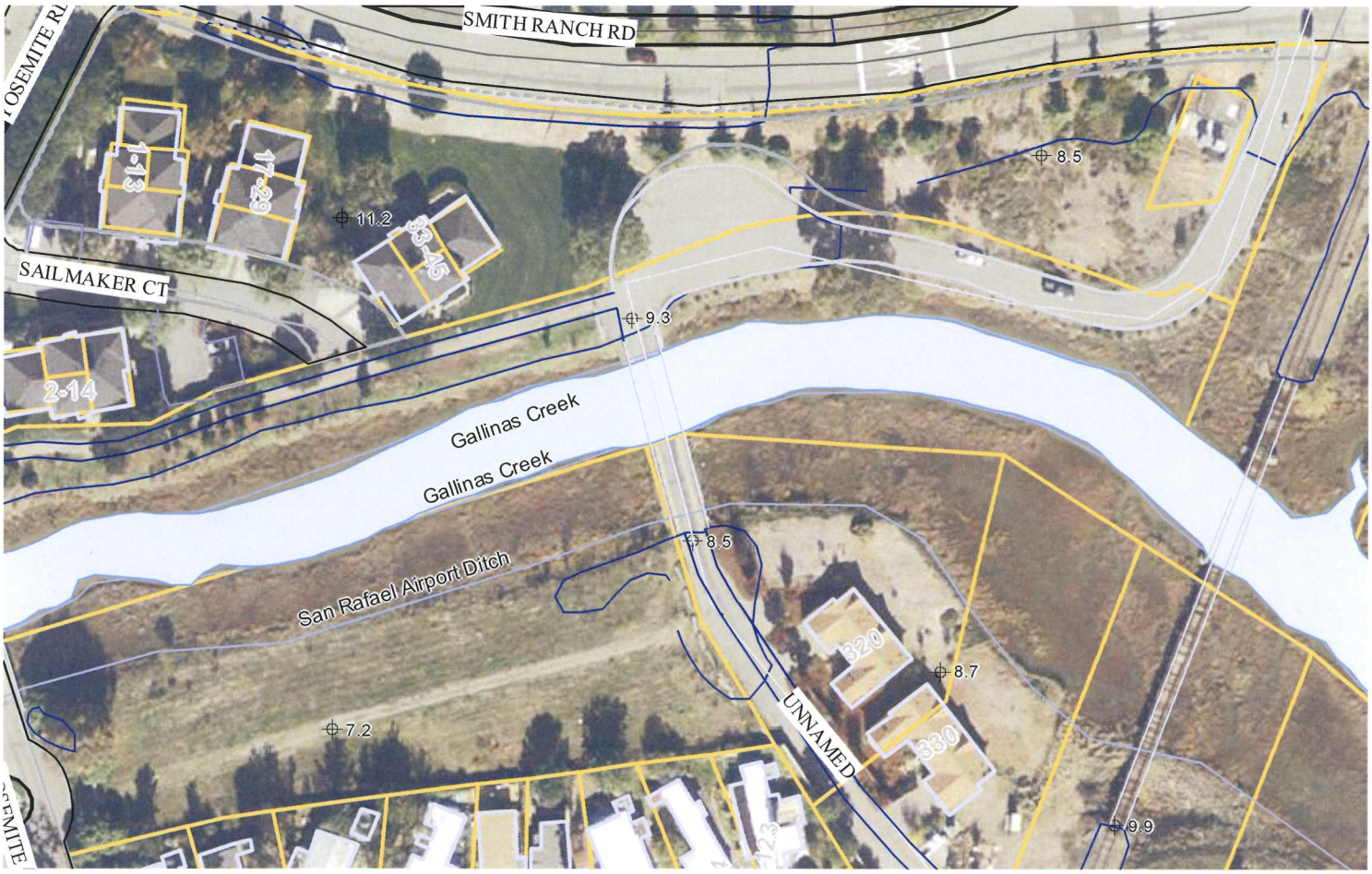
Although the site already experiences vehicle traffic entering and exiting the site at night, the Project would increase the number and frequency of cars that drive by Captains Cove residences at night. The Applicant previously has offered to install a barrier along the grassy area between the access road and nearest residences on Sailmaker Court. This could consist of a low solid fence, hedge or similar solid barrier which would be high enough to block vehicle headlights. Given that the roadway and adjacent development at Captains Cove are at similar grade elevations, the wall height would need to only be tall enough to block the height of car headlights. A height of four feet would be tall enough to block vehicle headlights. Thus, a 6-foot tall residential fence or wall (as currently exists along the adjacent Contempo Marin residential neighborhood) would not be deemed necessary. The impact of a low screen hedge, wall or fence would be considered of little visual significance, as it would be consistent with typical residential fencing that would be allowed, and consistent with the residential character of Captains Cove and Contempo Marin neighborhoods. **FEIR Figure 1** illustrates the relationship of the homes in Captains Cove to the access road that lies to the east/southeast and crossing Gallinas Creek. **FEIR Figure 2** provides photographs toward the affected residences as viewed from the access road at the turn before crossing the bridge to enter the site (Photo #1), and before crossing the bridge to exit the site (Photo #2).

It is also noted that upon exiting the Project site between dusk and midnight, vehicle headlights would be directed toward the Contempo Marin Mobile Home Park, but the

existing airplane hangars and solid fencing would block headlight glare from reaching homes in that area.

Comments on the DEIR also expressed concern that headlight glare from the parking lot (which will be raised approximately 3.5 feet) could impact homes in the Santa Venetia residential neighborhood that is located to the south, across the South Fork of Gallinas Creek. Homes nearest the South Fork of Gallinas Creek are located along Vendola Drive. These homes are single-story and located from 750 feet to over 1,500 feet from the edge of the proposed parking areas. The Project currently proposes to install a 5-foot screened fence along the south side of the parking lot, between the site and the Santa Venetia neighborhood to the south. Also, the existing levees that border the subject site and Santa Venetia neighborhood are located along both sides of the South Fork of Gallinas Creek (at a height of 9 feet). Therefore, the proposed fence and existing levees would block the glare from vehicle headlights from impacting Santa Venetia residents. For these reasons, the potential glare from vehicle headlights is not considered a significant environmental impact.

FEIR Figure 1: Aerial View of Captains Cove Development at Sailmaker Court



FEIR Figure 2: Photographs of Views Toward Captains Cove Development

Photo #1 (View West Entering the Site - Toward the Rear of 33-45 Sailmaker Court)

Photo #2 (View North Exiting the Site – Toward the Side of 33 - 45 Sailmaker Court)

In response to concerns regarding the effects of vehicle headlights associated with Project-related traffic on the off-site residents at Captains Cove, the following condition of approval will be required:

> *"The Project Applicant shall provide a solid wall, fence or hedge, or combination of both, along the edge of the access roadway that runs along the street edge (adjacent to the grassy area) from the edge of the Captains Cove development to the bridge crossing Gallinas Creek. This fence shall be of sufficient height to effectively screen vehicle headlights and reduce the potential effects of vehicle-related headlight glare on the off-site residences, The final height and design of screening, which is anticipated to be no taller than 4-feet (consistent with residential fencing), shall be subject to review and approval by the City to ensure the height, design and location effectively block the headlight glare, and to confirm that a design solution is*

implemented that is consistent with typical residential fencing/screening that would be compatible with the residential character of the neighborhood."

As noted above, the Applicant has previously indicated agreement to implement this improvement as a requirement of the project, and has confirmed their agreement with implementation of this as a Project condition.

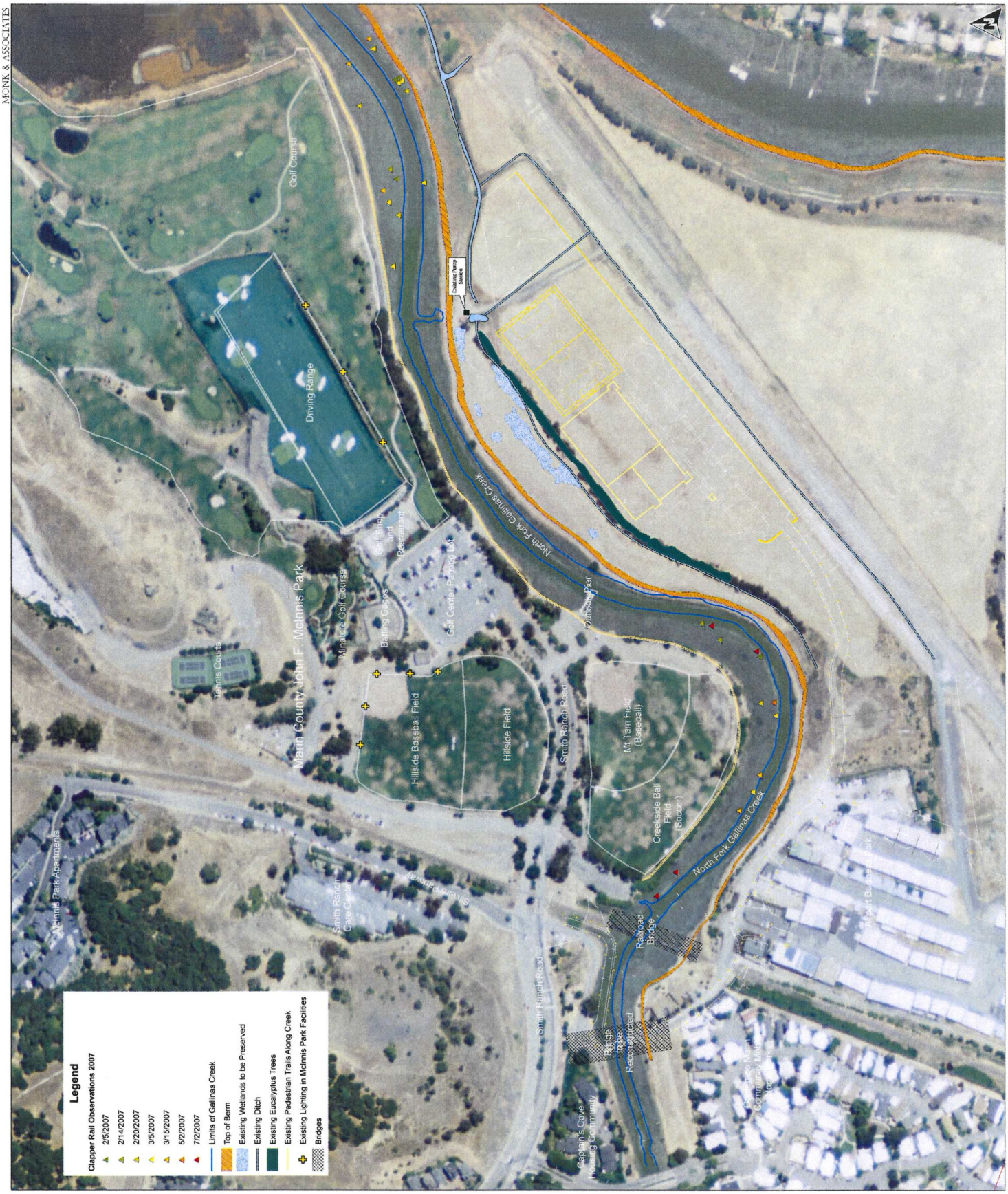
Thus, vehicle headlight glare was not identified as a potentially significant impact that warranted analysis in DEIR Chapter 5, and based on the existing Project setting and design, as described in the DEIR and summarized in this response, there would be no significant impacts from vehicle headlight glare even without mitigation or conditions of approval.

5. California Clapper Rail

MASTER RESPONSE BIO-1 responds to the question: *What are the effects of Project-related noise on California clapper rail?*

The multiple surveys conducted along Gallinas Creek indicate that California clapper rails establish nesting territories during the nesting season and thus likely successfully nest and reproduce in the marsh habitats along this creek. The DEIR describes the high level of disturbance associated with all sides of the two branches of Gallinas Creek in the vicinity of the Project site (see **FEIR Sheet 1,** below). Hence, for clapper rails to persist in this area they must be successfully reproducing. Thus, as confirmed in the DEIR by the biological consultant, Monk & Associates, one must assume that the clapper rails have become accustomed to heavy human disturbances in this area. Survey data indicates that they nest adjacent to a pedestrian walking path with frequent dog traffic, and adjacent to a golf course and two active athletic fields. Please note that the protective buffers established between the top of the levee along the south bank of the North Fork of Gallinas Creek and the Project development envelope (between 130 feet and over 250 feet) far exceed the distance between the existing public pedestrian pathway on the north side of the creek and the marsh habitat. This pathway is virtually at the top-of-bank of this creek, and yet the California clapper rails not only use the north side of the creek, but likely nest on the north side of the creek. Disturbance on the Project development envelope will remain at a minimum 130 feet away from the top-of-bank of the south bank of this creek. Additionally, a permanent conservation area restriction is required under **Mitigation Measure MM Bio-2b.** This would establish a permanent 100-foot (minimum) upland buffer in this area, adjacent to the North Fork of Gallinas Creek, which will ensure that the buffer that would be provided between the Project and sensitive habitat is permanently maintained. This setback distance has been confirmed by the DEIR biologist, Monk & Associates, as adequate to provide a suitable buffer, and would be consistent with the San Rafael General Plan 2020 conservation policies and the –WO zoning regulations.

FEIR Sheet 1: Proposed San Rafael Airport Recreational Facility and Surrounding Land Uses



As indicated on DEIR pages 7-63 through 7-69, although the proposed Project would not impact marsh habitats or adjacent upland habitats along the North Fork of Gallinas Creek, Project construction and operations could have potentially significant indirect impacts to California clapper rails (and possibly to California black rails) as a result of noise generated from those activities (see **Impact Bio-2**). The discussion on DEIR page 7-65 indicates that noise associated with pile driving during construction could result in nest abandonment, loss of young and/or reduced health and vigor of eggs and/or nestlings, but that noise associated with operation of the recreational facility would not result in impacts that would be considered significant, given the existing noise levels associated with activity nearby (e.g., aircraft operations, traffic noise along U.S. 101 and sporting events at McInnis Park).

The DEIR indicates that implementation of **Mitigation Measure Bio-2d** (California Clapper Rail and California Black Rail - Avoidance Measures [as modified]) and **Mitigation Measure Bio-2e** (California Clapper Rail and California Black Rail – Event Curfew), as well as **Mitigation Measure N-3** (which requires that quiet pile-driving procedures be implemented) would reduce potential noise impacts to these two species to a level considered less than significant. The mitigation measure for pile driving activities would include pre-drilling of piers, and utilizing multiple pile drivers to minimize the number of hammer blows required to drive the piles the estimated minimum distance of 5 feet into the underlying bedrock, thereby substantially reducing the duration of noise. The mitigation measures include limiting construction of the recreation facility until July 1st, when the rails can be expected, in most cases, to have fledged young. Construction of the recreational facility could extend through January, with interior work allowed throughout the year. All work associated with the new bridge, including the demolition of existing bridge deck, installation of the new deck, and other bridge improvements, shall be restricted to August 1 to October 15. The bridge pile-driving dates shall be further restricted to September 1 and October 15 when potentially occurring anadromous fish would not be expected to occur in the channel. This "avoidance window" is outside of the California clapper rail, California black rail, and other special-status birds breeding seasons, thereby eliminating the potential that bridge reconstruction activities would disrupt breeding attempts.

In addition, the supplemental report letter prepared by John C. Hom, dated February 23, 2010 (**FEIR Appendix B**) confirms the number of piles anticipated for construction of the building, at 40-50 piles, are well within estimates used for analysis of the Project noise impacts (which assumed a much higher potential of 100 piles being required). The supplemental report estimates that 15 to 20 piles could be driven per day. The piles, which must be driven 5 feet into bedrock, would only require hammer blows to be delivered at full force at the point the pile is driven into the bedrock; which is estimated to take approximately 5 minutes per pile. This information provides additional clarification on the amount of time it would take to drive piles required for the Project (i.e., between 2 days to under 3.5 days), and the duration that significant noise would be generated from the hammer blows required to drive the piles into bedrock (i.e., a total of 75 - 100 minutes per day). Monk & Associates,

consulting biologist for the DEIR, has reviewed this supplemental information in preparing their response to comments and confirms that it correlates with their assumptions and recommendations made to reduce impacts on wildlife, including the California clapper rail and black rail species that have been identified in the area.

6. Extent to which California Clapper Rail Adapts to Exposure to Humans

MASTER RESPONSE BIO-2 responds to the question: *To what extent do California clapper rail adapt to exposure to humans?*

As indicated above, along Gallinas Creek California clapper rails establish nesting territories during the nesting season and thus likely successfully nest and reproduce in the marsh habitats along this creek. For clapper rails to persist in this area they must be successfully reproducing. Thus the DEIR biologist, Monk & Associates, has confirmed their conclusion that one must assume that the clapper rails have become accustomed to heavy human disturbances in this area. The presence of California clapper rail in the vicinity of the Project site indicates that they have been able to adapt to the presence of humans and their activities, including the noise and motion associated with nearby aircraft operations, noise and lighting associated with sporting events at nearby McInnis Park, lighting associated with nearby residential development, and the presence of hikers along trails adjacent to Gallinas Creek.

7. Lighting Effects on Wildlife

MASTER RESPONSE BIO-3 responds to the question: *How will Project-related lighting affect wildlife?*

The presence of California clapper rail species have been documented in the area and evaluated in the DEIR. The DEIR evaluation of Project impacts on this identified sensitive species also addressed impacts on other occurring and potentially occurring wildlife species in the area, including potential light and glare impacts. **FEIR Sheet 1** (page C&R-21, above) shows that there are existing active outdoor soccer and baseball fields on the northern side of the North Fork of Gallinas Creek, immediately adjacent to the marsh habitats, with no buffer area provided. The daily activities on these athletic fields do not appear to disturb or disrupt California clapper rail reproductive efforts. In addition, it is important to note that the driving range at the John F. McInnis Park and Golf Center has existing nighttime lighting immediately next to the North Fork of Gallinas Creek; next to areas where the California clapper rails have been observed.

The potential light and glare impacts of the Project on the surrounding community are analyzed in **Chapter 5: *Aesthetics***, of the DEIR. **Chapter 5** notes that the Applicant proposes a state-of-the-art lighting system designed by Musco Lighting that uses 50 percent less electricity and produces 50 percent less spill and glare than traditional fixtures. This will keep light impacts to the Gallinas Creek channel minimized to an extent that the impact is not considered significant. Additionally, **Mitigation Measure Bio-3a** and **Mitigation Measure**

Bio-3b [as corrected] will be implemented as part of the proposed Project to minimize lighting impacts, to protect the habitats associated with the North Fork of Gallinas Creek.

Implementation of **MM Bio-3a** and **MM Bio-3b** [as corrected] (establishing a lighting curfew requiring outdoor events to end and field lighting to be turned off at 10:00 PM and use of cut off shields on lighting fixtures to assure light spillover would not occur) will reduce potential nocturnal lighting impacts to a level considered ***less than significant*** pursuant to CEQA. The 100-foot creek setback/buffer will further reduce this potential impact. Therefore, implementing the mitigation measures above, nocturnal lighting impacts to off-site areas, such as the North Fork of Gallinas Creek, are considered to have been reduced to the greatest extent possible, and are not expected to have a significant impact on wildlife species in the Project vicinity.

The effects of nocturnal lighting on wildlife in the vicinity of the Project site are addressed on DEIR pages 7-69 through 7-71. As indicated in the DEIR, lighting of the outdoor soccer field for evening games as proposed could result in potentially significant impacts to wildlife species and habitat in the North Fork of Gallinas Creek (**Impact Bio-3**). This impact would be reduced to a level considered less than significant through implementation of **Mitigation Measure Bio-3a** (ensuring shield cut-offs so that there is no light spill-over or light directed into off-site areas) and **Mitigation Measure Bio-3b** (establishing a restriction that outdoor event lighting shall be turned off after 10:00 PM to assure that the nocturnal wildlife activity patterns will not be disrupted). Please note that this curfew, which has been confirmed as appropriate based on the Project analysis prepared by the DEIR consulting biologist, Monk & Associates, is based on the following factors:

1. The sensitive species are also present on the opposite bank of Gallinas Creek adjacent to fields at McInnis Park, which similarly operate field lights that have the potential to spill over into the area at night, and the species remains in the area, thus demonstrating they have become accustomed to this condition.

2. Outdoor field lighting fixtures would be shielded and directed downward onto the field area, and would not be allowed to spillover into the 100-foot buffer zone or the adjacent creekside bank of the levee, where the sensitive species nests.

3. The outdoor fields could be used without the need for artificial lights until 9:00 PM during summer months, when daylight hours are longest. Outdoor field lighting would allow consistent evening use year round, and the 10:00 PM lighting curfew would maintain sufficient periods of darkness for nocturnal movement.

4. Furthermore, the City design review standards require all lighting be shielded to prevent spillover, and lighting is subject to a 90-day post-installation review period which would assure light spillover into adjacent habitat would not occur. This requirement has been reflected in **Mitigation Measure Aesth-1a**.

8. Noise Effects on Wildlife

MASTER RESPONSE BIO-4 responds to the question: *How will Project-related noise affect wildlife?*

As indicated above, the presence of California clapper rail in the vicinity of the Project site has been documented and analyzed in the DEIR (the clapper rail is identified as a noise-sensitive species). The DEIR also provided discussion of potential impacts to species that, although they were not found to be present at the site, could be discovered during pre-construction surveys and, therefore, must be addressed in the DEIR. Mitigation addressing the clapper rail, which is particularly sensitive to noise, would sufficiently also mitigate potential noise impacts on other wildlife species that could inhabit the site. Presence of the clapper rail indicates that they have been able to adapt to the presence of humans and their activities, including the noise associated with nearby aircraft operations and noise associated with sporting events at nearby McInnis Park. Potential Project-related noise effects on the California clapper rail and California black rail are addressed on DEIR pages 7-63 through 7-69. While Project-related noise effects on other wildlife species in the area are not directly addressed in the DEIR, since implementation of **Mitigation Measure Bio-2d** (California Clapper Rail and California Black Rail - Avoidance Measures) and **Mitigation Measure Bio-2e** (California Clapper Rail and California Black Rail – Event Curfew), as well as **Mitigation Measure N-3** (which requires pile-driving procedures be implemented that would reduce the number and duration of hammer blows) would reduce potential noise impacts to these two species to a level considered less than significant. Implementation of these measures to protect the sensitive California clapper rail and the California black rail species that are known to exist in the area, would also similarly reduce potential noise impacts to any other wildlife species in the area to a less than significant level.

9. Effects of Ball Retrieval on Wildlife

MASTER RESPONSE BIO-5 responds to the question: *Will ball retrieval have adverse effects on wildlife?*

As part of **Mitigation Measure Bio-2a** on DEIR page 7-66 and 7-67 (as modified), to reduce potentially significant impacts to California clapper rail and California black rail to a level considered less than significant, the perimeter fence called for in this measure would be ten-feet tall for the purpose of preventing balls from the soccer fields from entering the nearby marsh. This fence could consist of a standard 6-foot tall cyclone fence with a 4-foot netting extension, which is commonly used at fields and golf courses, including the nearby McInnis golf course. The proposed fencing would provide a reasonable height, which would not penetrate the flight safety zone 5 restriction discussed in DEIR Chapter 10 (see DEIR **Figure 10-1**), and would minimize the potential that soccer balls would be kicked off the field and into the protected area. The potential that balls would enter the protected and fenced area is considered to be a low and infrequent potential occurrence, given that the soccer field is oriented to run parallel with the protected habitat area. Nevertheless, to mitigate against the

potential for human intrusion into this area, retrieval of items from the fenced protected buffer area (including any balls that get over the fence) shall be done by authorized recreation facility personnel only. As indicated in this measure, without a fence, there is no realistic expectation that the marsh habitat along the North Fork of Gallinas Creek and the adjacent upland areas will remain protected. Implementation of **MM Bio-2a** (as revised) will reduce potential intrusion impacts to the marsh habitats to a level considered ***less than significant*** pursuant to CEQA. The 100-foot creek setback/buffer will further reduce this potential impact.

10. Effects of Levee Mowing on Wildlife

MASTER RESPONSE BIO-6 responds to the question: *What are the effects of mowing the levees on wildlife?*

As indicated on DEIR page 7-2, the operators of the San Rafael Airport have implemented an on-going vegetation control effort to discourage wildlife populations (particularly birds) from using the ruderal grasslands within the proposed Project area, in order to reduce potential hazards to aviation (e.g., "bird strikes"). Periodic mowing of the existing levees is currently part of this on-going effort, and is intended to reduce the attractiveness of the grassy areas on the levees for use as wildlife habitat. In the interests of aviation safety, the current practice of mowing the levees is intended to have an adverse effect on wildlife, since it intentionally reduces the area available at for possible wildlife habitat at the Project site. However, **Mitigation Measure Bio-2c** (DEIR page 7-68) recognizes that vegetation removal along the interior (airport-facing) sides and tops of the levees will need to continue, but to ensure that California clapper rails in the area have necessary vegetative cover to escape predators during high tide events, no mowing would be allowed on the slopes of the levees that face the creek.

11. Datum Value and Assessment of Flooding Impacts

MASTER RESPONSE HYD-1 responds to the question: *What is the appropriate datum value to be used in addressing Project-related flooding impacts?*

It should be noted that the vertical datum used in the DEIR analysis does not influence the level of significance with regards to potential flooding impacts, given that the commercial recreational building Project must be wet-flood proofed in accordance with the Federal Emergency Management Agency (FEMA) standards, pursuant to **Mitigation Measure MM Hyd-2a** (FEMA establishes the requirements for development within its established flood zones). The Project evaluation and its identification of potentially significant impacts would not change whether the Project uses the 1929 NGVD or the 1988 NAVD. The correction between NGVD and NAVD is 0.815 meters or 2.67 feet on the Project site. NAVD *datum* elevations are greater than NGVD, thus 4.0 NGVD is equivalent to 6.67 NAVD. The change in the datum values are not based on new hydrology, thus this does not materially change the actual physical elevation of flood waters that would potentially impact the site. Therefore, no

change in grading or finish grades would be required to adjust for this change in the flood datum. **Mitigation Measure MM Hyd-2a** is proposed to be modified to reflect the change in measurement from NGVD to the newly established NAVD datum points, consistent with FEMA requirements. Thus, no further revision to the Project is needed, given that this change to flood proofing does not require any change to overall building heights, nor significantly alter the design or functionality of the building.

12. Existing Condition and Maintenance of Levees

MASTER RESPONSE HYD-2 responds to the question: *What is the current condition of the levees at the Project site, and who is responsible for maintenance and repair of the levee and related flood protection improvements?*

The levee system surrounding the property crosses between private (airport) and public (state lands/county) ownership and responsibility. The 12,000-linear-foot perimeter levee system that surrounds the Project site, bordering the North and South Forks of Gallinas Creek, were constructed by previous land owners by placing fill on the flat marshy areas of the property in the 1940's to reclaim lands for agricultural purposes. These levees now protect the airport site and adjacent Contempo Marin residential development from inundation by flood waters, which are both situated below the current 9-foot NAVD flood elevation. The condition of the levees has been discussed in DEIR Chapter 11 **Impact Hyd-2**, pages 11-30 to 11-32, which discusses impacts associated with potential levee failure. The levees require routine maintenance, primarily consisting of topping off the levees with fill soils to address settlement and erosion. Assessment of the levees in the DEIR included an analysis of liquefaction potential, as part of a discussion of potential flooding impacts on the site in the event of a levee failure. This assessment was prepared by John C. Hom (JCH) and Associates, Inc., contained in a report letter dated February 24, 2006 (included as DEIR **Appendix I**). Assessment of the levee condition primarily was based upon visual inspection by JCH & Associates, Geotechnical Consultants, which identified that the levees consist of on-site Bay Mud and imported clayey fill. The assessment concluded that the levees were not susceptible to liquefaction. Furthermore, following construction of the levee system in the 1940's, it had not failed after the 1969 Santa Rosa or the 1989 Loma Prieta earthquakes.

Further amplification of the levee analysis has been conducted in response to the comments received on the DEIR. In their letter report of February 10, 2010 (**FEIR Appendix B),** Jon C. Hom and Associates, Inc. indicate that they drilled three boreholes in the levees at the Project site in order to verify the assumed fill material used in construction of the levee system. These boreholes penetrated medium stiff, silty clay fill in the upper 6 to 7 feet, underlain by soft Clay-Bay Mud to the total depth of boreholes at 10.5 to 14.5 feet below the top of levee. These borings confirm the assumptions made regarding fill material used to construct the levees. Based on the number of years since the fill was placed, and the thickness of Bay Mud from the test borings, the settlement due to consolidation of the Bay Mud from the levee fill load has been completed. In a nearby borehole drilled in the proposed athletic facility

location, the soft Clay-Bay Mud was found to extent to a depth of 27 feet below ground surface, at which depth very stiff Sandy Clay alluvium was penetrated. The alluvium was underlain by Shale bedrock at a depth of approximately 43 feet below ground surface. These soil and bedrock materials are not susceptible to the effects of seismically-induced liquefaction. The soft clay soils may amplify the ground shaking effects during severe ground shaking, and will tend to shake for longer periods than bedrock, but will not fail due to liquefaction, a loss of shear strength experienced by loose and saturated sand soils during strong ground shaking.

Based on this further investigation prepared by JCH and Associates, provided in **FEIR Appendix B**, the fill material that was used to construct the levees should perform adequately during earthquake-induced ground shaking, and the potential of seismically-induced ground failure is less than significant. The JCH analysis of the levees has been peer reviewed and confirmed by Questa Engineering Corporation. Furthermore, it is worth noting that the County also recently completed additional maintenance repairs to portions of the levee under its jurisdiction, in order to address sinking of the levees by depositing additional fill material onto the tops of the levee. (This portion of the levee is located at the north end of the airport runway, and was also the subject of emergency repairs that the County completed in 2006).

Questa Engineering Corporation contacted the County of Marin, Public Works - Flood Control and Water Conservation District staff to inquire further about the ownership and maintenance responsibility of the levees and pump station at the airport site. This agency was contacted in order to respond to comments regarding concerns with maintenance of the levees, and identifying who is responsible for maintaining the levee and related flood protection equipment. At present, a significant portion of the levees surrounding the airport site are in private ownership and the pump station and levees that protect the property from storm and flood waters are maintained by the airport site property owner. As noted above, sections of the levee system are located on public lands and maintained by the County, including the portion located at the tip of the airport peninsula. The County also is responsible for portions of the levee located south of the Project site along North Fork of Gallinas Creek, and a section along the South Fork of Gallinas Creek (see **FEIR Figure 3**, below). The County maintains these levees from its General Fund, with maintenance consisting primarily of mowing and periodic inspection. Marin County does not maintain any other parts of the airport site's drainage system. The Project Applicant currently has a large incentive to maintain the drainage system and levees that protect the airport site, considering the potential for damage and loss of use of their existing airport facilities, as well as the proposed recreational facility; which would occur if the levees and pump station were not maintained.

FEIR Figure 3: Levee Ownership at Project Site and Vicinity

While further analysis of the levee has confirmed the DEIR conclusions that potential impacts to the levee as a result of earthquake-induced failure would be less than significant, it is worth noting that the improvement and maintenance of the levee system has been previously documented as a project merits issue by the City. This is referenced on DEIR page 4-5 discussing a prior use permit entitlement granted in 1975. The levee surrounding the airport property is recognized as currently serving an important function in protecting the airport site in particular, and adjacent properties also located below flood elevation, such as the Contempo Marin residential park to the west. (As noted on DEIR page 11-2, the airport site and Contempo Marin are located within the 100 year flood zone; pursuant to the current FEMA Panel 06041C0293D Effective May 4, 2009, and former FEMA Panel 06041C0294D) The Marin County Flood Control District has pursued establishment of assessment districts to fund maintenance of other levees and drainage improvements that are within its jurisdiction. However, the subject levee currently is not a part of any assessment district program, and has been historically maintained by the Applicant and County on an as-needed basis.

It is further worth noting that after release of the DEIR, the County pursued additional maintenance work on the portion of the levee under county authority (during Fall of 2009). The County must cross over the subject airport property in order to access the county-owned portions of the levee. The Applicant and County staff have discussed the possibility of developing a more formal program for joint-maintenance of the levee system. If the Applicant and County enter into a joint maintenance agreement, this would help to ensure that consistent maintenance practices are employed for the entire levee system. However, a requirement establishing a formal maintenance agreement does not need to be included as part of the DEIR analysis, particularly given that the proposed recreational building has been designed to comply with FEMA flood requirements for construction of a commercial building within the flood plain. Rather, this response addresses the questions regarding the ownership and maintenance responsibilities for the levee, and confirms the previously presumed integrity of fill used for its construction.

For purposes of this response, the Project Applicant has also submitted the following additional information regarding "Maintenance Practices for Levees and Grassland Fields" at the airport site (see **LETTER 68**, below).This is considered worth noting in this response to further document the maintenance practices that are already in place for the levee system and that would be expected to continue whether or not the subject Project were pursued:

> "Annually in late spring (April/May) after the grasses have bloomed, we mow the levee tops and inside levee slopes with brush mowers and tractor pulled mowers. At the same time, we disk the grassland fields between the levees with a heavy duty agricultural tractor and disker. The mowing and disking is done for fire control and to remove wildlife attractants pursuant to FAA guidelines for aircraft safety. Doing the work before April/May is ineffective because the grasses will immediately grow back. Doing it later defeats the purpose of the work, which is to remove the

vegetation as soon as possible so that it does not create a fire and aviation hazard through the rest of the year.

In the late fall before the heavy winter rains (October/November), we condition the levee tops by running a track mounted loader along the tops of the levees. This is done to smooth and re-compact the levee tops in preparation for winter. At this time we also add new material to the levees in any small areas needing repair. This material is delivered by dump trucks which drive through the grassland fields adjacent to the levees. Periodically (every 5-10 years), we perform a more extensive levee capping process where we add 1-2 feet of new material onto entire large sections of the levee top. This work is done in the dry season from June to October using heavy construction equipment including dump trucks, bulldozers, cranes, and excavators. The work is staged, including stockpiling of levee capping material, in the grassland fields adjacent to the levees.

Also in the late fall (October/November) we perform a second disking or mowing of the grassland fields and levee side slopes. The purpose is to remove any new vegetation that has re-established itself over the summer. At this time we also add seed and soil amendments to the fields to enrich the soils for agricultural purposes and to ensure consistent growth of grass types suitable for feed stock and future livestock grazing.

Stormwater is drained from the airport property via a series of long linear earthen drainage ditches and swales that traverse the property. These ditches are cleaned out with a backhoe as needed every 1-2 years to remove accumulated sediment and plant matter that restricts the flow and carrying capacity of the ditches. As there are well over 2 miles of ditches on the property, this is an on-going job that is performed throughout the dry season and occasionally as needed during the wet season. The clean-out procedure is augmented, where needed, by hand mowing to remove grasses that could serve as a wildlife attractant."

The airport site also uses goats for grazing of the non-native grasslands, in-lieu of discing or mowing in these areas. This is documented in the DEIR and existing entitlement record as a recognized ongoing maintenance practice. This practice includes grazing along the interior banks of the levee system. Thus, the clarifications and responses provided above confirm the conclusions in the DEIR regarding the levee, and address all pertinent aspects regarding the condition of the levee, including past, present and future maintenance practices, which are deemed relevant to the integrity and longevity of the levee system.

13. Levee Breach

MASTER RESPONSE HYD-3 responds to the question: *What could be expected to occur during a levee breach?*

Flooding that may be associated with a potentially significant levee failure at the Project site is addressed on pages 11-30 through 11-33 of the DEIR. Placement of the structure within the 100-year floodplain zone is specifically addressed in **Impact Hyd-2** on DEIR page 11-30. The impact discussion addresses potential flooding resulting from levee failure. The subsequent levee analysis conducted by Jon C. Hom (**FEIR Appendix B**), discussed in **MASTER RESPONSE HYD-2**, above, has confirmed shown that the levees are sound and not susceptible to seismically-induced failure, such as liquefaction. The DEIR goes on to discuss that the Project is not constructing housing within the 100-year floodplain zone. It also makes plain that the City of San Rafael's Municipal Code, which allows for the construction of non-housing types of structures within the 100-year floodplain zone, must comply with FEMA-mandated floodplain ordinances and policies. Specifically, **Mitigation Measure Hyd-2a** mandates compliance with FEMA flood-proofing specifications. These discussion and others within the DEIR indicate that the significance threshold is exceeded, but that the incorporation and implementation of the recommended mitigation measures reduces these potentially significant impacts to a level below the significance threshold.

Although the effects of a levee breach at the Project site cannot be predicted with certainty due to the number of variables involved (e.g., water surface elevation at the time of breach, the linear extent of the breach, etc.) Oberkamper & Associates prepared an analysis of a potential levee breach at the time of a 100-year flood event, which is summarized on DEIR page 11-31. In this scenario involving an initial breach 100 feet in length, it was determined that although the Project site would be inundated, there would be enough time for those using the facilities at the Project site to leave the area before the depth of water were to present a hazard exposing people to significant risks of loss, injury or death. In this scenario, it would take between 45 minutes and 2.5 hours for water to fill the Project site to the extent that a car could not be used to evacuate the site. With these assumptions, it would take more than 45 minutes for water to start flooding the proposed parking area, then another hour and 15 minutes to render the access road impassable. Given the short distance to higher ground (approximately 0.44 mile, or 2,300 feet), this rate of flooding at the Project site would permit adequate time for an evacuation to take place, either in motor vehicles or on foot.

To reduce the potential impacts associated with flooding as a result of levee failure to a level considered less than significant, the DEIR recommends implementation of **Mitigation Measure Hyd-2a** (floodproofing) and **Mitigation Measure Hyd-2b** (finalizing hydrology report and grading and drainage plans), as modified to adjust for change in datum from NGVD to NAVD flood elevation measurement.

14. Future Sea Level Rise

MASTER RESPONSE HYD-4 responds to the question: *What is to be expected in terms of future sea level rise, and how would this affect the Project?*

On April 7, 2009 (after publication of the DRAFT EIR in March, 2009), the San Francisco Bay Conservation and Development Commission released a DRAFT Staff Report titled "Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline". In Figure 1.12 (page 37) of said report, the Project site (along with the remainder of the airport site and the nearby residential areas of Santa Venetia and Contempo Marin) are identified as being within an "area vulnerable to an approximate 16-inch sea level rise".

On December 2, 2009 (after publication of the DRAFT EIR in March, 2009), the California Natural Resources Agency published the 2009 California Climate Adaptation Strategy, which provides recommendations to state agencies and other jurisdictions on how to address the anticipated effects of a changing climate during the 21st century. On page 15, the Strategy document indicates that anticipated sea level rise ranges from 12 inches to 18 inches by 2050, and from 21 inches to 55 inches by 2100 (compared to an approximately 7-inch rise in sea level along the California coast during the 20th century). It should be noted that the anticipated sea level rise values presented by the Strategy document do not take into account any additional rise in sea level that could result from melting of the Greenland or West Antarctic ice sheets, which could drive sea levels along the California coast even higher.

On page 20 of the Strategy document, it is stated that the frequency of large coastal storms and heavy precipitation events do not appear to change over the 21st century, based on the 2009 Scenario Project. However, even if storm intensity or frequency were not to change, storms will impact the California coast more severely due to higher average sea levels that can result in higher storm surges, more extensive inland flooding, and increased erosion along the state's coastline.

The Strategy document recommends that project alternatives that avoid significant new development in areas that cannot be adequately protected from flooding due to climate change be considered. It continues (on page 7): "The most risk-averse approach for minimizing the adverse effects of sea level rise and storm activities is to carefully consider new development within areas vulnerable to inundation and erosion. State agencies should generally not plan, develop, or build any new significant structure in a place where that structure will require significant protection from sea level rise, storm surges, or coastal erosion during the expected life of the structure."

On page 11-34, the DEIR indicated that in 1995, the U.S. EPA had predicted a sea level rise of 0.5 foot (or six inches) by 2050, which would be only 50 percent of the State of California's lowest anticipated sea level rise and only 33 percent of the State of California's highest anticipated sea level rise for the period to 2050. Based on that estimate for sea level rise, and on the existing flood control features (e.g., levees, drainage infrastructure, pump,

etc.) already in place, Project-related impacts were considered to be less than significant through 2050 based on the conclusion that the 0.5 foot predicted sea level rise would not lead to on-site flooding. The DEIR continues, on page 11-35, to acknowledge that the incremental increase in inundation through 2050 would be less than significant, but that no impact conclusion beyond the horizon year of 2050 can be made because there is significant uncertainty involved in making such predictions, and the existing predictions cover a considerable range. Thus, analysis after 2050 is considered too speculative.

Were sea level to rise by the now-predicted 12 to 18 inches before 2050 above the +6 NGVD flood elevation (+8.67 NAVD) before 2050, the potential inundation impacts at the Project site would be greater than if the sea level rise were only 6-inches during the same period (as assumed in the DEIR, based on the 1995 EPA estimate). However, the existing flood control features which provide protection from inundation at the Project site would be expected to remain in place and continue to operate as they do today; including the 9-foot tall levee system at +8 NGVD elevation at top of bank (+10.67 NAVD), and pump station that ejects the drainage from the site into the North Fork of Gallinas Creek. Therefore, the potential impacts related to an incremental sea level rise of this magnitude would continue to be reduced to a level of less than significant.

Were sea level to continue to increase after 2050 (as now formally anticipated by the State of California), at some point it is likely that the proposed Project might not be able to continue to operate at the site without additional measures to prevent possible inundation (e.g., upgrading levee height and strength to resist possible overtopping and infiltration, increasing pump capacity and upgrading on-site drainage infrastructure, etc.). Over time, a gradual rise in sea level can be monitored, and as increases in sea level occur, any necessary measures to upgrade existing facilities intended to reduce the risk of possible inundation at the site can be implemented when considered appropriate by the property owner. If sufficient upgrading of existing flooding prevention facilities cannot be completed in sufficient time to provide adequate protection of those who would use the facilities currently proposed at the site, the use of those facilities would need to be discontinued in the interests of public safety. Depending on the estimated useful economic life of each of facilities proposed at the Project site, at some point it may become unreasonable for the property owner to make the necessary investment in infrastructure improvements intended to continue protecting those facilities from inundation, and at that point those uses would be discontinued and abandoned.

It is also worth noting again that this is an existing developed site, and these additional protective measures to address anticipated sea level rise and levee protection would be required to protect the currently existing airport site improvements, and Contempo Marin residential development. Thus, the proposed recreational facility would not change the fact that there are existing developed conditions on and around the property that already necessitate ongoing maintenance and repair (as needed) of the levee and pump station stormwater and flood protection systems. Rather, further evaluation of these systems in this Project EIR has been conducted in order to verify that they would continue to protect the

existing site, along with the proposed additional property improvements and people that would be on-site using the proposed facilities, for the duration of the Project life.

15. Water Quality Impacts

MASTER RESPONSE HYD-5 responds to the question: *What are the water quality impacts associated with development of the Project site as proposed?*

The Project site is relatively level and contains a private storm drainage system that serves the entire airport property. As indicated on page 11-21 of the DEIR, Project construction and operational activities may result in increased pollution of receiving waters, which would represent a potentially significant impact (**Impact Hyd-1**). The effective implementation of **Mitigation Measure Hyd-1a** (as modified to further clarify the erosion control plan measure requirements) through **Mitigation Measure Hyd-1f** (DEIR pages 11-23-11-25) would reduce this potential impact to a level of less than significant.

The City Department of Public Works (DPW) locally enforces the dictates of the Regional Water Quality Control Board in regards to stormwater and water quality measures that must be employed by developers during construction and grading projects. DPW enforces stormwater and urban runoff pollution prevention ordinances (i.e., provisions of San Rafael Municipal Code (SRMC) Chapter 9.30 and SRMC Title 18) and has established an ongoing program for evaluating projects at the design stage, final construction level stage, and for conducting inspections during construction operations. This has included provision of a standard stormwater pollution prevention plan and "Best Management Practices" erosion control plan sheet to applicants, and requiring that grading permits and improvement plans be reviewed and approved by DPW prior to issuance of construction permits to ensure compliance with all standards is achieved.

The Project Applicant has not yet developed an Erosion Control Plan (**Mitigation Measure Hyd-1a**, as modified to further clarify the erosion control plan measure requirements), a Storm Water Pollution Prevention Plan (**Mitigation Measure Hyd-1c**) or a Stormwater Management Plan (**Mitigation Measure Hyd-1d**, as amended), specifically related to Project construction documents. Typically, the Erosion Control Plan is submitted during tentative map submittal of plans for permits for the Project (e.g., improvement plans, grading plans or building permit plans) as a requirement prior to issuance of a grading permit from the City. When prepared and submitted, each of these plans will be reviewed by the Stormwater Program Manager of the City of San Rafael for compliance with all City and National Pollution Discharge Elimination System (NPDES) Permit requirements. DPW has approved similar plans for other projects in the past, and it is reasonable to assume that when these three Project-related plans are developed, following City approval the implementation of these Plans would effectively reduce water pollution resulting from construction and operations at the Project site to a level of less than significant, in compliance with all current City and NPDES Permit requirements. As noted above, **MM Hyd-1a Erosion Control Plan**

has been modified (as shown in FEIR Chapter 2) to further clarify the erosion control plan requirements that would apply to the Project.

The Project Applicant will also have to submit the Erosion Control Plan as part of the overall application to attain a 401 permit from the Regional Water Quality Control Board. Because of the interior drainage nature of the project site (i.e., all of the drainage must be pumped from the site). Drainage and erosion control on the site is fairly straight-forward and presents no technical problems for the project Applicant. As part of obtaining a permit from the Regional Water Quality Control Board, the Project Applicant will have to proposed and demonstrate compliance with all applicable State of California Best Management Practices (BMPs) and meet performance standards for the sediment detention basin sizing. Given the proposed land use type, there are no known specific water quality standards that development of the Project site will have to comply with. Current regulations specify mitigation for increased peak runoff volumes and mandate that all practical BMPs shall be used to address and reduce non-point source pollution from the Project site.

It is further worth noting that DEIR **Appendix E - Biological Resources** also includes discussion of the potential stormwater pollution impacts, and references the requirements for implementation of Best Management Practices (BMPs), preparation of SWPPP and SWMP plans and compliance with NPDES permit requirements of the RWQCB and MCSTOPPP, enforced locally by the City of San Rafael Department of Public Works (DPW) and County of Marin. The DPW has reviewed **Mitigation Measures Hyd-1a** through **Hyd-1f**, confirmed that they are adequate, and that the site drainage (which primarily consists of existing swales that carry runoff to a holding pond, at which point water is pumped at a consistent rate into the Gallinas Creek) would be required to be improved with vegetation, as grassed swales, which would filter pollution runoff. Swales also have been required by DPW to be included in the final landscape plan, to the maximum extent feasible, to carry drainage from the improved site area into the existing drainage ditches.

The City would review the final Project plan details prior to issuance of permits, and assure that the standard BMP sheet is included in Project construction documents to ensure contractors are aware of the erosion control requirements that must be employed during construction. The City engineering division has a demonstrated history, publicly available resources and materials, extensive experience and inspectors accustomed to reviewing such plans and inspecting projects for compliance with the state and local ordinances. Therefore, the Project impacts on water quality pre- and post- construction would be less than significant based on the City's existing ordinances and requirements enforced to comply with RWQCB mandates. These measures have proven to be effective, when implemented appropriately.

16. Noise Ordinance

MASTER RESPONSE NOI-1 responds to the question: *What does the City's Noise Ordinance state about limits on nighttime noise levels, and how is this addressed?*

As indicated on DEIR page 12-8, the City of San Rafael has adopted a noise ordinance (Chapter 8.13 of the Municipal Code) to control excessive, unnecessary and unreasonable noise in the City. The ordinance, which is enforced Citywide, establishes noise limits that must be considered in evaluating this Project. In this case, there are residential land uses near the site that would be sensitive to Project-generated noise, particularly at night. The City's Noise Ordinance specifies the following noise limits (measured on any residential property):

- Between 7:00 AM and 9:00 PM, Sunday through Thursday: 60 dBA (L_{max}) and 50 dBA (L_{eq})

- Between 7:00 AM and 10:00 PM, Friday and Saturday: 60 dBA (L_{max}) and 50 dBA (L_{eq})

- Between 9:00 PM and 7:00 AM, Sunday through Thursday: 50 dBA (L_{max}) and 40 dBA (L_{eq})

- Between 10:00 PM and 7:00 AM, Friday and Saturday: 50 dBA (L_{max}) and 40 dBA (L_{eq})

Aircraft events which may take place at any time of the day or night adjacent to the Project site generate up to eleven 18-second events per day with a L_{max} of 100 dBA (DEIR page 12-15), and this would be expected to continue either with or without the Project.

As indicated on DEIR page 12-16, outdoor soccer at the Project site would not raise the existing ambient noise levels by more than 3 dBA (Ldn). However, the City Noise Ordinance (Chapter 8.13.040.A.1) establishes a higher threshold and states that "No person shall produce, suffer or allow to be produced by any machine, animal or device, or by any other means, a noise level greater than the following when measured on any residential property: Daytime: 60 dBA intermittent, 50 dBA constant; Nighttime: 50 dBA intermittent, 40 dBA constant. The DEIR has applied this more restrictive Noise Ordinance standard as an environmental threshold for the Project, and concludes that the Project could be expected to generate additional noise that would potentially exceed the City Noise Ordinance standard between 9:00 PM and 11:00 PM Sunday through Thursday and between 10:00 PM and midnight Friday and Saturday; when the Project-related noise levels generated at the nearest residences (41 dBA L_{eq} and 45 dBA L_{max}) may exceed the 40 dBA L_{eq} standard for those time periods. Outdoor soccer activity at the Project site between 9:00 PM and midnight would not be expected to exceed the 50 dBA L_{max} single-event standard in the Noise Ordinance. Although this noise level would be below the existing ambient noise levels measured in the closest nearby residential neighborhoods (49 dBA to 54 dBA south of the

Project site, and 54 dBA to 56 dBA at the Contempo Marin Mobile Home Park), this Project, soccer field-related exceedance of the City Noise Ordinance nighttime standard was identified as a potentially significant impact. **Mitigation Measure N-1** (as modified), if effectively implemented, would reduce this potential impact to a level of less than significant by requiring monitoring of the use during initial operations to establish whether the noise ordinance limits would actually be exceeded as a result of Project-related noise, and if so, limiting use of the outdoor fields to end activities at 9:00 PM Sunday through Thursday and at 10:00 PM on Friday and Saturday.

The Applicant's noise consultant, Illingworth and Rodkin, provided a supplemental letter response dated April 23, 2009 (attached to **LETTER 68**, below) in which they explain that their noise analysis did not include a detailed analysis of nighttime noise levels. Had a detailed nighttime noise analysis been conducted. it would have included a more detailed calculation to determine whether or not excess noise attenuation would occur from ground absorption and the existing earth berms (levees); that would likely reduce the noise levels below the standard. Furthermore, their letter further clarifies that their weeklong study of noise impacts (DEIR **Appendix J**) demonstrated that the existing ambient noise levels regularly exceed the 40dBA Leq between 9:00 PM and midnight. Thus, the less than 1 dBA potential noise increase above the 40dBA nighttime noise threshold, when added to existing ambient levels (which already exceed 40dBA), would still be a less than significant change.

Project **Mitigation Measure Bio-2e** also establishes a 10:00 PM curfew on use of the outdoor fields, which means that the fields could only potentially violate the Noise Ordinance nighttime noise threshold for 1 hour, between 9:00 PM and 10:00 PM Sunday through Thursday. Thus, this mitigation already further minimizes the potential for Project noise from outdoor field usage to result in a substantial temporary or permanent nighttime noise increase. Finally, it is also worth noting that any violation of the City's Noise Ordinance of San Rafael Municipal Code Chapter 8.13 would be subject to enforcement under the provisions of the ordinance. This would apply to implementation of the Project, as proposed, and should violations of the noise ordinance occur, enforcement of the City Noise Ordinance can be imposed on the Project.

The text of **Mitigation Measure N-1: Evening Noise** has been modified, to more definitively specify the performance-based measure that would be required to ensure nighttime noise levels would not violate the City Noise Ordinance, to read as follows:

"MM N-1: **Evening Noise.** To address the potential that noise from late evening games becomes an annoyance to neighbors to the south due to the potential of a 1 decibel increase over maximum allowable nighttime noise levels, ~~either of~~ the following measures ~~shall~~ be implemented:

- ~~Close the outdoor fields at 9 p.m., Sundays through Thursdays, and 10 p.m. on Fridays and Saturdays. Alternatively,~~ During the first full year of operations, the project sponsor shall ~~annually~~ monitor

noise levels during a minimum of five nighttime games to determine whether the use of outdoor fields and warm-up areas actually causes the 40 dBA (Ldn) nighttime noise threshold to be exceeded at the closest residential property boundary as a result of the outdoor field use. The City shall be consulted in determining which games are to be monitored. This shall include at least 3 mid-week games and 2 weekend games. A copy of the noise consultant's analysis shall be submitted to the City. If the noise ordinance nighttime noise threshold is exceeded, the outdoor facilities shall close at 9 p.m., Sundays through Thursdays, and 10 p.m. on Fridays and Saturdays. ~~or~~

- ~~Project sponsor shall revise the site plan to provide sufficient space to accommodate a noise wall along the southern boundary of the parking lot and soccer warm-up areas. If noise measurements of nighttime games indicate that the ordinance noise limits are exceeded, the project sponsor could build a noise wall instead of closing the outdoor fields at 9 p.m. If a noise wall is constructed, it shall be subject to the following requirements:~~

  ~~o Pursuant to General Plan Policy S-4, the wall's location shall be subject to a geotechnical investigation, and the wall's design and construction shall proceed in accordance with the recommendations of the geotechnical investigation, as set forth in the City's Geotechnical Review Matrix.~~

  ~~o The design of the sound wall shall be subject to review and approval by the City's Design Review Board.~~

  ~~o The sound wall shall be constructed consistent with Part 77 of the Federal Aviation Regulations, *Objects Affecting Navigable Airspace,* specifically, the 7:1 transitional surface that governs Airport Safety Zone 5 – Sideline Zone, as analyzed by airport hazards safety specialist.~~"

Based on the further discussion contained in this response, it is evident that this change to **Mitigation Measure N-1** would remain sufficient to ensure nighttime noise levels would not violate the City noise ordinance during the 1 hour period of nighttime use that would remain available (after implementation of the 10:00 PM event curfew established by **MM Bio-2e)**, i.e., 9:00 PM to 10:00 PM Sunday through Thursday. Therefore, Project noise impacts would remain less than significant.

17. Intermittent Noise

MASTER RESPONSE NOI-2 responds to the question: *What are the effects of intermittent noise (e.g., whistles, crowd roars, etc.)?*

As indicated on DEIR page 12-17, evening activity on the outdoor fields would be expected to slightly exceed the City's Noise Ordinance standards, but the characteristics of the sound (e.g., noise from spectators, referee whistles, parking cars, etc.) would contrast with the ambient noise environment and, therefore, would be noticeable. Effective implementation of **Mitigation Measure N-1** would achieve compliance with the City's Noise Ordinance standards. Under this **Mitigation Measure**, while the character of the sounds associated with activity on the outdoor fields would remain noticeable, it would either not be heard after use of the outdoor fields has ceased (at 9:00 PM Sundays through Thursdays and at 10:00 PM Fridays and Saturdays), or the noise levels associated with those distinct sounds would not exceed City Noise Ordinance standards. The Applicant has confirmed that the Project does not propose use of loudspeakers or bullhorns, thus these devices would not be allowed. Furthermore, the City could enforce confirmed violations of the City Noise Ordinance, which applies City-wide and applies to intermittent noise. The potential for these noise occurrences would be considered as part of the Project merits review; which may include the imposition of conditions of approval to control use of and types of whistles and crowd/spectator controls utilized in order to assure ongoing compatibility is maintained with the nearby neighborhoods and compliance with the City Noise Ordinance. **Mitigation Measure N-1,** as modified, would also help provide monitoring of this potential concern during the initial operations of the use, and allow any unusual noise impacts to be addressed in compliance with the City Noise Ordinance.

18. Traffic Effects at Additional Intersections

MASTER RESPONSE TRA-1 responds to the question: *Why were three additional intersections with Smith Ranch Road (Yosemite, Deer Valley and Cresta) not evaluated as part of the traffic analysis?*

The General Plan 2020 Policy C-5A Traffic Level of Service (LOS) Standard establishes signalized intersection operations during the AM and PM peak hours as the City's LOS standard, and these three additional intersections are not signalized. For this reason, the level of service impacts at these intersections were not evaluated as part of the traffic analysis.

19. Timing of Traffic Study

MASTER RESPONSE TRA-2 responds to the question: *Why was the traffic analysis not conducted when the McInnis fields were in active use?*

The traffic study was conducted on a weekday, at peak hours when McInnis Park is active, to analyze the worst case scenario at the study intersections that are impacted by Project traffic. The Park's peak use on weekends and other times may be different than the intersection peak hours used for this analysis, which analyzes signalized intersection level of service (LOS) for the worst case scenario. The prevailing peak hours at the signalized intersections impacted by this Project are weekday AM and PM, which constitute the worst case conditions at these intersections and, therefore, were the time periods used for conducting the traffic analysis.

20. Sonoma-Marin Area Rail Transit

MASTER RESPONSE TRA-3 responds to the question: *How will the future operation of SMART affect the Project?*

The Sonoma-Marin Area Rail Transit (SMART) project is intended to provide passenger rail service between Cloverdale and Larkspur. Construction is expected to begin in 2011, with operations beginning in 2014. SMART trains will utilize the existing rails which pass along the western edge of the airport property, approximately 1,250 feet northwest of the proposed entry gate to the Project site at its nearest point.

As presently proposed (SMART Supplemental DRAFT EIR, March 2008), SMART would operate up to 11 roundtrips to and from Larkspur Monday through Friday (or 22 pass-bys near the Project site per day), and up to 4 roundtrips to and from Larkspur on weekends (or 8 pass-bys near the Project site per day). These trains would cross the access road to the Project site at-grade, and while the SMART trains are crossing, traffic along the access road would be required to wait until trains are safely past the crossing. Information obtained from SMART in May, 2010, regarding this issue indicated that SMART had not made a determination regarding the type of controls that it might require at the airport access road; e.g., control arm and/or audible signal. The airport site access consists of an "at grade" crossing over the SMART rails, which is secured through a license agreement between SMART and the property owner that provides access over the rails to the entire airport facility. SMART has over 100 private crossings to address in Marin and Sonoma counties. Given the frequency of service SMART is proposing on the rail line, SMART has indicated that it would most likely require crossing arms and warning lights at the private crossing along its tracks at the subject site; e.g., "quiet zone" crossing. SMART expects to operate trains consisting of Diesel Multiple Units (DMUs) in either 2-car or 3-car sets, which would be expected to pass through this at-grade crossing within a matter of seconds as they approach or depart from the nearest station at the Marin Civic Center. Primary service is anticipated to occur during daytime commute hours. As a result of the relatively rapid pass-bys, delays for vehicles entering or departing from the Project site at this at-grade crossing would be minimal, and significant vehicle queuing would not be anticipated.

When approaching the at-grade crossing, the operators of the SMART trains would be required to sound the train horns to warn motorists, bicyclists and pedestrians of the train's

approach. Although the environmental documentation for SMART has indicated that train horn noise would represent a significant unavoidable impact associated with SMART operations (except perhaps where "Quiet Zones" can be formally established along the SMART route), given the distance of the outdoor playing fields at the Project site from the at-grade crossing, and the limited number of momentary SMART train horn soundings over the course of a day (22 on weekdays and 8 on weekends), it is not expected that train horn noise would result in substantive interference with activities at the Project site.

The SMART DMUs will be required to burn Ultra Low Sulfur Diesel (ULSD) fuel. As a result, each DMU would be expected to emit particulate matter (black smoke) equivalent to that of 1 automobile or $1/20^{th}$ of that of a 40-passenger diesel bus, oxides of nitrogen equivalent to that of 8 automobiles or $1/5^{th}$ that of a 40-passenger diesel bus, and carbon dioxide equivalent to 12 cars or two 40-passenger diesel buses. Although diesel particulate emissions are considered a toxic air contaminant (TAC), given the distance of the operating SMART DMUs from the outdoor fields at the Project site, the limited number of SMART trains passing through the area each day, and the relatively low particulate emission levels associated with DMUs operating on ULSD fuel, health risks associated with potential exposure of those at the Project site to SMART-related TACs would be considered less than significant.

21. Growth Inducement

MASTER RESPONSE GI-1 responds to the question: *Would the Project be expected to induce growth?*

Growth inducement is addressed on DEIR pages 14-14 and 14-15. Development of the Project site as proposed would require the extension and sizing of water lines and sanitary sewer lines to serve the proposed facilities, but these extensions would not extend beyond the Project site and would not be sufficient to support additional development beyond that proposed at the Project site. Sewer service to the site is currently limited through an existing service agreement that exists between the property owner and LGVSD (see **RESPONSE 6-1**, below). Given the existing airport use of the remainder of the undeveloped portion of the Project site, and the absence of any proposal to discontinue airport activities to pursue additional non-airport related development in the future, no element of the Project as proposed would be considered growth-inducing. Although development of the project site would generate some employment (**Table 3-1** on DEIR page 3-13 indicates a total of up to four FTE employees), even if all future employees at the Project site were to seek housing locally, current residential vacancy rates indicate that they might be accommodated without a need for the development of additional housing in the area. Given the limited number of employees that would be working at the site, and the unlikelihood that the recreational facility would, in itself, be sufficient to attract new permanent residents to the local area, the Project would not be considered to have a significant growth-inducing impact.

22. Climate Change

MASTER RESPONSE GHG-1 responds to the question: *How would development of the Project site as proposed impact or be impacted by climate change, including the level of Project-related greenhouse gas emissions (GHG)?*

The DEIR Chapter 15 discusses global climate change and estimated greenhouse gas (GHG) emissions based on the methodology available at the time of the DEIR preparation (page 15-1 through page 15-16). Page 15-1 of the DEIR indicates that at the time the DEIR was produced (Spring 2009), no current CEQA regulation or statute outlined how CEQA analysis of GHG emission impacts should be performed. As noted on Page 1-2 of the DEIR, the decision to prepare an EIR was made following review of an initial study prepared for the Project and circulated on January 26, 2006. The City executed a contract with its consultant on October 16, 2006, and issued a notice of preparation (NOP) on October 10, 2007. As further noted on DEIR page 15-2, the Senate passed SB 97 in August 2007 directing that the State Resources Agency adopt regulations by January 1, 2010. The scope of the DEIR was finalized following issuance of the NOP, and expanded to include Chapter 15: Climate Change analysis, which discussed the anticipated Project impacts with regard to greenhouse gas emissions and climate change. DEIR Chapter 15 responded to the Governor of California's Executive Order S-03-05, AB 32, California Air Resources Board (CARB) approved GHG reduction action measures and SB 97.

When the DEIR was released in March of 2009, the State of California Air Resources Board had not yet adopted any guidelines or thresholds to implement State AB 32 (The Global Warming Solutions Act). Thus, given that no industry-wide accepted method to evaluate the significance of greenhouse gases generated by specific development projects had been developed at time the DEIR was prepared and released, the City had to develop an acceptable approach for evaluating the Project impact on climate change in response to the recent state mandates, in a manner consistent with CEQA.

The DEIR indicates that the Project could be adversely affected by climate change, particularly in terms of rising sea level (DEIR page 15-11 through page 15-12), although impacts associated with sea level rise would be expected to be less than significant at least through 2050. DEIR page 15-14 identifies GHG emissions anticipated with development and operation of the Project, as proposed. The DEIR subsequently identifies characteristics and design features of the Project which would reduce anticipated GHG emissions during construction and operation, such as the Project proposal to achieve LEED certification and to install energy efficient lighting. The GHG impact analysis contained on DEIR pages 15-9 through 15-11 and 15-13 through 15-16 concluded that a determination of significance based on quantification of emissions was too speculative, but found that a project could likely be considered to make a less-than-cumulatively-considerable contribution to climate change impacts if it implements strategies to reduce GHG emission consistent with AB 32 and Executive Order S-03-05. Based on this significance criterion, the DEIR concluded that the Project's contribution of GHG emissions was likely less than significant.

When the DEIR was published in Spring 2009, the Project was found to be consistent with the current regional Bay Area Air Quality District Air Quality Management Plan, and URBEMIS 2007 modeling of operational emissions were provided on DEIR Page 6-17, **Table 6-4**, **Table 6-5** and **Table 6-6**. Note that **Table 6-6** incorrectly labeled emissions as "tons/day"; the emissions calculated were actually "tons/year." **Table 6-6** (as corrected) is reproduced below. These tables presented the most current available and quantifiable data regarding Project-related air quality impacts, including the quantifiable annual amount of CO_2 greenhouse gas emissions provided in **Table 6-6** (with correction), as follows:

TABLE 6-6:
COMBINED ANNUAL EMISSIONS

	Criteria Pollutants (tons/~~day~~year)						
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**
Area Source Emissions	0.13	0.1	0.51	0.0	0.0	0.0	125.88
Operational (Vehicle) Emission Estimates	2.20	3.01	26.64	0.02	3.94	0.75	2,115.07
Area Source and Operational Total	**2.33**	**3.12**	**27.15**	**0.02**	**3.94**	**0.75**	**2,240.95**

Source: URBEMIS 2007 9.2.4

As shown in DEIR **Table 6-6** (as corrected) the proposed Project would result in approximately 2,240.95 tons of CO_2 greenhouse gas emissions per year, using the URBEMIS modeling. The Project (including vehicle operational emissions) would be subject to any regulations developed under Assembly Bill 32 and Senate Bill 97. Thus, while the amount of GHG emissions in terms of CO_2 contribution has been estimated, and this shows that the Project would have the potential to result in greenhouse gas emissions and impact climate change, a conclusion on the extent to which the Project operations would have an effect on greenhouse gas emissions and global climate change could not be reached due to the significant level of uncertainty in methods used to quantify emissions, the emission reduction measures that could be used (and required by the State) to reduce emissions, and lack of established thresholds for making predictions regarding the extent that operations would affect GHG and global climate change.

Discussion of Thresholds Adopted After DEIR Preparation

Following release of the DEIR and during preparation of the responses to comments, the Bay Area Air Quality Management District (BAAQMD) updated its CEQA guidance on GHG analysis. Also, on January 10, 2010, Sections 15130(b)(1)(B), 15126.4(c) and 15183.5 of the CEQA Guidelines were amended to provide some direction regarding assessment of GHG emissions. These amendments address requirements for assessment of cumulative impacts of plans for the reduction of greenhouse gas emissions, mitigation measures related to GHG emissions and tiering of analysis of GHG emissions.

BAAQMD's new guidance provides significance thresholds and tools to assess GHG emissions. On June 2, 2010, BAAQMD adopted the thresholds of significance to be used in evaluating the GHG-related effects of projects being evaluated under CEQA. However, the District has also indicated that new significance thresholds are only to be applied to those projects for which a Notice of Preparation (NOP) has been circulated following June 2, 2010, and not applied to projects which have NOP circulation dates before June 2, 2010. The NOP for the San Rafael Airport Recreational Facility EIR was circulated for a 30-day public review between January 26, 2006 and February 27, 2006, and the newly adopted thresholds of significance do not apply to the proposed Project.

The City, therefore, has not applied these new thresholds to the Project. Rather, for this Project, the City has established the following threshold which is reflective of the approach taken in the DEIR:

> *Will the project's GHG emissions impede compliance with the GHG emissions reductions mandated in AB 32?*

In order to assess the Project compliance with the threshold established by the City for this Project, discussion of the Project conformance with the suggested GHG reduction strategies identified by the California Environmental Protection Agency and the Climate Action Team to reduce GHG emissions to the levels proposed by Executive Order S-3-05 and AB 32, is provided below.

FEIR TABLE 1: APPLICABLE GLOBAL CLIMATE CHANGE STRATEGIES

STRATEGIES FOR REDUCING GREENHOUSE GAS EMISSION REDUCTION[1]	PROJECT CONFORMANCE
Vehicle Climate Change Standards. AB 1493 (Pavley) required the state to develop and adopt regulations that achieve the maximum feasible and cost effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by the CARB in September 2004.	Following a phase-in period, the majority of the vehicles that access the project site would be expected to be in compliance with any vehicle standards that CARB adopts.
Other Light Duty Vehicle Technology. New standards would be adopted to phase in beginning in the year 2017 model year.	Following a phase-in period, the majority of the vehicles that access the project site would be expected to be in compliance with any vehicle standards that CARB adopts.
Diesel Anti-Idling. In July 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	All vehicles, including diesel trucks accessing the project site, would be subject to the CARB measures and would be required to adhere to the five-minute limit for vehicle idling.
Hydrofluorocarbon Reduction. 1) Ban retail sale of HFC in small cans; 2) Require that only low GWP refrigerants be used in new vehicular systems; 3) Adopt specifications for new commercial refrigeration; 4) Add refrigerant leak-tightness to the pass criteria for vehicular inspection and maintenance programs; 5) Enforce federal ban on releasing HFCs.	This measure applies to consumer products. When CARB adopts regulations for these reduction measures, any products that the regulations cover would comply with the measures.

Heavy-Duty Vehicle Emission Reduction Measures. Increased efficiency in the design of heavy-duty vehicles and an education program for the heavy-duty vehicle sector.	These are CARB enforced standards; vehicles that access the project site that are required to meet these reduction measures would comply with the strategy.
Achieve 50% Statewide Recycling Goal and Zero Waste – High Recycling - 1) Design locations for separate waste and recycling receptacles; and 2) Utilize recycled components in the building design.	Pursuant to Assembly Bill 939, all development projects within the City (including the proposed project) would be required to divert 50 percent of their solid waste stream.
Appliance Energy Efficiency Use. Use of energy efficient appliances (i.e., washer/dryers, refrigerators, stoves, etc.).	In October 2006, the State of California adopted Appliance Efficiency Regulations, which include standards for both Federally regulated appliances and non-Federally-regulated appliances. These regulations would apply to the proposed project.
Measures to Improve Transportation Energy Efficiency. Builds on current efforts to provide a framework for expanded and new initiatives including incentives, tools and information that advance cleaner transportation and reduce climate change emissions.	The nearest transit service is at Smith Ranch Road and US101 over ¼-mile to the west. Bus service currently does not extend down Smith Ranch Road to serve this location. However, the project would provide a pedestrian pathway connection from Smith Ranch Road to the facility which would promote walking and bicycling to the site, and the facility would not conflict with any future plans to extend transit service to the area.
Water Use Efficiency Features. To increase water use efficiency include use of both potable and non-potable water to the maximum extent practicable and use of low flow appliances (i.e., toilets, shower heads, washing machines, etc).	The proposed project would be required to comply with California Health and Safety Code (HSC) Section 17921.3, which sets efficiency standards for bathroom fixtures. Additionally, California Code of Regulations, Title 20, Division 2, Chapter 4, Article 4, Section 1605.3 sets standards for washing machines and commercial pre-rinse spray valves
Achieve 50 percent Statewide Recycling Goal. In multi-family housing, separate recycling and waste receptacles should be planned.	The City is required to meet the 50 percent Statewide recycling goal, and would continue to implement solid waste reduction measures.

Notes:

1 - Only the applicable strategies for reducing greenhouse gas emissions were included.

Source: California Environmental Protection Agency, *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, March 2006.

The Project would be in conformance with the 2006 CAT report suggested strategies to reduce emissions to levels proposed by Executive Order S -3 05 and AB 32, as noted in the **FEIR Table 1** evaluation above. Given that the majority of the Project GHG emissions are a result of vehicle miles traveled (VMT), it would be extremely difficult to reduce the Project emissions. The trip generation data that is relied upon to quantify the Project-related vehicle emissions (that would contribute to cumulative global climate change) does not consider whether there could be any offset or reduction in VMT in the region as a result of construction of the Project. For instance, it may be reasonable to assume that Marin County residents could reduce VMT to participate in soccer events by using the proposed facilities

instead. Further, there is no bus service currently provided within ¼-mile of the site at this time, which limits ability to reduce VMT based on alternative modes of transit. However, the Project would not impede any plans to provide future bus service and/or to improve bicycle and pedestrian pathways in the area.

Additionally, it is worth noting that in April, 2009, the City adopted a Climate Change Action Plan (CCAP). The Climate Change Action Plan includes a list of implementing programs intended to reduce GHG emissions and increase sustainability in San Rafael. In addition, the City of San Rafael adopted a mandatory green building ordinance (GBO) in 2007 (amended in 2009) which is applicable to residential and commercial building and new construction and additions. The Project as proposed would also be consistent with strategies listed in the San Rafael CAP by, a) proposing a LEED certified green building, b) increasing carbon sequestration through planting of at least 139 additional trees and large shrubs, and c) providing a pedestrian pathway connection to enable walking and bicycling to the site. The Project's compliance with these strategies would further help to reduce GHG emissions from construction and operations, thus would not impede compliance with AB 32. The DEIR's conclusion that the Project's contribution to cumulative climate change impacts is less than significant is confirmed. The Final EIR concludes that the Project's contribution to cumulative climate change impacts is less than cumulatively considerable.

The new BAAQMD thresholds provide a methodology to quantify GHG emissions and a quantitative threshold. BAAQMD proposes two quantitative thresholds, a "mass emissions" threshold and a "service population" threshold. The mass emissions threshold is 1,100 metric tons of CO2e/year. The service population threshold is 4.6 metric tons of CO2e/year (residents/employees). Quantification of the Project impacts and a comparison to the June 2, 2010 BAAQMD thresholds have been prepared using the modeling software that has been developed for BAAQMD for this purpose, and the results of the GHG analysis are provided in the tables in **FEIR Appendix C** (San Rafael Airport Recreation Facility GHG Emission Calculations), for informational purposes in this FEIR. As discussed above, because this Project is not subject to the new BAAQMD thresholds, the City is applying a qualitative threshold to this Project.

The City analysis of the Project based on the BAAQMD thresholds adopted in June 2010, shown in the tables in **FEIR Appendix C**, were prepared using the BAAQMD recommended URBEMIS (Version 9.2.4) *plus* BAAQMD's BGM Greenhouse Calculator software to quantify GHG emissions from the Project. The URBEMIS 9.2.4 Model estimates criteria pollutant emissions for construction, area sources and operations (traffic) in lb/day and tons/year for ROG, NOx, CO, Sox, PM10 and PM2.5 (exhaust and dust), and CO_2. URBEMIS *does not* provide a thorough GHG analysis estimate of CO_2 for all the categories needed for GHG analysis. For example, electricity-related GHG emissions are not included in URBEMIS. The BGM calculator calculates the additional emissions from energy use including electricity and natural gas. The URBEMIS project data is input into the BGM calculator and the combined results from URBEMIS model and BGM calculator produces a

complete GHG inventory. The basic information that input into URBEMIS project data includes the following:

- Land uses that make up a project (e.g., dwelling units, office, retail, restaurant, etc.)
- Quantity/Size of the land uses in # of residential units, commercial sq. ft., acres, etc.
- Planned construction phasing and timing
- Basic traffic data (trip generation rates [ADT], trip lengths and vehicle miles traveled)
- Target year/date for project build-out

Project-level assessment focuses on construction-related and project operations thresholds, shown in the second and third bullet-points above. The DEIR Chapter 15 climate change discussion has been further revised in response to comments in FEIR Chapter 2.

N_2O and CH^4 emissions were also identified for the Project using the California Climate Action Registry (CCAR) General Reporting Protocol Version 3.1 (January, 2009). This additional methodology was used to further quantify GHG emissions from other sources (e.g., motor vehicles and energy use associated with long-term operations of the Project), where possible. (The Climate Registry is a non-profit collaboration among North American states, provinces, territories and Native Sovereign Nations to set consistent and transparent standards for the calculation, verification and public reporting of greenhouse gas emissions into a single registry. The California Climate Action Registry was formed in 2001, pursuant to SB 527 signed by Governor Gray Davis on October 13, 2001.)

While URBEMIS 2007 was utilized to estimate the Project's CO_2 emissions from construction and area (energy use), and mobile sources, N_2O and CH_4 emissions were analyzed using the CCAR General Reporting Protocol, as the URBEMIS 2007 program does not estimate these emissions. This modified methodology allows for quantification of construction emissions not captured by the BGM model. For instance, the BGM assumes CH_4 and N_2O as constituting 5 percent of all CO_2e mobile emissions. Reliance on the General Reporting Protocol formulas is more accurate than the estimates produced by the BGM model, in that it depicts pre-Pavley and pre-LCFR mobile emissions in addition to the post-Pavley and post-LCFR emissions prepared by the BGM. Thus, post-regulatory emissions can be shown and compared with a "business as usual' scenario. Post-Pavley and post-LCFR adjustments used by this approach are consistent with the BGM output. Further, the General Reporting Protocol also utilizes land use types (CEC and EIA-derived) that reconcile better than BGM land use types (CEC-derived) with the land use types used in URBEMIS, and addresses this flaw as noted in the BGM manual. The results are input into BGM which translates the determined CO_2 emissions to CH_4 and NO_2 using the General Reporting Protocol.

The results of the Project-related emissions using the new modeling methods are provided in the tables below, as follows:

FEIR Table 2 illustrates the construction-related GHG emissions that would result from each construction phase of the proposed Project (e.g., *business as usual – construction scenario*).

FEIR TABLE 2: CONSTRUCTION-RELATED CRITERIA POLLUTANT AND PRECURSOR EMISSIONS (POUNDS PER DAY)

Phase	Carbon Dioxide (CO_2)	Methane (CH_4)	Nitrous Oxide (N_2O)	Hydrofluoro-carbons (HFCs)	Perfluoro-carbons (PFCs)	Sulfur Hexafluoride (SF_6)	CO_2e
Pre-Construction Fill Phase[1]	5,294	0.302	0.135	Negl.	Negl.	Negl.	5,342
Phase 1 Site Grading and Prep	2,349	0.134	0.060	Negl.	Negl.	Negl.	2,370
Phase 2 Building Construction	2,440	0.139	0.062	Negl.	Negl.	Negl.	2,462
Phase 3 Field Seeding	Negl.	Negl.	Negl.	Negl.	Negl.	Negl.	Negl

[1] Pre-Construction Fill Phase assumes one foot of fill per every square foot of construction (191,664 cubic yards)
Negl. - Emissions of this GHG would be negligible from this source category (less than 0.01 metric tons per year)

Source: Appendix E; California Climate Action Registry General Reporting Protocol Version 3.1 (January, 2009)

Due to the Project components that significantly improve upon the construction and operations of the Project, a number of Project-specific adjustments were made to the baseline analysis to show the value of these Project attributes. For construction, implementation of the following Project components has the potential to reduce construction-related greenhouse gas emissions by approximately 367 metric tons of CO_2e (see **FEIR Table 3**, below) (e.g., *Project construction with mitigation scenario*).

FEIR TABLE 3: CONSTRUCTION MITIGATION MEASURE GHG EMISSION REDUCTIONS

Mitigation Measure	Emission Reductions (Metric Tons CO2e)
Construction & Demolition Waste Diversion	23
Anti-Idling	53
Equipment Maintenance	51
Construction Worker Carpool Program	241
Total	**367**

As shown in **FEIR Table 4**, below, the long-term operations of the proposed Project would have the potential to produce 2,588 metric tons of CO_2e annually, primarily from motor vehicles that travel to and from the site (e.g., *business as usual – operations scenario*).

FEIR TABLE 4: ESTIMATED PROJECT GREENHOUSE GAS EMISSIONS – PROJECT OPERATION (METRIC TONS PER YEAR)

Emission Source		Carbon Dioxide (CO_2)	Methane (CH_4)	Nitrous Oxide (N_2O)	Hydro-fluorocarbons (HFCs)	Per-fluorocarbons (PFCs)	Sulfur Hexafluoride (SF_6)	CO_2e
Mobile Source[1] (vehicle)		1,240	Negl.	Negl.	Negl.	Negl.	Negl.	1,240
Area Source (landscaping, hearth)		116	Negl.	Negl.	Negl.	Negl.	Negl.	116
Stationary Source	Electricity	649	0.03	Negl.	Negl.	Negl.	Negl.	649
	Natural Gas	583	0.02	Negl.	Negl.	Negl.	Negl.	583
Conversion of Emissions into carbon dioxide equivalents (CO2e), which weight each gas by its global warming potential								
Total CO_2e Emissions		**2,588 CO_2e Emissions**						

Source: PMC 2010, URBEMIS ver. 9.2.4; California Climate Action Registry General Reporting Protocol Version 3.1 (January, 2009)

NEG - Emissions of this GHG would be negligible from this source category (less than 0.01 metric tons per year).

[1] Emissions presented are NOT adjusted for future improved CAFÉ standards (Pavley I) and Low Carbon Fuel Standards.

The proposed Project has several components aimed at reducing greenhouse gas emissions. These components are not modeled in **FEIR Table 4**. The above table estimates the Project's contribution to climate change without taking into consideration the green building design, water conservation landscaping, and photovoltaic cell components of the Project. The emission reductions associated with these components of the proposed Project were quantified outside of the URBEMIS emissions modeling program. The quantification uses the URBEMIS outputs as a baseline to quantify the emission reductions associated with various aspects of the Project. Together the Project components quantified for their emission reduction potential equals a 386 metric ton of CO_2e reduction. **FEIR Table 5**, below, demonstrates the emission reductions associated with specific project components (e.g., *Project operations with mitigation scenario*).

FEIR TABLE 5: ESTIMATED PROJECT GREENHOUSE GAS EMISSION REDUCTIONS – PROJECT OPERATION

Mitigation Measure	Emission Reductions (Metric Tons CO2e)
Photovoltaic Cells	155
Green Building	184
Lighting Efficiency	12
Synthetic Turf	3
Water Conservation Landscaping	31
Total	**386**

Additional analysis could produce additional emission reductions. For example, the energy efficient field lighting was not quantified as the operational statistics (i.e. annual hours the soccer field lights would be turned on), since these estimates were not available for the analysis. Additionally, it was assumed the photovoltaic cells were each 200 watts. Knowing the specifications of the photovoltaic panels could produce further reductions. After accounting for the emission reductions, the proposed Project will have the potential to produce approximately 2,203 metric tons of CO_2e annually.

Conclusions

As shown in **FEIR Table 4,** above, the proposed recreation facility would surpass 1,100 MT/yr and when calculated using the estimated twelve (12) service population, the facility would result in 184 MT/CO2e per service population, exceeding the threshold of 4.6 MT/CO2e per service population.

The Project incorporates Project components that reduce GHG emissions, however due to the geographic location of the facility and its relative isolation from transit and an efficient multimodal transportation network, there aren't significant additional changes that could be made (i.e., reducing Project-related traffic and VMT) to allow for a Project that meets the new thresholds established by the BAAQMD, for projects proposed after June 2, 2010.

While this assessment shows that the Project would not meet the new threshold adopted by the BAAQMD, this does not result in grounds for adoption of a statement of overriding considerations because the applicable threshold for GHG/potential climate change analysis for the DEIR has been established prior to May 2010, and this additional analysis has been provided for informational purposes to provide the most current information available, but not for providing required assessment of impacts under CEQA. For this same reason, the DEIR is not required to be recirculated for public review.

23. Evaluation of Alternative Locations

MASTER RESPONSE ALT-1 responds to the question: *Are there alternative locations that have not been evaluated in the DEIR?*

On pages 16-25 through 16-26, the DEIR addresses the consideration of possible alternative locations for the proposed Project. A total of 14 alternative sites in Marin County were considered by the proposed soccer operators prior to submitting the development application for the proposed Project at the subject site. None of the sites considered by the soccer operator met their criteria, either due to inadequate conditions of buildings, or rent costs that exceeded their operational business plans. The operator has indicated ideal rents would be $0.60 to $0.65 per square foot. They also require tall ceilings and open floor space, which makes industrial/warehouse areas more suitable. However, peak parking demand is typically greater than the 1:500 (1 parking space per 500 gross square feet) and 1:1,000 parking space to building square footage ratios typically provided for most light industrial/office and warehouse uses. The 85,700 square foot facility has a peak parking demand for 222 spaces, with 270 spaces provided at a ratio of approximately 1:317 (see parking demand analysis on DEIR **Appendix K**, Fehr & Peers, *San Rafael Recreational Facility TIR*, page 19). None of the alternative sites met all of the proponent's criteria and were not deemed suitable to meet the Applicant's objectives for the Project, so none were considered for evaluation in the DEIR. The alternative site locations, description and reasons why the space was not considered by the operator (discussed in DEIR pages 16-25 and 16-26 and contained in DEIR **Appendix B**) include:

1. 700 Du Bois, San Rafael. Former old warehouse building. Expensive rent.
2. 863 East Francisco, San Rafael. Whole Earth Access building. Too small, and insufficient parking capacity.
3. Hamilton AFB hangers, Novato. Hangers required too much repair work, including seismic retrofitting. Lease rate too high, plus there were additional bond costs on buildings.
4. Shoreline Parkway Property, San Rafael. Short term ground lease only. Expensive price. Insufficient traffic capacity available for this type of use (high tax generating use preferred by City to utilize limited traffic capacity).
5. McInnis Park, Marin County. No available sites for joint use opportunity.
6. 191-195 Mills St, San Rafael. Building smaller than ideal. Safety concerns with location.
7. St Vincent's/Silveira, Marin County. Proposal to build facility in this location with additional development, which is no longer a feasible possibility due to changes in City/County policy pertaining to the site.
8. 4280-4290 Redwood Highway, San Rafael. Small warehouse. Inadequate parking and ceiling height.
9. Kmart building, Novato. Too many structural columns. Cost of retrofit too great.

10. 301 Olive Ave., Novato. Site sold to other developer.
11. 10 Fifer, Corte Madera. Size is smaller than the currently desired ideal for indoor soccer facilities.
12. 4300-30 Redwood Highway, San Rafael. Vineyard mixed use development. Cost of combining buildings too expensive and insufficient parking capacity for use.
13. 55 Frosty Lane, Bel Marin Keys. Size, location and retrofit issues.
14. 1107 Grant Street, Novato. Small building with limited parking and low roof with beams throughout.

Although comments on the DEIR suggest that several alternate locations might be suitable for use as recreational facilities similar to what the Project Applicant has proposed, as indicated on DEIR page 16-26 there are no potentially significant environmental impacts addressed in the DEIR that cannot be reduced to a level of less than significant through implementation of the Mitigation Measures identified in the DEIR.

Evaluation of a "No Change" Alternative

MASTER RESPONSE ALT-2 responds to the question: *Why didn't the DRAFT EIR evaluate a No Change alternative instead of assuming some development under current land use designations?*

As indicated on DRAFT EIR page 16-5, in evaluating the No Project alternative in an EIR, the starting point is to consider what would be the practical result of non-approval of the Project (which does not necessarily equate to no development at the Project site). For the purposes of the EIR, it was assumed that the local demand for new recreational facilities would ultimately result in the development of outdoor recreational fields at the Project site within the constraints of the existing PD District, Master Use Permit and Declaration of Restrictions. Although such development would be likely to result in environmental impacts greater than would be anticipated under a "No Change" or "No Action" alternative which would be based on an assumption that the Project site would remain in its current condition indefinitely, the environmental impacts associated with the No Project alternative would be less than those associated with the proposed Project, and the DRAFT EIR identifies this alternative as the "environmentally superior" alternative (since it would eliminate the need for mitigation in six of the environmental discussion topics addressed in the DRAFT EIR). A "No Change" or "No Action" alternative could be expected to have even fewer potential environmental impacts than would the No Project alternative evaluated in the DRAFT EIR, but such an alternative would meet none of the Project objectives. See **FEIR Chapter 2: Revisions to the DEIR**, which adds discussion of a No Project/No Build variant of the No Project alternative.

F. COMMENTS LETTERS AND RESPONSES

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MAY 12 2009

COMMUNITY DEVELOPMENT
CITY OF SAN RAFAEL

LETTER 1

May 1, 2009

Mr. Kraig Tamborini
City of San Rafael
Planning Division
P.O. Box 151560
San Rafael, CA 94915-1560

Dear Mr. Tamborini:

City of San Rafael's Draft Environmental Impact Report for the San Rafael Airport Recreational Facility; SCH# 2006012125

The California Department of Transportation (Caltrans), Division of Aeronautics (Division), reviewed the above-referenced document with respect to airport-related noise and safety impacts and regional aviation land use planning issues pursuant to the California Environmental Quality Act (CEQA). The Division has technical expertise in the areas of airport operations safety and airport land use compatibility. We are a funding agency for airport projects and we have permit authority for public and special use airports and heliports. The Division commented on the prior Negative Declaration for the proposal in the enclosed letter dated February 24, 2006. The following comments are offered with respect to the Draft Environmental Impact Report (DEIR).

The proposal is for the construction of a recreational facility on a 9.1-acre portion of the San Rafael Airport. The facility will consist of a 38-foot tall, 85,700 square-foot metal recreational building housing indoor fields and courts, a 14,400 square foot mezzanine level with spectator seating, offices, food and beverage service, arcade and meeting rooms, two outdoor fields with exterior lighting, landscaping, parking, and fencing improvements.

As discussed in the DEIR, San Rafael Airport operates with a Special-Use Airport Permit issued by the Division. Caltrans is the primary State agency responsible for permitting airports and heliports. Our mandated process is further described in the California Code of Regulations (CCR), Title 21, Section 3534(b). From the information provided, it does not appear that the proposal will affect the State airport permit. The new construction projects, however, must meet or exceed the minimum design standards for a permitted airport, as specified in the CCR, Title 21, Article 3, "Design Standards, Airports Only." **1-1**

State Public Utilities Code Section 21659 prohibits structural hazards near airports. As discussed in DEIR, the Federal Aviation Administration (FAA) may require a Notice of Proposed Construction or Alteration (Form 7460-1) pursuant to Federal Aviation Regulation (FAR) Part 77. Form 7460-1 is available at http://forms.faa.gov/forms/faa7460-1.pdf. The guidance in the FAA Advisory Circular 150/5370-2E, *Operational Safety on Airports during Construction*, should also be incorporated into the project design in order to identify any permanent or temporary construction-related impacts including cranes. **1-2**

LETTER 1 (continued)

Mitigation Measure (MM) Haz-1 states that the "intensity of use" will be restricted to a maximum of 200 people per single acre or "at a minimum" incorporate additional risk-reduction building design features into the design of the recreational building. MM Haz-2 addresses FAR Part 77 concerns. **1-3**

For questions concerning the special-use airport permit criteria or FAR Part 77, please contact the Division's Aviation Safety Officer for Marin County, Patrick Miles, at (916) 654-5376.

These comments reflect the areas of concern to the Division with respect to airport-related noise and safety impacts and regional airport land use planning issues. We advise you to contact our District 4 Office 4 concerning surface transportation issues.

Thank you for the opportunity to review and comment on this proposal. If you have any questions, please call me at (916) 654-5314.

Sincerely,

Sandy Hesnard

SANDY HESNARD
Aviation Environmental Planner

Enclosure

c: State Clearinghouse, San Rafael Airport, Marin County ALUC

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LETTER 1 (continued)

February 24, 2006

Mr. Raffi Boloyan
San Rafael Planning Division
P.O. Box 151560
San Rafael, CA 94915-1560

Dear Mr. Boloyan:

Re: City of San Rafael Negative Declaration for the San Rafael Airport Recreational Facility; SCH# 2006012125

The California Department of Transportation (Caltrans), Division of Aeronautics (Division), reviewed the above-referenced document with respect to airport-related noise and safety impacts and regional aviation land use planning issues pursuant to the California Environmental Quality Act (CEQA). The Division has technical expertise in the areas of airport operations safety and airport land use compatibility. We are a funding agency for airport projects and we have permit authority for public and special use airports and heliports. The Division considered the proposal in an earlier letter dated June 20, 2005. The following comments are offered with respect to the Negative Declaration.

The proposal is for the construction of a recreational facility on a 16.6-acre portion of San Rafael Airport. San Rafael Airport operates with a Special-Use Airport Permit issued by the Division. The Division's prior and current Aviation Safety Officers for Marin County, Dan Gargas and Patrick Miles, respectively, have evaluated the proposal and determined it should not require amending the Special-Use Airport Permit and does not appear to impact the Federal Aviation Regulation (FAR) Part 77. Please note, the applicant should be advised that the outdoor baseball field backstop and perimeter fence as depicted on page 32 of the Negative Declaration also must not penetrate FAR Part 77, 7:1 Transitional Surface. For questions concerning any of the above issues, please contact Patrick Miles, at (916) 654-5376.

According to the Negative Declaration, the applicant shall also incorporate the guidelines in the Federal Aviation Administration's (FAA) Advisory Circular 150/5370-2E, Operational Safety on Airports, during construction of the proposed project. We concur.

In accordance with CEQA, Public Resources Code Section 21096, the Caltrans Airport Land Use Planning Handbook (Handbook) must be utilized as a resource in the preparation of environmental documents for projects within an airport land use compatibility plan boundaries or if such a plan has not been adopted, within two miles of an airport. The Handbook is a resource that should be applied to all public use airports. Although San Rafael Airport is not a public use airport, we did consider density levels as recommended in the Handbook. The project does not appear to exceed the Handbook density guidelines.

LETTER 1 (continued)

These comments reflect the areas of concern to the Division with respect to airport-related noise and safety impacts and regional airport land use planning issues. We advise you to contact our District 4 Office 4 in Oakland at (510) 286-4444 concerning surface transportation issues.

Thank you for the opportunity to review and comment on this proposal. If you have any questions, please call me at (916) 654-5314.

Sincerely,

Original Signed by

SANDY HESNARD
Aviation Environmental Planner

c: San Rafael Airport

LETTER 1: Sandy Hesnard, Aviation Environmental Planner, Division of Aeronautics, May 1, 2009

RESPONSE 1-1: Comment regarding conclusion that the Project as proposed would not appear to affect the State airport permit for the existing airport adjacent to the Project site is accepted, as noted. It is understood that development of the Project site as proposed must meet or exceed the minimum design standards for a permitted airport, as specified in the CCR, Title 21, Article 3, "Design Standards, Airport Only."

RESPONSE 1-2: It is understood that the FAA may require a Notice of Proposed Construction or Alteration pursuant to FAR Part 77. It is further understood that guidance in the FAA Advisory Circular 150/5370-2E, Operational Safety on Airports during Construction, should be incorporated into the Project design in order to identify any permanent or temporary construction-related impacts, including cranes.

RESPONSE 1-3: Statement that DEIR **Mitigation Measure HAZ-2** (pages 10-25 and 10-26) addresses FAR Part 77 concerns is noted.

LETTER 2

Department of Toxic Substances Control

Linda S. Adams
Secretary for
Environmental Protection

Maziar Movassaghi
Acting Director
700 Heinz Avenue
Berkeley, California 94710-2721

Arnold Schwarzenegger
Governor

March 25, 2009

Kraig Tambornini
Planning Division
Community Development Department
City of San Rafael
1400 Fifth Avenue
P.O. Box 151560
San Rafael, California 94915-1560

SAN RAFAEL DRAFT EIR, AIRPORT RECREATIONAL FACILITY, 397-400 SMITH RANCH ROAD, SAN RAFAEL, CALIFORNIA, SCH# 2006012125

Dear Mr. Tambornini:

The Department of Toxic Substances Control (DTSC) has reviewed the Draft EIR document referenced above and dated March 2009 for hazardous materials related issues. The due date to submit comments is April 28, 2009. As you may be aware, DTSC oversees the cleanup of hazardous substance release sites pursuant to the California Health and Safety Code, Division 20, Chapter 6.8. As a potential Responsible Agency, DTSC is submitting comments to ensure that the California Environmental Quality Act (CEQA) documentation prepared for this project adequately addresses any remediation of hazardous substance releases that might be required as part of the project.

The project includes construction of indoor sports fields, courts building, a lighted outdoor soccer field, an unlighted soccer warm-up area, etc. DTSC has the following comments on the Draft EIR:

1) While the DEIR states that the property was used as a private airport since the 1950s, there is no clear statement as to what the land use was at the site before this period. There are surely records and photographs which would show the use of the property before this period, and give indications as to whether there may have been activities which could have employed the use hazardous materials. **2-1**

2) Airport hangers at the site may have used asbestos in their construction. **2-2**

3) Fuel for airplanes may have contaminated the site through leakage and spillage. Were there underground fuel tanks at the site? **2-3**

4) Airplane maintenance operations may have caused contamination as these operations often employ the use of organic and chlorinated organic solvents. 2-4

Soil, and possibly groundwater sampling should be performed to identify whether current or past chemical use may have resulted in a release of hazardous substances. This sampling should be conducted prior to or in conjunction with the preparation of the EIR. Any screening levels or criteria that are used in making a determination as to whether detected contaminants pose a risk to human health or the environment should be identified. If volatile organic compounds are present in soil or groundwater, the potential human health risk from vapor intrusion into future buildings will need to be considered. 2-5

Any remediation activities that are to be implemented as part of the project should be discussed in the EIR along with the cleanup levels that will be applied and the anticipated regulatory agency oversight. Potential impacts associated with the remediation activities should be addressed by the EIR. If the remediation activities include soil excavation, the EIR should include: (1) an assessment of air impacts and health impacts associated with the excavation activities; (2) identification of any applicable local standards which may be exceeded by the excavation activities, including dust and noise levels; (3) transportation impacts from the removal or remedial activities; and (4) risk of upset should there be an accident during cleanup. 2-6

If you have any questions, please call me at (510) 540-3956 or email me at abernahi@dtsc.ca.gov.

Sincerely,

Andrew Berna-Hicks, P.E.
Brownfields and Environmental Restoration Program

Cc: Guenther Moskat (via email)
Office of Environmental Planning and Analysis
Department of Toxic Substances Control
GMoskat@dtsc.ca.gov

LETTER 2: Andrew Berna-Hicks, P.E., Brownfields and Environmental Restoration Program, Department of Toxic Substances Control, March 25, 2009

RESPONSE 2-1: On DEIR page 8-3, the historic background is identified, and indicates the current Project area was part of the marsh system along San Pablo Bay, and was regularly inundated by tidal action. By 1915, then property owner, McMahon, began filling in a portion of the marsh. Levees were completed in the 1930's isolating the current Project area from tidal action. The land was reclaimed in the 1940's as part of the Smith Ranch. The runway was originally located parallel to the railroad right-of-way, until the current runway was constructed in the early 1970's. The property was annexed by the City in the 1970's, and has been subject to City permits, reviews and regulations since that time. Review of the site records and history available at City Hall, and referenced in the DEIR, has revealed there is no history of any prior use in the Project location. Although sheep grazed at the site approximately ten years ago (DEIR page 10-15), there was no known use of agricultural chemicals at the site to support that activity. There is no evidence in the record to suggest there may have been any activities which could have employed the use of hazardous materials. This has been confirmed and discussed on DEIR page 10-14 and 10-15, resulting in a determination that potential impacts from exposure to hazardous materials and substances would be less-than-significant.

RESPONSE 2-2: The Project site is located on a portion of the airport site that is vacant, and the existing airport hangars are located on another portion of the airport site. There have never been any structures built on the portion of the airport site which is proposed for development as part of this Project, so there would be no Project-related exposure to asbestos during construction or operation at the Project site.

RESPONSE 2-3: The Project site is located on a portion of the airport site that is vacant, and that has never supported aircraft fueling or maintenance operations. DEIR pages 10-14 and 10-15 confirm that the Project site is not listed on state or local lists as having underground fuel storage tanks at the Project location. Thus, there is no evidence in the record to suspect or suggest any potential for fuel contamination in the Project location.

RESPONSE 2-4: The Project site is located on a portion of the airport site that is vacant, and that has never supported aircraft fueling or maintenance operations, so is unlikely to have been exposed to soil or groundwater contaminants resulting from aircraft maintenance operations conducted elsewhere at the airport site.

RESPONSE 2-5: See RESPONSE 2-1, RESPONSE 2-2, RESPONSE 2-3 and RESPONSE 2-4, above, which confirms the fact that there is no evidence in the record to warrant the need for soil or groundwater sampling to test for past chemical use and contamination.

RESPONSE 2-6: The Project site is located on a portion of the airport site that is vacant, and is not known or anticipated to be contaminated and in need of remediation. Therefore, given the absence of any identified sources of soil or groundwater contamination that potentially would impact this portion of the airport site, no remediation has been proposed as part of the Project.

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LETTER 3

May 12, 2009

MRN101392
MRN-101-14.71
SCH#2006012125

Mr. Kraig Tamborini
City of San Rafael
Community Development Department
1400 Fifth Avenue
San Rafael, CA 94901

Dear Mr. Tamborini:

San Rafael Airport Recreational Facility Draft Environmental Impact Report and Transportation Impact Report

Thank you for including the California Department of Transportation (Department) in the environmental review process for the San Rafael Airport Recreational Facility project. The following comments are based on the Draft Environmental Impact Report (DEIR) and the Transportation Impact Report (TIR). As the lead agency, the City of San Rafael is responsible for all project mitigation, including any needed improvements to state highways. The project's fair share contribution, financing, scheduling, implementation responsibilities and lead agency monitoring should be fully discussed for all proposed mitigation measures. This information should also be presented in the Mitigation Monitoring and Reporting Plan of the environmental document. Required roadway improvements should be completed prior to issuance of the Certificate of Occupancy. Since an encroachment permit is required for work in the state right of way (ROW), and the Department will not issue a permit until our concerns are adequately addressed, we strongly recommend that the City work with both the applicant and the Department to ensure that our concerns are resolved during the environmental review process, and in any case prior to submittal of a permit application. Further comments will be provided during the encroachment permit process; see the end of this letter for more information regarding encroachment permits. 3-1 3-2 3-3

Forecasting

TIR, Figure 11, Intersection 4a: Trips generated by the project were not included in the turning movements. The following volumes need to be corrected: eastbound (EB) through volume should be 726, not 698, westbound (WB) through volume should be 762, not 755, and WB right turn volume should be 821, not 716. 3-4

Signal Operations

1. What was the date and day of the week the volume counts were taken? 3-5
2. Please re-analyze Future conditions to the year 2035. 2020 conditions are not distant enough from the present year. Please re-submit the analysis for re-evaluation. 3-6
3. What are the operating hours of the recreational facility? 3-7
4. US-101 northbound (NB) off-ramp/Smith Ranch Road intersection: The intersection capacity utilization (ICU) level of service (LOS) Baseline condition is LOS D. The ICU LOS of the Baseline Plus Project conditions is LOS E making the intersection exceed the allowable LOS. Please develop a mitigation plan for the impacted intersection. 3-8
5. Please provide a construction schedule and timeline for the project. 3-9

Traffic and Highway Operations

1. TIR, Baseline Conditions, Local Access, page 10: The document states that Lucas Valley Road just west of US-101 is a 4-lane road, however, Lucas Valley Road is only a 2-lane facility. Please be advised that the separate turning lanes approaching the southbound (SB) ramp intersection are not counted in determining how many lanes a roadway is. Please revise. 3-10

2. Figure 3, Baseline Lane Configuration, page 12, shows a WB right turn lane for intersection #3 (NB ramp intersection). Existing, the WB right turn lane (to the NB on-ramp) starts from the Redwood Drive intersection, and completely has no connection at the NB ramp intersection. Therefore, the right turn lane shown for intersection #3 should be eliminated. Please revise. 3-11

3. It appears that the project's traffic increases the queues at intersections #3 & #4. Mitigation must be provided. For example, WB left turn lane at intersection #4 must be extended to accommodate the additional queue. Please be advised that the left turn lane must be designed per the Department's Highway Design Manual (HDM) which requires both storage (for queue) and deceleration. The link to the HDM is provided for your convenience: http://www.dot.ca.gov/hq/oppd/hdm/hdmtoc.htm 3-12

4. DEIR Figure 13-4 shows no peak hour project trips in the AM peak hour. Please explain. 3-13

5. Comparing Figure 13-7 with Figure 13-8 of the DEIR, the proposed project would add 240 trips to the SB on-ramp in the PM peak. These additional trips may have adverse impacts to the SB US-101 mainline. The document should address these impacts. 3-14

6. DEIR, Planned Roadway Improvements, page 13-35, notes, "The final General Plan 2020 traffic improvement for this area is a new southbound US-101 ramp at Los Gamos Road..." This conflicts with the statement in the TIR, Assumed Roadway Improvements, page 27, "... (widening) southbound US-101 off ramp for additional right and left turn lanes." Please provide clarification of the seemingly conflicting statements. 3-15

7. DEIR, Table 13-7: The LOS should be included in Table 13-7 on page 13-36 for intersections 4a and 4b as shown in Figure 13-8. 3-16

Encroachment Permit

Please be advised that any work or traffic control that encroaches onto the state ROW requires an encroachment permit that is issued by the Department. To apply, a completed encroachment permit application, environmental documentation, and five (5) sets of plans clearly indicating state ROW must be submitted to the address below. Traffic-related mitigation measures should be incorporated into the construction plans during the encroachment permit process. See the website link below for more information. 3-17
http://www.dot.ca.gov/hq/traffops/developserv/permits/

Michael Condie, District Office Chief
Office of Permits
California DOT, District 4
P.O. Box 23660
Oakland, CA 94623-0660

Should you require further information or have any questions regarding this letter, please call Sandra Finegan of my staff at (510) 622-1644.

Sincerely,

Lisa Carboni

LISA CARBONI
District Branch Chief
Local Development – Intergovernmental Review

c: State Clearinghouse

LETTER 3: Lisa Carboni, District Branch Chief, Local Development – Intergovernmental Review, CALTRANS, May 12, 2009

RESPONSE 3-1: Comment acknowledged. As the only Project-related traffic mitigation measure involves development of a Traffic Management Plan by the Project Applicant in the event that the proposed two-lane bridge deck is not installed as part of the Project, a discussion of fair share contributions, financing, scheduling, implementation responsibilities and lead agency monitoring is not warranted.

RESPONSE 3-2: Comment acknowledged. No off-site roadway improvements are proposed as part of this Project.

RESPONSE 3-3: Comment acknowledged. With no off-site roadway improvements proposed as part of this Project, there is no intention to apply for an encroachment permit.

RESPONSE 3-4: TIR Figure 11, Intersection 4a is correct. DEIR **Figure 13-7** was not updated to reflect the corrected information shown in TIR Figure 11. In response to this comment, DEIR **Figure 13-7** on page 13-36 has been replaced with TIR Figure 11 (See **REVISIONS** Chapter, below).

RESPONSE 3-5: New counts were taken on September 29, 2005 when the Project was initiated.

RESPONSE 3-6: City traffic modeling and land use data only analyzes 2020 condition, which is the General Plan 2020 build-out scenario. Thus, the year 2020 build-out condition applies for year 2035.

RESPONSE 3-7: As indicated on DEIR page 3-13, the operating hours of the recreational facility would be 9:00 AM to 10:00 PM Sunday through Thursday, and 9:00 AM to midnight Friday and Saturday.

RESPONSE 3-8: The intersection capacity utilization (ICU) level of service is not the methodology used by the City of San Rafael. The City's accepted level of service (LOS) calculation uses the intersection delay calculation methodology. Based on this methodology, the LOS meets the City LOS standards for all impacted intersections, therefore, no mitigation is required.

RESPONSE 3-9: The Project does not trigger roadway or signal improvements, therefore, there is no schedule or timeline for construction of any roadway, signalization or utility improvements off-site.

The Project Applicant has anticipated a two year construction timeframe as noted on DEIR page 3-21. However, the Mitigation Measures recommended in the DEIR would place further restrictions on exterior construction activities in order to address potential biological impacts

(**MM Bio-1a** [as modified, to include reference to Best Management Practices, SWPP and ECP plans that must be prepared for the Project]; **MM Bio-2d** [as modified]; **MM Bio 4a**; **MM Bio-4b**; **MM Bio-9**). This would impose a maximum 7 month construction window each year for exterior site work, with exterior construction work allowed from July 1 to February 1. DEIR page 3-15 notes that the work to install the new steel truss bridge structure to replace the existing bridge crossing Gallinas Creek has been estimated to take approximately two weeks (ten 8-hour working days). **Mitigation Measure Bio-6a** further restricts pile driving for the bridge to occur between September 1 through October 15 (1.5 months). This is the most significant timeframe restriction applicable to the Project. DEIR page 12-23 notes that the Project would be expected to require driving of 100 piles for the proposed building foundation. This work would be limited to occur within the 5 month construction window established by **MM Bio-2d** (i.e., September 1 to February 1). Finally, bridge demolition and replacement work may occur between August 1 to October 15 (2.5. months). Thus, implementation of the construction restrictions recommended in the DEIR mitigation measures could have some potential to extend the construction timeframe in order to complete all phases of exterior construction work within the prescribed timeframe limitations. However, the Applicant has provided a revised phasing schedule dated May 26, 2010, that indicates construction of the facility within the 2-year construction time-frame could still be achieved, as follows:

> **"Airport Sports Project Construction Schedule & Phasing**
>
> The schedule of work is based on best estimates assuming the ultimately approved project is substantially similar to that which has been proposed in this DEIR.
>
> Pre-Construction Building Permits/Fill Import
>
> Once the project receives planning approvals, it will likely take 12-15 months to prepare detailed building plans and process them for building permits through the City and other regulatory agencies. We intend to use this time productively to accept clean surplus fill material generated from other construction projects. This diverts the material away from local landfills while minimizing the need for new commercial excavation. In addition to the environmental benefits, this method of filling has the added advantage that the fill material will have time to naturally compress the native soil beneath, thereby reducing the amount of mechanical compaction needed during construction. The roadway to the project site will receive the first material. The dump trucks will unload the material in a roughly level fashion, and then drive back over the material to compress it. This will create an all weather haul road to the project site. Fill at the project site itself will generally be dumped in piles which will not be graded until the actual construction phase of the project begins, therefore there will be no ground disturbing activities associated with the fill import process.

Phase 1	Rough Site Work	Year 1

The current Draft EIR calls for ground disturbing activities to be limited to the 3.5 month time period between July 1 and October 15. In order to finish the project in 2 years time, it will be necessary to complete all the project rough grading and install the building piers during this window in Year 1. The rough grading will include grading and compacting the fill material at the building, fields, and parking areas. The building pad will be graded first since the building piers cannot be installed until the rough grading is completed. We anticipate the building pad will be ready within 45-60 days, which should leave ample time for the pier installation, which is expected to take less than 30 days. We plan then to move immediately into forming and pouring the building foundation which sits on top of the piers, which we expect to complete by year's end.

Phase 2	Building/Final Site Work	Year 2

Erection of the building shell will occur during the January-April time frame of Year 2. Wood frame construction cannot typically be done during this time of year, but metal buildings can be so long as there are reasonable breaks between storms, which in most years is the case. Once the windows and metal roof/wall panels are installed, the interior work can begin on the building. It is expected that the interior work will take 6 months to complete. This will include constructing the interior Field Turf fields as well as the lockers, offices, and viewing areas. The final site improvements will be completed after the winter rains are finished. This will include utilities, landscaping, hardscaping, final drainage improvements, exterior lighting, and paving. This work will be conducted in unison with the interior building improvements and completion is expected by November of Year 2.

Phase 3	Outdoor Fields	TBD

Fill and grading for the outdoor fields will take place as outlined in earlier phases.

Completion of the fields will depend on the final playing surface chosen and the ability of the soccer operator to acquire funding for the installation. The soccer operator wishes to install all weather synthetic Field Turf on the outside fields, but has stated in the DEIR that the ability to do so is dependent on receiving approval for nighttime field lighting. Without night lighting, the rental income from the outdoor fields is insufficient to support the high installation cost of Field Turf. Additionally, the soccer operator has indicated they may need some time to establish their business before they can afford the added expense of completing the outdoor fields. For these reasons the final playing surface for the outdoor fields may be completed in a follow-up phase. In the interim they hope to get some level of summer use of the fields by simply seeding them.

> The above estimates are based on our over 30 years of commercial construction, leasing, and finance experience in Northern California, including several projects of a similar size in close proximity to the project site (San Rafael Airport 2001 Master Plan Project, Autodesk HQ Building, 1 McInnis Parkway, Bay Park Office Center, H&H Storage). In our experience a project of this size would normally take 12-18 months to complete, and the construction loan would contain an outside 2 year time limit. Because of the limited construction windows contained in the draft EIR, we will not be able to complete this project in a normal time period. However, by performing the fill import during the pre-construction stage of the project, we should be able to complete the actual project construction in 2 years. This is critical for project financing for two related reasons: (1) construction loans are typically limited to two years, and (2) construction loans typically require Tenant commitments, and in our experience Tenants cannot commit to a project that will not be ready for more than 2 years (in fact we already lost our baseball tenant for this reason). One of our Project Objectives as stated in the EIR is to achieve traditional commercial financing. Project approval conditions, including construction time windows, should be carefully crafted so they do not conflict with this Project Objective."

It should be noted that for any project, construction schedules can be affected by adverse weather conditions and other circumstances which may lead to delays in completing specific construction tasks as scheduled. Even if such schedule delays were to occur during construction at the Project site, the City would continue to require full compliance with all mitigation measures intended to reduce any potentially significant environmental impacts associated with construction activity, including those mitigation measures associated with the timing of ground disturbance and other construction activity specifically to avoid potentially significant effects on fish and wildlife.

RESPONSE 3-10: Comment is noted and is correct that the segment of Lucas Valley Road is 2-lane; however, at the intersection the roadway opens up to 4 lanes.

RESPONSE 3-11: This statement is noted and correct. However, westbound right turn starts west of Redwood Highway/Smith Ranch Road and has been coded as a free movement at intersection 3. Since this movement does not impact the intersection, it has been coded separately to keep track of the volume and movements at intersections to analyze conditions at intersections.

RESPONSE 3-12: Both the DEIR and Transportation Impact Report (TIR) prepared for the Project (DEIR **Appendix K**) did not discuss queue at intersections. The TIR Page 23 does discuss bridge backup. The worst peak queue increase identified in the TIR (Baseline PM at westbound Smith Ranch at 101 Northbound Off Ramps) would result in fewer than 6 cars. (DEIR **Appendix K**, Transportation Impact Report, Page 24). This would continue to be monitored as part of the City's routine traffic operations monitoring, As part of routine traffic operations monitoring, these queues can be addressed by re-optimizing the intersections

signal timing and coordination. In addition, major improvements planned for General Plan 2020 have already considered this and includes planned improvements to address future conditions. The City will work with Caltrans on signal optimization.

RESPONSE 3-13: There are no Project-related trips in the AM peak hour. The Project does not operate during the AM peak hour.

RESPONSE 3-14: As noted in RESPONSE 3-4, above, DEIR **Figure 13-7** (page 13-36) has been replaced with TIR Figure 11 (See **REVISIONS** Chapter, below). Using the correct figure shows this will add 105 trips for SB onramp in the PM peak, not 240.

RESPONSE 3-15: Comment noted and is correct. In response to this comment, the text of the paragraph under ASSUMED ROADWAY IMPROVEMENTS in DEIR Volume II, Technical Appendices, **Appendix K**, page 27 has been deleted and replaced with the following text:

> "The *San Rafael General Plan 2020* identifies proposed roadway improvements along Lucas Valley Road, just west of U.S. 101. The final *General Plan 2020* traffic improvement for this area is a new southbound US 101 ramp at Los Gamos Road, which will address currently deficient operations at the US 101 Ramps and Smith Ranch Road. Additionally, the *San Rafael General Plan 2020* proposes bike lanes along Smith Ranch Road and Silveira Parkway. The roadway improvements are funded through the payment of traffic mitigation fees. The Project would be required to pay these fees as a condition of Project approval."

In response to this comment, the text of the two paragraphs under TRAFFIC IMPACTS in DEIR Volume II, Technical Appendices, **Appendix K**, page 27 and referenced tables and figures have been deleted and replaced, as follows:

> *"General Plan* conditions (year 2020) peak hour traffic volumes for the study intersections come from the City of San Rafael's Traffic Model provided by City staff. Revised Figures 10 and 11 (DEIR **Figures 13-7** and **13-8)** illustrate the General Plan and General Plan with Project traffic volumes. Revised Table 10 (DEIR **Table 13-7)** summarizes the results of the analysis of intersection operations expected for the year 2020. The table shows that all study intersections are expected to operate at LOS D or better under year 2020 conditions with and without the Project. Based on the significance criteria applicable to the Project based on General Plan 2020: Circulation Element **Policy C-5A** provided above, a Project would result in a significant traffic impact to an intersection if Project traffic would contribute to reducing its LOS from an acceptable level (LOS D in this area) to an unacceptable one; or if said intersection is already operating at an unacceptable level, a significant impact would occur if Project traffic added five (5) or more seconds of delay. However, as discussed above, based on *General Plan 2020: Circulation Element* **Policy C-5B**, the arterial LOS analysis is not the primary method of utilized in this

analysis to determine traffic impacts. Although the westbound Smith Ranch Road arterial segment would deteriorate from LOS D to LOS E under General Plan + Project conditions, the intersections associated with this arterial–Redwood Highway & Smith Ranch Road and US-101 Ramps & Smith Ranch Road–would continue operating at acceptable levels of service. Based on this analysis, the development of this property is within the build-out scenarios analyzed by the General Plan EIR and therefore would not result in significant cumulative impacts."

RESPONSE 3-16: This intersection for General Plan 2020 build-out will be reconfigured, therefore, the ID numbers changed. DEIR **Figure 13-8** (page 13-39) was corrected, but the ID numbers in DEIR **Table 13-7** (page 13-36) were not updated. In response to this comment, DEIR **Table 13-7** has been modified to be consistent with DEIR **Figure 13-8**, as follows:

ID 4 changes to ID 4A

ID 5 changes to ID 4b

ID 6 changes to ID 5

RESPONSE 3-17: It is acknowledged that any Project-related work or traffic control that encroaches onto the State right-of-way will require an encroachment permit.

LETTER 4

COUNTY OF MARIN
DEPARTMENT OF PARKS AND OPEN SPACE
3501 CIVIC CENTER DRIVE, SUITE 415, SAN RAFAEL, CA 94903
415/499-6387 - FAX 415/499-3795

RECEIVED
MAY 11 2009
PLANNING

May 11, 2009

Kraig Tambornini
Community Development Agency
City of San Rafael
1400 Fifth Avenue
San Rafael, CA 94901

RE: Draft Environmental Impact Report (DEIR) for the San Rafael Airport Recreational Facility

Dear Mr. Tambornini:

Thank you for the opportunity to review and comment on the above-referenced DEIR. The applicant is proposing to construct a private recreational facility that includes a building that houses indoor fields and courts, spectator seating, offices, food and beverage services, and meeting rooms. In addition, the recreational facility includes two outdoor fields with exterior lighting, landscaping, parking, fencing, and bridge improvements. Marin County's McInnis Park adjoins the proposed project to the north. McInnis Park includes 283 acres of wetlands, which are home to wetland dependent wildlife, including the endangered California clapper rail and salt marsh harvest Mouse. Potential impacts to the park's wildlife resources are the basis for most of the comments that follow.

AESTHETICS

- In assessing the aesthetic impacts described in *PROJECT IMPACTS AND MITIGATION MEASURES* (pages 5-7, 5-8), the DEIR did not consider the impact on the recreational use of the levee trail. The City of San Rafael's *General Plan 2020* contains Community Design Element, Policy CD-5a, which states, "Respect and enhance to the greatest extent possible, views of the Bay and its islands, Bay wetlands, St. Raphael's church bell tower, Canalfront, marinas, Mt. Tamalpais, Marin Civic Center and hills and ridgelines from public streets, parks and publicly accessible pathways" (page 5-4). Part of the user experience and enjoyment of walking along the public shoreline trail in McInnis Park includes the existing open, scenic views of the hills to the south and west. The proposed building may significantly impact this experience. **4-1**

- Also in this section (page 5-6), the DEIR defines a "significant impact to scenic vistas and public view if development would result in the loss of ½ of the view of the resource, either panoramically (horizontal plane) or vertically (measured bottom-to-top)." Based on this standard, the project's impact on views from the shoreline trail in McInnis Park looking to the south would be significant. This includes scenic views of the hills behind Santa Venetia, Mt. Tamalpais and the historic Marin County Civic Center. Instead of "respecting and **4-2**

enhancing" these views, the project will block more than half of the panoramic and vertical views. This may represent a significant impact.

- *Public View #5* shows trees screening the proposed building while the plans indicate a shrub planting of *Myrtus communis*. These shrubs would not grow high enough to screen the building. The plans should coincide with the photomontage and indicate screen planting with trees. 4-3

BIOLOGICAL

- In section *Impact Bio-2* (page 7-64), the DEIR states that the proposed project includes a 100-foot setback from the top of the bank of Gallinas Creek. Since the creek supports salt marsh habitat along sides of the creek that is used by the California clapper rail, which is a federally listed endangered species, the buffer should be from the upland edge of the salt marsh or the top of the bank of the creek, which ever provides the biggest buffer. 4-4

- In that same section (page 7-65), the DEIR concludes that the ambient noise from the operation of the facility will not significantly affect the clapper rail, because the resident birds have become accustomed to heavy human use. However, the EIR does not include any evidence to support this conclusion. 4-5

- This section also states (page 7-66) that the project will not affect clapper and black rails because project construction will not commence until July 1, "when young rails can be expected, in most cases, to have fledged." However, this project component measure may not prevent impacts to the clapper and black rails, because these birds could be nesting in July. *Mitigation Measure Bio-2d* (page 7-68) should be modified to prohibit construction until a qualified biologist determines that the juvenile clapper and black rails within the vicinity of the project have fledged. 4-6

- *Mitigation Measure Bio-2b* (page 7-67) requires the recording of a "declaration of covenants, conditions and restrictions" over the marsh and upland buffers adjacent to the north fork of Gallinas Creek. The use of a restrictive covenant is not the most effective tool to permanently protect this sensitive area. Rather, the mitigation measure should be revised to require the applicant to encumber he protected area with a conservation easement. 4-7

- In section *Impact Bio-3* (page 7-69, 70), the DEIR concludes that night lighting for outdoor soccer fields could have a potentially significant impact on wildlife. The DEIR includes two mitigation measures to address this impact: 1) *MM Bio-3a* requiring design changes to prevent direct lighting from affecting off-site areas; and 2) *MM Bio-3b*, restricting night light to 10:00 p.m. These mitigation measures may be inadequate to minimize the impact from night lighting due to changes that may occur if the lights are not properly maintained (e.g. light hoods and focus angles). In addition, the impact from night lighting should be reviewed in the context of noise and human presence in the vicinity, which may have an cumulative impact on wildlife within the north fork of Gallinas Creek. 4-8

- In section *Impact Bio-4* (page 7-71), the DEIR concludes that the project could adversely affect nesting raptors. *Mitigation measure Bio-4c* partially addresses this impact by requiring a 300-foot buffer around any identified raptor nest. However, this measure allows a biologist to reduce the size of the buffer if it is determined that the raptor is acclimated to people and disturbances. This may not be appropriate because such a determination would be difficult to assess. In addition, a reduced buffer area could result in adverse effects on nesting juveniles. 4-9

HYDROLOGY

- In describing sea level rise (page 11-34), the DEIR relies on a 1995 prediction that sea level will rise 0.5 foot. However, the California Climate Action Team projects that sea level will rise between 20 and 55 inches (0.5 and 1.4 meters) by the year 2100. Therefore, this section of the EIR should be revised to reflect current data. **4-10**

NOISE

- The *INTRODUCTION* to the *NOISE* section (page 12-1) states, "Proposed lighting would allow soccer games to occur on the outdoor soccer field during evening hours (until 11 p.m. on Sundays through Thursdays and until midnight on Fridays and Saturdays)." This is contradictory to Biological mitigation measures *MM Bio-2e* and *MM Bio-3b*, both of which require the outdoor games to end at 10 p.m. Mitigation measure *MM N-1* (page 12-21) states that outdoor fields will close at 9 p.m. Sunday through Thursday and 10 p.m. on Friday and Saturday. The DEIR should identify a consistent outdoor field closure time though out the document based on required mitigations. **4-11**

- In the Illingworth & Rodkin *Environmental Noise Assessment*, Appendix J, no noise measurement locations were situated within McInnis Park. There are no L_{dn} or Day/Night average noise levels for park. It is therefore difficult to evaluate the noise effect on McInnis Park in relation to existing use. **4-12**

- In mitigation measure *MM N-1*, a noise wall is suggested along the southern project boundary. If such a wall is built, the EIR should assess the potential for noise to be reflected toward McInnis Park. **4-13**

- Noise impacts to sensitive habitat are discussed in Section 7 *BIOLOGICAL RESOURCES*. In general, the DEIR states that due to the existing uses at McInnis Park, the California clapper rail, a federally and state listed endangered species, are well acclimated to high levels of human activity on the north side of the North Fork of Gallinas Creek. The report concludes therefore that any noise generated from the new facility or additional lighting would not be a significant impact. This may not be true since there is no evidence provided in the DEIR to indicate that additional noise, day and night, and additional lighting would not disturb these species, or other birds and wildlife in the area, or that they would be able to acclimate to these new intrusions (noise, light, human activity) on their habitat. **4-14**

- The DEIR analyzes construction impacts to the California clapper rail based on their breeding season, defined in the DEIR as February through August. Mitigation measure *MM Bio-2d* sets a construction commencement date of July 1. To protect late fledglings, construction commencement date should be changed to August 1 with finish no later than January 31. In addition, year-round impacts to the clapper rail, black rail and other birds that transit the site other times of the year also should be analyzed. **4-15**

TRAFFIC

- Under *Trip Generation* (page 13-22), the Weekend Peak Hour is not is not defined. Determination of weekend peak use periods along Smith Ranch Road, particularly at Silveira Parkway, should consider the weekend peak use periods of McInnis Park. **4-16**

- In Design Hazards and Emergency Access (page 13-27 through 13-29), the DEIR identifies a potentially significant impact if the one-lane bridge remains in place. If the one-lane bridge remains in place, the suggested mitigation is the development of a Traffic Management Plan (TMP). The DEIR does not address nor require public review and comment of the TMP, nor does it specifically indicate that the applicant must follow the recommendations outlined. **4-17**

- This section should address the private roadway from Smith Ranch Road to the bridge, which will require users of the proposed facility to negotiate vehicles through a 180° change in direction followed by a 90° turn onto the bridge. The EIR should assess whether this complicated entrance road to the facility would cause traffic to queue back onto Smith Ranch Road, impeding circulation to McInnis Park and Silveira Parkway. **4-18**

ALTERNATIVES

- In describing the "no project alternative" (page 16-6), the DEIR acknowledges that the proposed project "is not consistent with the current Planned Development District and Master Use Permit established for the airport site." However, the "no project alternative" identified in the DEIR describes a lighted outdoor soccer field, a warm-up area and a playground. A lighted soccer field may not represent the "predictable" result from development of the site for recreational purposes. The DIER should revise the "no-project alternative" to reflect recreational use without lighting. **4-19**

Thank you again for the opportunity to comment on the DEIR for the proposed San Rafael Airport Recreation Facility. If you have any questions about these comments please contact me.

Sincerely,

Stephen Petterle, ASLA
Principal Park Planner

c: Sharon McNamee
Ronald Miska
Elise Holland
Marin County Board of Supervisors

LETTER 4: Stephen Petterle, ASLA, Principal Park Planner, County of Marin Department of Parks and Open Space, May 11, 2009

RESPONSE 4-1: Opinion that the proposed structure may significantly impact the viewing experience of those walking along the levee trail is noted. Project-related visual impacts perceived by those using the levee trail have been modeled as shown on DEIR **Figure 5-4** and DEIR **Figure 5-5** (pages 5-19 and 5-21, respectively). The DEIR did in fact consider the visual impact of the Project on recreational use of the trail by pedestrians, as well as recreational use of the creek by boaters and kayakers. This was done specifically in consideration of the referenced General Plan 2020, Policy CD-5, as documented on DEIR page 5-6 which identifies that Policy CD-5 establishes the threshold criteria used for evaluating the visual impacts of the project, then goes on to discuss impacts including impacts to users of the trail. Further, MASTER RESPONSE AES-2 provides additional discussion regarding the process used to select the conservative vantage points used to evaluate proximate and distant view impacts to users of the levee trail. As shown in these figures, the proposed structure at the Project site would alter existing views from those vantage points along the levee trail. However, as explained on DEIR page 5-23, views along portions of the levee trail are already reduced to some extent by existing trees. Project-related impacts to views from this trail would be limited to a 600-foot section. The majority of distant views that can be enjoyed from the entire trail system that runs along the levee/creek would remain unaltered by the proposed Project. Further, none of the projects identified in the Cumulative Projects List in DEIR Chapter 14 would have an incremental impact on these existing views from the trail system. Based on the DEIR analysis, the Project-related impact on views from the levee trail would be considered less than significant.

RESPONSE 4-2: Opinion regarding the significance of Project-related impacts on views from the shoreline of McInnis Park looking south is noted. As mentioned above, the Project impact would be limited to 600-foot section of the views from the levee trail. The potential impacts to views of the hills, Mt. Tamalpais and the Civic Center have been evaluated on DEIR pages 5-7 and 5-8. As illustrated in the photo simulations prepared for the Project, the new building would block 1/3 of the views of hills to the south, when standing on the trail with the building between the trail and hillside, and would only interrupt views of Mt. Tamalpais and the Civic Center for a limited 600-foot section of the extensive levee trail system which extends east and west along the creek past the Project site. Therefore, this impact is considered less than significant.

RESPONSE 4-3: No "Public View #5" was provided in the DEIR, as the analysis was limited to Public Views #1 through #4. On DEIR page 5-20, **Figure 5-5** shows the visual simulation associated with Public View #4, which shows vegetation blocking the view of the proposed structure at the Project site. A comparison of the location of Public Viewpoint #4 as shown in DEIR **Figure 5-1** (page 5-13) with DEIR Figure 3-10 (page 3-37) indicates that the vegetation blocking the view of the structure from that vantage point would be Myrica californica (Pacific wax myrtle), which can grow to 30 feet in height.

RESPONSE 4-4: Opinion regarding the extent of the setback from Gallinas Creek to be provided at the Project site is noted. As indicated on DEIR page 7-64, the distance between the proposed recreational facility and the top of the levee along the North Fork of Gallinas Creek will be 100 feet or greater. Since the 100+ foot setback was actually measured from the top of the levee (which is further away from the marsh habitats), it provides a greater buffer.

RESPONSE 4-5: The multiple surveys conducted along Gallinas Creek conducted during the nesting season indicate that clapper rails successfully nest/reproduce in the marsh habitats along this creek. The DEIR describes the high level of disturbance associated with all sides of the two branches of Gallinas Creek in the vicinity of the Project site. Hence, for clapper rails to persist in this area they must be successfully reproducing, and thus one must assume that the clapper rails have become accustomed to heavy human disturbances in this area. Survey data indicates that they likely nest adjacent to a pedestrian walking path with frequent dog traffic. Wildlife, and birds in particular, are able to habituate to human beings and associated disturbances, especially when the stimuli is predictable (routine or repeated sounds) and when the disturbances that are non-threatening, as illustrated by Knight and Temple 1995[1] , Knight and Cole 1995[2] , and Riffell et. al. 1996[3]. See RESPONSE 44-6, below, for additional discussion of Project-related noise effects on wildlife.

RESPONSE 4-6: The DEIR provides some biological reasoning for the proposed July 1 construction start date for the recreational facility. By July 1, most young rails can be expected, in most cases, to have fledged. While not typical, there are cases where rails may lose their first clutch of eggs and can then successfully recycle (i.e., lay a second clutch of eggs), thereby delaying completion of the nesting cycle by up to a month. Regardless, commencement of construction of the recreational facility in July would be at a time when the recycle attempt is far enough along to ensure that the adult level of commitment to completing the nesting cycle is firmly established. Hence, M&A believes that the proposed July 1 construction start date for the recreational facility will not adversely affect nesting clapper rails near the Project site. In response to this comment, the text of the *first bulleted paragraph* of **Mitigation Measure Bio-2d: California Clapper Rail and California Black Rail – Avoidance Measures** (DEIR pages 2-11 and 7-68) has been modified to read as follows:

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[1] Knight and Temple 1995. Chapter 6: Origins of wildlife responses of recreationists, Wildlife and Recreationists: Coexistence Through Management and Research. Editors: Richard L. Knight and Kevin J. Gutziller, Island Press, 1995 Washington, D.C.

[2] Knight and Cole 1995. Chapter 5: Factors that influence wildlife responses to recreationists, Wildlife and Recreationists: Coexistence Through Management and Research. Editors: Richard L. Knight and Kevin J. Gutziller, Island Press, 1995 Washington, D.C.

[3] Samuel K. Riffell, Kevin J. Gutzwiller, Stanley H. Anderson. 1996. Ecological Applications Vol 6, No. 2 (May 1996). Pp 492-505

"Pile driving associated with the recreational facility building shall not commence until September 1st and shall be completed by February 1st. Outside of pile driving, exterior construction of the recreational facility shall be allowed between July 1st and February 1st without limitation. Interior work shall be allowed without timing limitations. Construction ~~of the recreational facility~~ shall not commence on the recreational facility Project ~~until~~ on July 1st until a qualified biologist determines that there are no nesting California Clapper Rails or California Black Rails within 200 feet of the Project construction envelope. In the event nesting rails are found within 200 feet of the Project site on or after July 1st, construction shall be delayed until the nesting attempt is completed and the nest is abandoned or a qualified biologist determines that the nesting would not be adversely affected by commencement of the project. If California Clapper Rails or California Black Rails are determined to be nesting between 200 feet and 500 feet from the Project construction envelope on July 1st, the Project may proceed if a qualified biologist determines that the nesting rails would not be affected by the proposed construction activities. Under all circumstances any nest identified within 500 feet of the Project construction envelope would be monitored by a qualified biologist while construction activities were in progress. The monitoring biologist would have the right to shut down any and all construction activities immediately in the event that such activities were determined to be disturbing the nesting attempt. Nests greater than 500 feet away would not require biologist monitoring ~~when the rails can be expected, in most cases, to have fledged young. Construction of the recreational facility could extend into October, with interior work allowed throughout the year~~.

To account for California clapper rails or black rails, and other special-status birds, that ~~likely~~ occur and nest in the marsh habitats along the creek in the immediate area of the bridge, all work associated with the new bridge, including the demolition of existing bridge deck, installation of the new deck, and other bridge improvements, shall be restricted to August 1 to October 15. The bridge pile-driving dates shall be further restricted to September 1 and October 15 when potentially occurring anadromous fish would not be expected to occur in the channel. This "avoidance window" is outside of the California clapper rail, California black rail, and other special-status birds breeding seasons, thereby eliminating the potential that bridge reconstruction activities would disrupt breeding attempts. This mitigation measure provides conservation measures that are consistent with the ISP Best Management Practices."

RESPONSE 4-7: Opinion regarding the use of a restrictive covenant to permanently protect sensitive areas at the airport site is noted. Suggestion to utilize a conservation easement for this purpose is noted.

There is a legal distinction between an easement and deed restriction, and **Mitigation Measure Bio-2b** (DEIR page 7-67) [as modified in FEIR Chapter 2 to condense and clarify

this requirement for a conservation area deed restriction] refers to the latter. An easement would only be appropriate and could be required if the restriction were granting a true easement or access rights to another party, such as the City or a non-profit. This is not the intent of the restriction in this case, as described in **MM Bio-2b**. Therefore, the restrictive covenant, or deed restriction naming the City as a party is the appropriate tool, and is the mechanism recommended to be recorded on the property by the City Attorney. The City would be a named as party to the restriction, as similarly done in the restrictive covenant currently restricting land uses on the party; which names the City and County as parties to the agreement.

A conservation easement would require that the land be managed by a qualified third party conservator. It is unlikely that a qualified conservation organization would materially alter the management of the land that already will be preserved as buffer, due to routine maintenance that must be implemented by the airport to ensure aviation safety. Indeed, such land management would only amount to compliance monitoring, since the airport must maintain its management authority over the protected buffer area. In lieu of a conservation easement, the proposed deed restriction provides a viable, permanent method for land protection. The covenants of the open space deed will require that the property owner (Project Applicant) manage and maintain the preserved land in perpetuity to ensure that the resource values of the preserved land remain protected forever. A deed restriction shall be recorded that specifies the prohibited and the allowed uses of the preserved area. The allowed uses would include the continued maintenance of the fields and levees, while the prohibited uses would prohibit any future development or land disturbance (outside of that required for routine maintenance and levee repairs) within the 100+-foot creek protection buffer that is designated as a conservation area. The deed restriction will become a condition of Project approval. Finally, it should be noted that compliance with the protective measures prescribed in the deed restriction shall be plainly visible to the public at large.

RESPONSE 4-8: The potential light and glare impacts of the Project on the surrounding community are analyzed in **Chapter 5: Aesthetics**, of this DEIR. Chapter 5 notes that the Project Applicant proposes a state-of-the-art, environmentally-friendly lighting system designed by Musco Lighting that uses 50 percent less electricity and produces 50 percent less spill and glare than traditional fixtures. Implementation of **Mitigation Measure Bio-3a: Nocturnal Lighting** (DEIR page 7-70) would also reduce Project-related lighting impacts that might adversely affect wildlife. See MASTER RESPONSE AES-2 and MASTER RESPONSE BIO-3, above, which also address the effects of Project-related glare and lighting on wildlife.

RESPONSE 4-9: The conclusion drawn by the commenter that "This may not be appropriate because such a determination would be difficult to assess" may be true for the public at large or unqualified raptor biologists that lack experience assessing raptor impacts. In fact, behavioral patterns are very telling regarding levels of agitation in nesting raptors. The young would be unlikely to disperse into harms way and, in fact, would be expected to fledge in

directions that are out of harms way. The monitoring biologists' job would be to make sure that both the adults and young are not adversely affected by the construction project in the event the nesting buffer was reduced in size. In response to this comment, the text of the *second bulleted paragraph* under **MM Bio-4c: Nesting Raptors – Preconstruction Nesting Surveys** (DEIR pages 2-14 – 2-15 and 7-68) has been modified to read as follows:

> "If a nesting raptor species is identified, a 300-foot radius buffer around any active nest site that is located on or within 300 feet of the Project site shall be fenced with orange construction fencing. If the nest is off the Project site, the Project site shall be fenced where this buffer intersects the project area. This 300-foot buffer may be reduced in size if a qualified raptor biologist determines that the nesting raptors are acclimated to people and disturbance, and/or otherwise would not be adversely affected by construction activities. At a minimum, however, the non-disturbance buffer shall be a radius of 100 feet around the nest site. When construction buffers are reduced from the 300 foot radius, a qualified raptor biologist shall monitor distress levels of the nesting birds until the young fledge from the nest. If at any time the nesting raptors show levels of distress that could cause nest failure or abandonment, the raptor biologist shall have the right to re-implement the full 300-foot buffer. Instances when the buffer could be reduced in size would be if the raptors were well acclimated to disturbance and/or if there were physical barriers between the nest site and the construction project that would reduce disturbance to the nesting raptors."

RESPONSE 4-10: See MASTER RESPONSE HYD-4, above, regarding anticipated future sea level rise.

RESPONSE 4-11: As currently proposed, the outdoor soccer field at the Project site would be in use under lights until 11:00 PM Sunday through Thursday, and until midnight on Friday and Saturday. This nighttime operating schedule was identified as having a potentially significant adverse impact on wildlife nearby, and implementation of **Mitigation Measure Bio-3a** and **Mitigation Measure Bio-3b** [as corrected] (which would restrict the field lighting to the hours before 10:00 PM) would reduce that impact to a level considered less than significant (see DEIR pages 7-69 and 7-70). In the discussion of Project-related noise impact, the proposed nighttime operating schedule for the outdoor fields was identified as having potentially significant impacts in that it would generate noise exceeding standards established in the City's Noise Ordinance. This potential impact could be reduced to a level considered less than significant through implementation of **Mitigation Measure N-1** (which would restrict outdoor field lighting to the hours of 10:00 PM. Thus, with implementation of the Mitigation Measures, as proposed, the Project impacts would be reduced to a level of less than significant and the most restrictive hours of operation on use of the facility and outdoor fields would apply to the Project operations; if approval of the related entitlements is ultimately granted.

RESPONSE 4-12: A limited number of noise measurement locations were selected to provide a representative sample of existing noise levels on, and in the vicinity of, the Project site, and no noise measurements were taken within McInnis Park. As indicated on DEIR page 12-15, there are no City or State requirements for acceptable maximum noise levels in outdoor recreation or sporting event areas. DEIR page 12-18 states: "Although there are no ordinance limits for recreational uses such as those located to the north in McInnis Park and these recreational uses are not considered noise-sensitive, the shoreline trail would be located as close as 300 feet from the proposed soccer field. At this distance, hourly noise levels generated by outdoor soccer activities could reach 52 dBA (Leq) and 56 dBA (Lmax). While soccer-related noise would likely be audible on this trail, the west end of the trail is already located closer to soccer and softball fields within the Park and already subject to such noise levels. Therefore, the Project's soccer field-related noise is not expected to significantly affect existing recreational uses in McInnis Park." As indicate in the discussion of construction-related impacts associated with development of the Project site as proposed (DEIR pages 12-22 through 12-25), temporary impacts at McInnis Park could be reduced to a level considered less than significant through implementation of **Mitigation Measure N-2** [as amended] and **Mitigation Measure N-3**.

RESPONSE 4-13: **Mitigation Measure N-1** [as modified] (DEIR pages 12-21 and 12-22) indicates that the potentially significant noise impact associated with use of the outdoor recreational facilities during nighttime hours (i.e., 9:00 PM Sunday through Thursday and 10:00 PM Friday and Saturday) could be reduced to a level considered less than significant either through a restriction prohibiting use of those facilities during the nighttime hours, or through monitoring of the use during nighttime hours to ensure and enforce compliance with the City's Noise Ordinance. This measure has been modified to eliminate construction of a soundwall as an alternative, rather, relying on monitoring and enforcement of the City Noise Ordinance as the acceptable approach to adequately address this impact. See **MASTER RESPONSE NOI-1**, above, for further discussion regarding the potential nighttime noise impacts.

RESPONSE 4-14: Opinion regarding the extent to which California clapper rail have adapted to human activity in the vicinity of the Project site is noted. The multiple surveys conducted along Gallinas Creek during the nesting season indicate that clapper rails successfully nest/reproduce in the marsh habitats along this creek. The DEIR describes the high level of disturbance associated with all sides of the two branches of Gallinas Creek in the vicinity of the Project site. Hence, for clapper rails to persist in this area they must be successfully reproducing, and thus one must assume that the clapper rails have become accustomed to heavy human disturbances in this area. Survey data indicates that they likely nest adjacent to a pedestrian walking path with frequent dog traffic. Wildlife, and birds in particular, are able to habituate to human beings and associated disturbances, especially when the stimuli is predictable (routine or repeated sounds) and when the disturbances that are non-threatening,

as illustrated by Knight and Temple 1995[4], Knight and Cole 1995[5], and Riffell et. al. 1996[6]. See RESPONSE 44-6, below, for additional discussion of Project-related noise effects on wildlife.

RESPONSE 4-15: Opinion regarding the appropriate dates on which to carry out construction activity at the Project site is noted. See RESPONSE 4-6, above, which provides the modified text for **Mitigation Measure Bio-2d**, which will ensure that birds nesting after July 1 are not impacted by the proposed Project.

The DEIR states that once the recreational facility is operational, clapper rails in the marsh habitats to the north of the site are not expected to be significantly adversely affected. Clapper rails living in this area have already become accustomed to heavy human disturbances, and they nest adjacent to a pedestrian walking path with frequent dog traffic (See RESPONSE 44-6, below). Moreover, as discussed in the noise analysis in Chapter 12 of this DEIR, noise levels around the Project site are already elevated due to the pre-existing airport, nearby freeway, sporting events at the neighboring park, and golfers in the driving range located on the North Fork of Gallinas Creek. Due to the high degree of human activity and disturbance that already exists in the area around the airport, it is expected that most wildlife using the North Fork of Gallinas Creek would readily acclimate to new noises generated by the proposed facility. Furthermore, additional noise generated at the recreational facility would be minimized by the proposed creek setback/buffer. Development of the Project site as proposed will be required to comply with the provisions of the federal Migratory Bird Treaty Act, which will provide protection for other birds which may transit the site year-round.

RESPONSE 4-16: The City's significance threshold for LOS impact analysis applies to weekday AM and PM peak hours, pursuant to *San Rafael General Plan 2020*, Policy C-5, and as noted on DEIR page 13-21 (as modified). Trip generation was developed for those peak hours. The park peak hour use does not correspond with the weekday peak hour, and does not have traffic impacts at the intersections studied in the DEIR. This would be considered if activities or events were proposed large enough to require off-site parking or traffic control. Such activity would need to be coordinated with peak park hours. The Project does not propose such events. A condition of approval would be included requiring that,

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[4] Knight and Temple 1995. Chapter 6: Origins of wildlife responses of recreationists, Wildlife and Recreationists: Coexistence Through Management and Research. Editors: Richard L. Knight and Kevin J. Gutziller, Island Press, 1995 Washington, D.C.

[5] Knight and Cole 1995. Chapter 5: Factors that influence wildlife responses to recreationists, Wildlife and Recreationists: Coexistence Through Management and Research. Editors: Richard L. Knight and Kevin J. Gutziller, Island Press, 1995 Washington, D.C.

[6] Samuel K. Riffell, Kevin J. Gutzwiller, Stanley H. Anderson. 1996. Ecological Applications Vol 6, No. 2 (May 1996). Pp 492-505

should any special large events be proposed, they would need to be coordinated with all other events and peak uses. Such review would be conducted by the City traffic engineering division.

RESPONSE 4-17: Comment regarding the absence of a public review process for a Project-related Traffic Management Plan (TMP) (if one were required by the City of San Rafael to be developed by the Project Applicant to mitigate **Impact Traf-1** [DEIR page 13-27]) is noted.

However, the 2-lane bridge deck will be installed as proposed in the DEIR Project Description; as the Applicant has secured the requisite Streambed Alteration Agreement from Fish & Game (see DEIR **Appendix C** and DEIR pages 3-13 and 3-15) which is effective through 12-31-2013. Therefore, the TMP that was developed as a contingency measure, in the unlikely event the existing single-lane access bridge were to remain, is not required and the related **Impact Traf-1** discussion has been removed from the DEIR discussion as it is no longer pertinent. Further discussion regarding queuing capacity that exists on both sides of the bridge and implementation of **MM Traf-1** is no longer necessary, thus this has been omitted in the FEIR.

RESPONSE 4-18: Opinion regarding the need for the DEIR to assess potential traffic delays associated with vehicles negotiating the entrance road to the Project site is noted. Although there are turns involved in entering the Project site, the existing driveway approach is designed for very low speeds and vehicles are currently able to navigate these turns. Given the relatively low Project-related traffic volumes, no delay would be expected to exceed that associated with crossing a one-lane bridge, which could result in queuing up to a maximum of 163 feet, which would not be long enough to result in Project-related traffic back-ups into Smith Ranch Road (see DEIR page 13-28).

RESPONSE 4-19: Opinion regarding the assumed outdoor lighting conditions associated with the No Project Alternative is noted. Request to modify the No Project Alternative to reflect recreational uses with no outdoor lighting is noted. Discussion of a No Project/No Build Alternative has been added as a variant to the No Project Alternative presented in the DEIR (see Chapter 2: Revisions of the Draft EIR) which affirms anticipated impacts from the Project, including impacts from outdoor field lighting. Without proposed outdoor field lighting, which also would eliminate noise impacts of nighttime field use, several mitigation measures addressing noise and lighting impacts would not be required. The light- and noise-related mitigation measures that would not be required if outdoor field lights are not included as part of the Project would include the following:

- **MM Aesth-1** (the last two bullet points) requiring outdoor field lighting to be cut off by 10:00 PM.
- **MM Bio-2e** requiring an outdoor event curfew of 10:00 PM to ensure that operational noise and lighting would not affect nocturnal wildlife species activity patterns.

- **MM Bio-3a** requiring shielding of field light fixtures and 90 day lighting level review period.
- **MM Bio-3b** imposing a curfew of 10:00 PM for outdoor event lighting.
- **MM N-1** requiring potential closure of outdoor fields during nighttime hours (i.e., by 9:00 PM Sunday through Thursday and 10:00 PM Friday and Saturday) if monitoring of nighttime noise shows that noise ordinance limits would be exceeded at residential property lines, as a result of the Project activities.

LETTER 5

RECEIVED

APR 27 2009

COMMUNITY DEVELOPMENT
CITY OF SAN RAFAEL

April 24, 2009

Mr. Kraig Tambornini, Senior Planner
Community Development Department, Planning Division
City of San Rafael
1400 Fifth Avenue, P.O. Box 151560
San Rafael, CA 94915-1560

GOLDEN GATE BRIDGE
HIGHWAY & TRANSPORTATION DISTRICT

Re: **San Rafael Airport Recreational Facility Draft Environmental Impact Report Comments**

Dear Mr. Tambornini:

Golden Gate Bridge, Highway and Transportation District (District) staff has reviewed the Draft Environmental Impact Report (DEIR) for the San Rafael Airport Recreational Facility and offers the following comments pertaining to Golden Gate Transit (GGT) services.

The District requests that Page 13-6 be modified to correctly state the nature of Golden Gate Transit service. The District recommends the following revisions to the "Transit Network" section. Recommended additions are indicated in underline text, and recommend removals are indicated in ~~strikethrough~~ text. **5-1**

> Golden Gate Transit is the primary transit ~~provider~~ operator within Marin County ~~and Sonoma Counties~~. ~~Golden Gate Transit provides extensive bus service to the San Rafael Transit Center in Downtown San Rafael from Marin and Sonoma counties, San Francisco, and the Del Norte BART Station in Contra Costa County.~~ Routes 44, 49, 52, 54, 58, 70, 71, ~~and~~ 75, and 80 provide service to the area near the Project site. Routes 44, 49, 52, 54, 58, 70, 71, and 80 stop at the Lucas Valley Bus Pad. Route 75 stops at the Smith Ranch Park & Ride Lot. These stops are located approximately 0.75 miles from the Project site.
>
> Routes 49, 52, and 71 provide local service within Marin County. Route 49 operates between Ignacio and San Rafael daily every 60 minutes. Route 52 operates between Novato and San Rafael weekdays only every 60 minutes. Route 71 operates between Novato and Marin City weekdays every 30 to 60 minutes, with limited weekend service.
>
> Routes 44, 54, and 58 provide commute service between Marin County and San Francisco. Combined, these routes operate weekdays only with 11 northbound afternoon trips and 12 southbound morning trips. Route 75 provides ~~Marin County~~ commuter service between ~~the~~ Santa Rosa ~~Transfer Center~~ and ~~the~~ San Rafael ~~Transit Center, with a stop at the Smith Ranch Park & Ride lot, located approximately half a mile from the Project site~~. This ~~bus runs~~ route operates weekdays only with 3 ~~approximately every half hour~~ northbound ~~during evening~~ afternoon trips ~~hours~~ and 3 southbound ~~during~~ morning trips ~~hours from Monday through Friday~~.

Route 70 provides transbay service between Marin County ~~the Santa Rosa Transfer Center~~ and San Francisco. Route 80 provides transbay service between Sonoma and Marin counties and San Francisco. Route 70 operates daily every 30 to 60 minutes, and Route 80 operates daily every 60 minutes. ~~The bus line has regular service running approximately every half-hour to an hour during the weekdays and weekends.~~

District staff agrees with the assessments located on Pages 13-34 and 13-43 that no foreseeable impacts to Golden Gate Transit operations are likely to result from this project. **5-2**

Thank you for providing the District with the opportunity to submit comments on the San Rafael Airport Recreational Facility DEIR. You may contact David Davenport, Associate Planner, at (415) 257-4546 if you have any questions regarding these comments.

Sincerely,

Alan Zahradnik
Planning Director

c: David Davenport
Lauren Gradia, Marin Transit

H:\P\G\EIRs\San Rafael Airport DEIR Comments.doc

LETTER 5: Alan Zahradnik, Planning Director, Golden Gate Bridge Highway & Transportation District, April 24, 2009

RESPONSE 5-1: In response to this comment, on DRAFT EIR page 13-6 the text under Transit Network has been modified to read as follows:

> "Golden Gate Transit is the primary transit ~~provider~~ operator within Marin ~~and Sonoma Counties~~ County. ~~Golden Gate Transit provides extensive bus service to the San Rafael Transit Center in Downtown San Rafael from Marin and Sonoma counties, San Francisco, and the Del Norte BART Station in Contra Costa County.~~ Routes 44, 49, 52, 54, 58, 70, 71 and 80 stop at the Lucas Valley Bus Pad. Route 75 stops at the Smith Ranch Park & Ride Lot. These stops are located approximately 0.75 miles from ~~provide service to the area near~~ the Project site.
>
> Routes 49, 52, and 71 provides~~s~~ local service within Marin County. Route 49 operates between Ignacio and San Rafael daily every 60 minutes. Route 52 operates between Novato and San Rafael weekdays only every 60 minutes. Route 71 operates between Novato and Marin City weekdays every 30 to 60 minutes, with limited weekend service.
>
> Routes 44, 54 and 58 provide commute service between Marin County and San Francisco. Combined, these routes operate weekdays only with 11 northbound afternoon trips and 12 southbound morning trips. Route 75 provides ~~Marin County~~ commute~~r~~ service between ~~the~~ Santa Rosa ~~Transfer Center~~ and ~~the~~ San Rafael ~~Transit Center, with a stop at the Smith Ranch Park & Ride lot, located approximately half a mile from the Project site~~. This ~~bus runs~~ route operates weekdays only with 3 ~~approximately every half hour~~ northbound ~~during evening~~ afternoon trips ~~hours~~ and 3 southbound ~~during~~ morning trips ~~hours from Monday through Friday~~.
>
> Route 70 provides transbay service between Marin County ~~the Santa Rosa Transfer Center~~ and San Francisco. Route 80 provides transbay service between Sonoma and Marin counties and San Francisco. Route 70 operates daily every 30 to 60 minutes, and Route 80 operates daily every 60 minutes. ~~The bus line has regular service running approximately every half hour to an hour during the weekdays and weekends.~~"

RESPONSE 5-2: Comment regarding the lack of foreseeable transit impacts associated with development of the Project site as proposed is accepted, as noted.

LETTER 6

Las Gallinas VALLEY SANITARY DISTRICT

April 25, 2009

Kraig Tambornini, Senior Planner
City of San Rafael, Community Development
PO Box 151560
San Rafael, CA 94915-1560

Re: San Rafael Airport Recreational Facility Draft Environmental Impact Report

The airport property is not within the boundaries of the Las Gallinas Valley Sanitary District but is served by an outside sewer agreement dated 24 Sep 1998. The original Agreement is based on 100 fixture units to be connected for the entire property on a total of 9 acres used for "airport purposes". Previously, the airport stated that it is using 53 of these 100 fixture units, and is holding the remainder in reserve. **6-1**

We have found no evidence that the District approved the plans and specifications for the existing airport facilities nor has the Agreement been recorded, per the requirements of the Agreement.

The Airport sanitary facilities include a pumping station and a discharge force main. These are private and can only serve one owner per the District's ordinances. West of the railroad, existing residences under separate ownership are connected to the private force main. **6-2**

Although the Airport is limited to using 9 acres, we are not sure how many acres the airport and other users are currently using. The proposed recreational facility will be an additional 9.1 acres. Some of the existing usage may not be for airport purposes, neither is the proposed recreational complex. The existing Agreement says fees shall be recomputed if usage changes. The existing usage at the airport needs to be reviewed. **6-3**

We do not consider the proposed recreational facility an airport use. It is unclear to us whether or not a subdivision will occur if the recreational facility is constructed. As stated before, private sewer facilities cannot serve more than one owner. **6-4**

An engineering study will need to be performed to determine the capacity of the existing private facilities if they are to continue to be used. If the property is subdivided, we will need an engineered public pump station and sewer system, constructed to District standards. **6-5**

The owner of the property needs to meet with the Las Gallinas Valley Sanitary District and consider the options. These options include modifying the existing outside service agreement, annexation, conversion of some or all of the facilities to a public system, or a combination thereof. **6-6**

Thank you.

Sincerely,

Mark Williams
General Manager

Cc: Janice Mandler, Collection Systems Manger
Gary Robards, Nute Engineering

300 Smith Ranch Road · San Rafael, CA 94903 · 415.472-1734 · Fax 415.499-7715 · www.lgvsd.org

LETTER 6: Mark Williams, General Manager, Las Gallinas Valley Sanitary District, April 25, 2009

RESPONSE 6-1: A letter of October 13, 2005, from Al Petrie, LGVSD District Manager, confirmed an agreement entered into between San Rafael Airport LLC and LGVSD in September 1998 under which the LGVSD would provide 100 plumbing fixture units of sewer capacity at the airport site. The District confirmed at that time that the airport site had 53 plumbing fixtures units and, therefore, have 47 plumbing fixture units of capacity available to support the proposed Project, The letter concluded that the District has the capacity to support the proposed indoor soccer facility, and that the District would consider expanding the sewer capacity entitlement above the 100 fixture unit count (as the District current dry weather flow at that time was 2.33 mgd and the District had a capacity rating of 2.92 mgd). Therefore, the LGVSD is already on record as confirming available capacity for this Project per the existing agreement, and the LGVSD letter of April 25, 2009, is in error on this point. On June 10, 2010, City staff confirmed this during a telephone conversation with Mark Williams, General Manager, LGVSD.

RESPONSE 6-2: Under the Project as currently proposed, the existing sanitary facilities associated with the airport would continue to serve the current owner, per the District's ordinances.

RESPONSE 6-3: The Project Applicant has acknowledged that existing uses at the airport need to be reviewed with the District, and the District will need to recompute current fees if development of the Project site as proposed occurs.

RESPONSE 6-4: Although the proposed Project is not an airport-related use, no subdivision of the airport site is currently proposed. As currently proposed, all facilities operated at the airport site (including the recreational facility proposed as the Project) would remain under the ownership of the Project Applicant, and is consistent with the existing Declaration of Restrictions. Based on staff's conversation with the LGVSD as noted in RESPONSE 6-1, above, the sewer district has agreed that the facility would be covered under the existing services agreement between the airport owner and district.

RESPONSE 6-5: No subdivision of the Project site is currently proposed. The Project Applicant intends to continue to use the existing sanitary facilities at the airport site, and acknowledges the need to coordinate with the District to perform an engineering study to determine the capacity of the existing sanitary facilities at the airport site. As noted in RESPONSE 6-1 and RESPONSE 6-4, above, the LGVSD has confirmed that the proposed facility is covered under the terms of the existing agreement.

RESPONSE 6-6: The Project Applicant (who is also the property owner) acknowledges the need to meet with the Las Gallinas Valley Sanitary District to consider options for providing adequate sanitary service to support proposed development at the airport site, which has been

determined to be covered under the terms of the existing agreement between the Airport and LGVSD to provide service to the site, and which covers the proposed Project improvements.

LETTER 7

Kraig Tambornini

From: Nealgrace@aol.com
Sent: Friday, March 13, 2009 5:43 PM
To: Kraig Tambornini
Subject: DEIR

My family and I are opposed to the consideration for the development of the San Rafael Airport Rec. Facility. We think it will cause problems, degrade the area and cause further complications. **7-1**

We strongly urge you to negate this project.

We live in the Marin Lagoon Complex on Waterside Circle.

Thank you,

Neal & Jaclyn Grace

LETTER 7: Neal & Jaclyn Grace, March 13, 2009

RESPONSE 7-1: Opposition to the proposed Project and general concerns that the Project will cause problems, degrade the area and cause further complications is noted. The environmental impacts of the Project have been assessed in the DEIR, which has resulted in identification of 42 mitigation measures (**MM Traf-1** and **MM Bio-5b** removed) that would mitigate environmental effects of the Project to a less than significant level. The Project will also be reviewed by the City at future public hearings to consider whether the entitlements being requested should be granted, and if they are approved, the conditions of approval that should be imposed. Thus, there will be further opportunity to comment on Project merits and/or conditions of approval that should be required.

~~Steve Stafford~~

From: virgham@aol.com
Posted At: Friday, April 03, 2009 8:33 PM
Conversation: save the clapper rail
Posted To: Community Development Internet Mail

Subject: save the clapper rail

To: planning@ci.san-rafael.ca.us

Petition To Protect the Natural Beauty and Wildlife Habitat of Gallinas Creek and its Adjacent Neighborhoods The section of Gallinas Creek wildlife habitat and scenic waterway located on the property of The San Rafael Airport, currently owned by developer Joe Shekou, is scheduled for development into a three acre indoor soccer field sports complex. I, the undersigned, wish to voice my opposition to this proposed sports complex, because the proposed site is unsuitably located. This is the right project in the wrong place. Serious issues have been raised
regarding: the site's close proximity to an airport runway. the developer's wish to sell alcoholic beverages on the site building. the seven day a week influx of traffic. the potential of vehicle pollution to adversely effect the creek during periods of rain runoff. the difficulty of emergency vehicles entering and exiting the facility over a single yet to be constructed bridge. the noise level introduced into a community that has existed for decades in relative quiet the unacceptably close proximity of the development to endangered California Clapper Rail habitat. the site's location in a flood plain well below sea level. I also oppose the City of San Rafael's intention to change zoning laws for this site. We strongly urge you, a trusted city official, to give serious thought to the message of this petition. 8-1

virginia hammerness

LETTER 8: Virginia Hammerness, April 3, 2009

RESPONSE 8-1: Opposition to the Project is noted. Opinions regarding the proposed sale of alcoholic beverages at the Project site, the additional traffic associated with future activity at the Project site if developed as proposed (along with related pollution), the adequacy of emergency access, anticipated noise levels, potential Project-related effects on California Clapper Rail and the Project site's susceptibility to flooding are noted. See MASTER RESPONSE BIO-1, above, which addresses Project-related effects on the California Clapper Rail and other wildlife. The DEIR has identified 42 mitigation measures (**MM Traf-1** and **MM Bio 5b** removed) to mitigate environmental effects of the Project to a less than significant level. In addition, future public hearings will be held by the City to consider the merits of the Project, including whether the Project should be approved as proposed, or should be modified, and what conditions should be required if the Project approval is granted.

LETTER 9

Patricia L. Moezzi
10 Portola Avenue
San Rafael, CA 94903
415-479-2765

April 6, 2009

City of San Rafael
Community Development Department
Planning Division
P.O. Box 151560
San Rafael, CA 94915-151560

Attention: Kraig Tambornini, Senior Planner

Re: San Rafael Airport Recreational Facility

Dear Mr. Tambornini:

At the recent public meeting presenting the EIR for the San Rafael Airport Recreational Facility, I requested that story poles again be erected so as to enable the public to assess the visual impact of the above facility. I was told at the time to submit my request in writing. This I now do. **9-1**

Since the Marin County Civic Center was built, I have felt very protective of it and have been adamant in feeling that we must be very careful to preserve its setting. Up to this point the buildings in the area have been kept low enough to have minimal impact on the Civic Center environment. But this soccer building will be too intrusive from both a visual and environmental standpoint...the size of the building, the lights, the noise, the traffic. **9-2**

There are other visual impacts as well, such as the ability to have an unrestricted view of the San Pedro Ridge. When the story poles were erected previously, I took some photos of the site from the McInnis area, but the poles and the flags atop them were essentially indiscernible in my photos. This time, it is my hope that the framework can be constructed in such a way that it can be more readily captured on film. The photographs provided in the EIR do not by any means adequately address the loss of views. **9-3**

I would appreciate it very much if new, more visible, poles could be installed. The Civic Center and surrounding areas deserve this, to enable the public to see what they will be losing if this building were to be erected. I do hope you will honor this request. The Frank Lloyd Wright Civic Center is truly Marin County's architectural treasure. It is our responsibility to protect it. **9-4**

Thank you for your consideration.

Sincerely,

Patricia L. Moezzi

LETTER 9: Patricia L. Moezzi, April 6, 2009

RESPONSE 9-1: See MASTER RESPONSE AES-1, above, related to the placement of story poles at the Project site.

RESPONSE 9-2: Opinion regarding the extent to which the proposed structure at the Project site (and related lighting, noise and traffic) would intrude on the Marin Civic Center is noted. MASTER RESPONSE AES-1, above, provides further discussion of this issue, as well as RESPONSE 4-1 and RESPONSE 4-2, above, which address this topic.

RESPONSE 9-3: Opinion regarding the adequacy of the visual analysis of the proposed Project presented in the DEIR is noted. MASTER RESPONSE AES-1 provides further discussion of this issue, as well as RESPONSE 4-1 and RESPONSE 4-2, above.

RESPONSE 9-4: Request to re-install story poles at the Project site is noted. The DEIR adequately evaluated the visual impacts of the Project based on the photo simulations that were prepared for the Project using the story poles. However, it is worth noting that the City may require that the story poles be installed prior to future public hearings on this Project, and this could be requested by the public, staff or Planning Commission before or during the review of Project entitlements, and required if deemed necessary at that juncture.

Maryah Laereman
113 Bryce Canyon Rd.
San Rafael, Ca 94903

04-08-2009

City of San Rafael
Kraig Tambornini/Senior Planner
1400 Fifth Ave
San Rafael, Ca 94915

RE: Sports Dome Project-Noise Factor from High Volumes of Traffic

Dear Mr. Tambornini,

I am a Contempo Marin resident and live on Bryce Canyon Rd. which runs parallel to the airplane hangers. I live exactly 4 doors down from the only road that will lead to the ominous sports events center at the airport. I presently hear trucks bouncing off of the railroad tracks, I hear whistles from the soccer field, and I hear airplanes warming up on the weekends very early in the morning. After Sports Dome is installed, I will hear car horns, radios, and traffic related noises encroaching directly in my space. **10-1**

According to the 20/20 vision, goal 25, section N-5. Traffic Noise from New Development:

"Minimize noise impacts of increased off-site traffic caused by new development".

This is a major point of attention for the 3 neighboring communities, with essentially no solution in place.

60 Db is the safe level according to a study.

Please do not approve this sports dome project until this traffic encroachment issues completely and ethically resolved. **10-2**

Sincerely,

Maryah K. Laereman

Maryah Laereman

LETTER 10: Maryah Laereman, April 8, 2009

RESPONSE 10-1: Opinion regarding the level of disruption anticipated as a result of traffic-related noise associated with the proposed project is noted. Traffic noise associated with the proposed Project is addressed on DEIR pages 12-19 through 12-21, which indicated that future noise levels along roadways in the vicinity would remain below 65 dBA (L_{dn}). Using the City's Noise Element Policy N-5 as a significance threshold, the Project's contribution to increased traffic noise levels would be regarded as less than significant. As indicated on DEIR page 12-21, it is illegal to operate a car sound amplification system which is audible at a distance of 50 feet from the car, and blasting stereos are not typical of vehicle passbys.

RESPONSE 10-2: Request to withhold approval of the Project until traffic encroachment issues are completely and ethically resolved is noted. As discussed in RESPONSE 10-1, above, the issues raised in the comments have been fully evaluated in the DEIR. Additionally, the DEIR has evaluated all the potential environmental effects of traffic-related impacts in DEIR Chapter 13, which has resulted in a determination that traffic impacts would be less than significant. Since the Project proposal does include installation of a new 2-lane bridge deck, this negates the impact identified in DEIR **Impact Traf-1** discussion, and, therefore, **MM Traf-1** is not warranted. Thus, the DEIR has been amended to delete discussion of this impact and the mitigation measure **MM Traf-1**, as no queuing impacts would occur as a result of the Project. See also, MASTER RESPONSE TRA-1, MASTER RESPONSE TRA-2 and MASTER RESPONSE TRA-3, above, addressing traffic impacts. A decision to approve this Project cannot be considered until the DEIR is certified for the Project that mitigates impacts to a less than significant level, or a statement of overriding considerations must be adopted in order to approve a project resulting in significant impacts. The DEIR has not identified any significant impacts that would necessitate adoption of a statement of overriding considerations in order to consider approval of the Project. The City will incorporate all mitigation measures and recommended conditions as part of an action to approve the Project.

Maryah Laereman
113 Bryce Canyon Rd.
San Rafael, Ca 94903

04-08-2009

City of San Rafael
Kraig Tambornini/Senior Planner
1400 Fifth Ave
San Rafael, Ca 94915

RE: Sports Dome Project-Noise Factor from High Volumes of Traffic

Dear Mr. Tambornini,

I live exactly 4 doors down from the only road that will lead to the ominous sports events center at the airport. I presently hear trucks bouncing off of the railroad tracks, After Sports Dome is installed, I will hear car horns, car radios, crowds cheering, and whistles. This community has a curfew of now noise after 10:00 p.m. **11-1**

According to the 20/20 vision, goal 25, section N-5. Traffic Noise from New Development: "Minimize noise impacts of increased off-site traffic caused by new development".

This is a major point of attention for the 3 neighboring communities, with essentially no solution in place. I read in the DEIR that the single lane bridge will support two lane traffic. Maybe there will be an alternative but it is not solidified as a viable solution. Please do not approve this project for there is really is no alternative except to build another bridge which will encroach on wildlife. The blatant disregard for neighboring communities regarding the matter of traffic noise has not yet been sufficiently devised. **11-2**

MM Traf-1: Traffic Management Plan.

If the proposed two-lane bridge deck is not installed as a part of this Project, the Applicant shall prepare and submit to the City for approval a traffic management plan for events held at the facility in order to ensure adequate queuing and pedestrian safety occurs. Less than significant

Sincerely,

Maryah Laereman

LETTER 11: Maryah Laereman, April 8, 2009

RESPONSE 11-1: See RESPONSE 10-1 and RESPONSE 10-2, above. MASTER RESPONSE NOI-1, above, addresses Project compliance with the City's Noise Ordinance, and indicates that the effective implementation of **Mitigation Measure N-1** (as modified) would reduce potential impacts associated with use of the outdoor fields to a level of less than significant either by limiting use to end activities at 9:00 PM Sunday through Thursday and at 10:00 PM on Friday and Saturday, or by monitoring the outdoor noise levels during nighttime events to ensure ongoing Project compliance with the City Noise Ordinance.

RESPONSE 11-2: Opinion regarding the need to install another bridge to provide access to the Project site (the construction of which would be likely to have adverse effects on wildlife), and request that the City not approve this Project, are noted. The Project as proposed includes replacement of the existing single-lane bridge deck with a new 2-lane bridge deck within the existing access roadway that serves the parcel. DEIR Figure 3-3 shows the location of the bridge and Figure 13-9 shows the construction. Contrary to the comment, this new proposed bridge deck has been confirmed as a viable alternative to provide 2-lanes of traffic crossing the creek. The Project Applicant proposed the 2-lane deck as part of the Project to improve the site access. The City cannot require that an alternative access road be required for an existing site, and the City Traffic Engineering Division and City Fire Department have confirmed that the current access is suitable and adequate to serve the additional proposed use.

Operational noise associated with the Project has been discussed in DEIR Chapter 12, which includes the Project's traffic-related noise impacts resulting from the increase in approximately 1,707 average daily trips to and from the site. This is discussed in RESPONSE 10-1, above, which explains that traffic noise associated with the proposed Project is addressed on DEIR pages 12-19 through 12-21. That analysis indicated the future noise levels along roadways in the vicinity would remain below 65 dBA (L_{dn}). Using the City's Noise Element Policy N-5 as a significance threshold, the Project's contribution to increased traffic noise levels would be regarded as less than significant. As indicated on DEIR page 12-21, it is illegal to operate a car sound amplification system which is audible at a distance of 50 feet from the car, and blasting stereos are not typical of vehicle pass-bys.

LETTER 12

1605 Vendola Drive
San Rafael, CA 94903
April 9, 2009

RECEIVED
APR 14 2009
COMMUNITY DEVELOPMENT
CITY OF SAN RAFAEL

Kraig Tambornini,
Senior Planner, City Hall
1400 Fifth Avenue
San Rafael, CA 94901

Dear Mr. Tambornini:

I am writing to express my dismay over the proposed soccer/athletic/sports bar development on the Smith Ranch Airport property. **12-1**

The lights, noise and paving of the proposed project will have significant negative impacts on the surrounding residential areas. I recently drove past the new sports complex adjacent to Interstate 80 in Berkeley at night. The stadium lights were so overly bright I had difficulty seeing in order to drive safely. Putting lights like that where it will impact homes and endangered species is unacceptable. **12-2**

There is no soundproofing in the thin metal walls of this gigantic shed. The noise from referee whistles, cheering players and cars in this sound bowl where we live will forever destroy our quality of life. There are endangerd clapper rail all along Gallinas Creek in this area who would be severely stressed and compromised by the project's disruptive noise. **12-3**

Several years ago, we protested the initial version of this ill conceived plan, but at least that proposal made an attempt to mitigate the effects of their project on nearby residences, e.g. downward facing outdoor lights, limited hours at night. There were no windows on the building then. Now there are windows on the residential side of the building, significantly longer hours of lighted outdoor play, and no controls over noisy users. **12-4**

The initial rational for such a facility suggested a shortage of local playing fields. In the interim, nearly every high school has added synthetic turf fields which can be used daily year round and rented out to generate revenue when schools don't need them. A car-dependent facility in a residential area makes no sense and is no longer needed. Children need to play near where they live and the new fields at local schools make that possible. The beer and wine bar will generate noisy patrons, and serving alcohol in a facility that purports to be for children gives a very unhealthy message. **12-5** **12-6**

In the twenty plus years I've lived in my home, I rarely heard noise from the small planes that use Smith Ranch Airport. Since this soccer project has met with our opposition , we now have small planes flying directly over our homes early in the morning, late at night and especially on weekends. Are we being punished for caring about our quality of life? Feels like it. **12-7**

It's time to say NO. Reject this detrimental project! Thanks. **12-8**

Sincerely,

Elaine

Elaine Reichert

LETTER 12: Elaine Reichert, April 9, 2009

RESPONSE 12-1: Dismay over the proposed soccer/athletic/ sports bar development on the property as proposed is noted. Please note that the DEIR evaluates environmental effects of the Project, and the Project merits would be considered only after a decision is made to certify the EIR made.

RESPONSE 12-2: General opinion stating that the lighting, noise and paving associated with the proposed Project will have significant negative impacts on the surrounding residential areas is noted. Potential noise impacts associated with the proposed Project are addressed on pages 12-13 through 12-26 of the DEIR. Potential water quality impacts associated with the development of paved surfaces at the Project site are addressed on DEIR pages 11-21 through 11-28. Potential lighting impacts of the Project are addressed on pages 5-24 through 5-36 (Aesthetics - Light and Glare impacts and mitigation measures) and pages 7-69 through 7-71 (Biological Resources - Nocturnal Lighting impacts and mitigation measures). This has resulted in a determination that noise, lighting and hydrology and water quality impacts would be less than significant. The noise and intensity of illumination for the Project (as proposed with additional mitigation measures incorporated) would not result in significant noise or light and glare impacts on nearby residences or wildlife.

The potential stormwater runoff and water quality impacts would be properly addressed in compliance with the standards and practices enforced by the City Department of Public Works. See MASTER RESPONSE HYD-5, above. This would include requiring prior to issuance of construction permits that the Project Applicant submit a detailed erosion control plan, obtain required National Pollution Discharge Elimination System (NPDES) permit, submit a Stormwater Pollution Prevention Plan (SWPPP) and Stormwater Management Plan (SWMP), incorporate grassed lined swales in the existing and proposed drainage swales to filter pollutants, and implement a sweeping and maintenance program for paved areas. The final plan details would be required to be submitted for review and approval by the City prior to issuance of any permits for construction of the Project, including installation of site utilities, grading and building. The plans submitted for construction permits would rely upon, and finalize, the information provided in the Project civil plans and reports that have been provided for purposes of the DEIR analysis. These would be reviewed by the City Department of Public Works (DPW) to confirm compliance with stormwater pollution prevention program and erosion control management practices and standards as dictated by the Regional Water Quality Control Board that are enforced locally throughout the City by the Department of Public Works.

RESPONSE 12-3: Opinion regarding the extent to which noise generated from inside the structure proposed at the Project site would disrupt the lives of those living nearby is noted. The noise analysis has considered all Project-related noise impacts, and concludes that outdoor noise would be the most significant with potential impacts on residents and wildlife.

See MASTER RESPONSE BIO-1, above, which addresses possible Project-related noise effects on the California clapper rail and other wildlife.

RESPONSE 12-4: The effects of Project-related lighting are addressed on pages 5-24 through 5-36 of the DEIR. As indicated on DEIR page 5-36, implementation of **Mitigation Measure Aesth-1a**, **Mitigation Measure Aesth-1b**, **Mitigation Measure Bio-3a** and **Mitigation Measure Bio-3b** [as corrected] would reduce potentially significant Project-related lighting impacts to a level considered less than significant.

RESPONSE 12-5: Suggestion that existing playing fields at local high schools could be used instead of the recreational facilities proposed at the Project site is noted. Opinion regarding the need for the proposed Project is noted. This is considered a Project merits-related comment which the City would consider in making a decision whether the Project should be approved. As previously discussed in the DEIR Chapter 4 Land Use discussion, the subject property has been identified as an appropriate location for private recreational facilities. However, the DEIR includes a section that evaluates Project Alternatives in DEIR Chapter 16, as part of the environmental assessment required under California Environmental Quality Act (CEQA).

RESPONSE 12-6: Opinions regarding the proposed sale of alcoholic beverages at the Project site, the noise likely to be generated by patrons who would be buying these beverages, and the "unhealthy message" such sales may provide, are noted. On-premise alcohol sales are regulated by the State Department of Alcoholic Beverage Control and this is not an environmental issue that needs to be evaluated in the DEIR. Rather, the City would consider the merit of allowing alcoholic beverage sales during its review of the Project zoning entitlements.

RESPONSE 12-7: Observation regarding noise currently generated by small planes operating near the Project site is noted. The existing airport operations are regulated under the terms and conditions of the existing Master Use Permit 99-9. The proposed additional recreational facility use would not change the manner in which the existing airport use operates.

RESPONSE 12-8: Comment that the proposed Project is detrimental and should be rejected is noted. RESPONSES 12-1 through 12-7, above, provided responses to the comments on the DEIR preceding this statement. The City would consider the merits of the Project at a future public hearing and after a decision is made whether to certify the EIR.

RECEIVED

APR 28 2009

COMMUNITY DEVELOPMENT
CITY OF SAN RAFAEL

14 April 2009

San Rafael Planning Commission
1400 Fifth Avenue
San Rafael, CA 94901

Re: 397-400 Smith Ranch Road
San Rafael Airport Recreational Facility

Dear Kraig Tambornini:

In reading the draft EIR and attending the community information meeting of 25 March regarding the San Rafael Airport Recreational Facility, the following are among my concerns:

A. Table 3-1 (pg 3-13) of DEIR shows that up to 1000 people per day are estimated to use the facility. This does not include the 12 full-time equivalent employees, which in theory could be an additional 480 people (12 people x 1 hour class x 40 hours) weekly. 13-1

Following the scenario that a parent drops off a child, that would equate to **4000 car trips per day to the facility for patrons alone**, if attendance was "average" for each day of the week. And, during the school year, those trips would likely be in a compressed time period.

Does the 1000 "users" per day include spectators? If not, the car trip figure increases.

B. How many patrons do the owners of this business need to maintain acceptable level of profit from this facility? Does the 1000 number cited in the DEIR match the figure that the owners need for acceptable profit? 13-2

Putting this building on a wetland and former wetland environment is already out of alignment with modern thinking, so, at the very least, the profit level and commensurate number of users must be accurate to be sure the facility doesn't turn into a "white elephant" or outnumber the numbers chosen to be cited in the DEIR.

C. During informational meeting at Autodesk on 25 March, the traffic impact was said to be "none," partly because **the study chose to use 7-9:00 am for traffic window**, when **the facility would not open until 10:00 am.** 13-3

Using statistics to mislead should not be in the lexicon of city planning. Surely the public and the planning commission would like all parties to be upfront with traffic issues. Please employ a more accurate gauge to measure traffic impact.

D. Is safety being properly reviewed? At the DEIR informational meeting, the presenter said that in building on airport land safety rules stipulate the maximum level of assemblage is 200 people per acre. The facility is on 9 acres, with building/fields occupying 1.6 acres. 13-4

Does this mean that 1800 people (9 acres x 200 people) can be on the premises at one time? If so, then those 1800 people will be in 1.6 acres, significantly altering people density.

Or, does this mean that a maximum of 320 people (1.6 acres x 200 people) can be at facility at one time?

Did the law intend 1800 people concentrated on 1.6 acres to meet safety standards?

What is "people" capacity of the center?

Sincerely,

Kambia Moezzi
374 Margarita Drive
San Rafael, CA 94901

LETTER 13: Kambia Moezzi, April 14, 2009

RESPONSE 13-1: See MASTER RESPONSE PD-1, above, which addresses issues related to the maximum number of people that would be expected to be at the Project site at any given time.

RESPONSE 13-2: The DRAFT EIR addresses physical changes in the environment that may result from development of the Project site as proposed. It is beyond the scope of the EIR to address issues related to the economic viability of the proposed Project, including the number of users needed at the site in order to generate an acceptable profit for the owners/operators. Opinions regarding the location of the proposed Project, and the future economic prospects for success of the Project, are noted.

A wetland delineation of the Project site was conducted by WRA (Wetlands Research Associates) on September 7, 2005. The *Jurisdictional Area Delineation* report prepared by WRA was submitted to the U.S. Army Corps of Engineers (USACOE) for verification. The USACOE visited the site on October 26, 2006, and verified a jurisdictional map. DEIR **Figure 7-1** (page 7-27) shows that there are several wetland areas north of the portion of the Project site proposed for development. These areas are not within the area that was confirmed by the USACOE. Regardless, these wetlands will not be affected by the proposed Project, and, in fact, are protected within the 100+ foot buffers from the proposed Project facilities.

RESPONSE 13-3: Request to modify conventional traffic analysis methodology to account for the relative inactivity of the Project site during the AM peak traffic period is noted. As indicated in this comment, since the AM peak traffic period in the vicinity of the Project site is between 7:00 AM and 9:00 AM, and the recreational facilities at the Project site would not begin operations until 9:00 AM, the DEIR correctly indicates on page 13-24 that the AM peak hour trip generation of the proposed Project is expected to be negligible. Since the Project would not add to AM peak period traffic in any substantive way, and Project-related morning traffic would be generated in the area after the AM peak traffic period has ended and local roadways are less congested, no potentially significant Project-related impact was identified for the local roadway network in the mornings.

RESPONSE 13-4: See MASTER RESPONSE PD-1, above, which addressed the maximum number of people anticipated at the Project site as this relates to airport safety.

Laurie R. Newman
116 Bryce Canyon Rd
San Rafael, Ca 94903

04-16-2009

Kraig Tambornini
P.O. Box 151560
San Rafael, C 94915-151560

RE: Air Quality of Sports Dome Project

Dear Kraig,

Thank you for taking the time to read my letter. I have serious health issues and the process of building this sports event center will discharge materials, particles, vapor and fumes violently into my personal air space. This community will be forced to inhale these foreign particles which over time will cause cancer in humans and animals. **14-1**

According to the vision plan 20/20, "Toxic air pollutants at sufficient concentrations and exposure are known or suspected to cause cancer or other serious health effects, such as reproductive or birth defects, or to cause adverse environmental adequate buffers to protect sensitive receptors and comply with existing such as children, the elderly and people with illnesses)".

The BAAQMD operates several air quality monitoring stations within the Basin. There are two air quality monitoring stations within proximity of the Project site. One station is within San Rafael at 534 4th Street, approximately 3.25 miles south of the site. The next closest station is located at the San Francisco Monitoring Station at 10 Arkansas Street, which also represents climatic conditions similar to those experienced at the Project site.

Monitoring of air quality during construction and the operations of Sports Dome Event Center is not sufficient solution. The central San Rafael site has a climate very restrained compared to the wind tunnel in which we live here at Contempo Marin. Also, The San Francisco site for monitoring the air quality here is too far from the construction site to be authentic.

The plan for controlling air quality through watering the soil 3 times per day is insufficient. Please do not approve this project as it bears a lot of toxicity to this and neighboring communities.

Sincerely,

Lauri R. Newman

Lauri R. Newman

LETTER 14: Lauri R. Newman, April 16, 2009

RESPONSE 14-1: On DEIR page 6-22, it is noted that the Project does not involve the demolition of any building or structure, so that there is no potential for substantial dust emissions of asbestos, lead-based paint and other potentially hazardous building materials during site preparation. Opinion regarding the adequacy of air quality monitoring as a means to limit the release of materials, particles, vapor and fumes into the atmosphere during Project construction is noted. As indicated in **Mitigation Measure AQ-1a** (DEIR pages 6-19 and 6-20), there are additional means of reducing construction dust beyond the watering of active construction areas twice each day, and implementation of these control measures during construction, in conjunction with **Mitigation Measure AQ-1b** and **Mitigation Measure AQ-1c**, would reduce construction related air quality impacts to a level considered less than significant. Request that the City not approve the Project is noted.

April 17, 2009

Mr. Kraig Tambornini
City of San Rafael
P. O. Box 151560
San Rafael, CA 94915-151560

Re: DEIR for San Rafael Airport Project

Dear Mr. Tambornini,

Page 11-28 of the DEIR states that the *applicant's project engineer*, not an independent consultant unassociated to the applicant, has determined the existing storm drain pumps found are adequate from the additional runoff that would result from the proposed development. **15-1**

The determination of the applicant's own engineer in the DEIR is unacceptable as it represents a conflict of interest. An independent study by the City must be required. How will the City enforce this and have the results reflected in the DEIR?

Very truly yours,

Sara Doyle

Sara Doyle
354 Yosemite Road
San Rafael, CA, 94903

LETTER 15: Sara Doyle, April 17, 2009

RESPONSE 15-1: On DEIR page 11-28, it is stated that "...the Project engineer has evaluated the existing storm drain system, including the existing pump house at the eastern end of the property, and found that it has adequate capacity for the additional runoff that would result from the proposed development. This analysis was reviewed by the City's Public Works Department and found to be appropriate. Furthermore, no new sources of pollution are expected from this site and the Project would be required to maintain consistency with state and local and water quality and waste discharge requirements." Opinion regarding the use of the Project's engineer to evaluate the capacity of the existing storm drain system at the Project site is noted, although the DEIR clearly indicates that this evaluation was reviewed by the City's Public Works Department and found to be appropriate. Suggestion that an independent study of the storm drainage system be conducted is noted, although the City believes that the evaluation conducted by the Project's engineer is adequate, and additional independent analysis is not warranted for presentation in the EIR.

April 17, 2009

Mr. Kraig Tambornini, Senior Planner
City of San Rafael
Community Development Department
Planning Division
P. O. Box 151560
San Rafael, CA 94915-151560

Re: DEIR - Soccer Complex at San Rafael Airport

Dear Mr. Tambornini,

The photo montages and measurements per the flag poles included in the DEIR are incorrect and inadequate. **16-1**

The photo montages portray the building in colors that do not reflect the recommended palette from the San Rafael Design Review Board. They must be revised accordingly in order for any informed decision making. Moreover, the choice of public views does not accurately reflect view impacts. All of the photo montages are taken from elevations that minimize the project view blocking impacts.

Public View #1 is not located at the trailhead as stated in the DEIR. The trailhead begins approximately 50 feet south of the montages point of view. In addition, the statement that the rear of the building would be approximately 350 feet from the closest portion of the trail at the County Park is overestimated by at least 100 feet.

Public View #3 is taken 720 ft. east of the building, and Public View #4 is taken 2000 ft. from the building.

Important public views from the public canoe launch (directly opposite of the rear of the building) and a point of view from recreational activity on the north fork of the creek have not been included. Views from these points would raise the level of visual impact to greater than significant.

In addition, the portions of the views that will be most impacted (blocked) by the building are those portions of the trail most actively used since they are closest to the trailhead. In other words, the most popular views will suffer the greatest impact.

Finally, the use of photo montages alone and flagged story poles alone are often inadequate in evaluating large buildings. The Whole Foods and Condo complex in Novato is a recent example. As reported in the October 18, 2008 Marin IJ quotes Novato City Officials about the project:

"It's huge. It's overbearing," said Mayor Pat Eklund.

"It's shocking," said Councilwoman Carole Dillon-Knutson.

"In hindsight, a scale model would've been very helpful," said Councilwoman Jeanne MacLeamy.

To summarize, the story poles and flags must be replace correctly to fully disclose aesthetic and view impacts of this project. The City MUST independently verify measurements and placement of the story poles to ensure their accuracy. How can the DEIR be correct with these errors? How can the City come to any conclusion without verifying accuracy of these measurements? This is too important a decision for unverified measurements. Once accuracy of the measurements have been confirmed, new photo montages that show the building's actual visual impact on the site closer to the project and closer to the trail are necessary for proper evaluation. Finally, a scale model of the site, building, and the surrounding environs must be provided. **16-2**

Sincerely,

Dick Heine
143 Bryce Canyon Road
San Rafael, CA 94903

LETTER 16: Dick Heine, April 17, 2009

RESPONSE 16-1: Opinion regarding the accuracy and adequacy of the photomontages presented in the DRAFT EIR is noted. Request to modify the colors of the proposed structure for the purposes of the photomontages, and to use other viewpoints to represent public views is noted. As indicated on DEIR page 5-7, the viewpoints used for the photomontages were selected based on a comparison of the site plan with the Community Design Map in General Plan 2020, and input from discussions at two City design Review Board hearings that identified significant views in the area. The purpose of these four visual simulations is to provide the reviewer of the DRAFT EIR with sense of how the proposed recreational facility might be expected to affect existing views from a representative number of public vantage points in the vicinity. As can be seen in DEIR **Figure 5-1** (page 5-13), within McInnis Park alone, there are numerous other public vantage points which could provide the basis for additional visual simulations, but the four vantage points selected were intended to provide a sufficient variety of views to show potential visual effects associated with development of the Project site as proposed.

RESPONSE 16-2: Requests to replace the story poles and flags, and to conduct additional visual impact analysis on the proposed Project, are noted. See MASTER RESPONSE AES-1, above, which addresses the placement of the story poles. Request for the provision of a scale model of the site, proposed structure and the surroundings is noted. Sufficient information has been provided for evaluation of the Project visual impacts by the DEIR. It may be appropriate to submit this as a requested informational item prior to future hearings held on Project merits.

April 18, 2009

Mr. Kraig Tambornini & San Rafael Planning Commission
P. O. Box 151560
San Rafael, CA 94915-1560

Re: San Rafael Soccer Project at the Airport DEIR

Ladies and Gentlemen,

A given facts is that the project site is below flood level. **17-1**

In order to mitigate the flood level deficiency of the site, the first floor must be at 7 ft above sea level.

FEMA requires that the building walls must be "*sustainably impermeable to the passage of water.*"

The DEIR recommended mitigation (page 11-32) for the flood level matter is putting in an interior flood proofing system. The issue with this mitigation is that any door left open in the building will allow the flood waters to rush in. Additionally, the interior flood proofing system is inside the building so how will the exterior metal walls be able to withstand flooding water pressure?

Considering the FEMA requirement and inadequacy of the interior flood proofing system, how can the appropriate mitigation be anything less than 7 ft above sea level?

Kind Regards,

Barbara Rokoszak

Barbara Rokoszak
84 Yosemite Road
San Rafael, CA, 94903

LETTER 17: Barbara Rokoszak, April 18, 2009

RESPONSE 17-1: As indicated on DEIR page 11-2, the Project site is located within the 100-year floodplain (identified as A-1 on FEMA maps, as shown in DEIR **Figure 11-1**). **Mitigation Measure Hyd-2a** [as revised and corrected] on DEIR pages 11-32 and 11-33 identifies those floodproofing features which must be incorporated into the design of the proposed structure which, in combination with **Mitigation Measure Hyd-2b** [as modified], would reduce the risk of loss, injury or death as a result of levee failure to a level considered less than significant. Even in the event of a levee failure, the DEIR analysis indicates that there would be sufficient time to ensure that all doors at the recreational facility are closed to render the walls "substantially impermeable to the passage of water". **Mitigation Measure Hyd-2a** also indicates that all of the building's structural components (including exterior walls) must be capable of resisting specific flood-related forces that would be exerted upon the building as a result of floodwaters reaching the base floor elevation (at a minimum) or floodproofing design level. As long as these standards are met, development of "a concrete building at no less than 7 ft above sea level" would not necessarily be required.

April 18, 2009

Mr. Kraig Tambornini, Senior Planner
City of San Rafael
Community Development Department
Planning Division
P. O. Box 151560
San Rafael, CA 94915-151560

Re: San Rafael Airport Soccer Complex

Dear Commission Members:

In the Feb 13, 2006 report from Staff to Planning Commission, it is stated that the project site has a wetland overlay over the whole site. **18-1**

In the wetland overlay description from the City's Development Standards, it is stated that the most intense "recreation use" for such a site is bird watching, fishing, nature photography and study, wildlife observation, and scientific research and education. The City's standard also states that the only construction allowable in such an area is maintenance related shelters, piers, docks, walkways, observation deck and shelters, fences.

Considering these limitation by the City's own definition, how can the DEIR mitigate the Airport Soccer Complex project consisting of 80K+ SF structure and other proposed alterations?

Thank you in advance for your prompt and complete reply.

Sincerely,

Susan Schweit

Susan Schweit
104 Dockside Circle
San Rafael, CA 94903

LETTER 18: Susan Schweit, April 18, 2009

RESPONSE 18-1: Opinion regarding Project consistency with the Wetlands Overlay District is noted. The current zoning designation for this site is Planned Development – Wetland Overlay (PD1764-WO) District. The current Planned Development designation for this site allows a private airport use and non-aviation uses consistent with those described in the current approved Master Use Permit (UP99-9), which currently controls the allowable uses on the airport site; see DEIR page 3-3 (see also RESPONSE 44-5, below).

The specific purposes of the Wetlands Overlay District are identified on DEIR pages 4-16 and 4-17. The zoning entitlements and land use approvals requested by the Project Applicant are identified on DEIR page 3-54, and include a rezoning amendment of PD1764 to allow the proposed recreational building and facilities in addition to the existing airport and non-aviation uses, a use permit to amend the Master Use Permit UP99-9 to include the proposed recreational facility uses at the site, and environmental and design review to approve the design of the building and related improvements, including the parking lot, landscaping and lighting. No modifications to the Wetland Overlay District have been requested.

The Wetland Overlay District (-WO) Property development regulations which are contained in Section 14.13.040, provides standards regulating structures and uses proposed in and near wetlands. Pursuant to Section 14.13.070 (Findings) of this chapter, uses within a wetland may be approved by use permit subject to compliance with the provisions of this Chapter and uses outside of a wetland may be approved by use permit as allowed in Section 14.13.030 Land Use Regulations. The Land Use table in Section 14.13.030 lists "Recreation facilities, private (indoors and outdoors)" as a conditionally permitted use, outside of wetlands. Given the fact that the proposed structure would not be located in a wetland area (see DEIR **Figure 7-1** on page 7-27), this use may be proposed by an applicant and considered by the City.

While the site may have a "wetland overlay" designation, this overlay is not based on jurisdictional mapping by the U.S. Army Corps of Engineers (USACOE), but rather a City-designated zoning layer. Development of the proposed Project would not be located within the required 100-foot creek wetland setbacks, would avoid filling of the three potential jurisdictional wetland areas identified by a wetland delineation located to the north of the proposed building would provide a minimum 50-foot setback from the three potential jurisdictional wetland areas to the north of the building, and would be partially screened by existing and proposed trees and landscaping and topographical features. Lastly, given the location of the building and the setbacks from the creeks bordering the site, the proposed development would not significantly impact any threatened, endangered or special status species or habitat found in the surrounding area. Therefore, the proposed Project would not be inconsistent with the Planned Development – Wetland Overlay zoning designation.

Diane and Tony Ternicone
140 Bryce Canyon Rd.
San Rafael, Ca 94903

RECEIVED

APR 22 2009

COMMUNITY DEVELOPMENT
CITY OF SAN RAFAEL

04-18-2009

Kraig Tambornini, Senior Planner
Community Development Department
P.O. Box 151560
San Rafael, Ca 94915

Dear Kraig,

The Noise Study completely fails to address the impact of intermittent noise that would be created by the stated uses of this facility. These intermittent noises are in direct conflict with San Rafael's Noise Ordinance section 8.13.030B which states: 19-1

"No person shall produce, suffer or allow to be produced by any machine, animal, or device, or by any other means, a noise level greater than sixty-five (65) dBA intermittent or fifty-five (55) dBA constant, when measured on any commercial property"

Sports whistles, by design, create intermittent noises far in excess of 65 Dba so they can be heard above the noise of play and crowds. Any soccer game has a *minimum of* one whistle and more for a tournament match; each whistle is used more than intermittently throughout any game.

Residents in Captains Cove, Contempo Marin, Santa Venetia & Smith Ranch Court can already hear whistles and crowd noise from the outdoor fields at nearby McGinnis Park. With the proposed hours of operation of the airport complex being well past midnight, how can the City allow the applicant to ignore this noise ordinance and subject the surrounding neighborhoods to such disturbances?

Additionally, the impact of intermittent noise on wildlife within the one mile radius that these whistles can be heard has also been ignored in the NegDec. The impact of this noise, including but not limited to the noise that is over the 65 Dba, will have an effect on wildlife and people. 19-2

Essentially, no solution has been devised to keep the noise generated from this project within legal limits. Please do not proceed with this project until at the very least these issues have be modified. 19-3

Sincerely,

Tony Ternicone

LETTER 19: Diane and Tony Ternicone, April 18, 2009

RESPONSE 19-1: See MASTER RESPONSE NOI-2, above, which addresses intermittent noise.

RESPONSE 19-2: See MASTER RESPONSE BIO-4, above, which addresses Project-related noise effects on wildlife, including intermittent noise.

As discussed in the noise analysis in **Chapter 12** of the DEIR, potential noise impacts could result from an increase in ambient noise levels generated from the recreational facility, specifically nighttime noise generated from sporting events at the recreational facility. However, these impacts are not considered to be significant pursuant to the California Environmental Quality Act. Once the recreational facility is operational, clapper rails in the marsh habitats to the north of the site are not expected to be significantly adversely affected. Clapper rails living in this area have already become accustomed to heavy human disturbances, and they nest adjacent to a pedestrian walking path with frequent dog traffic. Moreover, as discussed in the noise analysis in Chapter 12 of the DEIR, noise levels around the Project site are already elevated due to the pre-existing airport, nearby freeway, sporting events at the neighboring park, and golfers in the driving range located on the North Fork of Gallinas Creek. Due to the high degree of human activity and disturbance that already exists in the area around the airport, it is expected that most wildlife using the North Fork of Gallinas Creek would readily acclimate to new noises generated by the proposed facility. Wildlife, and birds in particular, are able to habituate to human beings and associated disturbances, especially when the stimuli is predictable (routine or repeated sounds) and when the disturbances are non-threatening, as illustrated by Knight and Temple 1995[7], Knight and Cole 1995[8], and Riffell et. al. 1996[9]. Furthermore, effects on wildlife from additional noise generated at the recreational facility would be minimized by the proposed creek setback/buffer.

RESPONSE 19-3: Request that the City not proceed with approval of this Project until noise concerns have been resolved is noted. As indicated in DEIR pages 12-15 through 12-26, potential noise impacts associated with the development of the Project site as proposed can

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[7] Knight and Temple 1995. Chapter 6: Origins of wildlife responses of recreationists, Wildlife and Recreationists: Coexistence Through Management and Research. Editors: Richard L. Knight and Kevin J. Gutziller, Island Press, 1995 Washington, D.C.

[8] Knight and Cole 1995. Chapter 5: Factors that influence wildlife responses to recreationists, Wildlife and Recreationists: Coexistence Through Management and Research. Editors: Richard L. Knight and Kevin J. Gutziller, Island Press, 1995 Washington, D.C.

[9] Samuel K. Riffell, Kevin J. Gutzwiller, Stanley H. Anderson. 1996. Ecological Applications Vol 6, No. 2 (May 1996). Pp 492-505

be reduced through the effective implementation of the Mitigation Measures identified to levels consistent with the limitations of the City's Noise Ordinance.

Date: April 19, 2009

To: Mr. Kraig Tambornini, Senior Planner
City of San Rafael
Community Development Department
Planning Division
P. O. Box 151560
San Rafael, CA 94915-151560

Re: San Rafael Airport Soccer Complex DEIR

Dear Commission Members:

As the Bay Conservation & Development Commission (BCDC) is the state authority for all Bay related development, their comments and evaluations of the project in the DEIR must be taken into account. **20-1**

Were they informed of the proposed project and asked to comments?

If so, there is no mention of their comments in the DIER. I would appreciate receiving clarification in this issue.

Thank you,

Helga Becker

Helga Becker
353 Yosemite Road
San Rafael, CA 94903

LETTER 20: Helga Becker, April 19, 2009

RESPONSE 20-1: The Project site is located 1.1 mile from the edge of San Pablo Bay. The confluence of the North and South Fork of Gallinas Creek is 2,200 feet from the levee at the edge of the marsh along San Pablo Bay. San Francisco Bay Conservation and Development Commission (BCDC) jurisdiction does not extend upstream from the confluence of the North and South Fork of Gallinas Creek (personal communication between Ms. Kingma (M&A) and Mr. LaClaire (BCDC staff) on 12/11/07). BCDC has jurisdiction over development within 100 feet of the shoreline of San Francisco Bay. No development is proposed within BCDC jurisdiction as part of this Project. Consequently, no permit/authorization from BCDC would be required for this Project, and BCDC did not submit any comments on the DEIR.

RECEIVED

APR 23 2009

COMMUNITY DEVELOPMENT
CITY OF SAN RAFAEL

April 19, 2009

Mr. Kraig Tambornini, Senior Planner
City of San Rafael
Community Development Department
Planning Division
P. O. Box 151560
San Rafael, CA 94915-151560

Re: DEIR for Soccer Complex Project at San Rafael Airport

Dear Kraig,

The single acre intensity use formula Table 10-1 on page 10-12 for zone 5 in the California Airport Land Use Planning Handbook states that you have a hazardous condition if you have more than 200 people in the highest intensity acre of the project site. **21-1**

In this particular project, clearly, the most intensely used area is the one-acre portion of the building being used as the indoor soccer fields and mezzanine above. The maximum occupancy calculation for that portion of the building per the California Building Code (CBC) occupancy use table is 65 people per field (130 for two fields), and 234 people in the mezzanine all totaling 364 people. No occupancy is listed for administration offices, the dance office, the Gymnastics office, or conference room which would add even more to this number. Lamphier-Gregory decided to take this total occupancy and divide it in half based on surveys not named in the report.

Dividing the occupancy in half is not realistic as it completely contradicts the project's/applicant's intent to have these fields and mezzanine in full use during all hours of operation.

364 persons is 45% OVER the 200 person maximum safety limite stated in the Table 10-1 of the California Airport Land Use Planning Handbook.

This occupancy overage triggers the special risk-reduction construction features which included a concrete building, single story structure, upgraded roof strength, limited number of windows, no sky lights, enhanced fire sprinkler system, and increased number of emergency exits according to page 10-11 of DEIR.

These must be in the conditions of approval should this project be approved.

Sincerely,

Jerry Frate
193 Isle Royale Court
San Rafael, CA 94903

LETTER 21: Jerry Frate, April 19, 2009

RESPONSE 21-1: See MASTER RESPONSE PD-1, above, which addresses the maximum number of people who would be expected to be at the Project site at any given time, as well as the use of the single-acre use intensity calculation as it relates to the evaluation of aviation hazards and risk reduction measures. At the estimated maximum occupancy, 130 people would be using the outdoor facilities, and 345 people would be inside the 1.6-acre indoor facility. For the purposes of the Single-Acre Intensity analysis, it was assumed that the highest intensity of use per acre would be at the indoor facility, with an average of 216 people per acre at maximum capacity (375 people inside the 1.6-acre structure = 216 people per acre). As indicated in the DEIR, this value would exceed the single-acre criterion of 200 people, which was identified as a potentially significant impact on DEIR page 10-17 (**Impact Haz-1a**). As indicated on DEIR page 10-20, implementation of the risk-reduction design features identified in **Mitigation Measure Haz-1** (e.g., limiting intensity of use to a maximum of 200 people per single acre, or, at a minimum, adding one additional emergency exit within the structure beyond the number required by the CBC, providing the structure with an enhanced sprinkler system, and adding a sign at the entrance to the warm-up field indicating the maximum occupancy of the field is 50 people) would reduce impacts associated with the adjacent airport operations to a level considered less than significant.

April 19, 2009

Mr. Kraig Tambornini, Senior Planner
City of San Rafael
Community Development Department
Planning Division
P. O. Box 151560
San Rafael, CA 94915-151560

RE: DEIR for San Rafael Soccer Facility

Dear Kraig,

Mitigations proposed for Impact Haz-1a and Impact Haz-1b are inadequate, as they do not conform to the California Airport Land Use Handbook relied on by the San Rafael General Plan. **22-1**

Meade and Hunt relies on the California Airport Land Use Planning Handbook for intensity of use calculations but ignores other safety provisions called for by the Handbook as follows:

Although avoidance of intensive uses is always preferable, a concept that may be acceptable in some situations is special risk-reduction building design. Special risk-reduction construction features include:

- *Single Story height*
- *Concrete Walls*
- *Upgraded Roof Strength*
- *Limited Number of Windows*
- *No Skylights*
- *Enhanced fire sprinkler system*
  (e.g. designed in a manner that the entire system would not be disabled by an accident affecting one area)
- *Increased number of emergency exits beyond California Building requirements*

While Meade and Hunt does call for one extra emergency exit and enhanced fire sprinkler system as proposed mitigations, they ignore other provisions called for in the Handbook. Specifically, the proposed building will be 36 feet tall without concrete walls, upgraded roof strength or limited number of windows.

In fact, the project description in the discussion of architecture talks of extensive windows in order to make the project aesthetically pleasing: **22-2**

Page 2

Extensive use has been made of Glass (windows) in order to add visual interest to the building, while also conserving on lighting costs and enhancing the user experience by providing views of the surrounding hills and bay.

Building plans should be revised to include concrete walls, upgraded roof strength and a limitation of windows.

Goal 28 of the San Rafael General Plan states that San Rafael residents deserve to feel safe and secure wherever they live, work and play. Significant alterations to this building or a denial of the project application are required in order to meet this goal.

Sincerely,

Nick Kapas
348 Acadia Lane
San Rafael, CA 94903

LETTER 22: Nick Kapas, April 19, 2009

RESPONSE 22-1: Opinion regarding the adequacy of **Mitigation Measure Haz-1** is noted. See MASTER RESPONSE PD-1, above, which addresses single-acre use calculations as they relate to the reduction of aviation hazards. The special risk reduction construction features listed on DEIR page 10-11 represent those features that may be considered, but there is no requirement that all of the construction features listed be incorporated into a specific project. Based on the building design, as proposed in the DEIR Project Description, it has been confirmed that the recreational facility building would be capable of satisfying the special risk-reduction construction requirement by including an enhanced fire sprinkler system and increasing the number of emergency exits beyond California Building Code requirements, as specified in **Mitigation Measure Haz-1**. The other risk-reduction measures, which have been included to identify all the possible risk reduction measures that could be applied to the site, would not be required nor are applicable to the Project as it is currently proposed.

RESPONSE 22-2: Opinion on the need to either revise the building plans for the proposed Project to achieve increased safety or deny the Project to meet Goal 28 of the San Rafael General Plan is noted. See RESPONSE 22-1, above, which addresses this comment.

April 19, 2009

Mr. Kraig Tambornini
Senior Planner
City of San Rafael
P. O. Box 151560
San Rafael, CA 94915-151560

Re: DEIR for the San Rafael Soccer Complex

Dear Kraig,

The City of San Rafael was asked repeatedly for environmental studies for alternative bridge locations. 23-1

No such study appears in the DEIR. The DEIR is incomplete without said research.

How is the City planning on addressing this matter?

Sincerely,

Debbie Pompei
16 Dockside Circle
San Rafael, CA 94903

LETTER 23: Debbie Pompei, April 19, 2009

RESPONSE 23-1: Opinion regarding the adequacy of the DEIR in the absence of an analysis of alternative bridge locations is noted. The DEIR evaluates the Project as proposed, and as currently proposed, access to the Project site would be provided by way of a new 2-lane, 25-foot wide steel truss bridge deck to be placed over the existing 1-lane bridge that crosses the North Fork of Gallinas Creek. The DEIR has evaluated the bridge access on pages 13-27 and 13-28. Since potential site access problems associated with use of the bridge crossing, in its current location, would be less than significant with the installation of the new 2-lane bridge deck as proposed by the Project, and development of another bridge at another location would entail environmental impacts greater than those associated with simply replacing the existing bridge deck at the present location, the evaluation of additional locations for a replacement bridge is not warranted.

April 19, 2009

Here's another point of "view" regarding the "need" for the indoor/outdoor soccer/recreational facility. Progress is one thing, blight is another. In the area beyond McInnis Gold course, there are trails that people of Contempo Marin, along with many others enjoy. As planned now, by the airport owner and proponents of the facility, there will someday exist, a four story, 86,000 square ft. tin building, housing these facilities. This mass is three times bigger than the Regency movie theatre on Smith Road. It may not obliterate all of Mt. Tamalpais to the West, but will certainly not be considered a beautiful, Marin view. No matter how the colors of the tin are supposed to "blend" with the grasses, it is still an industrial-looking block. I have always believed that people in Marin are so into the beauty we have here. 24-1

Also, although most of the talk is about structures, etc. I'd like to say something about the non-human creatures. I live in Contempo Marin, a community of almost 400 very nice mobile homes. From my back patio, and yard, looking east, I see the beautiful green hills of Santa Venetia. Thirty feet from my patio, deer often come by to graze, toward evening. I see the Snowy White egret, many species of birds, and an occasional raccoon, or possum (not my favorite-haha!) When it rains a lot, the area beyond my yard actually becomes a small pond where ducks have made their temporary homes. Awesome! Also, huge flocks of Canadian geese can be seen, flying both north and south, between my yard and the Santa Venetia hills. Their flight patterns existed long, long, before any airplane. 24-2

Can anyone honestly believe that these beautiful creatures, (two being the long-legged rail klapper bird, and the Harvest mouse, both endangered species), will not be in harm's way during the construction of this "facility for soccer-playing kids?" And what about the Las Gallinas Creek running through there? It gives life to these animals! Humans have problems when their water is cut off for three hours! What might the impact of deep excavations be to this waterway? Also, sewage facilities will have to be greatly increased.

The need for either four-way stop signs, or sufficient traffic lights, at the Yosemite/Smith Ranch juncture is obvious. Estimates are that 1,500 to 1,700 additional cars would be whizzing by during the hours of operation for this new facility. The speed limit is 35 MPH on Smith Ranch. Go figure. Our park has many seniors exiting from Contempo. A plan would have to be implemented regarding this safety area. Also, people with, or without kids, frequently cross Smith Ranch Road to walk their dogs around our nice lake. 24-3

I happen to also believe that no kids "need" to be up until 12:30 a.m. at a place that has a "beer bar". I wouldn't want that for a child of mine who "wants to play sports". 24-4

Let's think carefully about this Marin. And perhaps not just with our heads, but with our hearts.

Thank you.

Barbara J. Rokoszak

Barbara J. Rokoszak, Contempo Resident
84 Yosemite Rd.
San Rafael, CA 94903

LETTER 24: Barbara J. Rokoszak, April 19, 2009

RESPONSE 24-1: Opinion regarding the aesthetic quality of the proposed recreational structure is noted. This comment on the design of the structure is germane to the merits of the Project, as the environmental effects in this regard have been identified in the DEIR as less than significant, as discussed in these responses to comments and DEIR Chapter 5. See also MASTER RESPONSE AES-1, above.

RESPONSE 24-2: As shown on the Project site plan (**FEIR Appendix A**), the proposed Project will not result in any direct impacts to marsh habitats along the North Fork of Gallinas Creek (i.e., Project development does not encroach into the marsh or result in any direct modification of the marsh habitats that support the California clapper rail and the salt marsh harvest mouse). The proposed buffer between the Project site development envelope and the top of the levee (edge of occupied habitat) varies between 130 feet and over 250 feet.

As indicated on DEIR pages 7-61 through 7-81, development of the Project site as proposed could have potentially significant adverse impacts on fish and wildlife species in the absence of appropriate mitigation. Implementation of the mitigation measures identified in the DEIR during construction and subsequent operations at the site would reduce these impacts to a level considered less than significant.

RESPONSE 24-3: As part of the scope of work for the EIR intersection impact analysis, the City required full stop sign and traffic signal warrants to be conducted for Yosemite/Smith Ranch Road intersection for current and projected volumes (See DEIR **Appendix K**, Transportation Impact Report-Appendix B). As noted on page 24 of the TIR, warrants to justify installation of signals were not satisfied. See MASTER RESPONSE TRA-1, above.

RESPONSE 24-4: Opinion regarding the proposed sale of alcoholic beverages at the Project site is noted. As noted elsewhere in these responses (see RESPONSE 12-6, above), the sale of alcoholic beverages is not an environmental effect subject to review in the DEIR under the provisions of the California Environmental Quality Act (CEQA). Rather, this component of the proposed use would need to be considered by the City as part of the project merits review, which will occur at a future hearing after a decision has been made certifying the DEIR.

LETTER 25

RECEIVED
APR 22 2009
PLANNING

April 20, 2009

Re: San Rafael Airport Recreation Facility
Comment on Draft EIR 1.

My name is Ronald Beasley. I have lived at 117 Bryce Canyon Rd. in Contempo Marin since 1980. My home is located on the Northeast perimeter of Contempo Marin adjacent to the access road to the Airport.

My objections to the proposed San Rafael Recreational Facility at the Airport includes biological and environmental issues i.e. loss of habitat. This includes habitat and open land for the creatures of field and bush which include: the Clappa Rail, Red Shouldered Black bird, Night Heron, Quail, the Jack Rabbit and other small mammals. Not to forget all the water birds at Las Gallinas Creek and adjacent areas that will be impacted by this enormous recreational facility. 25-1

Furthermore, my very personal objections and concerns are because of very close proximity to the Airport access road. I am about 75 yards from this road. This Recreation facility will lead to more traffic and noise until either 11 PM or midnight every night. Already, (I believe in contradiction to stated operating times) I hear Bartlett Tree, Jewel Trucking or Ford Engineering or one of the Airport's 25-2

other commercial/industrial tenants moving their equipment, especially the loud "backing alarms" as early as 5 AM on many weekday mornings. The additional traffic from this new facility will create more disturbance and an increased level of noise and disruption to my home and many other homes in my neighborhood. I am also concerned about the alcohol being served in the evenings which could lead to more "yahoo" noise and disturbance. Moreover, I am concerned about the potential for more criminal activity, particularly in the P.M. hours. 25-3 25-4

Another issue which is very important to me is the intersection at Yosemite and Smith Ranch Rd. Even now on some mornings and late afternoons it can be difficult to pull out on to Smith Ranch Rd because of <u>sight lines</u> and traffic levels. On Sundays between April and October the traffic, because of the existing soccer leagues and the golf course, becomes heavy at the Yosemite/Smith Ranch Rd intersection. 25-5

I realize that the San Rafael Traffic Engineer has commented on this. However, I submit that his commentary is based on abstract calculations and formulas, and that this does not truely reflect the reality of entering Smith Ranch Rd. from Yosemite, especially on a Spring or Summer Sunday. The increased traffic because of the Airport Rec. facility will compound this dangerous situation.

My past experience with the airport and it's management has been questionable as far as I am concerned. In Sept. and Oct. of 2003 the Airport (Mr. Herbst, Mr. Shaku and Company) put up a large hanger building. This structure is a blight to me and to my neighbor's view. Shortly after the construction it was agreed with the Airport & Company that a trellis and significant planting would be done to mitigate this steel slab-sided view, which I see every day from my deck and patio. This has never been done. I do realize that this, and the probable lack of adequate building inspection of some aspects of the hanger project is a commentary for a later and more appropiate time. However, these two issues speak, I

25-6

believe, to the forcefulness and to the lack of veracity with which the above firm operates.

Sincerely,

Ron Beasley

117 Bryce Canyon Rd.
San Rafael, Ca 94903

LETTER 25: Ronald Beasley, April 20, 2009

RESPONSE 25-1: Although the DEIR (pages 7-61 through 7-81) indicates that development of the Project site as proposed would have potentially significant impacts on fish and wildlife species unless the identified Mitigation Measures were effectively implemented to reduce these impacts to a level considered less than significant, as indicated on DEIR page 7-2 the airport operator has implemented an on-going vegetation control effort to discourage any wildlife use of the ruderal grasslands within the proposed Project area, so the Project site itself is currently maintained so as not to provide wildlife habitat in the interests of aviation safety. As indicated on DEIR page 7-13, the Project will not result in significant impacts to wetlands, creeks, shorelines or habitat for threatened and endangered species.

As shown on the Project site plan (**FEIR Appendix A**), the proposed Project will not result in any direct impacts to marsh habitats along the North Fork of Gallinas Creek (*i.e.* the Project does not encroach into the marsh or result in any direct modification of the marsh habitats that support California clapper rail and other species listed in this comment). The proposed buffer between the Project site and the top of the levee (edge of occupied habitat) varies between 130 feet and over 250 feet, so there would be no Project-related impacts to marsh habitats along Gallinas Creek.

RESPONSE 25-2: Additional noise associated with development and operation of the Project site as proposed is addressed on DEIR pages 12-13 through 12-26. Potentially-significant Project-related noise impacts are identified, although these could be reduced to a level considered less than significant through the implementation of the Mitigation Measures identified (which include limiting the hours of nighttime use of the outdoor fields or installation of a noise wall).

RESPONSE 25-3: Concern related to the proposed sale of alcoholic beverages at the Project site (in terms of possible increases in noise levels) is noted. The operational noise impacts of the Project have been addressed in the DEIR. Concerns that a significant increase in noise from the incidental sale of beer and wine within the recreational facility is not considered to be substantiated. As discussed within these responses to comments, this aspect of the Project is considered to be related to the merits of the Project entitlements and is not an environmental issue deemed to be subject to analysis in the DEIR under the provisions of the California Environmental Quality Act (CEQA).

RESPONSE 25-4: Concern regarding the possibility of a Project-related increase in criminal activity at the site following development as proposed is noted. No issues or concerns have been raised by the Police Department, which is the local agency responsible for preserving the public health and safety with regard to criminal activity, in response to the Project referrals and DEIR (see DEIR page 14-4 through 14-6). The Police Department also supports provision of minimum levels of security lighting in parking lots and pathways near buildings

to provide adequate sense of security and safety of occupants at the site during periods of darkness, which would be required as a standard condition of Project approval (consistent with San Rafael Zoning Code Section 14.25.050.F.4). As proposed, the Project complies with the minimum standards, with minimum one foot-candle illumination at ground level overlap provided in all exterior doorways, parking areas and pedestrian walkways (**Mitigation Measure Aesth-1a** *second bullet*).

RESPONSE 25-5: See RESPONSE 24-3, above. The volume of traffic does not have a bearing on the line of sight analysis. Current line of sight was analyzed and parking restrictions were implemented on Smith Ranch Road in the year 2002 to assure adequate line of sight at the intersection would be maintained. The City traffic engineering division would continue to monitor this as part of routine traffic operations monitoring.

RESPONSE 25-6: Opinions regarding the past and current management of the airport property, and of previous development at the airport site, are noted. Concerns raised regarding current management practices at the airport site would be a subject for consideration during the review of the Project merits. The City decision-making body could consider this in making its decision whether to grant an approval for the additional proposed recreational use on the site, and under what conditions.

April 20, 2009,

Mr. Kraig Tambornini, Senior Planner
City of San Rafael
Community Development Department
Planning Division
P. O. Box 151560
San Rafael, CA 94915-151560

Re: Airport Soccer Complex Project DEIR

Dear Mr. Tambornini and Planning Commissioners,

Presented to Design Review in July 2005, the project site was described as a 2.5 acre portion of the 116 acre airport property. This description included the 85K SF+ building, two outdoor sports fields, two parking lots consisting of a total of 270 spaces. **26-1**

This description is in conflict with the parking methodology used in the DEIR which uses 10 acres in their formula which produces 41 people per acre. When you use the project Design Review description of 2.5 acres, it swells to 162 persons per acre, which is over the safety margin according to the California Airport Land Use Planning Handbook.

With this 62 persons per acre over the safety margin, shouldn't the special risk reduction features (i.e.: single story building height, concrete building walls, upgraded roof strength, limited number of windows, no sky lights, enhanced fire/sprinkler systems, increased number of emergency exits) be recommended by the DEIR? Shouldn't the City require it?

How was this overlooked? How can the City consider this project at all when "apples to apples" (or acres to acres in this case) are not being compared?

Very truly yours,

Susanne Becker
97 Dockside Circle
San Rafael, CA 94903

LETTER 26: Susanne Becker, April 20, 2009

RESPONSE 26-1: The description of the Project has changed since it was presented to Design Review in July, 2005. As indicated on DEIR page 3-2, the Project site is a 9.1-acre undeveloped portion of APN 155-230-12 (which is a 16.6-acre parcel within the 119.52-acre airport site). There are portions of the 9.1-acre Project site which would remain undeveloped in addition to the building footprint, the outdoor soccer field, and parking areas, since this level of development would increased the amount of impervious surface at the site by approximately 4.6 acres, as indicated on DEIR page 11-27). See MASTER RESPONSE PD-1, above, which addresses the single-acre-use calculations made to determine possible exposure to aviation hazards at the Project site. The special risk reduction construction features listed on DEIR page 10-11 represent those which may be considered, but there is no requirement that all of the construction features listed be incorporated into a specific project. Opinion on whether the City should require all of the special risk reduction features listed is noted. However, this is neither possible nor required to reduce the hazard impacts. See MASTER RESPONSE PD-1, above, for further discussion, and identification of the specific risk reduction design features that would be pertinent for this Project.

April 20, 2009

Mr. Kraig Tambornini, Senior Planner
City of San Rafael
Community Development Department
Planning Division
P. O. Box 151560
San Rafael, CA 94915-151560

Re: San Rafael Airport Soccer Venue DEIR

Dear City Officials,

How big is the project site?

The 2005 design review staff report stated the project site was 2.5 acres. In 2006 the staff report to the planning commission listed the site as 16.6 acres. In 2006, the acceptance letter from the DEIR reporting firm stated the project site was 16.6 acres. In the DEIR page 2-1 the project site is listed at 9.1 acres. In page 3-1 the site is listed as 9.1 acres. On page 7-1 the site is listed as 9.1. On page 10-18 the site is listed as 16.6. On page 11-34 the site is listed as 4.2 acres. On page 16-15 the site is listed as 9.1 acres. On page 10-18 the CDC methodology formula uses 10 acres as the project site. **27-1**

If we add up the size of the building footprint, the outdoor soccer field, the overflow parking; and the main parking lot, we get 4.7 acres, not 10 as the formula beginning on page 10-18 states.

How can the DEIR use the project site area in varying increments and calculations and come to accurate conclusion? Please clarify.

Sincerely,

Nicolo Dapiram

Nicolo Dapiram
91 Yosemite Road
San Rafael, CA, 94903

LETTER 27: Nicolo Dapiram, April 20, 2009

RESPONSE 27-1: As indicated on DEIR page 3-2, the Project site is a 9.1-acre undeveloped portion of APN 155-230-12 (which is a 16.6-acre assessor's tax parcel that has been established by the County assessor for the purpose of assessing property taxes on the site. The tax parcel is part of the entire 119.52-acre airport property, which is one legal lot of record). There are portions of the identified 9.1-acre Project site area that would remain undeveloped, in addition to the remainder of the larger 119.52 acre airport property that is undeveloped. The existing impervious surface areas include the existing airport improvements consisting of the existing hangars, residences, runway, parking and paved driveway . The proposed Project building footprint, outdoor soccer field, and parking areas, would increase the amount of impervious surface at the site by approximately 4.6 acres, as indicated on DEIR page 11-27).

In response to this comment, the text of the third sentence of the second paragraph on DEIR page 11-34 has been modified to read as follows:

> "However, the entire 119.52-acre airport site, within which the ~~4.2-acre~~ Project site is situated, is surrounded on three sides by nine-foot levees, which would protect the site from flooding during a 100-year storm event, which has a flood elevation of +6 NGVD."

Barbara Evans
15 Wharf Circle
San Rafael, CA 94903

April 20, 2009

City of San Rafael
Planning Commission
1400 Fifth Street
San Rafael, CA 94901

RE: Proposed Recreation Facility at San Rafael Airport

Dear City Planners:

I have owned my home in Captain's Cove and have lived here for almost 20 years. I have many concerns about the disruption this proposed project will cause to the neighborhood in many areas and I feel that the Draft EIR is deficient in the areas of Traffic, Noise and Mitigations to Captain's Cove.

First, the Traffic Study does not include any study of the traffic at three of the busiest intersections along Smith Ranch Road. These intersections are: 28-1

1. Yosemite and Smith Ranch Road
   This is the intersection that serves Captain's Cove and Contempo Marin

2. Deer Valley Road and Smith Ranch Road
   This intersection serves Deer Valley Apartments and Smith Ranch Homes

3. Cresta Road and Smith Ranch Road
   This is the intersection that serves 15 lofts, Highland of Marin Apartments and Crest Marin Apartments.

At the very least, the residents and owners who use these 3 major intersections on Smith Ranch Road deserve to have the traffic at their intersections studied as part of the Draft EIR.

Barbara Evans
Comments to Draft EIR - Proposed Recreation Facility At San Rafael Airport

Second, the Traffic Section of the Draft EIR indicates that Traffic studies were done in March. The McGinnis fields do not open for recreation events until April and I believe they remain open until October. I believe that the busiest part of the sports season occurs from April through August. The Traffic Study is deficient because it was not conducted during peak use periods, but during a time when McGinnis fields were NOT OPEN TO RECREATION EVENTS. 28-2

Third, the Draft EIR is deficient because it contains no requirement that the applicant reach an agreement with Captain's Cove to mitigate the intrusion to our property and our residents caused by increased traffic and increased use of the Airport Road. The Airport Road is the only entrance to the facility via a bridge. The headlights from cars will shine directly on the last building at Sailmaker Court. The applicant made references in the past to working out a mitigation with Captain's Cove. I am aware of no such mitigation offered to Captain's Cove. I do not feel my pocketbook should bear the costs of this project while the developer is making all the money at my expense and the expense of all Captain's Cove owners. Therefore, a condition of the Draft EIR should be that the developer be required to pay for and maintain a mitigation acceptable to Captain's Cove. 28-3

Fourth, I am concerned about an increase in noise due to increased traffic and games at the proposed facility. The Draft EIR is deficient in this area. The noise studies were conducted based on noise due to use at the proposed facility. It fails to consider this noise together with the existing noise from events at McGinnis Park. The Draft EIR fails to consider the impact of additional noise to existing noise. 28-4

For all these reasons, I do not endorse the Draft EIR because it fails to include an adequate traffic study, noise study, and any mitigations to Captain's Cove caused by the proposed recreation facility. 28-5

Sincerely,

Barbara Evans

Barbara Evans

LETTER 28: Barbara Evans, April 20, 2009

RESPONSE 28-1: See MASTER RESPONSE TRA-1, above, which addresses concerns about traffic congestion and safety at additional intersections along Smith Ranch Road.

RESPONSE 28-2: See MASTER RESPONSE TRA-2, above, which addresses the timing of the traffic study used for the DEIR analysis.

RESPONSE 28-3: See MASTER RESPONSE AES-2, above. Although the comment correctly indicates that the DEIR presents no requirement that the Project Applicant reach some form of agreement with the residents of Captain's Cove to mitigate the effects of headlights from Project-related traffic shining into the Captain's Cove area, this is not a deficiency of the DEIR. MASTER RESPONSE AES-2, above, addresses impacts associated with Project-related vehicle headlights. A solution is proposed to ameliorate this condition, which has been previously agreed to by the Applicant to address the effect of vehicle headlight glare.

It is also worth noting that any Project merits issues that are not considered to be environmental impacts would not preclude the City of San Rafael from requiring the Project Applicant, as a condition of Project approval, to take measures to reduce effects of such concerns.

RESPONSE 28-4: Concern regarding noise generated as a result of development of the Project site as proposed is noted. As indicated on DEIR page 12-2, existing ambient noise levels were monitored at two noise-sensitive locations near the Project site (shown as LT-2 and LT-3 on DEIR **Figure 12-2** on page 12-12) for five days (July 17 – 22, 2002), which would be a period when recreational facilities at McInnis Park were in use. The noise measurements conducted in February 2005 were taken at the Project site, not at LT-2 or LT-3.

RESPONSE 28-5: Opinion that the DEIR fails to include an adequate traffic study, noise study, and any mitigations to Captains Cove caused by the recreation facility is noted. These general comments are considered to have been addressed by the responses provided herein, including the MASTER RESPONSES in Section E, above.

LETTER 29

Richard A. Heine
143 Bryce Canyon Rd.
San Rafael, CA 94903
Tel: 415-479-6343
Fax: 413-487-6343
E-mail: rah111@comcast.net

April 20, 2009

Kraiig Tambornini, Senior Planner
City of San Rafael
Community Development Department
Planning Division
PO Box 151560
San Rafael, CA 94915-151560

RE: San Rafael Airport Soccer Comp[ex

Dear Kraig:

In reviewing the DEIR for this project and I am astounded that the traffic section completely ignores the intersections of Smith Ranch Road and Yosemite, Deer Valley Road and Smith Ranch Road and Cresta Road and Smith Ranch Road. **29-1**

The intersection of Yosemite Road and Smith Ranch Road is particularly troublesome as the slight rise on west bound Smith Ranch Road makes it very difficult to see vehicles coming west on Smith Ranch Road. The traffic leaving from Contempo Marin and Captain's Cove is significant and the increased traffic from the proposed complex will only make the situation worse.

How could the project planners (and the city) not give consideration to these intersections? How can the DEIR be considered complete without addressing the traffic issues at these intersections?

Sincerely,

Richard Heine

LETTER 29: Richard Heine, April 20, 2009

RESPONSE 29-1: See MASTER RESPONSE TRA-1, above, which addresses concerns about traffic congestion and safety at additional intersections along Smith Ranch Road.

Heinz Kuster
63 Wharf Circle
San Rafael, CA 94903

April 20, 2009

Kraig Tambornini
City of San Rafael
Community Development Department
1400 Fifth Street
San Rafael, CA 94901

RE: Draft EIR for the Proposed Recreation Facility at San Rafael Airport

Dear Mr. Tambornini:

I own a condo at Captain's Cove and am very concerned about the proposed Recreation Facility at the San Rafael Airport.

I am concerned that the value of my condo will be reduced because of this project. What is more puzzling to me is that the City's Draft EIR does not seem to require the developer to provide anything to Captain's Cove in exchange for all the inconvenience he is causing us. **30-1**

The Draft EIR says the Traffic mitigation will make the traffic impact "less than significant." I am trying to understand how this could be. Traffic will increase significantly on Smith Ranch Road and there is no argument that it will increase significantly on the Airport Road. Yet, there is no mitigation offered to us for this. **30-2**

The Executive Summary states that the developer will make the bridge larger. How does that address the issue of increased traffic on the Airport Road? It does not address it at all. **30-3**

The developer wants to keep the Facilty open until midnight. That means a lot of cars driving on the Airport Road and a lot of lights shining on my **30-4**

neighbors who live on Sailmaker Court. The traffic study does not address this and does not offer any mitigations to Captain's Cove.

The Draft EIR should contain a clause that forces the developer as a condition of approval to work out an acceptable traffic, noise, and light mitigation that is approved by Captain's Cove. The developer should be required to maintain this mitigation and there should be some sort of provision to enforce the developers duties to do this. I was told that the developer made promises to residents of Contempo Marin when he built his hangars and those promises weren't kept. **30-5**

The traffic study in the Drat EIR doesn't include a study of the intersection I use every day to leave and enter Captain's Cove, Yosemite and Smith Ranch Road. I ride my bike all the time and any increased traffic caused by this Facility will impact how I enter and leave Captain's Cove at this intersection. It will also affect me when I drive. The Draft EIR should include a study of this intersection. **30-6**

Please revise the Draft EIR to include the above points since it is deficient the way it is. **30-7**

Sincerely,

Heinz Kuster

LETTER 30: Heinz Kuster, April 20, 2009

RESPONSE 30-1: Concern regarding the proposed Project is noted. The DEIR evaluates the environmental effects that may be associated with the development of the Project site as proposed, and it is beyond the scope of this environmental review document to speculate on a possible change in the economic value of real estate in the vicinity of the Project site as a result of Project development. The comment correctly indicates that there is no requirement identified in the DEIR that the Project Applicant provide anything directly to the residents of Captain's Cove for perceived "inconvenience" associated with the Project, although the City of San Rafael may place conditions on the approval of the Project which could be perceived as beneficial to those residents.

RESPONSE 30-2: The only potentially significant traffic-related impact identified in the DEIR is related to bridge access (**Impact Traf-1** on DEIR page 13-27). As indicated in **Mitigation Measure Traf-1** (DEIR pages 13-28 through 13-29), it was noted that this potential impact could be reduced to a level considered less than significant through implementation of a traffic management plan developed by the Project Applicant and approved by the City for events held at the proposed facility, to ensure adequate queuing and pedestrian safety. However, the DEIR has been revised to eliminate discussion of **Impact Traf-1**, given that the Project proposes to install a 2-lane bridge deck which negates this impact and related mitigation.

Although development and operation of the Project site as proposed would add traffic to existing intersections and arterials (see DEIR pages 13-24 through 13-27), the impacts associated with this additional traffic are considered less than significant, and no mitigation is required.

RESPONSE 30-3: Although construction of a wider bridge does not result in a reduction in the volume of Project-related traffic that would be crossing that bridge, a wider two-lane bridge eliminates the need for vehicles to wait for opposing traffic to cross (as would be the case if the existing one-lane bridge were to remain in place), thus eliminating the potential for short-term queuing impacts to result.

RESPONSE 30-4: See MASTER RESPONSE AES-2, above, related to concerns that light from Project-related vehicle headlights could shine into residential windows of neighbors living on Sailmaker Court, in Captain's Cove.

RESPONSE 30-5: Opinion regarding the need for the DEIR to include a clause forcing the developer to work out mitigation acceptable to current residents of the Captain's Cove area is noted. Although the DEIR evaluates the environmental effects that may be associated with development of the Project site as proposed, and identifies feasible mitigation measures which could reduce potentially significant impacts to a level of less than significant, there is

no mechanism associated with an environmental review document that can effectively "force" the implementation of mitigation considered "acceptable" to anyone, including those living near the Project site. However, it is worth noting that failure of an impact to result in a significant environmental impacts does not preclude the City of San Rafael from requiring the Project Applicant, as a condition of Project approval, to take measures to reduce perceived adverse effects on local residents that may be associated with the proposed development of the Project site. See MASTER RESPONSE AES-2, above, that responds and proposes a solution to ameliorate this concern, which has been previously agreed to by the Applicant.

RESPONSE 30-6: See MASTER RESPONSE TRA-1, above, related to the analysis of Project-related traffic at the Yosemite/Smith Ranch intersection.

RESPONSE 30-7: Opinion on the adequacy of the DEIR and request to revise the DEIR are noted. These responses to comments have resulted in modifications to the DEIR, which have been made in order amplify or expand upon existing information presented in the DEIR prepared for the Project.

April 21, 2009

Kraig Tamborini, Senior Planner
Community Development Dept.
Planning Division
San Rafael, Ca

Re: San Rafael Airport Draft EIR

Dear Mr. Tamborini:

I am concerned that the pile driving for the bridge leading to the airport has not been evaluated sufficiently. My unit on 29 Sailmaker Ct. is less than 200 feet from the bridge. We all must know what will the real potential impact be on the foundations of our homes from the pile driving there. It was not evaluated to the degree of the other pile driving in the draft. This cannot be left to chance and the upgrade of the bridge must be treated, in all of its aspects, as an integral part of the project and not as a mere incidental to the rest of it, which is what it is in the draft. **31-1**

A requirement for a headlight protective wall must be included to shield the residential units of Captain's Cove that will be impacted from the traffic. This needs to extend, on the airport side of the creek, from the bridge to the border of Contempo Marin to shield our property on the opposite side; and on our side, along the large lawn leading to the bridge. In addition the wall should continue on the bridge itself. None of this was stipulated in the draft even though it has an intensely critical impact. It must be addressed. **31-2**

The draft did not look at how the numerous pedestrians and bicyclists will be protected from the vastly increased traffic on the airport road. This is going to be a truly major impact and must be addressed in a clear and direct way. Again, this is not by any means, a small incidental detail and it was not decisively addressed in the draft. **31-3**

These issues must receive the same professional attention that the rest of the project is getting. We want you to see that it will.

Thank you,

Paul Vasquez

Paul Vasquez
29 Sailmaker Ct.
Captain's Cove

LETTER 31: Paul Vasquez, April 21, 2009

RESPONSE 31-1: As indicated on DEIR page 3-14 and 3-15, as part of the Project the Project Applicant has also proposed to install a new 25-foot-wide steel truss bridge deck over the existing bridge that crosses the North Fork of the Gallinas Creek, which would involve removing the existing bridge rail, lowering a pre-fabricated 122-foot long and 25-foot wide bridge on top of the existing structure, pile-driving new piers into paved areas located above the top of the creek bank in order to support the new bridge, and pumping eight inches of cement into the bridge deck to form the new driving surface. As indicated on DEIR pages 12-25 and 12-26, pile driving into Bay Mud (such as that which would be necessary to support the proposed bridge improvements could be expected to generate vibration of less than 0.1 inches per second, peak particle velocity (in/sec PPV) at 200 feet, and the federal Transit Administration recommends a vibration threshold criterion of 0.2 in/sec PPV for fragile buildings (applied to any construction activities occurring during daytime hours). Although the vibration associated with pile driving activities could be perceptible at adjacent and nearby structures, structural or cosmetic damage is not expected to occur, and the potential for off-site cosmetic or structural damage to result from Project construction would be low (less than significant).

RESPONSE 31-2: Demand for installation of a headlight protection wall is noted. See MASTER RESPONSE AES-2, above, related to light from Project-related vehicle headlights shining into residential windows.

RESPONSE 31-3: As indicated on DEIR pages 13-34 and 13-43, there are no significant foreseeable impacts related to bicycle or pedestrian safety associated with development of the Project site as proposed, or with cumulative development in the vicinity of the Project site. The Project includes construction of a sidewalk which will extend from the proposed building entrance to Smith Ranch Road, and the proposed bridge widening will include a five-foot wide bicycle/pedestrian lane.

Karen Rector
621 Vendola Drive
San Rafael, CA 94903

City of San Rafael Development Dept.
1400 Fifth Avenue 3rd Floor
San Rafael, CA 94901

RE: Project 397-400 DEIR report

Dear Planning Commissioners:

The completed DEIR report regarding the proposed Airport Soccer Complex raises the following concerns that I would like clarification on:

1. There were 2 noise studies done; 1 in February 2005 (the middle of winter when McInnis is closed) and 1 in July of 2002. The 2002 study indicates that 2 noise sensitive areas were chosen for the study but according to the report, the only areas diagramed are the 3 sites from the 2005 study. What 2 sites were chosen for the 2002 study and was the existing noise from McInnis Park taken into consideration? There is mention of the airplane noise but none concerning the already very audible sounds from the games at the park. **32-1**

2. The report states that the proposed building will act as insulation for noise. The proposed building is a huge metal warehouse type building that will more correctly act as an amplifier for sound than a buffer. The project is located in a bowl like wetland area where sound carries over into the residential locations already. **32-2**

3. The DEIR indicates that Vendola Drive homes are 1400 feet from the proposed soccer complex. Later in the study, it states that the South soccer warm up field in only 750 feet? Do the mitigated measures address this closer proximity for sensitivity to noise levels? Why wasn't a noise study done in this area? **32-3**

4. The Caretakers residence is in close proximity to the proposed site. Are the inhabitants not taken into account? **32-4**

5. Will there be loud speakers, bull horns and constant referee whistle sounds and have they been taken into account for this study? **32-5**

This proposed soccer complex is not a good fit for this location on several levels and the mitigated measures to make it fit have obvious defects. **32-6**

Sincerely,
Karen Rector

LETTER 32: Karen Rector, April 22, 2009

RESPONSE 32-1: As indicated in the Noise Study (Exhibit 3) attached to the Initial Study/Mitigated Negative Declaration in **Appendix A** of the DEIR, noise measurement locations LT-2 and LT-3 were used during the monitoring conducted between July 17 and July 22, 2002, and noise measurement location LT-1 was used during the monitoring conducted between February 4 and February 11, 2005. Although the playing fields at McInnis Park may not have been very active during the 2005 monitoring, they would have been active during the 2002 monitoring, and noise from the playing fields would have been monitored at LT-2 and LT-3 during that period. As indicated in the DEIR on page 12-2, the noise environment at the Project site is dominated by aircraft operations. This is not to say that other noise (such as that associated with activity at McInnis Park or vehicle traffic is not "audible", but rather that over the monitoring period, all other noise sources were exceeded by the noise associated with aircraft operations, which was the primary factor in defining the 24-hour noise levels in the area.

RESPONSE 32-2: Opinion regarding the ability of the proposed structure at the Project site to act as a noise amplifier is noted. When measured from outside, in the absence of any artificial means of amplification, any noise level generated from inside an enclosed structure would be less than similar noise level generated without such a structure surrounding the noise source. The comment may be viewed to imply that the building will amplify existing airport noise. The DEIR noise consultant has confirmed that any potential increase in noise that could occur from deflection off of walls and structures would result in a 1 decibel or less increase in existing ambient noise levels. An increase by more than 3 decibels is considered necessary to result in discernable increase in noise levels. Further, the noise impacts from nighttime use of the soccer field has been identified as potentially significant, and would be in addition to the existing ambient noise levels generated by the airport operations. See MASTER RESPONSE NOI-1, above, which addresses concerns with exterior noise impacts, which would be less than significant with proposed mitigation.

RESPONSE 32-3: On DEIR page 12-17, it is indicated that the homes along Vendola Drive are located a minimum of 1,400 feet from the existing playing fields at McInnis Park. As indicated on DEIR page 12-3, the southern edge of the proposed soccer warm-up area is located approximately 750 feet from the nearest portion of Santa Venetia. On DEIR page 12-16, it is indicated that anticipated hourly noise levels associated with a soccer game measured at a distance of 180 feet from the center of the field could be as high as 56 dBA (L_{eq}) and 60 dBA (L_{max}), but that at a distance of 1,000 feet, anticipated hourly noise levels generated by outdoor soccer activities would be below 41 dBA (L_{eq}) and 45 dBA (L_{max}). At a distance of 750 feet (the distance to the nearest Vendola Drive homes in Santa Venetia), hourly noise levels would be expected to be marginally higher than those anticipated at 1,000 feet, but considerably less than those anticipated at 180 feet. When the Project's impact on ambient noise levels is considered on a 24-hour basis, the Project's estimated soccer field-related

noise levels would not raise existing ambient noise levels by more than 3 dBA or create noise impacts that would increase noise levels to more than 60 dBA (L_{dn}) at nearby residences, so the Project's impact on 24-hour noise levels would be less than significant. However, soccer field-related noise at night would have the potential to increase noise levels at the Project site, which could adversely affect nearby residents (see **Impact N-1** on DEIR page 12-15). This impact could be reduced to a level considered less than significant with implementation of **Mitigation Measure N-1** [as modified] (DEIR pages 12-21 and 12-22).

RESPONSE 32-4: No new residence for caretakers is proposed as part of the Project. The two existing caretaker's residences (located directly across the existing roadway which provides access to the airport site from the Contempo Marin Mobile Home Park) is not in close proximity to the proposed structure or outdoor playing fields, but approximately 1,700 feet from the proposed outdoor soccer fields (DEIR page 12-16). Those living at the existing caretaker's residence would be exposed to Project-related noise levels similar to those living in the Contempo area. On page 12-18, the DEIR states: "Since both the homes in the Contempo Marin Mobile Home Park and the airport caretaker's residence are farther away and behind the proposed recreational building, Project-related noise levels from the proposed soccer field are expected to remain below the (City of San Rafael Noise) ordinance daytime and nighttime limit at these homes. It should also be noted that playing fields in McInnis Park are located closer to these homes (a minimum of 450 feet) than Project recreational facilities."

RESPONSE 32-5: The use of loudspeakers or bullhorns is not proposed at the Project site, and has not been evaluated as part of the DEIR noise analysis (if necessary a prohibition on the use of loudspeakers or bullhorns at the Project site can be included as a Condition of Approval for the Project). As indicated on DEIR page 12-17, noise associated with the use of referee whistles would contrast with the ambient noise environment and, therefore, would be noticeable. Whistle-related noise has been taken into account as a factor in the DEIR evaluation of Project-related noise. It is also worth noting that the Project shall be subject to ongoing compliance with the City Noise Ordinance, Chapter 8.13, which applies city-wide and includes provisions regulating intermittent noise. Therefore, intermittent noise impacts would not be anticipated, and should they occur, could be addressed through enforcing compliance with the City Noise Ordinance.

RESPONSE 32-6: Opinions regarding the Project's "fit" for the proposed location and the adequacy of the proposed mitigation measures are noted. This general statement is considered to be adequately responded to through provision of the related responses above, and throughout these responses made to similar comments.

Ellen Stein
211 Vendola Drive
San Rafael, CA 94903

RECEIVED

APR 22 2009

COMMUNITY DEVELOPMENT
CITY OF SAN RAFAEL

City of San Rafael Planning Division
1400 Fifth Avenue, Third Floor
San Rafael, CA 94901

RE: Project: 397-400 Airport Recreational Facility

Dear Planning Commissioners:

After reading the DEIR, I have several concerns about the mitigating conclusions along with clarification on study methodology and responsibility:

1. I am appalled by the statement in the report under the noise study that says residents are unlikely to be outside their homes between 9pm and midnight. Mitigating a significant compatibility problem by suggesting we limit the enjoyment of our homes between those hours is outrageous. Even if residents are not outside, most of us do not use air conditioning units but instead leave our windows open. The noise level from McInnis Park during game hours is very loud already and it is further away. Listening to game noise until midnight and even later as cars leave is unacceptable. **33-1**

2. Was the noise level tested at Smith Ranch Road nursing home? There is mention of it but it is suggested that they are already subjected to noise from McInnis Park . Is it assumed that the introduction of a little more noise won't matter? **33-2**

3..Do the operating hours of the proposed Complex exceed the noise ordinance of San Rafael? **33-3**

4. The noise study mentions airplane noise as the major source of exceeding acceptable dba levels. The airplanes are loud at times but sporadic and have limited hours. The proposed site is an all day year round late night noise nuisance. **33-4**

5. Is mechanical equipment going to be installed on the roof and if so has it been taken into account in the noise study? Has it been taken into account as far as air safety? **33-5**

6. The DEIR states that the nature trail and picnic area are not considered noise sensitive areas because they are located 50-300 feet from an already active recreational use park. McInnis does not schedule games all year round late into the night like the proposed soccer complex intends. **33-6**

7. At the March 25th, 2009 public meeting, the question was asked about how many people could be on the premises at one time. The number was said to be 200 per acre. Does that mean that there will only be 200 inside the complex? Are the fields included? The proposed complex is several acres but the majority of people will be in concentrated areas. How will this be enforced? **33-7**

8. The parking along the area closest to the runway is potentially encroaching on air safety space. It is recommended that only compact cars or regular cars back into those spots to mitigate that problem. How will that be enforced? Most of the families I know that have kids playing sports have big cars to accommodate several kids and their gear. If that area is unusable to those type of cars, will there be adequate parking available? If so, what is that based on? **33-8**

9. Which airport safety rules are being used as a guideline? A complex so big and so close to the runway seem to be an equation for disaster. Most public gathering places are required to be farther away from active runways. Who will take responsibility if an accident does occur. I have lived in my home for 8 years now and have witnessed 2 accidents out there. **33-9**

10. What proof is there that mitigation measures MMN-2 and MMN-3 will reduce construction related noise impacts? What level is reached by construction drilling? **33-10**

This Project is not cohesive with this area and is not what the general use plan was originally designed to accommodate. Please do not make the mistake of approving such an abuse of wetland space and a danger to those who use it so close to an active runway. **33-11**

Sincerely,

Ellen Stein

Ellen Stein

LETTER 33: Ellen Stein, April 22, 2009

RESPONSE 33-1: Opinion regarding the acceptability of noise generated by use of the proposed outdoor playing fields until midnight is noted. The DEIR discussion of potential noise impacts associated with the proposed use of the outdoor soccer fields at the Project site (pages 12-16 and 12-17) addresses both indoor and outdoor noise levels, so assumes that some local residents may be outdoors and exposed to Project-related noised between 9:00 PM and midnight.

RESPONSE 33-2: As indicated on DEIR page 12-18, the Smith Ranch Nursing Home is unlikely to be negatively affected by Project noise, as it is located over a quarter-mile (1,510 feet) northwest of the Project site.

RESPONSE 33-3: Although the City's Noise Ordinance does not limit hours of operation, it does establish noise limits for nighttime noise of 40 dBA (Leq) at the closest residential property line, and as indicated on DEIR page 12-16, the estimated Project-related noise levels could exceed that nighttime noise limit by 1 dBA, a potentially significant impact (see **Impact N-1** on DEIR page 12-15). Implementation of **Mitigation Measure N-1** [as modified] (DEIR pages 12-21 and 12-22) would reduce this impact to a level considered less than significant.

RESPONSE 33-4: Comment regarding the sporadic nature of noise associated with airport operations is noted. Because noise associated with aircraft operations is considerably louder than other noise which is currently generated in the vicinity of the Project site (or louder than noise associated with operations at the Project site following development as proposed), this aircraft-related noise carries more weight in the calculations for the 24-hour average noise levels than the other sources of noise. The DEIR has indicated that use of the outdoor fields as proposed at night would create a potentially significant impact on the environment (see Impact N-1 on DEIR page 12-15), but that this impact could be reduced to a level considered less than significant with implementation of **Mitigation Measure N-1** [as modified] (DEIR pages 12-21 and 12-22).

RESPONSE 33-5: Noise associated with mechanical equipment at the Project site is addressed on DEIR page 12-19. Mechanical equipment noise is well within the allowable limits of the City of San Rafael's Noise ordinance, and noise generated by the Project's rooftop mechanical equipment would be less than significant. DEIR **Figure 3-7** and DEIR **Figure 3-8** show the proposed placement of the mechanical equipment on the proposed structure and the associated roof vent, and the height of the proposed roof vent above the mechanical equipment area is not of sufficient height to jeopardize the safety of aircraft operating from the runway nearby.

RESPONSE 33-6: Comment regarding the more limited use of McInnis Park relative to the proposed recreational facility is noted. The DEIR describes the high level of disturbance associated with all sides of the two branches of Gallinas Creek in the vicinity of the Project site, particularly from the actively-used John F. McInnis Park and Golf Center. As noted in this comment letter, the noise level from McGinnis Park during game hours is very loud already. Due to the high degree of human activity and disturbance that already exists in the area around the airport, it is expected that most wildlife using the North Fork of Gallinas Creek would readily acclimate to new noises generated by the proposed facility. The nearby nature trail and picnic areas would be exposed to Project-related noise for longer periods during the year than is currently the case, (as the playing fields at McInnis Park are not in year-round operation), but as indicated on DEIR page 12-3, these are not considered to be noise sensitive, since they are located close to active recreational uses at McInnis Park and are not located in an extensive natural recreation area. As indicated on DEIR page 12-18, the shoreline trail would be as close as 300 feet from the proposed soccer field, and while soccer-related noise would likely be audible along this trail, the west end of the trail is already located closer to soccer and softball fields within McInnis Park and already subject to similar noise levels.

RESPONSE 33-7: See MASTER RESPONSE PD-1, above, regarding the maximum number of persons anticipated at the Project site at any given time.

RESPONSE 33-8: The DEIR does not speculate on the types/sizes of vehicles that may ultimately be parked at the Project site. The DEIR has drawn a reasonable conclusion that most standard-sized vehicles parking in these spaces would fall well below the protected airspace (i.e. 1:7 aviation ascending clear zone). The ascending clear zone rises from a 5-foot elevation at the front of the space (adjacent to the 5-foot tall solid fence and 42" bollards proposed along the south boundary of the parking lot) up to +8-feet at the point that it crosses over the end of the standard 19-foot dimension parking space; the end of which is located 21'6" from the fence. This has been adequately shown on Sheet A-2 of the Project plans, which have been used for purposes of analysis by the DEIR. Thus, this spatial limitation would be more than sufficient to accommodate most vehicles that would park at the site. It is possible some excessively tall vehicles, such as full-size SUV's and 4-wheel-drive pickup trucks, may be driven to the facility that would exceed the height limitation applicable to the parking spaces closest to the runway; i.e., where the size restrictions would be applied to reduce the risk of intrusion into protected airspace. These types of unusually tall vehicles would need to be parked in other locations at the Project site. There are a number of possible means that may be considered to enforce limits on the size of vehicles in these parking areas, where tall vehicles might intrude into protected airspace. For example, it would be feasible for the recreational facility management to place signage on the fencing and/or on the pavement advising patrons of the restricted use of these spaces along the southern boundary, limiting use for standard sized sedans and/or compact vehicles only. It is also reasonable that the manager could assume responsibilities to monitor those restricted parking spaces, and

direct the owners of vehicles too tall to safely park there to move to other parking spaces. This could be further enforced by installing a visual or physical barrier that extends into the restricted parking spaces, in addition to the proposed 42" tall bollards, so that only vehicles of the appropriate size may be parked within the spaces. It may also be possible to consider installation of an electronic monitoring device, such as the electronic eye devices used in doorways of commercial buildings, which would detect oversized vehicles and trigger an audible signal inside the building to indicate when vehicles which exceed the height limit are attempting to park within the restricted spaces, so that the facility manager can respond and direct those vehicle owners to park in unrestricted areas instead. These are considered to be some additional feasible ways to enforce this requirement, which could be included as conditions of Project entitlements. Over time, it is also reasonable to anticipate that frequent patrons of the site would become aware of the parking limitation.

RESPONSE 33-9: Issues related to Project-related impacts on aviation safety are addressed on DEIR pages 10-17 through 10-26. As indicated on DEIR pages 10-21 through 10-26, Part 77 of the Federal Aviation Regulations limits the heights of structures which may penetrate navigable airspace, and development of the Project site as proposed would result in a potentially significant impact associated with these requirements (see **Impact Haz-2** on DEIR page 10-21). This impact could be reduced to a level considered less than significant through the implementation of **Mitigation Measure Haz-2** on DEIR pages 10-25 and 10-26. Opinions regarding the safety hazards associated with development of the Project site as proposed and requirements that facilities provided for public gatherings be located further away from active runways are noted. In the event of an aviation-related accident at the Project site following development as proposed, an investigation by the National Transportation Safety Board would be likely to determine responsibility. Observation regarding previous aviation-related accidents at the airport is noted.

RESPONSE 33-10: Although implementation of similar mitigation measures have effectively reduced construction-related noise for other projects at other locations, there can be no actual "proof" that these measures will also be effective at the Project site until after construction work has begun there. As indicated in the discussion of construction noise in the DEIR (pages 12-22 through 12-25), pile-driving at the Project site would have the potential for the greatest Project-related increase in ambient noise levels during construction, with maximum levels reaching 80 to 85 dBA at a distance of 100 feet in the absence of mitigation.

RESPONSE 33-11: Opinions regarding the extent to which the Project is "cohesive" with the surrounding area and consistent with the General Plan are noted. Request that the City disapprove the proposed Project is noted. This would be considered as part of the Project merits review. The DEIR, page 4-18, accurately identified that the proposed facility is consistent with the City of San Rafael, *General Plan 2020* Airport/Recreation land use designation.

RECEIVED

APR 30 2009

COMMUNITY DEVELOPMENT
CITY OF SAN RAFAEL

April 27, 2009,

Mr. Kraig Tambornini, Senior Planner
City of San Rafael
Community Development Department
Planning Division
P. O. Box 151560
San Rafael, CA 94915-151560

Re: Airport Soccer Complex Project DEIR

Dear Kraig,

Although this photo is self explanatory, it shows an airplane that skidded off the runway on takeoff at the San Rafael Airport. A crane was required to remove this airplane. You can see the wings and rudder of the airplane being towed. **34-1**

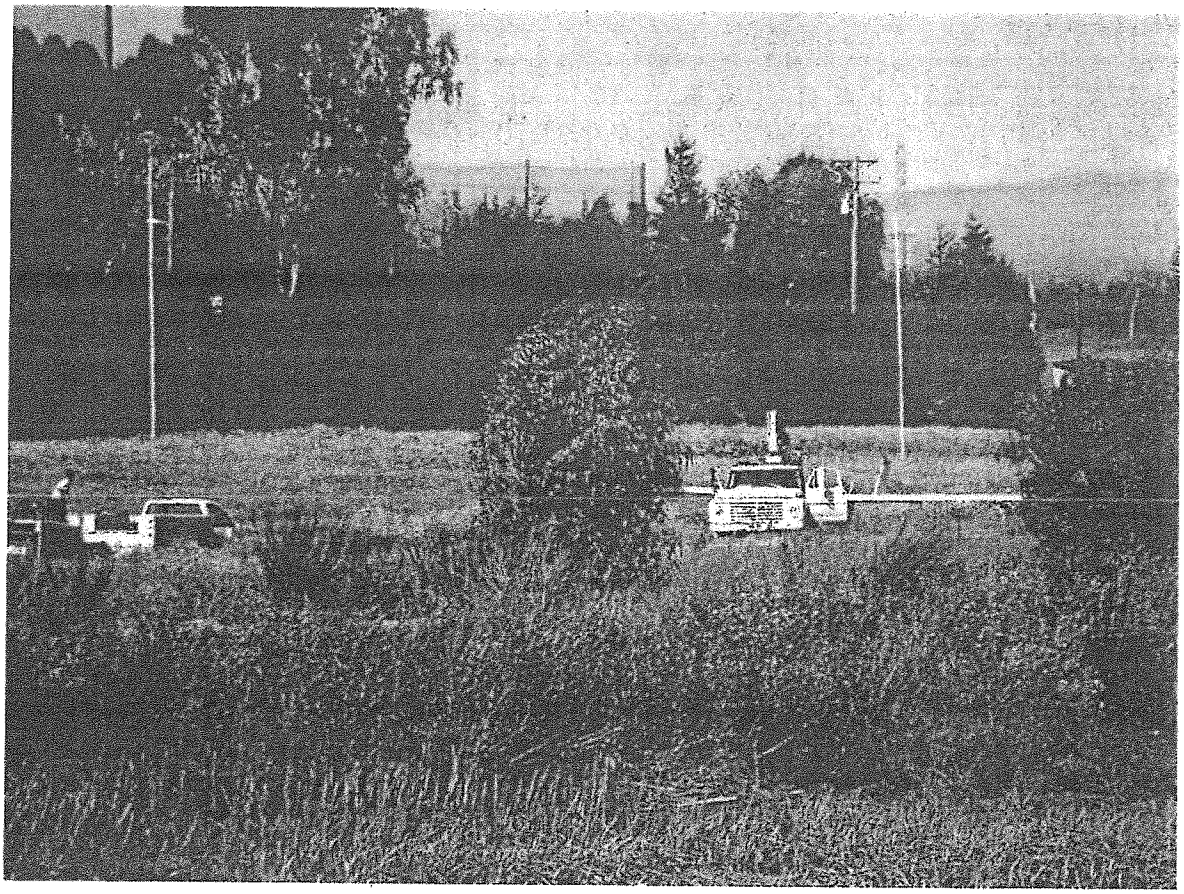
The photo was taken on 4/14/2007. Note how close the (yellow) story poles are to the airplane.

This incident and the resulting impact are not addressed in the DEIR. These airplane disasters are certain to happen again in the future. How can any such situations be safe for humans or animals or natural environment? How can any mitigation make the airport property safe for events of any kind which invites crowds.

Please provide a copy of the enclosed color photos to each of the Planning Commission members along with other materials for the May 12, 2009 session.

Very truly yours,

Susanne Becker
97 Dockside Circle
San Rafael, CA 94903



LETTER 34: Susanne Becker, April 27, 2009

RESPONSE 34-1: Observation regarding previous aircraft accident at the airport site, and opinions regarding the safety of placement of proposed recreational facilities in proximity to an active airport runway, are noted. The DEIR acknowledges that there have been two accidents related to the airport within the past two years (DEIR page 10-11), and that there are potential safety hazards associated the proposed placement of recreational facilities near an active airport runway (see DEIR pages 10-17 through 10-26). The implementation of **Mitigation Measure Haz-1** (DEIR page 10-20) and **Mitigation Measure Haz-2** (DEIR pages 10-25 and 10-26) would reduce potential aviation safety-related impacts associated with the development of the Project site as proposed to a level considered less than significant. This is not to say that there could never be an aircraft-related accident at the airport site (or in the vicinity) in the future, or that such an accident (were it to occur) would not cause property damage, injury or death. Implementation of the identified mitigation measures would reduce the risks associated with such a future accident at the Project site to a level considered acceptable by the City of San Rafael, were it to approve the Project and require effective implementation of those mitigation measures.

LETTER 35

RECEIVED
MAY 1[illegible] 2009
PLANNING

John Parulis
67 Schmidt Lane
San Rafael, CA 94903
415-250-6520

April 27, 2009
RE: Comments San Rafael Airport DEIR

Kraig Tambornini, Senior Planner
City of San Rafael, Community Development
1400 Fifth Avenue, 3rd Floor
San Rafael, CA 94901

Dear Kraig Tambornini and City Staff

I am a resident of San Rafael in the county of Marin. I live in the 75 unit Marin Cove Homeowners Association, where I sit on the board of directors. I have held a California Contractors License in good standing since 1984. I am also a veteran wild life photographer/videographer having spent about 7 years working on Greenpeace ships as a documentary cameraman, in an effort to save endangered species and endangered oceanic and coastal habitats.

Having read the Biological Resources section of the *San Rafael Airport Recreational Facility Draft Environmental Impact Report,* I am making the following observations on what I see as serious deficiencies in that section of the report.

The report starts out by describing the setting as one of a "high level of disturbance" on page 7-2. I would describe a shopping mall as a high level of disturbance and not the immediate region surrounding the airport facility. The setting near where the soccer facility is proposed is actually a fairly serene setting that attracts a large diversity of avian wild life as pointed out further on in the DEIR. (*"32 special-status wildlife species are known to occur in the region of the Project site" p7-35 Airport DEIR*) I would also dispute the claim by Monk and Associates that the area near the proposed soccer complex receives heavy foot traffic and usage. I live near this spot and visit it frequently. I never see more than a dozen or fewer people walking along the path on the north side of the north fork of Gallinas Creek. **35-1**

I have been filming clapper rail activity at the vicinity of the proposed soccer site since September of 2006 and with these comments, I am submitting 4 DVDs of all the videos I've compiled during that time. On December 4, 2006, the Marin IJ's Brad Breithaupt ran a story on my filming the clapper rails titled *"Could Birds Get In The Way Of A New Soccer Complex? "* **35-2**

According to The National Audubon Society and the American Bird Conservancy, "nearly one third of the nation's bird species are in need of immediate help or they could disappear forever..." (Marin IJ November 29, 2007) The Greater San Francisco Bay Area

has lost about 90% of its wetlands. The few remaining California clapper rails in this region, number about 3000. About 60% live in the south bay and 40% live here in the north bay. The endangered species act was created to protect certain species from extinction. The clapper rails are on this list. Extinction means forever. Forever.

It should be noted that some wild life biologists take years to study a species. All of Monk and Associates clapper rail surveys were done in 5 days and compromise about 5 pages of their report. Is this an adequate time to assess all of the impacts on a species facing extinction? The Monk biologists positioned themselves at 100 meter intervals along the south fork of the north fork of Gallinas Creek- the airport side. They observed clapper rails at each time and made the statement that, "*While there is far greater human activity on the north side of the creek relative to the south side of the creek facing the Project site, the rails likely (emphasis added) selected these areas for nesting because the band of marsh habitat on the north side of the creek at the two locations is uncharacteristically wide, approximately 100 feet in width.*"

This is sloppy science. In a report titled "Effects of Predation and Contamination On Reproductive Success Of California Clapper Rails (Rallus Longirostris Obsoletus) In San Francisco Bay" Schwarzbach et al, January 2006, a detailed study is made of clapper rail nests and the methods for assessing egg vitality. The Schwarzbach study actually found clapper rail nests and were able to conduct detailed analysis on the effects of pollutants and predation on the nests and eggs. Did Monk and Associates ever photograph, observe eggs or otherwise determined with other concrete proofs that the clapper rails do in fact nest on the north side of the north fork of Gallinas Creek? My films over the period of about 3 years show that almost all of the time, the rails can be seen feeding and retreating deep into the cover on the "airport" side of the creek on the south side of the north fork of Gallinas Creek. By the Monk observers positioning themselves on the airport side of the creek, doesn't it seem that the birds, known as shy creatures, would gravitate away from the observers, towards the north side of the creek?

The clapper rails, some in pairs, that I have filmed over a span of the past three years, can be seen all over both sides of the north fork of Gallinas Creek, from about 200 feet east of the airport pump station to about 50 feet west of the defunct train bridge. Many times, I've even filmed them across from the canoe launch, a spot the Monk observers never noted seeing the rails. That soccer balls from the outdoor field and baseballs from the out door baseball field could very likely end up in this vital feeding ground is exceptionally disturbing. The mitigations called out for this effect are simplistic and unrealistic and unworthy of an organization calling itself a wildlife biological company. A ten foot high fence is an inadequate mitigation. Furthermore, pile driving, even with partial drilling and even during the end of the breeding season for the birds is a severe test for them. The clapper rails use the entire perimeter near the airport project all year round for feeding. Are they going to stop eating so that about 100 piles can be driven into their nearby habitat? How will they respond to the construction noises of a sports operation that will be lit at nighttime at least till 10 pm, and operate 7 days a week late into the evening?

35-3

35-4

In addition to the California clapper rails is the Salt Marsh Harvest Mouse, another creature on the endangered species list. It inhabits the region of the proposed soccer complex. The Monk team made no effort to observe, photograph or identify this little creature near the project site and limited its remarks to a mere 4 paragraphs. Again, we are talking about species extinction. This is a serious matter and deserves more detailed study. 35-5

" Mitigation is a more business friendly alternative to strict environmental laws because it allows development to occur where environmental laws might prohibit development." 35-6

-wikipedia

Monk and Associates have produced a draft EIR that certainly falls into this category.

In addition to the two endangered species at the project site, that 32 special-status wildlife species (pp. 7-40 to 7-48) inhabit the immediate area around the project site should be a glaring indicator of the sites importance as needed wildlife habitat. That the area surrounding this is developed and described as heavily impacted is misleading in that it is implying that it is therefore permissible to degrade the area to a much heavier extent. Just how much more can this area withstand heavy development? Is species extinction the price that has to be paid to find out? 35-7

The mitigations that are recommended to shield the clapper rails from indirect harm, amount to fencing, construction after fledging, noise abatement on pile driving and other construction noises, a 10 foot high fence around the out door soccer field, a perimeter fence to keep the rails from wandering into construction areas, special lighting and an employee designated to retrieve lost soccer balls and baseballs(?) The outdoor soccer field and the out door baseball field are both dangerously close to areas that I've observed clapper rails feeding on numerous occasions. (see DVD enclosures) 35-8

The mitigations can't possibly prevent errant balls from landing on top of or nearby feeding birds. I would also ask Monk and Associates to provide a detailed study on the effects of the particular lighting and its hours of operation on clapper rail populations in other areas in the north and south bay regions. Is it wise, in other words, to experiment on this endangered species? The same standard goes for pile driving and late evening noise and proximity to a large sports complex. Where has prior testing of these effects been observed and noted? The clapper rails do in fact mate and breed during certain months, but does that mean they stop feeding and foraging in the areas they are used to doing this in at other times? The line between direct and indirect impacts is shaky at best. 35-9

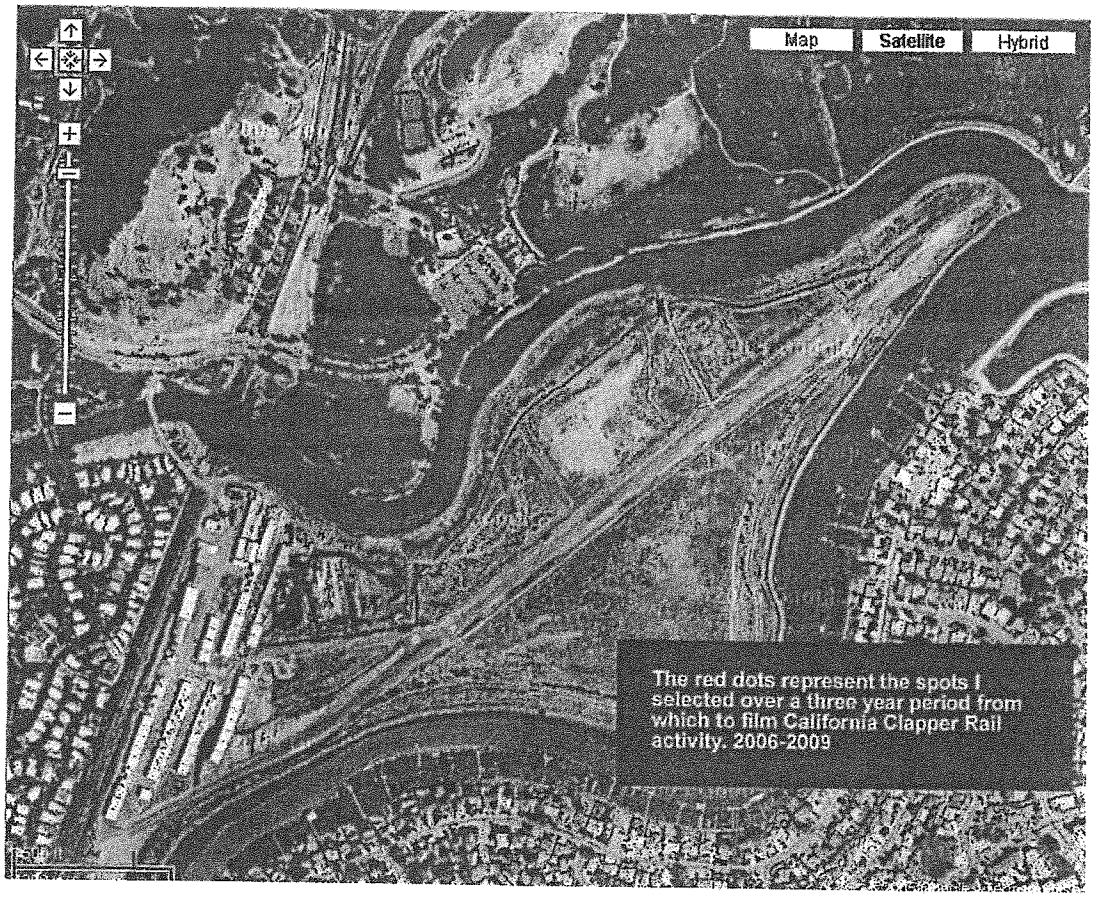
Does the San Rafael Community Development Department and the City Council want to take full responsibility for endangered species loss due to poorly studied construction and business operation effects? Is potential species extinction serious enough to merit more 35-10

study or even a recommendation not to proceed with such a serious and large scale impact as the San Rafael Airport sports complex? Clapper rails are known to be territorial. What happens when poorly studied impacts force them to encroach on adjacent clapper rail habitats? These and other questions must be addressed in something more than a 5 page summary conducted on a 5 day field trip.

I urge you to please give serious thought to these questions and either demand more in-depth study or deny the project from proceeding. **35-11**

Thank you for your attention,

John Parulis


Map
Satellite
Hybrid
The red dots represent the spots I selected over a three year period from which to film California Clapper Rail activity. 2006-2009

LETTER 35: John Parulis, April 27, 2009

RESPONSE 35-1: Opinion regarding the definition of "high level of disturbance", and observation regarding the number of people using the path on the north side of the North Fork of Gallinas Creek, are noted. The DEIR describes the land uses in the vicinity of the Project site, as illustrated on **FEIR Sheet 1** (page C&R-21, above). Immediately to the north of the North Fork of Gallinas Creek is the County of Marin John F. McInnis Park and Golf Center that includes a restaurant and parking areas, a golf course and driving range, mini golf, batting cages, and two athletic fields. In addition, there is a pedestrian trail along the northern bank of the North Fork of Gallinas Creek, across the creek channel from the Project site area. Finally, the Mt. Tam Picnic Area is located immediately adjacent to the marsh vegetation along the northern bank of the North Fork of Gallinas Creek, and the McInnis Park Wetland Preserve includes a wildlife viewing dock that extends into the channel from the northern bank of the North Fork of Gallinas Creek. Pedestrians using the pedestrian trail with their dogs also use the designated "off-leash" dog park associated with the John F. McInnis Park. The fact that the commenter walks there frequently, and reports that a dozen or fewer people walk along the path regularly illustrates this point. This means he sees a dozen or fewer people during his walk unless he has been studying the use of this trail outside of his walks; which has not been suggested in the comment. Monk & Associates spent considerable time at clapper rail monitoring stations and was able to observe the pedestrian trail over many hours on 8 different dates. The trail was used frequently and certainly constitutes human intrusion into the marsh setting since the trail is right at the edge of the marsh.

RESPONSE 35-2: Submission of video of California clapper rail activity in the vicinity of the Project site is acknowledged. Comments regarding the identification of California clapper rail as an endangered species (as indicated on page 7-37 of the DEIR), the estimated population of California clapper rails in the Bay Area, and the meaning of the word "extinction" are noted. Opinion regarding the adequacy of the California clapper rail survey conducted for the DEIR is noted. Observations related to California clapper rail behavior in the vicinity of the Project site, and the extent to which the presence of observers at the Project site might alter that behavior, are noted.

The DEIR documents the results of the 2007 protocol survey conducted by Monk & Associates for the California clapper rail in the marsh habitats near the San Rafael Airport Recreation Facility Project site. The survey conducted by M&A in 2007 was approved by the USFWS. The field surveys were conducted following guidelines consistent with the 2000 USFWS *Draft Survey Protocol for California Clapper Rail*. In accordance with this survey protocol, Monk & Associates conducted protocol call count surveys once a week for five weeks. Protocol surveys were conducted on February 5, February 14, February 20, March 5, and March 15. In addition to the required protocol surveys, two follow-up surveys were conducted by Mr. Monk and Ms. Anderson on May 2 and July 2, 2007 in order to better determine exact nesting locations and determine nesting success. Hence, the survey effort

and the dates of the 2007 field surveys were consistent with the USFWS requirements, and is considered sufficient to detect the presence of clapper rail in this area. The work conducted by Schwarzbach et.al. (noted in this comment) is much more invasive and disruptive, and is generally not permitted by the USFWS. The DEIR is only required to document if a species is present or absent in an area and to determine if the proposed Project would have a significant effect on the species.

The DEIR states that in 2007 two nesting territories were identified near the Project site. The DEIR reports "that the activity of these two pairs of clapper rails were mostly confined or centered on two areas on the north bank of the North Fork of Gallinas Creek on the opposite side of the creek from the Project site. While there is far greater human activity on the north side of the creek relative to the south side of the creek facing the Project site, the rails likely selected these areas for nesting because the band of marsh habitat on the north side of the creek at the two locations is uncharacteristically wide, approximately 100 feet in width." These statements do not necessarily imply that California clapper rails are not using other areas or that other areas are of less importance to their reproductive success than areas where nesting activities were observed or inferred. Rather, Monk & Associates provided a possible explanation for the clapper rail distribution observed during the 2007 survey. This is a fair observation and it is valid to bring it forth. The DEIR makes no assumptions regarding clapper rail distribution in this creek in future years.

The presence of California clapper rail near the Project site in the North Fork of Gallinas Creek is not disputed. In addition, the DEIR does not state that California clapper rails do not use the south side of the creek (emphasis, underline added). In fact, DEIR Figure 7-5 (page 7-57) clearly shows that Monk & Associates detected clapper rails along the south side of the creek near listening Station 3. The DEIR states that "the activity of these two pairs of clapper rails were mostly confined or centered on two areas on the north bank of the North Fork of Gallinas Creek on the opposite side of the creek from the Project site," as shown in DEIR Figure 7-5 (emphasis, underline added). Please note that Monk & Associates biologists that conducted the clapper rail survey included, highly educated, trained wildlife biologists. These biologist were not loud or disruptive at observation stations, and, in fact, were far less obtrusive than people walking on the pedestrian trail on the north side of the North Fork of Gallinas Creek where the majority of clapper rail activity was observed.

The DVD's provided by the commenter provides excellent footage of California clapper rails foraging at the edge of the marsh vegetation along both sides of the Gallinas Creek, foraging on the exposed mudflats, and swimming back and forth across the channel. None of the footage ever shows a clapper rail venturing into the adjacent upland vegetation at the top of the berm or onto the Project site area. The footage does provide views of pedestrians walking on the trail immediately adjacent to the marsh vegetation, and a clapper rail foraging in the opposite bank appears to be completely habituated to the presence of humans less than 100 feet away. The sound of dogs barking in the background does not appear to disturb the

clapper rails either, further illustrating that the clapper rails in this area are habituated to sounds associated with humans.

RESPONSE 35-3: Please see the COMMENT 68-8, below, for different perspective regarding this comment. The proposed Project will provide a 130 foot to 250 foot buffer between the recreational facility and the marsh habitats, and a fence will be installed around the perimeter of the proposed Project area. Human access into this buffer area will be prohibited except as required by maintenance/operation personnel for continued levee maintenance and other required airport operational tasks that are routinely practiced today. The fence will be a minimum of ten feet tall for the purpose of preventing balls from the soccer fields from entering the marsh. Any balls that must be retrieved from behind the fence shall be retrieved at the end of any soccer games. A gate will be maintained locked at all times except as necessary to retrieve balls by a single person after games/events have been completed. The optimal ball retrieval period would be the day following soccer events or at times when numbers of spectators are at daily lows. Signs shall be posted stating that public access into the buffer area is strictly prohibited owing to the sensitivity of the habitat and to ensure the continued use of this habitat by special-status wildlife species. Installation of this fence will protect the marsh habitat along the North Fork of Gallinas Creek and the adjacent upland areas. Implementation of **Mitigation Measure Bio-2a** (as revised) will reduce potential intrusion impacts to the marsh habitats to a level considered *less than significant* pursuant to CEQA.

RESPONSE 35-4: As indicated on DEIR page 7-65, noise impacts from pile-driving would be considered significant and adverse unless the mitigation measures proposed on DEIR pages 7-66 through 7-69, and **Mitigation Measure N-2** [as amended] and **Mitigation Measure N-3** are implemented.

On DEIR pages 2-11 and 7-68, the text of the second and third paragraphs under **MM Bio-2d: California Clapper Rail and California Black Rail – Avoidance Measures** has been modified to read as follows:

> "Pile driving associated with the recreational facility building shall not commence until September 1st and shall be completed by February 1st. Outside of pile driving, exterior construction of the recreational facility shall be allowed between July 1st and February 1st without limitation. Interior work shall be allowed without timing limitations. Construction ~~of the recreational facility~~ shall not commence on the recreational facility Project ~~until~~ on July 1st until a qualified biologist determines that there are no nesting California Clapper Rails or California Black Rails within 200 feet of the Project construction envelope. In the event nesting rails are found within 200 feet of the Project site on or after July 1st, construction shall be delayed until the nesting attempt is completed and the nest is abandoned or a qualified biologist determines that the nesting would not be adversely affected by commencement of the project. If California Clapper Rails or California Black Rails are determined to be

nesting between 200 feet and 500 feet from the Project construction envelope on July 1st, the Project may proceed if a qualified biologist determines that the nesting rails would not be affected by the proposed construction activities. Under all circumstances any nest identified within 500 feet of the Project construction envelope would be monitored by a qualified biologist while construction activities were in progress. The monitoring biologist would have the right to shut down any and all construction activities immediately in the event that such activities were determined to be disturbing the nesting attempt. Nests greater than 500 feet away would not require biologist monitoring ~~when the rails can be expected, in most cases, to have fledged young. Construction of the recreational facility could extend into October, with interior work allowed throughout the year~~.

To account for California clapper rails or black rails, and other special-status birds, that ~~likely~~ occur and nest in the marsh habitats along the creek in the immediate area of the bridge, all work associated with the new bridge, including the demolition of existing bridge deck, installation of the new deck, and other bridge improvements, shall be restricted to August 1 to October 15. The bridge pile-driving dates shall be further restricted to September 1 and October 15 when potentially occurring anadromous fish would not be expected to occur in the channel. This "avoidance window" is outside of the California clapper rail, California black rail, and other special-status birds breeding seasons, thereby eliminating the potential that bridge reconstruction activities would disrupt breeding attempts. This mitigation measure provides conservation measures that are consistent with the ISP Best Management Practices."

Once the recreational facility is operational, clapper rails in the marsh habitats to the north of the site are not expected to be significantly adversely affected. Clapper rails living in this area have already become accustomed to heavy human disturbances, and they nest adjacent to a pedestrian walking path with frequent dog traffic. Moreover, as discussed in the noise analysis in Chapter 12 of this EIR, noise levels around the Project site are already elevated due to the pre-existing airport, nearby freeway, sporting events at the neighboring park, and golfers in the driving range located on the North Fork of Gallinas Creek. Due to the high degree of human activity and disturbance that already exists in the area around the airport, it is expected that most wildlife using the North Fork of Gallinas Creek would readily acclimate to new noises generated by the proposed facility. Furthermore, additional noise generated at the recreational facility would be minimized by the creek setback/buffer.

RESPONSE 35-5: Opinion regarding the adequacy of the DEIR's evaluation of Project related effects on the Salt Marsh Harvest Mouse is noted. The DEIR states that "there is a record for salt marsh harvest mice located 0.8 mile east of the Project site in the marsh along the San Pablo Bay (CNDDB Occurrence No. 30). This known record occurs where Gallinas Creek empties into the bay. It is conceivable that salt marsh harvest mice reside in the North Fork of Gallinas Creek corridor. Salt marsh harvest mice may even occur in the narrow band

of marsh vegetation that occurs along the North Fork of Gallinas Creek. However, the proposed Project will not result in impacts to potentially-occupied habitat along Gallinas Creek. Monk & Associates biologists carry special permits from both the CDFG and the USFWS that have allowed them to study the salt marsh harvest mouse for the last 20 years. In addition, Monk & Associates Principal Project Manager for the DEIR prepared a Master Thesis on salt marsh harvest mouse habitat parameters. As such, Monk & Associates is qualified to assess impacts to this species. Since the marsh habitats and the uplands adjacent to this creek corridor will be protected, implementation of the proposed Project is not expected to result in impacts to this species. This level of impact analysis is meets care and due diligence standards set by the CEQA.

RESPONSE 35-6: Opinion regarding the extent to which mitigation identified in the DEIR may represent an alternative to strict environmental laws is noted. This opinion is not consistent with the requirements of California Environmental Quality Act (CEQA). CEQA does not provide an alternative to comply with laws established for the protection of the environment. Rather, the opposite is true, that review under CEQA helps assure decision makers and the public that environmental laws are being properly applied and enforced through the design of a project or through implementation of all identified feasible mitigation measures. The Project Applicant does not have the option of avoiding any environmental law or regulation through certification of an EIR for the Project, which would be a flawed application of CEQA. The Applicant is obligated to incorporate all feasible mitigation measures that would avoid or lessen the Project's significant environmental impacts to a less than significant level. If the Project were found to have impacts that were significant even after all feasible mitigation measures had been included to reduce the environmental effect of the impacts, the lead agency would be required to adopt a statement of overriding considerations (SOC) in order for the Project to be approved (pursuant to CEQA Guidelines Section 15093). In addition, it is worth noting that the lead agency, in this case the City, would not be required to make the findings required to approve a project for which an SOC would be required.

RESPONSE 35-7: Opinion regarding the importance of the Project site as wildlife habitat is noted. As indicated on DEIR page 7-2, the Project site has been (and is currently) maintained specifically to discourage use of the site by wildlife in the interests of aviation safety. Opinion regarding the extent to which the area surrounding the Project site is already developed and heavily impacted is noted. DEIR **Figure 5-1** on page 5-13 can provide readers with a sense of the level of development which has previously occurred in the immediate vicinity of the Project site, including McInnis Park, Contempo Marin and Santa Venetia residential areas, and the active San Rafael Airport. The DEIR does not imply that development of the Project site as proposed is somehow "permissible" due to development that has previously taken place in the vicinity, or the extent of on-going human activity nearby. As indicated in the DEIR, implementation of the mitigation measures identified could be expected to reduce potential Project-related impacts associated with biological

resources to a level considered less than significant, thus not placing species found in the vicinity of the Project site at further risk of extinction.

RESPONSE 35-8: Opinion regarding the danger to California clapper rails posed by the proximity of the proposed outdoor soccer field to areas where feeding California clapper rails have been observed feeding is noted. No outdoor baseball field is currently proposed at the Project site. See MASTER RESPONSES BIO-1 through BIO-5, above, which address concerns with impacts of the project on clapper rails in the proposed protected buffer zone, adjacent to the soccer field and warm-up area.

RESPONSE 35-9: Opinion regarding the effectiveness of **Mitigation Measure Bio-2b** in preventing errant soccer balls from landing on or near feeding birds is noted. A fence will be installed around the perimeter of the proposed Project area. The fence barrier will be a minimum of ten feet tall for the purpose of minimizing the low potential for balls from the soccer fields from entering the marsh, and for establishing a barrier to prevent unauthorized ball retrieval or entry into the protected buffer One, See MASTER RESPONSE BIO-5, above, which addresses this issue. Also see COMMENT 68-8 and RESPONSE 68-8, below.

The potential light and glare impacts of the Project on the surrounding community are analyzed in Chapter 5: *Aesthetics*, of the DEIR. Chapter 5 notes that the Project Applicant proposes a state-of-the-art, environmentally friendly lighting system designed by Musco Lighting that uses 50 percent less electricity and produces 50 percent less spill and glare than traditional fixtures. Implementation of measures **MM Bio-3a** and **MM Bio-3b** [as corrected] will reduce potential nocturnal lighting impacts to a level considered ***less than significant*** pursuant to CEQA. The 100-foot creek setback/buffer will further reduce this potential impact. Therefore, implementing the mitigation measures above, nocturnal lighting impacts to off-site areas, such as the North Fork of Gallinas Creek, are considered to have been reduced to the greatest extent possible, and to a degree that the proposed Project is not expected to have a significant impact on wildlife species in the Project vicinity.

RESPONSE 35-10: Request for additional study of the effects of Project-related lighting, evening noise and pile-driving on California clapper rail is noted. See MASTER RESPONSE BIO-3, above, which addresses Project-related lighting effects on wildlife, and MASTER RESPONSE BIO-4, above, which addressed Project-related noise effects on wildlife. As indicated in RESPONSE 35-4, above, noise impacts from pile-driving would be considered significant and adverse unless the mitigation measures proposed on DEIR pages 7-66 through 7-69, and **Mitigation Measure N-2** [as amended} and **Mitigation Measure N-3** are implemented.

RESPONSE 35-11: If the Project as proposed is approved by the City of San Rafael, it would only be after the City has determined that the Environmental Impact Report on the proposed Project is adequate and complete, indicating that the City is aware of the types of Project-related effects on wildlife which may be anticipated, and the mitigation measures available to

reduce potentially significant Project-related impacts on wildlife to a level considered less than significant. If the City determines that more study of potential Project-related impacts on wildlife is necessary to render the EIR adequate and complete, the City will need to request the Project Applicant to provide the funding necessary to enable any additional studies to be completed before considering certification of the EIR.

April 27, 2009

Samantha White
67 Schmidt Lane
San Rafael, CA 94903
415 259 9664

Re: Comments on San Rafael Airport DEIR on Biological Resources

Kraig Tambornini, Senior Planner
City of San Rafael, Community Development
1400 Fifth Avenue, Third Floor
San Rafael, CA 94901

Dear Senior Planner Tambornini and City Staff

There are many points made in the report that SHOULD lead to the conclusion that this proposed project violates just about every environmental protection law as well as the INTENT of the laws but I will focus on four points. 36-1

2. The McGinnis Park pathway across from the airport is described as "heavily trafficked." 36-2

I have lived in Santa Venetia for 15 years and have specifically chosen to walk my dog there at the McGinnis park path across from the airport because she doesn't get along with other dogs and we HARDLY EVER ENCOUNTER ANYONE ELSE ON THAT PATH. WE HAVE WALKED THERE REGULARLY FOR FIFTEEN YEARS. NOT HEAVILY TRAFICKED AS DESCRIBED IN M&A'S REPORT.

There are also several athletic fields there that are very lightly used. I was there on a weekend afternoon last weekend and NO ONE WAS ON ANY OF THE FIELDS. WHY BUILD MORE ATHLETIC FACILITIES ON A SENSITIVE WETLAND THAT, ACCORDING TO ALL THE REPORTS THE COUNCIL HAS REVIEWED STATE IS HOME TO MULTIPLE ENDANGERED AND THREATENED SPECIES WHEN THE ONES WE HAVE ARE NOT BEING USED? 36-3

I have been a nanny in Marin for 15 years and can guarantee you that this proposed project is NOT FOR THE CHILDREN as the advocates may claim. I HAVE BEEN DRIVING KIDS TO SOCCER PRACTICE FOR MANY YEARS: There are plenty of fields for our children to use for sports and NONE of the families I know or have worked for are going 36-4

to drive all the way out past Santa Venetia to take their kids to soccer. THE SOCCER PRACTICE TIMES WOULD ALMOST ALL OCCUR DURING THE WEEK DURING RUSH HOUR DRIVE TIMES, MAKING THE IT EVEN LESS LIKELY THAT ANY REASONABLE PARENT WOULD MAKE THAT CHOICE.

THE REAL REASON FOR THIS PROPOSED PROJECT IS SO THAT SHAKOU AND OTHER DEVELOPERS CAN, IN FUTURE, USE THE CLAIM ASSERTED IN THE M&A REPORT, THAT THE AREA IS ALREADY DEGRADED SO WHY NOT GO AHEAD WITH WHATEVER OTHER PROJECTS THEY WANT TO PROFIT FROM AS THEY VIOLATE LAWS AND CAUSE EXTINCTION.

3. ANIMALS CITED IN M&A'S

In my fifteen years of residence in Santa Venetia (my home is directly on Gallinas Creek) I have walked the banks of Gallinas Creek every day and walked in the McGinnis Park path and around that area with regularity.

In the FIFTEEN YEARS I HAVE LIVED ON GALLINAS CREEK, I have seen CALIFORNIA CLAPPERRAILS feeding and heard them calling many times. Just this weekend, I heard at least three of them calling to each other but did not see them. EVERY SINGLE CITING OF THESE TIMID, ENDANGERED BIRDS HAS BEEN ON THE SIDE OF THE AIRPORT. THEY ARE SHY, COME OUT BRIEFLY TO FEED, THEN SCOOT BACK INTO THE VEGETATION. IT'S REASONABLE TO ASSUME THAT MOST OF THEIR LIFE OCCURS WITHIN THE COVER OF THE MARSH VEGETATION ALONG THE BANKS. I have also heard them downstream, nearer to my home, which lets me know that they use that ENTIRE GALLINAS CORRIDOR for feeding, suggesting that they need more than just a few square feet of habitat for their life. How absurd to assert that the proposed project would not cause harm to them. If you even speak loudly or walk too quickly or aggressively nearby them, they interrupt their feeding and hide. I HAVE OBSERVED CLAPPERAILS NUMEROUS TIMES OVER A PERIOD OF YEARS, NOT WEEKS! IT IS CERTAIN THEY WILL BE HARMED and driven towards EXTINCTION BY THIS PROPOSED PROJECT IN NUMEROUS WAYS THAT VIOLATE ENVIRONMENTAL PROTECTION LAWS. Their feeding and nesting will certainly be interrupted, not only by the construction but the subsequent violation of their habitat by

36-5

POLLUTION FROM NOISE, LIGHTS, TRASH, HUMAN INTERFERENCE OF MANY FORMS, FROM PARKING LOTS RUNOFF AND OTHER.

WHITETAILED KITES

36-6

Just yesterday I saw a whitetailed kite hunting in the fields up the creek from us, towards the proposed project site. This is a common occurrence. They use that area for their hunting grounds. From my observation of whitetailed kites, OVER A PERIOD OF YEARS, NOT WEEKS, it's obvious that they need quite a large territory for their feeding grounds. OKAY, I'M NOT A BIOLOGIST, JUST SOMEONE WHO HAS LIVED HERE AND WATCHED BIRDS ALONG GALLINAS CREEK FOR FIFTEEN YEARS.

4. RIDICULOUS MITIGATION PROPOSALS AND NON EXISTENT RUNOFF MANAGEMENT PLAN

36-7

As we were walking along the pathway at McGinnis park, across from the proposed project site, last week, my husband picked a golf ball out of the vegetation along the bank. I have picked up numerous tennis balls in the vegetation adjacent to the tennis courts. I don't know the exact height of the fence that is there now but COMMON SENSE tells me that if I'm seeing tennis and golf balls in the alleged nesting sites of the Clapperrails in this area already, more traffic in the area can only lead to more disruption of habitat, nesting and feeding and CAUSE MORE HARM, PUSHING A FEDERALLY LISTED SPECIES TOWARDS EXTINCTION FOR A PROJECT THAT IS MERELY A TROJAN HORSE FOR MORE DEVELOPMENT, DEGRADATION OF FRAGILE WETLANDS AND DIMINISHED QUALITY OF LIFE FOR US ALL IN THIS AREA. A FENCE AROUND THE PROPOSED PROJECT IS NOT A MITIGATION FOR THIS AND VIOLATES THE INTENT OF THE ENVIRONMENTAL PROTECTION LAWS.

36-8

According to the Biological Resources report from Monk and Associates, the proposed project at San Rafael airport does not even have a submitted plan for storm runoff management. Why is something so essential, especially in an area subject to flooding, not even addressed? And where will all the oil, gasoline, and other pollutants generated from such a proposed project be expected to go? Into Gallinas Creek! To assert that those known pollutants could be "mitigated" or "controlled" and then not even have a detailed plan for how that might occur, insults a reasonable person's logic. IT ALSO VIOLATES THE INTENT OF ENVIRONMENTAL PROTECTION LAWS.

You have the opportunity to do the right thing. Deny this project. Say yes to life, no to extinction. 36-9

Thanks for your time in reading my comments.

Samantha White

Samantha White

LETTER 36: Samantha White, April 27, 2009

RESPONSE 36-1: Opinion regarding the extent to which the Project as proposed complies with environmental protection law and the intent of environmental protection laws is noted, and is addressed by further responses below that have been provided to the more specific comments made. See also RESPONSE 35-6, above.

RESPONSE 36-2: Opinion on the DEIR's characterization of the volume of pedestrian traffic along the McInnis Park pathway across the North Fork of Gallinas Creek from the Project site is noted. Monk & Associates spent considerable time at clapper rail monitoring stations and was able to observe the pedestrian trail over many hours on 8 different dates. The trail was used frequently, and certainly constitutes human intrusion into the marsh setting since the trail is right at the edge of the marsh. The fact that the commenter walks there regularly illustrates this point.

RESPONSE 36-3: Opinion regarding the need to build a new recreational facility at the Project site when there are other local recreational facilities which may not be fully utilized at present is noted. No Project-related construction is proposed in any areas which have been delineated as jurisdictional wetlands, and as indicated on DEIR page 7-2, the Project site has been maintained specifically to discourage its use as habitat, in the interests of aviation safety. The purpose of the DEIR is not to judge the merits of Project approval, which is a decision that will be made by the City at a future hearing on the Project by considering the pertinent General Plan policies and zoning regulations of the City. The DEIR does provide a discussion of Project Alternatives in DEIR Chapter 16, as required by CEQA, which would address certain aspects of this comment with respect to environmental effects of the Project and alternatives to the Project.

RESPONSE 36-4: Opinion regarding those who would be unlikely to utilize the proposed recreational facilities at the Project site is noted. Opinion that the reason for the Project as proposed is to generate profit in violation of laws and at the cost of species extinction is noted. This comment also appears to be relevant to the Project merits, and does not include a specific comment on the environmental effects evaluated in the DEIR, thus needs no further response. It is worth noting that any development proposed on the site must be consistent with the *San Rafael General Plan 2020*, which limits additional uses of the site to those identified in the Declaration of Restrictions that encumbers the property. The ability for the building to be occupied with a range of viable recreational uses that are consistent with the zoning district would be further discussed and established during the merits review. The Project description has included flexibility to adapt space within the building to accommodate other similar recreational uses. Thus, the DEIR thoroughly evaluates the specific proposed soccer, dance and gymnastics uses while providing a level of analysis for reasonably foreseen alternate but similar uses to be considered. See also RESPONSE 45-4, below.

RESPONSE 36-5: Observations regarding the presence of California clapper rails in the vicinity of the Project site are noted. Opinion regarding the extent to which development of the Project site as proposed may harm California clapper rail is noted. The DEIR acknowledges that clapper rails occur in the marsh habitats adjacent to the Project site, and a 100+ foot buffer will be established between the development envelope and the top of the bank will protect the wildlife that use the marsh habitats along the North Fork of Gallinas Creek. The proposed Project has been designed to minimize impacts to the clapper rails, particularly during the nesting season. It is important to note that the proposed Project would not violate any regulations that protect natural resources.

RESPONSE 36-6: As indicated on DEIR page 7-44, white-tailed kites have been observed flying over the Project site, and the grassland on the Project site provides suitable foraging habitat for white-tailed kite. In addition, the DEIR states that there is a low potential for this species to nest in the eucalyptus trees or coyote brush on the Project site perimeter, or within the sphere of influence of this Project. Therefore impacts to nesting white-tailed kites are regarded as potentially significant pursuant to CEQA. Preconstruction surveys will be conducted prior to site grading or tree/shrub removal to ensure that if this species nests on or near the Project site, it will not be affected by the proposed Project. **Mitigation Measure Bio-4a**, **Mitigation Measure Bio-4b** and **Mitigation Measure Bio-4c** (DEIR pages 7-71 and 7-72) will be implemented if this species is found to be nesting on or immediately adjacent to the Project site.

RESPONSE 36-7: Opinion regarding the adequacy of **Mitigation Measure Bio-2a** in providing protection of California Clapper Rail and California Black Rail from errant soccer balls is noted. See MASTER RESPONSE BIO-5, above. Opinion regarding the Project as proposed serving as a "Trojan Horse for more development" is noted. Uses of the site are currently limited to those uses that have been identified in the Deed Restriction, and any proposed uses within the site cannot violate this restriction. The fact that clapper rails are known to nest in areas where the commenter has picked up golf balls and tennis balls illustrates the clapper rails have habituated to this level of disturbance along the northern side of the creek. It is important to note that the northern side of the North Fork of Gallinas Creek has virtually no buffer between the marsh and the McGinnis Park facilities, thus there is no protection for the wildlife and the marsh habitats on this side of the creek. Conversely, the proposed Project will provide a 130-foot to 250-foot buffer between the proposed recreational facility and the marsh habitats, and a fence will be installed around the perimeter of the proposed Project area. Human access into this buffer area will be prohibited except as required by maintenance/operation personnel for continued levee maintenance and other required airport operational tasks that are routinely practiced today. The fence will be a minimum of ten feet tall for the purpose of preventing balls from the soccer fields from entering the marsh. Any balls that must be retrieved from behind the fence shall be retrieved at the end of any soccer games. A gate will be locked at all times except as necessary to retrieve balls by a single person after games/events have been completed. The optimal ball retrieval period would be the day following soccer events or at times when numbers of

spectators are at daily lows. Signs shall be posted stating that public access into the buffer area is strictly prohibited owing to the sensitivity of the habitat and to ensure the continued use of this habitat by special-status wildlife species. Installation of this fence will protect the marsh habitat along the North Fork of Gallinas Creek and the adjacent upland areas. Implementation of **Mitigation Measure Bio-2a** (as amended) will reduce potential intrusion impacts to the marsh habitats to a level considered *less than significant* pursuant to CEQA. Also see COMMENT 68-8 and RESPONSE 68-8, below.

RESPONSE 36-8: Although the DEIR does not evaluate the environmental effects associated with existing operations at the Project site, it does indicate on DEIR page 11-21 that the Project as proposed may result in increased pollution of receiving waters, including the North Fork of Gallinas Creek and San Rafael Bay. This potentially significant impact would be reduced to a level of less than significant through implementation of **Mitigation Measure Hyd-1a** [as modified], **Mitigation Measure Hyd-1b**, **Mitigation Measure Hyd-1c**, **Mitigation Measure Hyd-1d** [as amended], **Mitigation Measure Hyd-1e** and **Mitigation Measure Hyd-1f** (DEIR pages 11-23 through 11-25). If the Project is approved, the Project Applicant would be required to develop a detailed Erosion Control Plan, a detailed Storm Water Pollution Prevention Plan, and a detailed Storm Water Management Plan consistent with the City of San Rafael NPDES Permit, to be reviewed and approved by the City prior to the issuance of any grading or building permit. Therefore, no net increase in runoff and no incremental increase in contaminants are anticipated as a result of the Project implementation in compliance with the stormwater and pollution prevention ordinances and measures currently implemented and enforced by the City for all projects, including this proposal. See also MASTER RESPONSE HYD-5, above.

RESPONSE 36-9: Request that the City deny the Project is noted. This will be determined at time of Project merits review, following certification of the EIR.

Mary Holcombe
277 Carlsbad Ct.
San Rafael, CA. 94903-2203
April 28, 2009

Kraig Tambornini, Senior Planner
City of San Rafael
Planning Commission / City Council

Dear Members of City Council and Planning Commission

I am writing to you because I reside at Contempo Marin Manufactured Housing Park. This is located at Smith Ranch Road and Yosemite Road.

According to the EIR that was completed for the developer for the proposed indoor soccer field at the airport property, no mention or consideration was given to the intersection of Smith Ranch Rd and Yosemite Rd. There will be a huge influx of traffic on this access road, creating congestion and traffic hazards to the residents of Contempo Marin MHP and Captains Cove, as this is our only entrance/exit site to enter or leave our properties. 37-1

I am alarmed at this oversight. This lack of provision for traffic lights at this intersection will impact the safety of several hundred residents of these two communities. Please alert the traffic engineers and make this intersection a provision for the developer to ensure proper steps are taken to address this oversight. These two (2) communities house all age groups from infants to the very elderly. Also as a recent graduate of the City of San Rafael Planning Academy I realize this is some of the information/insights you look for from the citizens of San Rafael.

Sincerely,

Mary Holcombe

Mary Holcombe

LETTER 37: Mary Holcombe, April 28, 2009

RESPONSE 37-1: The DEIR was prepared for the City of San Rafael, and not for the Project Applicant. See MASTER RESPONSE TRA-1, above, which addresses issues associate with Project-related traffic at additional intersections along Smith Ranch Road.

1605 Vendola Drive
San Rafael, CA 94903
May 1, 2009

Kraig Tambornini,
Senior Planner, City Hall
1400 Fifth Avenue
San Rafael, CA 94901

Dear Mr. Tambornini:

I am writing to comment on the DEIR for the proposed soccer/athletic/sports bar development on the Smith Ranch Airport property.

1. The lights, noise and paving of the proposed project will have significant negative impacts on the surrounding residential areas. Putting lights like that where it will impact homes and endangered species is unacceptable. 38-1

2. The noise from referee whistles, cheering players and cars in this sound bowl where we live will forever destroy our quality of life. You go to a soccer game and the referee will blow his whistle about every 20 seconds. There is no way to mitigate these whistles. And there are endangerd clapper rail all along Gallinas Creek in this area who would be severely stressed and compromised by the project's disruptive noise. 38-2

3. No mention was given to the option of the owner's using high school or other recreational fields (that have artificial turf) for their activities. Many high schools have synthetic turf fields which can be used daily year round and rented out to generate revenue when schools don't need them. 38-3

4. A car-dependent facility in a residential area would involve so many car trips each day that the traffic noise and exhaust would have a detrimental effect on all living creatures (humans, wildlife, and plants) in that area. There is no way to mitigate this. 38-4

5. There is no mention of the deed restrictions put on this property (i.e. allowing higher density development on the western side in exchange for leaving the rest of the property essentially undisturbed). These still apply and need to be addressed. 38-5

6. The proposed project site was wetlands not long ago, but this is not mentioned in the DEIR. How did it become a non-wetland area suitable for development? 38-6

7. There is no mention of some of the critical issues regarding development in a coastal area such as this. Can the area be protected from sea level rise? There are many areas in San Rafael right now as vulnerable as this to sea level rise. 38-7

Does the City have the resources to adequately protect all of these areas if new ones continue to be built?

8. Finally, I do not see the alternative of allowing this land to remain as is or even, ideally, returned to a natural state. Would this not be a higher use of this historic wetlands? **38-8**

In short, the negative environmental impacts of this project should lead to a rejection of the DEIR. **38-9**

Sincerely,

Art Reichert

Art Reichert

LETTER 38: Art Reichert, May 1, 2009

RESPONSE 38-1: Opinion regarding Project-related effects associated with lighting, noise and pavement installation is noted. The effects on nearby homes associated with Project-related lighting are addressed on DEIR pages 5-24 through 5-27. The Project Applicant proposes a state-of-the-art, environmentally friendly lighting system designed by Musco Lighting that uses 50 percent less electricity and produces 50 percent less spill and glare than traditional fixtures. Implementation of **Mitigation Measure Bio-3a** would further reduce Project-related lighting effects on wildlife. See also MASTER RESPONSE BIO-3, MASTER RESPONSE HYD-5 and RESPONSE 12-2, above, which address these topics, and RESPONSE 39-5, below, which address Project-related lighting effects on wildlife.

RESPONSE 38-2: Opinion regarding the extent to which Project-related whistles, cheering and vehicle noise will adversely affect the quality of life in areas near the Project site is noted. Opinion regarding the inability to effectively mitigate Project-related whistle noise is noted. See MASTER RESPONSE BIO-4, above, which addresses Project-related noise effects on wildlife.

RESPONSE 38-3: Observation that the Project Applicant has not proposed renting underutilized high school or other recreational fields in order to meet the Project Objectives is noted. The DEIR evaluates the environmental effects associated with development of the Project site as proposed, and the current development application proposes to provide all-weather fields as part of the Project to meet all its objectives in one facility, thus does not include the use of any off-site facilities as part of its Project. It is worth noting that the Project does propose an alternative of pursuing the use without all-weather fields if outdoor lighting is not permitted, and the DEIR does include discussion of Project Alternatives for purposes of disclosing environmental effects of the Project, and alternatives to the Project.

RESPONSE 38-4: Although there are residential areas in the vicinity of the Project site, it is located adjacent to an active airport in an area designated as Airport/Recreation in the City's General Plan, and not in a residential area. Opinion that the air quality and noise effects associated with Project-related traffic are detrimental to living creatures and cannot be mitigated is noted. Potentially significant Project-related noise effects on humans are addressed on DEIR pages 12-15 through 12-26. Potentially significant Project-related air quality impacts are limited to the construction period, and can be reduced to a level considered less than significant (DEIR pages 6-14 through 6-22).

RESPONSE 38-5: See MASTER RESPONSE PD-2, above, which addresses issues related to the Declaration of Restrictions. Project consistency with the Deed Restriction has been sufficiently established for purposes of environmental review. This would also be pertinent as part of the Project merits review that will be considered by the City at a future hearing, after the EIR is complete.

RESPONSE 38-6: As indicated on DEIR page 11-2, the Project site is located in low-lying bayland areas with historical filling and diking. This filling and diking, in addition to the installation and maintenance of storm drainage infrastructure, has enabled the current development of the airport site. A wetland delineation of the Project site was conducted by WRA (Wetlands Research Associates) on September 7, 2005. The *Jurisdictional Area Delineation* report prepared by WRA was submitted to the U.S. Army Corps of Engineers (USACOE) for verification. The USACOE visited the site on October 26, 2006, and verified a jurisdictional map. DEIR **Figure 7-1** (page 7-27) shows that there are several wetland areas north of the portion of the Project site proposed for development. These areas are not within the area that was confirmed by the USACOE. Regardless, these wetlands will not be affected by the proposed Project, and, in fact, are protected within the 100+ foot buffers from the proposed Project facilities.

RESPONSE 38-7: Anticipated sea level rise is discussed on DEIR pages 11-34 and 11-35, and MASTER RESPONSE HYD-4, above, also addressed Project-related effects associated with an anticipated increase in sea level. The DEIR does not evaluate the ability of the City of San Rafael to adequately protect all areas which may be subject to an increase in sea level.

RESPONSE 38-8: See MASTER RESPONSE ALT-2, which addresses the effects which may be associated with a "No Change" alternative at the Project site. Opinion regarding restored wetlands representing a higher use of the Project site than the proposed Project is noted. The Project site is located adjacent to the existing airport runway, and, therefore, creating wetlands at this location would be incompatible with current land use. According to the 2004 FAA Advisory Circular *Hazardous Wildlife Attractants on or Near Airports*, undeveloped land commonly found around airports - particularly poorly drained area, roosting habitats or wetlands - present potential hazards to aviation if they encourage wildlife use. Any habitat that encourages additional wetland bird species to occupy the Project site would result in elevated levels of "bird airstrike hazard." This would lead to elevated risk of loss of life for those using the airfield.

RESPONSE 38-9: Request that the City reject the DEIR due to negative environmental impacts of this Project is noted. A decision whether to certify the EIR will be made by the City consistent with the findings established by CEQA Guidelines Section 15091, and a decision whether to approve the Project would be accompanied by the additional findings required pursuant to CEQA Guidelines Section 15092. These findings are established to assure the public and decision-makers that all of the Project's potential effects on the environment have been considered and would be avoided or mitigated to a level of less than significant. If any effects are found to remain that are significant but unavoidable, the City would be required to adopt a statement of overriding considerations in order to take an action to approve the Project pursuant to CEQA Guidelines section 15093; essentially concluding that the unavoidable significant effects are acceptable due to specific over-riding concerns. Thus, CEQA provides a high standard for assuring that environmental effects are identified and mitigated in compliance with all laws enacted for the protection of the environment.

San Rafael Planning Commission
May 12, 2009
Public Hearing on DEIR for
San Rafael Airport Proposal

May 2, 2009

My comments on the airport DEIR are as follows:

① Why is the bridge not considered part of this project? It is mandatory to the project & is mentioned as the only way to access the project site. Why weren't soil, geology, and pile driving evaluations done for the bridge abutements? To install the bridge overlay pile driving is needed and residential units at Captains Cove, Contempo Marin and the airport housing are only 80-100 feet away. This has to be evaluated and written assurances from the developer that he will repair any damage done to neighboring property. There are Clapper Rails living in the marsh at the base of the bridge on the south side. If their habitat is protected how can you pile drive? I most often see them when they are walking under the bridge on the mud flats. 39-1

② No evaluation was made of the effects of headlights sweeping across the marsh by the bridge, until midnight or 1 Am or of them entering the bedroom windows of the Captains Cove units. A fence will be needed all along the road to the airport from Smith Ranch Road to the bridge and the bridge walls will need to be high enough to prevent headlights from shining into Captains Cove as well as the 2 houses by the bridge. Also, fencing will be needed from the bridge to the wall at Contempo to prevent headlights from departing cars from entering these homes. 39-2

A fence will also be needed to prevent people from walking all over Captains Cove & will need to be maintained by the developer. 39-3

③ If fencing is erected, how will people & bike riders be protected from the traffic on the airport road as they go from the path along the creek, cross the traffic going across the bridge, and walking along the road to get to the park? 39-4

④ Why are exterior lights going out @ 10:00 PM? What wildlife stays up until 10 PM? Why not dusk, when critters go to sleep? Noise curfew also @ dusk. It is mentioned in the DEIR that noise from radios is a Motor Vehicle Code violation so how will noise regulations be enforced? I have called the San Rafael City police 4 times about noisy people late at night & 3 times I was told they were too busy to answer complaints about noise. So how are we to be protected from late night noise disturbances? 39-5 39-6

⑤ Why wasn't the intersection of Yosemite & Smith Ranch studied? The vast majority of traffic exiting Contempo Marin and Captains Cove needs to make a left turn. With traffic increased by 1700 trips a day, how are we going to turn left in the face of all these cars entering & leaving the project, especially at the end of games & classes? 39-7

⑥ When the airport used sheep to help control grass growth, there were "NO DOGS ALLOWED" signs posted. Sheep are not endangered but Clapper Rails are, so shouldn't dogs be prohibited? The rails have no place to go to escape high tides except up the berms along the creek — the whole creek bank should be fenced off from people & dogs & balls. There should be NO people entering the protected area to retrieve balls — make the fences higher. 39-8 39-9 39-10

(7) I see no evaluation of the artificial turf or the material supporting it. The most frequently used material is called "crumb rubber" made from recycled tires containing chemicals that cause cancer, birth defects, & other health problems; i.e. Arsenic, lead, phthalates, chloroform, & toluene to name a few. Youngsters should not be running around on this and rain run-off should not be entering the creek or the land. How is this going to be handled? 39-11

(8) General Plan 2020 indicates that only projects which preserve and enhance the neighborhoods should be undertaken. How does increased traffic of 1700 trips, noise & pollution from cars & trucks until midnight or later, headlights shining into living units until midnight or 1AM, & the possibility of leaching obnoxious substances into the creek protect & enhance the neighborhoods? The 1983 Declaration of Restrictions has limited use for this area, why is this being ignored? Just because it mentions recreation as a possible use doesn't mean industrial sized recreation. Doesn't the General Plan 2020 call for 150 foot setbacks from the creek, not 100? The request to re-zone is ludicrous and flies in the face of what zoning is suppose to do - protect residential neighborhoods from business development!! 39-12

The City of San Rafael has allowed residential build-up all around the airport. Our homes are our major investment and all homeowners depend on zoning to protect their investment & homes, that's what zoning is for. To consider changing the zoning after all of us have moved into the housing you approved & protected should be illegal!!

39-13

⑨ The letter from Bill Cox of Fish & Game on page 157 of the DEIR concerning the bridge overlay causes me concern due to the addition of over 3 feet in width to the western side of the bridge a few years ago when this project was first made public. This addition was built on a weekend when construction is specifically prohibited. Did the City ever inspect it for safety or anything else, it has no outer railing. Was Mr. Cox given the old width or the new one? Was the new width given to mis-represent the actual width so issues of "over shadowing" could be ignored? Various stories were given as to the purpose of the addition, none of them credible. It was also said that the addition was really replacing something that was originally there and taken down. I have lived near the bridge for 20 years & there was never an addition on it during this time until just now. An aerial photo of that section of San Rafael was displayed at the Civic Center sometime ago that showed the bridge, with no addition on either side. It was taken sometime ago as there was no Mc Innis park, no additional buildings at the airport, and only one or two short lines of aircraft hangers. Does this 3 foot, 5-7 inch addition to the width of the bridge, done recently, raise 'over shadowing' issues?

Sharon Bale
37 Sailmaker Ct.
San Rafael

LETTER 39: Sharon Bale, May 2, 2009

RESPONSE 39-1: As indicated on DEIR page 3-14, although the bridge is not within the Project site, Project site plans show the bridge as part of the Project, and the DEIR evaluates impacts associated with the reconstruction of the existing bridge as required by CEQA. The Project Applicant has proposed to install a 25-foot wide steel truss bridge deck over the existing bridge that crosses the North Fork of Gallinas Creek as part of this Project.

As indicated on DEIR pages 12-25 and 12-26, pile driving into Bay Mud (such as that which would be necessary to support the proposed bridge improvements could be expected to generate vibration of less than 0.1 inches per second, peak particle velocity (in/sec PPV) at 200 feet, and the federal Transit Administration recommends a vibration threshold criterion of 0.2 in/sec PPV for fragile buildings (applied to any construction activities occurring during daytime hours). Although the vibration associated with pile driving activities could be perceptible at adjacent and nearby structures (including housing units at Captain's Cove, Contempo Marin and the airport), structural or cosmetic damage is not expected to occur, and the potential for off-site cosmetic or structural damage to result from Project construction would be low (less than significant).

As indicated on DEIR page 3-15, no new piles would be driven into the creek, nor is any work proposed within the creek itself or creek banks, so there would be no direct disturbance of marsh areas near the bridge where California Clapper Rails have been observed.

On DEIR page 7-68, the text of the first and second bulleted paragraphs under **MM Bio-2d: California Clapper Rail and California Black Rail – Avoidance Measures** has been modified to read as follows:

> "Pile driving associated with the recreational facility building shall not commence until September 1st and shall be completed by February 1st. Outside of pile driving, exterior construction of the recreational facility shall be allowed between July 1st and February 1st without limitation. Interior work shall be allowed without timing limitations. Construction ~~of the recreational facility~~ shall not commence on the recreational facility Project ~~until~~ on July 1st until a qualified biologist determines that there are no nesting California Clapper Rails or California Black Rails within 200 feet of the Project construction envelope. In the event nesting rails are found within 200 feet of the Project site on or after July 1st, construction shall be delayed until the nesting attempt is completed and the nest is abandoned or a qualified biologist determines that the nesting would not be adversely affected by commencement of the project. If California Clapper Rails or California Black Rails are determined to be nesting between 200 feet and 500 feet from the Project construction envelope on July 1st, the Project may proceed if a qualified biologist determines that the nesting rails would not be affected by the proposed construction activities. Under all circumstances any nest identified within 500 feet of the Project construction envelope

would be monitored by a qualified biologist while construction activities were in progress. The monitoring biologist would have the right to shut down any and all construction activities immediately in the event that such activities were determined to be disturbing the nesting attempt. Nests greater than 500 feet away would not require biologist monitoring ~~when the rails can be expected, in most cases, to have fledged young. Construction of the recreational facility could extend into October, with interior work allowed throughout the year~~.

To account for California clapper rails or black rails, and other special-status birds, that ~~likely~~ occur and nest in the marsh habitats along the creek in the immediate area of the bridge, all work associated with the new bridge, including the demolition of existing bridge deck, installation of the new deck, and other bridge improvements, shall be restricted to August 1 to October 15. The bridge pile-driving dates shall be further restricted to September 1 and October 15 when potentially occurring anadromous fish would not be expected to occur in the channel. This "avoidance window" is outside of the California clapper rail, California black rail, and other special-status birds breeding seasons, thereby eliminating the potential that bridge reconstruction activities would disrupt breeding attempts. This mitigation measure provides conservation measures that are consistent with the ISP Best Management Practices."

Implementation of **Mitigation Measure Bio-2a** (as revised), **Mitigation Measure Bio-2b** (as revised), **Mitigation Measure Bio-2c**, **Mitigation Measure Bio-2d** (as modified) and **Mitigation Measure Bio-2e** would eliminate potential indirect impacts to California clapper rail and California black rail, reducing the potential Project-related impact to these species to a level of less than significant

See also MASTER RESPONSE BIO-4, above, which addresses Project-related noise effects on wildlife.

RESPONSE 39-2: See MASTER RESPONSE AES-2, above, which addresses the concerns associated with headlight glare from vehicles moving to and from the Project site.

RESPONSE 39-3: Opinion regarding the need to install and maintain a fence to prevent pedestrians from walking onto property located in Captain's Cove is noted. As shown on DEIR **Figure 3-3** (page 3-23) the accessible walkway proposed along the road leading from Smith Ranch Road to the Project site is located on the opposite side of the road from Captain's Cove and Contempo Marin areas, and pedestrians moving to and from the Project site would be likely to use that walkway, rather than walk along the roadway directly adjacent to these residential areas, eliminating the need to install a fence to keep pedestrians out of these residential areas.

RESPONSE 39-4: As indicated in RESPONSE 39-3, above, the installation of the proposed accessible walkway along the will provide pedestrians with safe access to the Project site

without the need to install a fence between the access road and adjacent residential properties. Bicycle traffic would be expected to share the access roadway with vehicular traffic, as is common along most local streets.

RESPONSE 39-5: Opinion that all activity at the Project site should cease at dusk to reduce adverse lighting and noise effects on wildlife is noted. The Project currently proposes that outdoor lighting for the soccer field would remain on until 11:00 PM Sunday through Thursday, and until midnight on Friday and Saturday (see Project Objectives on DEIR page 3-10). This has been restricted to 10:00 PM based on the DEIR analysis. The Project would have the effect of extending daylight conditions near the site year-round rather than just during summer periods; when hours of darkness are shortest and daylight hours can extend past 9:00 PM. The DEIR biologist has confirmed that the proposed limitation to end outdoor events by 10:00 PM would be sufficient to reduce impacts to a less than significant level, by reducing the amount of time activities would encroach within periods of nocturnal activity as a result of the year-round operations of the outdoor soccer field. As discussed in the Project Objectives, soccer operations at the Project site with provision of all weather fields only becomes economically sustainable if adults can pay fees for their use of the recreational facilities after 8:00 PM, which requires lighting of the outdoor soccer field. See MASTER RESPONSE BIO-3, above, which further addresses this topic.

The potential light and glare impacts of the Project on the surrounding community are analyzed in **Chapter 5: *Aesthetics***, of the DEIR. **Chapter 5** notes that the Project Applicant proposes a state-of-the-art, environmentally friendly lighting system designed by Musco Lighting that uses 50 percent less electricity and produces 50 percent less spill and glare than traditional fixtures.

Mitigation Measure Bio-2e, **Mitigation Measure Bio-3a** and **Mitigation Measure Bio-3b** (as corrected) would reduce potentially significant lighting effects and night noise effects on wildlife to a level of less than significant.

RESPONSE 39-6: Motor Vehicle Code requirements will be enforced at the Project site exactly as they are elsewhere in the City of San Rafael. In terms of noise generated in violation of the Motor Vehicle Code requirements, a police response would normally be anticipated in response to a complaint. If local enforcement of Motor Vehicle Code requirements related to loud noise is currently perceived as lax, it may be appropriate to bring this to the attention of the City Manager and City Council to ensure adequate enforcement of the provisions of the Motor Vehicle Code locally.

RESPONSE 39-7: See MASTER RESPONSE TRA-1, above, which addresses Project-related impacts at additional intersections along Smith Ranch Road.

RESPONSE 39-8: Opinion that dogs should be prohibited at the Project site in order to protect California clapper rails is noted. To ensure that the marsh habitat and the upland buffer along the North Fork of Gallinas Creek is protected, a fence shall be installed around

the perimeter of the proposed Project area, and human access into this buffer area will be prohibited except as required by maintenance/operation personnel for continued levee maintenance and other required airport operational tasks that are routinely practiced today. The fence will be a minimum of ten feet tall for the purpose of preventing balls from the soccer fields from entering the marsh. This fence will also prevent dogs from entering the buffer zone, thereby protecting clapper rails in the creek habitats. A gate will be maintained locked at all times, and signs shall be posted stating that public access into the buffer area is strictly prohibited owing to the sensitivity of the habitat and to ensure the continued use of this habitat by special-status wildlife species. Installation of this fence will protect the marsh habitat along the North Fork of Gallinas Creek and the adjacent upland areas. Implementation of **Mitigation Measure Bio-2a** (as revised) will reduce potential intrusion impacts to the marsh habitats to a level considered *less than significant* pursuant to CEQA.

RESPONSE 39-9: Opinion that the portion of the Project site adjacent to the North Fork of Gallinas Creek should be fenced off to protect California clapper rails from dogs and balls is noted. As noted in RESPONSE 39-8, above, fencing is required in the DEIR that will address this concern, and provides a suitable barrier between the facility and protected buffer area.

RESPONSE 39-10: Opinion that no persons should enter a protected area to retrieve errant balls from the Project site is noted. Opinion that the fences proposed in **Mitigation Bio-2a** [as revised] (DEIR page 7-66) should be higher than the ten feet indicated is noted. See MASTER RESPONSE BIO-5, above, which addresses this comment. The fencing is primarily intended to restrict and prevent the occurrence of unauthorized and occasional access into the protected buffer zone, and is not necessary to completely stop the occurrence of errant balls from the entering the area.

RESPONSE 39-11: There are presently no federal, state, or local restrictions or limitations on the use of synthetic turf for outdoor athletic surfaces, and the proposed installation of synthetic turf as part of the Project would not violate any existing regulations intended to protect human or environmental health. While synthetic turf is composed of chemical elements that may be subject to leaching in some cases (there appear to be no easily-accessible, peer-reviewed studies evaluating the extent to which this might actually represent any serious threat to water quality and aquatic environments), the routine use of fertilizers, herbicides (such as Roundup), and pesticides to maintain natural turf playing surfaces may pose a greater long-term threat to water quality.

It is expected that the elimination of fertilizer and herbicide application would more than off-set any potential impact related to chemical leaching from artificial turf, the precise effects of which are presently unknown. Literature review found inconsistent and conflicting data regarding chemical leaching, mostly related to the use of crumb rubber (a component of some artificial turfs). Crumb rubber is commonly used as ground cover under playground equipment, and as a surface material for running tracks and athletic fields. Several public fields in San Francisco have been or are in the process of being converted to artificial turf.

San Francisco Recreation and Parks found no documented exposure problems from runoff leaching.

Two researchers (William Crain, Ph.D., Professor of Psychology at City College of New York and President of Citizens for a Green Riverside Park; and Junfeng Zhang, Ph.D., Professor and Acting Chair, Department of Environmental and Occupational Health, the School of Public health, the University of Medicine and Dentistry of New Jersey and Rutgers University) took samples of recycled rubber granules taken from A-Turf athletic fields surfaces in 2006, and in evaluating the samples for the presence of fifteen polycyclic aromatic hydrocarbons (PAHs) and toxic metals, found that both samples had concentrations of six PAHs in excess of the concentration levels that the New York State Department of Environmental Conservation (DEC) considers sufficiently hazardous to public health to require their removal from contaminated soil sites. They indicated that it is highly likely that all six PAHs are carcinogenic to humans, and indicated that although their findings based on the two samples are preliminary (and acknowledging that PAHs in rubber might not act the same way as in soil, and that the ease with which the PAHs in these rubber particles might be absorbed by humans by ingestion, inhalation, or absorption through the skin is unknown), they believe it would not be prudent to install synthetic turf until more is known. Although the New York City Parks Department was informed of these findings, it was not known if the Department had altered its plans to continue the installation of artificial turf in numerous City parks. (from "Rachel's Democracy & Health News #873, September 21, 2006, http:/www.precaution.org/lib/06/prn_toxins_in_synthetic_turf_rev. 060921.htm). A follow-up analysis conducted in October 2006 and January 2007, which tested three samples of rubber granules from athletic fields surfaced with FieldTurf for the presence of fifteen PAHs found concentrations of three PAHs to be in excess of the concentration levels that the DEC considers sufficiently hazardous to public health to require their removal from contaminated soil sites in at least one sample. The PAH that exceeded the DEC's tolerable level in all three samples was dibenzo (a,h)anthracene, which the International Agency for Research on Cancer considers to be one of the most dangerous PAHs. This follow-up study found fewer PAHs that were at hazardous levels than the earlier study (from "Rachel's Democracy & Health News #873, April 12, 2007, http:/www.precaution.org/lib/07/prn_toxins_in_ synthetic_turf_rev.070405.htm).

More recent research completed by the University of California, Berkeley (Rachel Simon, University of California Berkeley, Laboratory for Sustainability and Manufacturing, *Review of the Impacts of Crumb Rubber in Artificial Turf Applications,* February 2010) concludes that use of cryogenic crumb rubber for synthetic turf applications is safe for use in sports and athletic field environments. Further, the study points out that the environmental impacts of natural grass are more complex than those of synthetic turf due in large part to the need for continual addition of inputs to sustain the health of grass fields (e.g., water, fertilizer, mowing and maintenance practices). Following proper installation, maintenance and use practices, crumb rubber is considered to be generally safe and have not been proven as unhealthy or causing physical harm.

RESPONSE 39-12: Opinion that development of the Project site as proposed is inconsistent with General Plan and that proposed use of the Project site is incompatible with residential development which has taken place in nearby areas is noted. Opinion regarding the Project Applicant's request that a rezoning amendment of PD1764 to allow the development of the proposed recreational building and facilities at the airport site in addition to the existing airport and non-aviation uses is noted. See MASTER RESPONSE PD-2, above, which addresses issues associated with the Declaration of Restrictions, and confirms consistency of the Project with the San Rafael General Plan 2020 *Airport/Recreation* land use designation.

RESPONSE 39-13: The California Department of Fish and Game (CDFG) has jurisdiction over the North Fork of Gallinas Creek and would regulate any impacts associated with "over shadowing" of the creek by the proposed bridge. The Project Applicant received a 1602 Lake and Streambed Alteration Agreement (SBAA) from the CDFG on June 9, 2006 (Notification Number: 1600-2006-0266-3) authorizing the proposed bridge improvement work. The SBAA issued for this Project details the authorized activities, and provides specific terms and conditions for this Project. According to the plans (as indicated on DEIR page 3-15), the new 25-foot-wide bridge deck would not exceed the width of the existing bridge deck; therefore, no new shadows would be created.

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Date: May 5, 2009

To: Marin Audubon Society, P.O. Box 599, Mill Valley, CA 94942

Re: Comments on the San Rafael Airport Recreational Facility—Draft EIR

Scope

Avocet Research Associates (ARA) was asked by Marin Audubon Society (MAS) to comment on the Draft EIR for the San Rafael Airport Recreational Facility (March 2009) with special attention to Chapter 7, "Biological Resources" and the supporting "Biological Resource Analysis" prepared by Monk & Associates, April 14, 2008 (Appendix E).

Qualifications

Jules Evens, Principal of ARA, has been conducting protocol-level rail surveys of the tidal wetlands associated with the Gallinas Creek drainage system intermittently since the early 1990s (Evens and Collins 1992, Collins *et al.* 1994.) Since 2004, ARA, in co-operation with Point Reyes Bird Observatory Conservation Science (PRBO) and the Invasive San Francisco Bay *Spartina* Project (ISP), has been conducting comprehensive surveys of the entire San Francisco Bay estuary to monitor distribution and abundance of the California Clapper Rail (CCR); Gallinas Creek is one of the sites that we have focused on. In prior years, our efforts were focused on the north branch of Gallinas Creek, the Santa Venetia wetland parcel, and Santa Margarita Island (ARA 2004). In 2009, ARA was contracted by Winzler and Kelly, Inc. to conduct comprehensive surveys of CCR in the Gallinas Creek system to address U.S. Fish and Wildlife Service requirements associated with a proposed dredging project (ARA 2009).

General comments on the DEIR and California Clapper Rail.

My primary focus in this review of the DEIR is with references to the federal- and state-endagered California Clapper Rail (CCR) with some comments on the state-threatened California Black Rail (CBR).

The entire population of CCR is confined to the tidal marshes of San Francisco Bay (Alberton and Evens 2000). Numbers of *CCR were* estimated at 4,000–6,000 birds in mid-1970s, 1,000 in mid-1980s, <700 by 1988, <500 by 1991, and by 1996 <300 (U.S. Dept. of the Interior 1991). More recent data suggests that the population has rebounded somewhat over the last decade in response to active predator control, improved habitat mangement, effective wetland restoration, and "best management practivces" employed by federal, state, and municipal agencies. The most recent estimates suggest that approximately 1500 California Clapper Rails remain in the San Francisco estuary with about one-third of the population in San Pablo Bay and two-thirds in the Central and South bays, combined (Albertson and Evens 2000, ARA 2004, USFWS unpubl. data). The recent invasion of the San Francisco Estuary by an aggressive non-native cordgrass (*Spartina alterniflora*) has had a dramatic effect on the distribution of the CCR populations in the Central and South bays and the long-term impacts of this alteration of the primary habitat on CCR viability throughout much of its range is as yet uncertain (Evens *et al.* In press). Because the non-native cordgrass invasion is limited so far to Central and South bays, the value of San Pablo Bay has increased as it is the only intact habitat refuge remaining for the CCR (Evens *et al.* In press.) It is also relevant that the Gallinas Creek tidelands and the associated bayshore marshes, south to China Camp and north to Hamilton Field, support the highest numbers of CCRs in San Pablo Bay (ARA 2004).

When dealing with such a criticaly endangered species in such diminished habitat, it is incumbant upon regulatory agencies to employ the "precautionary **40-1**

principle" (Kriebel *et al.* 2001), that is, to rely on the most recent data available and to make only the most conservative assumptions about population viability, vulnerability, and the potential for impacts.

The DEIR does not exercise precaution, rather it makes assertions about rail distribution (locations within the system) based on dated data and makes assumptions about impacts that are supported only by subjective opinion.

The Invasive Spartina Project (ISP), an ongoing effort to control an invasive cordgrass and protect the CCR, produced a valuable and peer-reviewed white paper entitled "Best Management Practices for the Avoidance and Minimization of Indirect Impacts from *Spartina* Control Program Activities on the Endangered California Clapper Rail".[1] As that paper asserts, "Many direct and indirect impacts of Spartina Control Program activities on clapper rails . . . can be minimized or avoided by altering the location or timing of control activities subsequent to early detection of clapper rail presence in project areas." Such conservative measures should be applied to this proposed project to ensure protection of the CCR.

Relevance of the CCR distribution data used in the DEIR. **40-2**

The DEIR draws on data collected in 2005 (ARA 2006) and the 2007 surveys by Monk & Associates and draws very site-specific conclusions about rail distribution based on observations from those earlier studies. ARA's more recent surveys provide more accurate distributional data (ARA 2009, attached). The 2009 surveys were more recent, more intensive (20 stations covered on six dates) than either of the field earlier efforts, and covered a broader ranger of dates (January 17-March 13) during the protocol period. CCR populations are **40-3** highly dynamic, numbers tend to exhibit fluctuations year-to-year, and rail vocalizations (the primary means of detection) can vary widely within a given survey season (Ferringo 1966, Gill 1979, Collins *et al.* 1994). Therefore, it is

misleading to assume that results of a single year's observations and locations give an accurate account of habitat use. The lack of detections within a given habitat patch, or along a given section of a marshland, does not mean that CCRs are not using that area or that that area is of less importance to their reproductive success than areas where nesting activity is observed or inferred. CCRs tend to be highly furtive in the vicinity of a nest site; rail activity (either visual or aural detections) noted by field observers indicates locations within the adult rail's territory or home range, but does not advertise a nest location. Indeed, one would expect less observable activity in the immediate vicinity of the nest than elsewhere within the territory. 40-4

The DEIR contains the following statement on page 7-39:

> *Two pairs of clapper rails were observed or heard in the North Fork of Gallinas Creek near the project site during the survey . . . In March, the activity of these two pairs were mostly confined or centered on two areas on the north bank of the North Fork of Gallinas Creek on the opposite side of the creek from the Project site . . . the rails likely selected these areas for nesting* [emphasis added] *because the band of marsh habitat on the north side of the creek at the two locations is uncharacteristically wide, approximately 100 feet in width.*

Detection does not necessarily indicate nesting location (indeed, it probably does not), however, it does indicate occupied territory. Furthermore, in our 2009 study, ARA had detection (double clatter, March 3, 2009) on the south side of the north branch, very near Station 3 in the M&A surveys (Figure 2.) Incidentally, the marsh on the south side of the creek at the location plotted in Figure 2 is 78 feet in width. The DEIR inference that the north bank is more suitable habitat is specious. There is no reason to assume that CCRs do not use both sides of the channel; rather, they incorporate all available habitat into their home range. 40-5

[1] http://www.spartina.org/Spartina_Draft_EIR/html/Appendix_G.htm

The primary point of the foregoing discussion is that detections, even multiple detections in a given year, do not allow us to delineate the rail's habitat use within a confined portion of the tidal marsh. In fact, CCRs use all potions of emergent marshes depending on tidal levels, time of day, season, disturbance, predation pressure and a host of other variables. Linear marsh areas are important as foraging areas and connectivity corridors. Adjacent upland provides important refugial habitat during high water periods.

Exceptional numbers of CCRs were detected in the Gallinas Creek system during the 2009 survey period, with a minimum of 13-22 pairs estimated, a higher number of detections in the upstream reaches of the system (both the north and south branches) than in our previous experience (ARA 2009; Figure 1 & Appendix A). CCRs were detected on both the north and south shores of the north branch, and birds were seen swimming from one side of the slough to the other, indicating that territories are not confined to one side or the other, but encompass both shorelines. **40-6**

Clarification of statements attributed to Jules Evens (p 7-39).

"Dr. Evens" should be changed to "Mr. Evens," as I have a MA, not a PhD. **40-7**

I did meet with Mr. Monk and Ms. Anderson on April 10, 2007 but would like to provide some clarification to the opinions attributed to me. I may have concurred that rails occur in the tidal prism of the creek, but not that they are "confined" to that habitat. In several papers and reports I (and others) have emphasized that one of the habitat requirements of viable CCR habitat is a dense cover of transitional habitat between the marsh and the upland, a fringing buffer zone of dense halophytes and upland vegetation to provide refuge during periods of high water (Collins *et al.* 1994, Albertson and Evens 2000, Evens *et al.* In press). Transitional buffer zones are also a critical component of the state-threatened California Black Rail (CBR) **40-8**

habitat, (Evens and Page 1986, Evens *et al.* 1991, Trulio and Evens 2000, Evens and Nur 2002).

The statement "Dr. Evens was confident that all clapper rails in the area have been detected" (page 7-39) may have been accurate at that moment in April 2007, but I would add that that judgment is relevant only for that year of surveys. As I've stated above, and as is exemplified by our 2009 survey work (ARA 2009), rail populations are dynamic with shifting densities and distributions among years and seasons. Again, it is important to emphasize that the entire tidal marsh system and its adjacent habitat (i.e. buffer zone) is critical to maintaining viable habitat and that a single snapshot in time (one year, one set of surveys) should not be used to delimit CCR habitat use within the system. **40-9**

The statement (page 7-39) "Dr. Evens further stated that clapper rails that live in areas with heavy disturbances (similar to the conditions surrounding the project site) tend to become habituated and less elusive, such as the Clapper rails are in the vicinity of the Project site" requires explanation and context. It is not an accurate portrayal of my opinion, but was off-the-cuff speculation. What I believe I expressed, or meant to express to Mr. Monk and Ms. Anderson, was my impression that at *some sites* where there is consistent human foot traffic, rails *seem* to be habituated to humans and are therefore easier to see. (Examples are Arrowhead Marsh, Muzzi Marsh, Paol Alto Baylands.) This does not mean that habituation to human presence is beneficial to rail populations. It may be that human presence is concentrated in more urban areas where there are fewer red fox, an aggressive predator of CCRs (Albertson and Evens 2000); in the absence of foxes, *perhaps* CCRs can afford to be less furtive. Again, these thoughts are speculative musings, not facts that mitigate potential impacts to the CCR. There are no available studies evaluating the reproductive success of rails in marshes adjacent to human foot traffic and we know very little about **40-10**

CCR reproductive success in general. We do know that the decline in the rail population around San Francisco Bay has coincided with increased urbanization of the estuary (Gill 1979, Albertson and Evens 2000, etc.), that the population is critically endangered and experiencing ongoing threats (Eddleman and Conway 1998, Albertson and Evens 2000, Hertzog *et al.* 2005, Evens *et al.* In press.) Based on this knowledge and the taxon's endangered status, there is a critical requirement to exercise precaution and employ best management practices.

Assumptions regarding impacts from the proposed project

The assertion that "the proposed project will not impact marsh habitats along Gallinas Creek" (p. 7-40) needs substantiation. The question of impacts should consider buffer zone requirements to protect CCRs from disturbance. The USFWS has two distance requirements it assigns to projects proximate to occupied CCR habitat: **40-11** **40-12**

1) For construction that occurs during the nesting season, potential disturbance should be 700' from the "center of a territory" (defined as the central point in clusters of observations). This distance was determined by the USFWS based on telemetry studies (Albertson 1995) that estimated the average area of a CCR home range equivalent to a circle with a 450' radius; the Service then added a 250' buffer zone to that distance to arrive at 700 ft.
2) For construction adjacent to occupied habitat, especially construction that involves percussive noise or high decibel (>60 dBA) activity, a set back of 250 feet has been the standard set back required by the Service. (This buffer distance is site specific, and may be reduced if topographic features, or sound barrier curtains are used to attenuate noise.

An alternative mitigation would be to relocate the project site so it was farther from the occupied tidal marsh area. Changing the location of the proposed structure to increase distances from sensitive habitat. **40-13**

California Black Rail account: outdated information.

The information on the distribution of CBR provided on page 7-41 of the DEIR is outdated. During 2009 survey, we had territorial calling 0.48 miles CBRs upstream from project site and 0.49 miles downstream (Figure 1 & Appendix A). **40-14**

Impact analysis

Page 7-64; paragraph 1:

1) Based on the results of ARAs surveys in 2009, and the locations of CCR detections, the distance of occupied habitat to the proposed Project site should be 131 feet to territorial birds and 76 feet to occupied habitat (modify Figure 7-4 in DEIR). **40-15**
2) The sentence "The nest sites were situated in areas where there is a significantly wider band of tidal marsh vegetation" is in error. Nests were not detected during the M&A surveys, rather their position was inferred from vocalization data. As discussed above, the location of the nest may have been some distance from the detected rails. **40-16**
3) The implication that CCRs that were only using habitat on the north side of the creek is no longer relevant. The 2009 study found birds associated with the habitat on the south bank, closer to the proposed project site. **40-17**
4) The statement "They [CCRs] were never observed on the top of the levee or the outboard side of the levee on the Project site" is irrelevant and misleading. Irrelevant because CCRs have since been observed on the outboard side of the levee (ARA 2009). Misleading because M&A surveys were conducted on tides <4.5', as per the protocol requirements. Levee flanks, tops and other habitat adjacent **40-18**

to tidal marsh habitats is used by CCRs when the marsh plain is inundated, i.e. >4.5'.

Page 7-64: paragraph 3:

The statement "The distance between the proposed recreational facility . . . and the top of the levee along the North Fork of Gallinas Creek will be 100 feet or greater, as shown in the Project site plan (see Figure 7-4)" is in error. Figure 7-4 is not to the proper scale to measure the distance. Figure 7-5 does provide a measurable scale. Using that figure superimposed on Google Earth provides a measurement from the Project Boundary (red line) to the levee top of 75 to 80 feet. The assumption that the levee will provide "additional buffering effect" will not protect CCR (or other marsh-dependent vertebrates) when the marsh plain is flooded and the levee top is used as refugial habitat. As discussed above (p. 7), a more appropriate buffer zone to protect CCR from both construction and operational activity would be 250 feet, as prescribed by USFWS. **40-19** **40-20**

Page 7-65: paragraph 2:

Percussive noises associated with pile driving are likely to have an impact to nesting rails. Timing of construction activity, if approved, should restrict the generation of percussive noises to the non-nesting season (September 1-February 1) as per USFWS guidelines. **40-21**

Page 7-65: paragraph 3:

The contention that noise impacts generated by the project "are not expected to adversely affect" CCRs is a subjective judgment without substantiating data. The DEIR accepts the fact that human activity levels generated by the proposed project will increase over existing levels. Whether or not the "rails living in the area have already become accustomed to heavy human disturbances," there is no way to determine if these disturbances are affecting reproductive success, what the threshold **40-22**

of disturbance is, and whether future recruits to the population will be impacted. Again, a precautionary approach would be appropriate.

Noise impacts

The DEIR states: "Indirect impacts [to rails] could result from noise generated during project construction . . . [and that] unless mitigated, these impacts would be *potentially significant.*" (p. 2-8). Recommended mitigation measures (Table 2-1) in the DEIR provide an "avoidance window" so that "Construction activity shall not commence until July 1st when the rails can be expected, in most cases to have fledged young" (p. 2-11). This avoidance window does not conform to the window prescribed by USFWS; the Service designates the nesting season as February 1 to August 31 (J. Browning, USFWS Office of Endangered Species, pers. comm. May 5, 2009). The DEIR mitigation in Table 2-1 should state: "Construction activity shall not commence until September 1 . . ." **40-23**

Section12 addresses noise impacts and reports "that ambient noise levels on the Project site … are relatively low (35 to 45 dBA L_{eq}) most of the time" (p-12-2). The noise study in the DEIR estimates "construction activities would produce typical hourly average noise levels of 65 to 70 dBA at the shoreline trail, 63 to 68 dBA." (Chapter 12). However, in Table 2-1 it recommends limiting "high decibel construction equipment (70-90 dBA) to areas at least 200 feet from the North Fork of Gallinas Creek. This set back distance is not precautionary enough to avoid impacts, as is illustrated by the following case study. **40-24**

Construction noise for a wetland restoration was identified as a potential stressor to the endangered Light-footed Clapper Rail (the same species as CCR) in Southern California.[2]

The Proposed Project would result in a significant noise impact if

[2] Kimley-Horn and Associates. 2005. Noise Impact analysis. Tijuana River Valley Regional Park Trails and Habitat Enhancement Project. Prepared for Environmental Services Unit.San Diego Department of Public Works http://www.sdcounty.ca.gov/reusable_components/images/parks/doc/HTJ_River_Noise_Technical_Report.pdf

habitat restoration and/or the construction and closing of trails occur within 300 feet of least Bell's vireo, California gnatcatcher, or Light-footed clapper rail habitat during the breeding season (February 15 through August 30). If equipment such as a loader, grader or tractor is required during the breeding season, a site-specific mitigation plan should be developed to identify noise control measures that should be implemented. These measures could include noise barriers and/or time constraints for equipment use.

Analysis determined that if construction noise above 60 dBA Leq(h) within 300 feet of occupied habitat would result in significant impact to rails (and two other listed avian species). That study concluded: "The impact can be mitigated by working outside of the breeding season or by using hand tools." In the case of the CCR, the breeding season extends from February 1 to August 31 (USFWS, op. cit.). An avoidance window of September 1-January 31 should be required of this project.

The Noise Section of DEIR (Section 12), thoroughly discusses impacts to nearby residents, but does not adequately address potential noise impacts to the endangered CCR. The following estimate of construction noise is cause for concern given the proximity of the construction site to occupied rail habitat: "It is expected that the project would require the driving of up to 100 piles to provide a foundation for the proposed building. A diesel-powered pile driving hammer would be used to seat piles . . . [that] generate noise levels of 100 dBa at 100 feet during each blow" (p 12-23). The DEIR does not provide mitigation measures that would reduce potential impacts on CCR and other wildlife species in the tidal wetlands.

Operational Impacts

The foregoing discussion focuses mostly on project location and construction impacts. If and when the project is approved and built, daily

40-25

activities, especially outdoor sporting events, also pose potential sources of disturbance to CCRs. Those operational impacts most likely to disturb or disrupt CCR reproductive efforts are listed, below.

- Outdoor soccer area setbacks (118-173 feet): Insufficient buffer.
- Night lighting: increased vulnerability of CCR to nocturnal predation, especially by house cats. (Of utmost concern is the lighting along the northern edge of the soccer field closest to Gallinas Creek (p 3-16)
- Intrusion into the habitat by errant soccer balls.

Best Management Practices (adapted or taken *verbatim* from ISP 2003): emphasis (underlined text, added).

Proximity

40-26

If a project site includes suitable clapper rail habitat, and lies within a cluster of recent (ca. 5- to 10-year) recorded locations of clapper rails, clapper rails are presumed to be potentially present. In this case, the [project site and areas which may be affected by its activities] must be surveyed for clapper rails by a qualified biologist during the same breeding season in which activities are proposed. The survey zone would presumably include all marsh within approximately 700 feet of the proposed project site boundaries.

Construction window (timing)

If clapper rails are determined to be present at a proposed project . . .most or all [construction] activities may be restricted to the non-breeding season of the clapper rail, as determined by the U.S. Fish and Wildlife Service. The non-breeding season (lack of nesting, brooding) most recently has been interpreted as a relatively short period between September and February. [September 1 to January 1—USFWS pers. comm..]

On-site monitoring

Activities of field crews [or construction crews] will require variable degrees of on-site field biologist supervision, depending on the degree of residual risk of

clapper rail impacts.

Pre-project implementation protocols

Site-specific project plans will be adapted to updated field conditions and most recent field survey information regarding clapper rails before construction equipment and crews are mobilized to the project site. Access routes for equipment and field crews will be staked out and described. Clearly visible flags, either set or approved by field biologists with expertise in clapper rail biology, will mark restricted areas and buffer zones for activities. Flags will be removed whenever operations are inactive to avoid providing scent-cues for foraging predators, especially red fox. Configuration of flagged restricted areas will be based on field survey data, and interpretation of rail behavior and habitat structure. Written site-specific precautions for work crews will be prepared by, or in consultation with, clapper rail expert biologists. These precautions will be distributed and explained to work crews by on-site biological supervisors.

Post-project monitoring and reporting

Marsh areas adjacent to the project area will be re-surveyed for clapper rails, covering an area equal to or greater than the approximate estimated or known size of clapper rail home ranges in the region. The survey zone would be presumed to include areas within approximately 700 feet of the project site, but may vary with specific habitat configuration. Any relevant information regarding potential rail movements from treated areas to adjacent or neighboring areas obtained during surveys will be reported and mapped. Any rail nest locations detected will be recorded with GPS data and photographed. All post-treatment survey data collected by authorized clapper rail biologists will be reported to the U.S. Fish and Wildlife Service.

Conclusions

1. Project site. The location of the project site so close to occupied CCR habitat that poses unwarranted risks to this endangered population and **40-27**

the construction and operations are likely to cause both temporal (construction) cumulative (operations) impacts and to diminish the value of the tidal marsh habitat along the north branch of Gallinas Creek.

2. "Best Management Practices," as per ISP 2003 (above), should be employed in this area to insure protection of the resident rail population.
3. Night lighting should be eliminated from the project to reduce risk of increased predation pressure by mesopredators.
4. A buffer zone of 250 feet from tidal marsh habitat should be established during the construction phase of the proposed project. Post-construction operations should be regulated to maintain a 150 foot buffer between human activity and tidal marsh habitat with wildlife-friendly fencing that would prevent human caused disturbance (e.g. errant soccer balls) from intruding into the marsh.
5. Native, perennial, woody vegetation along the upland edge of the south shore of the North Branch of Gallinas Creek should be required to increase the availability of high-tide refugia and to create an impediment to human intrusion into the marsh.

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Permits

U.S. Fish and Wildlife Permit TE786723-3
California Department of Fish and Game Special Collecting Permit #6708

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3 http://www.sdcounty.ca.gov/reusable_components/images/parks/doc/HTJ_River_Noise_Technical_Report.pdf

Figure 1. Gallinas Creek, Marin County, California.

The blue bar near the mouth of the creek indicates the downstream limits of coverage by this census effort. (A large population of clapper rails is known to reside in the broader marshes along the San Pablo Bayshore, downstream and outboard from the blue bar—ARA 2004).

- Green markers indicate locations of 20 listening stations distributed at approximately 200 meter intervals along the banks of both branches of Gallinas Creek.
- Red circles indicate locations of clapper rail detections. Each circle represents at least one individual rail, although thirteen of the circles represent "duetting" birds.
- Yellow circles indicate locations of clapper rails detected in earlier surveys (ARA field data, 2007) upstream from detections in the 2009 surveys.
- Yellow triangles represent locations of California Black Rails detected during the 2009 surveys.

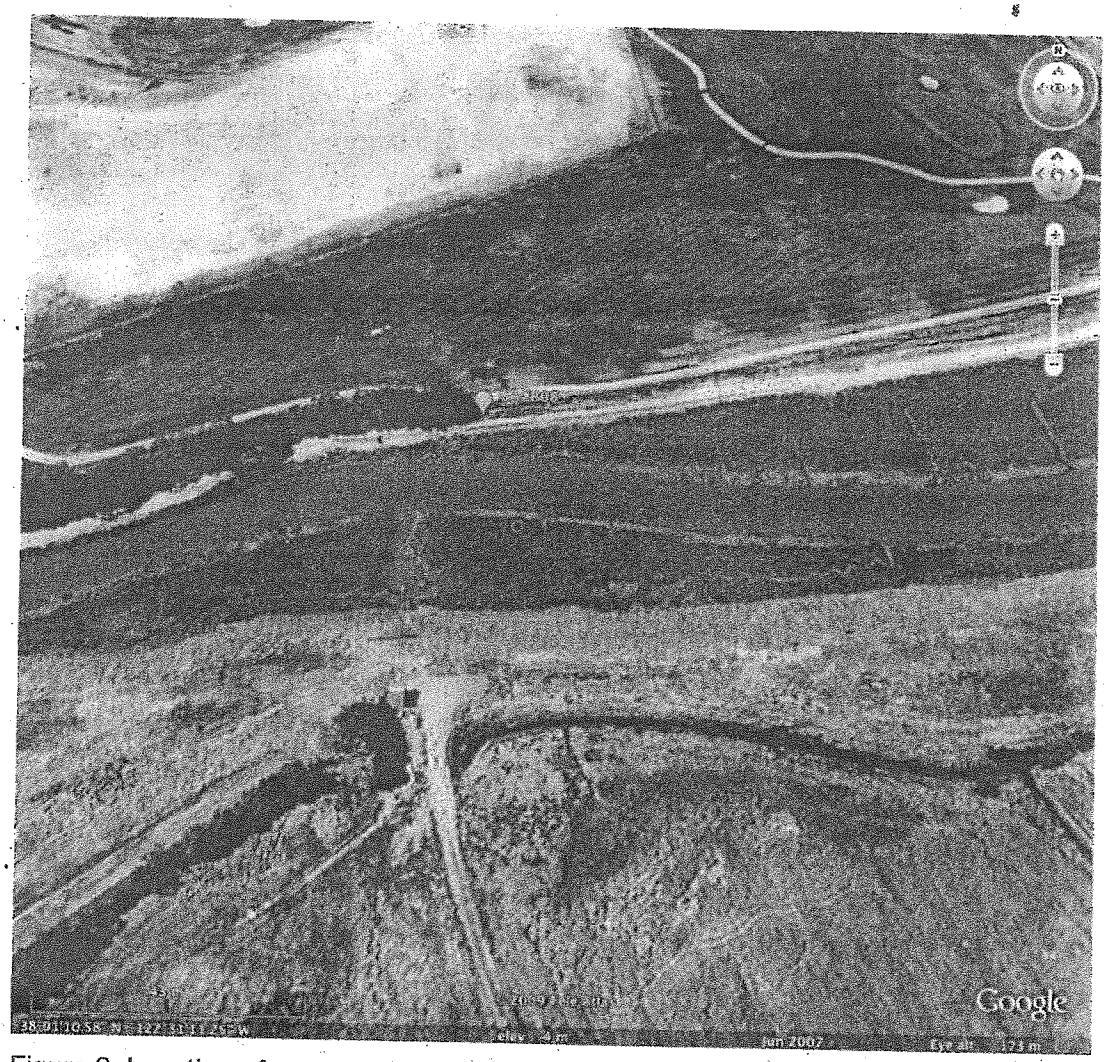
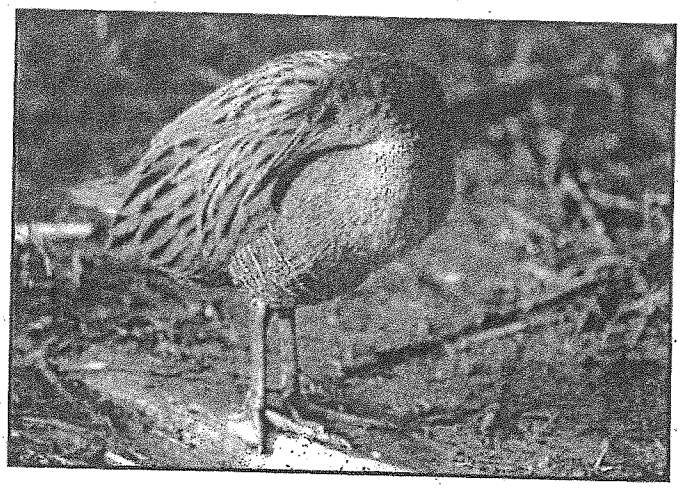


Figure 2. Location of survey point GACR08 (green marker) and duetting pair of CACRs (red circle) detected on March 3, 2009.

APPENDIX A.

PROTOCOL SURVEYS FOR CALIFORNIA CLAPPER RAIL (*RALLUS LONGIROSTRIS OBSOLETUS*) AT GALLINAS CREEK, MARIN COUNTY, CALIFORNIA 2009



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March 20, 2009

I. Introduction

Under agreement with Winzler and Kelly, Inc. (January 29, 2009) Avocet Research initiated a study of the federally endangered California Clapper Rail (*Rallus longirostris obsoletus*) in the tidal marshlands of the Gallinas Creek complex, Marin County, California. This report: (1) summarizes the results of protocol-level surveys conducted in these marshlands during the 2009 survey period; (2) identifies and delineates occupied habitat and buffer zones; (3) summarizes our knowledge of distribution and abundance in these marshlands; and, (4) discusses the regional importance of the Gallinas Creek marshlands to the species.

II. Methods

Protocol-level surveys

Survey methods conformed to the protocols prescribed by the U.S. Fish and Wildlife Service (USFWS 2000; Appendix A). Listening stations (census points) were distributed along the reaches of Gallinas Creek where dredging activities are proposed (Fig. 1; Tables 1 & 2).

Each survey was "passive," that is, the observer simply stood at the station and relied on spontaneous vocalizations to detect rails. An "active survey," involves broadcasting rail vocalizations with a tape recorder to elicit responses. Active surveys are permitted only when no detections have been made using passive methods on three previous census efforts (USFWS 2000). Each listening station was occupied for a minimum of 30 minutes during twilight hours, the period of maximum vocal activity by clapper rails (Eddleman and Conway 1998). Because rails were detected on each of the passive surveys, it was not necessary to conduct active surveys following the suite of passive surveys.

UTM coordinates of each listening station are given in Table 1, below. Dates and times of the surveys are provided in Table 2, below.

Table 1. GPS coordinates of listening stations at Gallinas Creek (UTM 10S-NAD83) "GACR" indicates locations on north branch; "GACS" indicates locations on south branch.

Station code	easting	northing
GACR05	5413567	4207886
GACR06	541597	4207887
GACR07	542346	4208197
GACR08	542125	4208126
GACR09	541867	4207939
GACR10	541049	4207759
GACR11	540920	4207576
GACR12	542535	4208277
GACS01	542522	4207975
GACS02	542692	4208083
GACS03	542825	4207936
GACS04	542937	4207769
GACS05	542999	4207581
GACS06	541804	4206889
GACS07	541642	4207017
GACS08	541798	4207050
GACS09	541351	4206977
GACS10	541244	4206799
GACS11	541120	4206639
GACS12	540977	4206466

Table 2. Dates, times, and tidal level of clapper rail surveys at Gallinas Creek, 2009. Tidal level: high = >3.0'; mod = 3.0'-1.0'; low = <1.0'

Date	Time (hrs)	Survey type	Tide
Jan 17	1618-1740	passive	high
Jan 28	0630-0810	passive	mod
Feb 18	1620-1815	passive	mod
Mar 4	1655-1845	passive	high
Mar 7	1730-1915	passive	low
Mar 13	0545-0730	passive	low

III. Findings

Results of our 2009 protocol-level surveys documented California Clapper Rails distributed along both the northern and southern reaches of Gallinas Creek (Fig 1). A total of 29 detections, representing and estimated 41 individual clapper rails were recorded during approximately 10.3 hrs of observation (Table 1). After eliminating redundant detections and accounting for duetting pairs and vocalizations of single birds, we estimate these vocalizations represent a minimum of 13 to 22 pair of clapper rails along Gallinas Creek upstream from the broad marshlands associated with the mouth of the watercourse. Approximately one-half of the detections were associated with the North Branch (2.3 km) and one-half with the South Branch (5.1 km).

Gallinas Creek, especially the marshes near the mouth at its confluence with San Pablo Bay, has long been recognized as a population center for this species in the North Bay (Collins *et al.* 1994, Albertson and Evens 2000, ARA 2004). In fact, we suspect that the name of the watercourse ("gallina" is Spanish for "chicken") derives from this fact. In the late 1800s clapper rails were called "marsh hens," and were hunted for sale in the San Francisco markets (Grinnell *et al.* 1918). Avocet Research (in cooperation with CDFG, Point Reyes Bird Observatory Conservation Science and the Invasive Spartina Project) has conducted surveys intermittently in the Gallinas Creek marshes over the last two decades as part of a baywide population monitoring effort. High densities of rails have been consistent in the extensive bayside, outboard marshlands; densities have been lower in the linear marshes of the Gallinas Creek shoreline. However, the 2009 results found the highest number of clapper rails in Gallinas Creek to date. Whether this is the result of more thorough coverage in 2009 (usually only three surveys are conducted each year) or a recent population increase is unknown.

Figure 1. Gallinas Creek, Marin County, California.

The blue bar near the mouth of the creek indicates the downstream limits of coverage by this census effort. (A large population of clapper rails is known to reside in the broader marshes along the San Pablo Bayshore, downstream and outboard from the blue bar—ARA 2004).

- Green markers indicate locations of 20 listening stations distributed at approximately 200 meter intervals along the banks of both branches of Gallinas Creek.
- Red circles indicate locations of clapper rail detections. Each circle represents at least one individual rail, although thirteen of the circles represent "duetting" birds.
- Yellow circles indicate locations of clapper rails detected in earlier surveys (ARA field data, 2007) upstream from detections in the 2009 surveys.
- Yellow triangles represent locations of California Black Rails detected during the 2009 surveys.

IV. Other sensitive species associated with Gallinas Creek

Several species detected in the course of this study are recognized as "Birds of Conservation Concern" (Shuford and Gardeli 2008) or are included in the California Department of Fish and Game's list of "Special Animals" (CDFG 2009).

*(1) California Black Rail (*Laterallus jamaicensis coturniculus*), a California threatened species, was detected along the mid-reach of Gallinas Creek and upstream in the broader marsh at the east end of Mitchell Blvd. Black rail also occurs in the higher elevation tidal marsh habitat near the mouth of Gallinas Creek (Evens and Nur 2002). The black rail occurs in the highest tidal marsh habitat and depends on vegetative cover between the tidal marsh and the upland for its survival (Evens* et al. *1991). Buffer zone protection for clapper rails will also benefit black rails.*

(2) Common Yellowthroat (*Geothylypis trichas*) was detected on several surveys. The local subspecies, the "San Francisco" Common Yellowthroat (G.t. *sinuosa*) is a California Bird of Conservation Concern (BSCC) that is associated with fresh, brackish, and saline wetlands around the periphery of San Pablo Bay. Whether the individuals along Gallinas Creek represent local nesters or over-wintering individuals is unknown, however any activity that disturbs the vegetative community that fringes the tidal marsh is likely to affect yellowthroat habitat.

(3) "Samuel's" Song Sparrow (*Melospiza melodia samuelis*), also a BSCC species, nests in the tidal marsh and transitional upland vegetation at Gallinas Creek. Song Sparrow was detected on every census and, like the yellowthroat, is susceptible to disturbance of its habitat. Quoting from the BCCS account: "Protect existing habitat and restore additional large contiguous areas to tidal action in San Pablo Bay. Restoration projects underway in the Napa-Sonoma marshes and in Marin County are critical" (Shuford and Gardali 2008).

(4) River Otter (*Lontra canadensis*) was seen on two of six surveys. River otters are a California Special Concern Species (CDFG 2008). Otters have been increasing in the Marin County tidal marshlands over the last decade (ARA unpublished field notes).

(5) Salt Marsh harvest Mouse (*Reithrodonomys raviventris*), federal and state endangered, was not detected on this set of surveys, but is known to occur in the Gallinas Creek marshes (SFEI 2009). Like the black rail, SMHM is a cover-dependent species that relies on thick cover of native halophytes of the tidal marsh environment.

V. Recommendations to avoid disturbance.

The following recommendations are provided to inform management practices and to avoid disturbance to this federally endangered California Clapper rail. These measures will also serve to protect other tidal-marsh dependent species.

1) Avoid removal or disturbance of emergent tidal marsh vegetation at any time.
2) Avoid removal or disturbance of vegetative cover at the tidal marsh/upland interface, providing a buffer of regugial habitat within as wide a swath as possible (3 meter minimum) from the Mean Higher High Water (MHHW) line.
3) Buffer zones of 250 feet from occupied rail habitat should be established during the course of construction. Any activity within that buffer zone that has potential to disturb rails (i.e. high-decibel construction, pumping, use of heavy machinery, etc.) should be conducted outside the nesting season. USFWS defines the rail nesting season as February 1-August 31, therefore potentially disruptive activity should be conducted only from September 1 until January 31 in a given year.
4) If construction or dredging activity does intrude into tidal marsh habitat a permitted biologist should survey the area prior to construction to determine presence/absence of rails.
5) Training sessions should be given to workers to inform them of protective measures and instruct them in identification of sensitive habitat.

VI. Conclusions

Six protocol-level clapper rail surveys were conducted along both branches of Gallinas Creek during the 2009 survey period. Rails were detected throughout the emergent tidal wetlands we an estimated minimum population of 13-22 pair present. Although densities of rails have been consistently high in the outboard marshes at the mouth of Gallinas Creek Rail, the 2009 results found greater numbers associated with the linear marshlands along the middle and upper reaches of the creek than previously detected. Rails were fairly evenly distributed between the north and south branches of the watercourse.

Recommendations for avoiding disturbance to this at-risk species are provided. Measures used to protect clapper rails will also serve to protect other sensitive species.

VII. References

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VIII. Permits (Jules Evens, Avocet Research Associates)

Federal Fish and Wildlife Permit TE786728-3
CDFG-SCP #801037-02

Appendix A.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

DRAFT SURVEY PROTOCOL

California Clapper Rail (*Rallus longistrostris obsoletus*)

January 21, 2000

Below is a description of the standard methodology used to detect presence or absence of clapper rail breeding activity. Surveys should be conducted once a week for a minimum of four weeks. The optimal time to conduct call count surveys is mid-January through March. Once a survey protocol has been developed, it should be sent to the Service for final approval prior to implementation. After the results are compiled and submitted to us, we will make a final decision on the possibility of doing any work as described.

Methodology

Surveys should be conducted from January through mid-April, which encompasses the optimum time period of mid-January through March when the frequency of calls is typically highest. Surveys should not be conducted when tides greater than 4.5 feet NGVD as predicted at the Golden Gate occur at the marsh during the survey period or during full moon periods.

Listening stations should be established no more than 150 meters apart along transects in or adjacent to marsh areas. Stations should be established so that the entire marsh is covered by 75 to 100-meter radius circular plots. Listening stations should be placed near marsh features, such as sloughs, but not along slough edges to minimize disturbance to rails. Surveys should be conducted from levee crowns or boardwalks to minimize disturbances to marsh areas where possible. A detailed map depicting sloughs and other marsh landmarks or features should be developed.

Surveys should be conducted at sunset or sunrise. Surveys conducted at sunrise should begin 45 minutes before sunrise and continuing until 1 1/4 hours after sunrise.

Surveys conducted at sunset should begin 1 1/4 hours before sunset and continue until 45 minutes after sunset.

An observer should be assigned to each listening station for the duration of each survey. Observers should locate key marsh landmarks or features on a map in relation to teach listening station location.

All rail vocalizations should be recorded, noting the call type, location, and time on a detailed map of the marsh. The call types are coded as C = clapper, D = duet, K = kek, B=kek-burr with a V representing a visual sighting. Other unusual calls also should be noted. The calls of one bird or pair should be marked by circling the calls together. If a rail is moving during the survey, several locations may be noted for the same bird(s). Attention should be focused on accurately mapping the birds that are nearby, especially between observers or towards the edge of the marsh if the station is positioned at the marsh's edge.

At the end of each survey, observers should compare maps to determine overlap in detections and to create a master map showing all pairs and individuals located during the survey. Another master map should be developed once all surveys are completed, showing the dates and locations of detections.

Weather information, including wind velocities and direction, should be recorded. Call count surveys should not be conducted when wind velocities exceed 10 mph or wind gusts exceed 12 mph, or during moderate to heavy rains. Information on disturbances (e.g., dogs or cats in marsh and aircraft flyovers) occurring during the surveys should be recorded.

If a survey of a marsh is conducted over more than one night, observers should be assigned to stations adjacent to their previous night's station if at all possible.

New observers should be trained by an experienced observer. Trainees should familiarize themselves with various calls and with estimating distances to calls before training in the field. In-field training should include ways to minimize disturbance to rails and marsh vegetation. Trainees should be stationed with an experienced observer during a call count for a minimum of 2 nights to assess the trainee's ability to accurately detect and map calls in the field. The Palo Alto Baylands is a marsh with many rails typically calling in the evening and easy access via a boardwalk, thus providing an excellent training opportunity for new observers and their instructors. A recording of clapper rail calls is available for training purposes at the U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, 2800 Cottage Way, Suite W2605, Sacramento, California 95825.

LETTER 40: Jules Evens, Principal, Avocet Research Associates, May 5, 2009

RESPONSE 40-1: Opinion regarding the extent to which the DEIR evaluation of potential Project-related effects on biological resources utilizes the "precautionary principle" is noted. Where the Monk & Associates evaluation of the Project site within the context of the proposed Project has indicated that there is even the potential for significant adverse Project-related effects on biological resources (consistent with the basic concept of the "precautionary principle"), these have been identified as potentially significant impacts in the DEIR and appropriate, feasible mitigation measures have been identified to reduce such potential impacts to a level of less than significant

The proposed Project will not involve any *Spartina* control activities or any direct impacts to marsh habitats. Thus it is unclear how the proposed Project should apply the suggested *Spartina* control measures ("…altering the location or timing of control activities subsequent to early detection of clapper rail presence in project areas."). Regardless, the commenter's message and intent regarding protection measures that can be implemented to protect the California Clapper Rail (*Rallus longirostris obsoletus*) have been fully considered by the proposed Project. In response to this comment, the text of **Mitigation Measure Bio-2d** has been modified to read as follows:

On DEIR pages 2-11 and 7-68, the text of the second and third paragraphs under **MM Bio-2d: California Clapper Rail and California Black Rail – Avoidance Measures** has been modified to read as follows:

> "Pile driving associated with the recreational facility building shall not commence until September 1st and shall be completed by February 1st. Outside of pile driving, exterior construction of the recreational facility shall be allowed between July 1st and February 1st without limitation. Interior work shall be allowed without timing limitations. Construction ~~of the recreational facility~~ shall not commence on the recreational facility Project ~~until~~ on July 1st until a qualified biologist determines that there are no nesting California Clapper Rails or California Black Rails within 200 feet of the Project construction envelope. In the event nesting rails are found within 200 feet of the Project site on or after July 1st, construction shall be delayed until the nesting attempt is completed and the nest is abandoned or a qualified biologist determines that the nesting would not be adversely affected by commencement of the project. If California Clapper Rails or California Black Rails are determined to be nesting between 200 feet and 500 feet from the Project construction envelope on July 1st, the Project may proceed if a qualified biologist determines that the nesting rails would not be affected by the proposed construction activities. Under all circumstances any nest identified within 500 feet of the Project construction envelope would be monitored by a qualified biologist while construction activities were in progress. The monitoring biologist would have the right to shut down any and all construction activities immediately in the event that such activities were determined

to be disturbing the nesting attempt. Nests greater than 500 feet away would not require biologist monitoring ~~when the rails can be expected, in most cases, to have fledged young. Construction of the recreational facility could extend into October, with interior work allowed throughout the year~~.

To account for California clapper rails or black rails, and other special-status birds, that ~~likely~~ occur and nest in the marsh habitats along the creek in the immediate area of the bridge, all work associated with the new bridge, including the demolition of existing bridge deck, installation of the new deck, and other bridge improvements, shall be restricted to August 1 to October 15. The bridge pile-driving dates shall be further restricted to September 1 and October 15 when potentially occurring anadromous fish would not be expected to occur in the channel. This "avoidance window" is outside of the California clapper rail, California black rail, and other special-status birds breeding seasons, thereby eliminating the potential that bridge reconstruction activities would disrupt breeding attempts. This mitigation measure provides conservation measures that are consistent with the ISP Best Management Practices."

RESPONSE 40-2: The information provided in the "Biological Resources" chapter of the DEIR is based upon the *Biological Resources Analysis* report prepared by Monk & Associates. The DEIR and the supporting biology report were prepared in March 2009 and April 2008, respectively. The California clapper rail distribution data from ARA's more recent surveys conducted in January through March of 2009 was not available for inclusion in the 2009 DEIR or the supporting 2008 biology report. Monk & Associates acknowledges that ARA's more recent surveys (ARA 2009) provide valuable additional information regarding the distribution of clapper rails in the North Fork of Gallinas Creek. Regardless, the new distributional data are not cause for Monk & Associates to revise the California clapper rail impact analysis or the proposed mitigation and avoidance measures presented in the DEIR. Monk & Associates believes that there is no new information in the ARA 2009 report that would require Monk & Associates to modify their conclusions with respect to the significance of impacts to the California clapper rail pursuant to the California Environmental Quality Act (CEQA), nor would the information provided in the ARA 2009 report necessitate modification of the proposed mitigation/avoidance measures for the California clapper rail presented in the DEIR.

Monk & Associates' proposed California clapper rail study design and the surveys that followed were in accordance with the study design that was approved by the U.S. Fish and Wildlife Service (USFWS). In fact, the USFWS took an active role is determining where biologists should be posted in the study area to document California clapper rails in the vicinity of the proposed Project. The field surveys were conducted following guidelines in the 2000 USFWS *Draft Survey Protocol for California Clapper Rail*. In accordance with this survey protocol, Monk & Associates conducted protocol call count surveys once a week for five weeks. Protocol surveys were conducted on February 5, February 14, February 20,

March 5, and March 15, 2007. In addition to the required protocol surveys, two follow-up surveys were conducted by Mr. Monk and Ms. Anderson on May 2 and July 2, 2007 in order to better determine exact nesting locations and determine nesting success. Hence, the survey effort and the dates of the 2007 field surveys were consistent with the USFWS requirements.

RESPONSE 40-3: The DEIR documents the results of the 2007 protocol survey conducted by M&A for the California clapper rail in the marsh habitats near the San Rafael Airport Recreation Facility Project site. The DEIR states that in 2007 two nesting territories were identified near the Project site. The DEIR (page 7-39) reports "that the activity of these two pairs of clapper rails were mostly confined or centered on two areas on the north bank of the North Fork of Gallinas Creek on the opposite side of the creek from the Project site. While there is far greater human activity on the north side of the creek relative to the south side of the creek facing the Project site, the rails likely selected these areas for nesting because the band of marsh habitat on the north side of the creek at the two locations is uncharacteristically wide, approximately 100 feet in width." These statements do not necessarily imply that California clapper rails are not using other areas or that other areas are of less importance to their reproductive success than areas where nesting activities were observed or inferred. Rather, Monk & Associates only provided a possible explanation for the clapper rail likely nesting distribution observed during the 2007 survey. ***Please note that the presence of California clapper rail near the Project site in the North Fork of Gallinas Creek is not disputed in the DEIR.*** Similarly, the DEIR makes no assumptions regarding clapper rail distribution in this creek in future years and provides equal protection for the Gallinas Creek channel adjacent to the Project site without bias for the observed likely nesting areas reported in the DEIR. An exception occurs where proposed bridge modification would occur, but this exception has nothing to do nesting distributional data.

RESPONSE 40-4: **Figure 7-5** in the DEIR (page 7-57) displays where clapper rails were observed or heard during the 2007 protocol survey, and indicates the most likely territory areas (home ranges) of these nesting pairs. The DEIR states that the activity of these two pairs of clapper rails were mostly confined or centered on two areas on the north bank of the North Fork of Gallinas Creek on the opposite side of the creek from the Project site. While the DEIR also states that "the rails likely selected these areas for nesting;" Monk & Associates recognizes that the rail activity recorded/observed in these areas indicates locations within the adult rail's territory or home range, but does not necessarily indicate the exact nest locations. The amount and extent of rail activity in relatively focused areas during the nesting season is what led Monk & Associates to conclude that there were two likely nesting areas on the north bank of the North Fork of Gallinas Creek. See **REVISED Figure 7-5**, in the Revisions section of this FEIR, which shows the approximate locations of ARA 2009 clapper rail detections superimposed over the original **Figure 7-5**.

RESPONSE 40-5: No inference was made in the DEIR that the south bank of Gallinas Creek was unsuitable for use by California clapper rails. In fact, **Figure 7-5** in the DEIR (page 7-57) clearly shows that Monk & Associates detected clapper rails along the south side of the

creek near listening Station 3. The DEIR states that "the activity of these two pairs of clapper rails were mostly confined or centered on two areas on the north bank of the North Fork of Gallinas Creek on the opposite side of the creek from the Project site," as shown in **Figure 7-5**. This simply reflects Monk & Associates observations.

The DEIR states that the band of marsh habitat on the north side of the creek at the two locations where most of the activity was detected is wider than the band of marsh habitat along the south side of the creek, but the DEIR does not state that the north bank is more suitable habitat. Rather, the DEIR states that "there is far greater human activity on the north side of the creek relative to the south side of the creek facing the Project site." The presence of clapper rails on the north side of the creek would seem to indicate that clapper rails are not affected by this level of disturbance. Monk & Associates made the assumption that the clapper rails did not appear to be affected by this level of disturbance because the band of marsh vegetation is wider that these locations. An alternative explanation is that clapper rails present in the marsh habitats along the North Fork of Gallinas Creek are habituated to high levels of human disturbance.

RESPONSE 40-6: The continued presence of California clapper rail near the Project site in the North Fork of Gallinas Creek is not disputed in the DEIR. In analyzing the California clapper rail distributional data provided in ARA's 2009 report, Monk & Associates found that there is relative consistency between ARA's 2009 distributional data and Monk & Associates' 2007 distributional data. The presence of California clapper rail on both sides of the creek, as shown on Figure 1 of the 2009 protocol survey report prepared by ARA, is consistent with the clapper rail distribution data presented in **Figure 7-5** in the DEIR (page 7-57) that shows where Monk & Associates detected clapper rails in 2007.

RESPONSE 40-7: In response to this comment, the text of the third paragraph on DEIR page 7-39 has been modified to read as follows:

> "M&A biologists Mr. Monk and Ms. Anderson met with ~~D~~Mr. Jules Evens from Avocet Research Associates on April 10, 2007 to discuss his clapper rail findings in the area and to compare survey results. ~~D~~Mr. Evens has conducted clapper rail surveys throughout the Gallinas Creek watershed for several years and had previously identified two nesting territories near the project area. Monk & Associates survey findings and locations of California clapper rail activity were consistent with data obtained by Avocet Research Associates. ~~D~~Mr. Evens confirmed that the rails are restricted to the "tidal prism" area of the channel. Furthermore, after noting the consistency of M&A's data with that of Avocet Research Associates' data, ~~D~~Mr. Evens was confident that all clapper rails in the area have been detected. ~~D~~Mr. Evens further stated that clapper rails that live in areas with heavy disturbances (similar to the conditions surrounding the Project site) tend to become more habituated and less elusive, such as the Clapper rails are in the vicinity of the Project site."

RESPONSE 40-8: Monk & Associates agrees with Mr. Evan's statements related to California clapper rail habitat not being "confined" to the tidal prism of the creek. These statements do not provide significant new information not considered in the DEIR, nor are changes to the impacts and/or mitigation sections of the DEIR warranted. The DEIR (page 7-39) states that "all clapper rails observations were confined to the tidally influenced portion of the marsh along the North Fork of Gallinas Creek. At no time during the surveys were clapper rails ever observed on the levee along the channel nor did they ever venture onto the proposed Project site area." Monk & Associates recognizes that clapper rails must occasionally seek refuge in the uplands immediately adjacent to the channel, but it is unlikely that a clapper rail would venture beyond the top of the levee or to the outboard side of the levee onto the proposed Project site owing to the absence of marsh vegetation, foraging and escape habitat beyond the top of the levee (this area is frequently mowed – outboard of the levee the area is routinely mowed for fire suppression). Regardless, a 100+-foot development set-back area (creek buffer zone) will be preserved along this channel to provide the California clapper rail (and California black rail) with an important buffer zone adjacent to the channel. It should be noted that the proposed buffer between the Project site envelope and the top of the levee varies between 130 feet to over 250 feet.

The commenter, in multiple instances in his comment letter, states that no single year of survey data provides a complete picture of the distribution of California clapper rails. Monk & Associates fully acknowledges the accuracy of this conclusion, and Monk & Associates was gratified that the 2009 survey data provided by ARA are not in conflict with the findings presented by Monk & Associates in the DEIR. Based on the California clapper rail distributional data provided in ARA's 2009 report (Figure 1) there is no evidence that clapper rails are using any habitats on the outboard side of the levee or any habitats on the Project site.

Finally, Monk & Associates would like to point to the fact that the movies provided by Mr. John Parulis show clapper rails in the North Fork of Gallinas Creek using the tidally influenced portion of this creek, not the adjacent uplands. This corroborates all survey information available to Monk & Associates that provides overwhelming evidence that California clapper rail distribution in the vicinity of the Project site is typically restricted to areas dominated by marsh vegetation. Other studies of other closely related rails species, while not completely germane, are nonetheless helpful in shedding light on where rails spend their time. A close niche equivalent to the California clapper rail that lives in southern California is the light-footed clapper rail (*Rallus longirostris levipes*). The light-footed clapper rail has been studied to an extent that its distribution within the marsh system is well understood. Telemetry data of light-footed clapper rail distribution found that they spend $\geq$90% of a day in cordgrass (*Spartina foliosa*), and used the upland fringe at the edge of the marsh for roosting during the highest tides (Zembal et. al. 1989)[10]. Monk & Associates

[10] Richard Zembal, Barbara W. Massey, and Jack M. Fancher 1989. The Journal of Wildlife Management, Vo.

understands that this comparison may or may not be reflective of California clapper rail distribution, but believes it is likely that such distributional data are reflective of California clapper rail use of marshes. In conclusion, Monk & Associates believes that California clapper rails will seek refuge in uplands, but typically those uplands located immediately adjacent to their preferred marsh habitats. Monk & Associates also believes that under all circumstances the buffers proposed between the proposed Project envelope and the marsh habitats associated North Fork of Gallinas Creek will protect all occupied California clapper rail habitat adjacent to the Project site.

RESPONSE 40-9: The presence of California clapper rail along this creek, as shown on Figure 1 of the 2009 protocol survey report prepared by ARA, is remarkably consistent with the clapper rail distribution data shown on **Figure 7-5** in the DEIR (page 7-57) that shows the clapper rail detections near the Project site in 2007. The DEIR makes no assumptions regarding clapper rail distribution in this creek in future years. ***Please note that the presence of California Clapper Rail near the Project site in the North Fork of Gallinas Creek is not disputed in the DEIR.***

RESPONSE 40-10: The multiple protocol surveys conducted along Gallinas Creek indicate that clapper rails have established territories during the nesting season, which suggests that they are successfully nesting and reproducing in the marsh habitats along this creek. The DEIR describes the high level of disturbance associated with all sides of the two branches of Gallinas Creek in the vicinity of the Project site. Immediately to the north of the North Fork of Gallinas Creek is the County of Marin John F. McInnis Park and Golf Center that includes a restaurant and parking areas, a golf course and driving range, mini golf, batting cages, and two athletic fields. In addition, there is a pedestrian trail along the northern bank of the North Fork of Gallinas Creek, across the creek channel from the Project site area. The pedestrian trail is heavily used by pedestrians with dogs that also use the designated "off-leash" dog park associated with the John F. McInnis Park. Finally, the Mt. Tam Picnic Area is located immediately adjacent to the marsh vegetation along the northern bank of the North Fork of Gallinas Creek, and the McInnis Park Wetland Preserve includes a wildlife viewing dock that extends into the channel from the northern bank of the North Fork of Gallinas Creek. The land uses surrounding the Project site are shown on **FEIR Sheet 1** (page C&R-21, above).

Hence, for clapper rails to persist in this area over at least several years of study, and to be repeatedly detected during the nesting season, one could infer logically that this rail must be successfully reproducing. In fact, the increased California clapper rail counts reported by ARA (2009) likely indicate these rails are doing well. Owing the high levels of ambient human activity in the immediate vicinity of the Project site, one could also logically assume that the clapper rails that are there are accustomed to this relatively high level of human and human related disturbances in this area. Survey data indicate that they likely nest adjacent to

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a pedestrian walking path with frequent human/dog traffic. M&A made the assumption that the clapper rails did not appear to be affected by this level of disturbance because the band of marsh vegetation is approximately 100 feet wide on the northern bank. An alternative explanation is that clapper rails that inhabit the marsh habitats of the North Fork of Gallinas Creek near the Project site are habituated to the presence of humans and other human related noise disturbances. Wildlife, and birds in particular, are able to habituate to human beings and associated disturbances, especially when the stimuli is predictable (routine or repeated sounds) and when the disturbances that are "non-threatening" (*i.e.* not directed toward the bird), as illustrated by Knight and Temple 1995[11] , Knight and Cole 1995[12] , and Riffell et. al. 1996[13].

RESPONSE 40-11: As shown on the Project site plan (**FEIR Appendix A**), the proposed Project will not result in any direct impacts to marsh habitats along the North Fork of Gallinas Creek (*i.e.* the Project does not encroach into the marsh or result in any direct modification of the marsh habitats). Thus, there will be no Project-related impacts to marsh habitats along Gallinas Creek.

RESPONSE 40-12: It is important to note that the 700-foot buffer would apply to large marsh areas where clapper rails could have a home range equivalent to a circle with a 450-foot radius. The marshes studied as part of the Albertson 1995 Masters Thesis were large marsh complexes supporting numerous clapper rails. According to Albertson (1995), clapper rails adjust their home ranges commensurate with marsh area so that the entirety of their home range is solely contained within marsh, away from any upland habitat.

Clearly at this location along the North Fork of Gallinas Creek near the Project site, a home range equivalent to a circle with a 450-foot radius is not possible given the narrow width of this channel. The confined channel width (including the bands of marsh vegetation on either side) varies between 120 feet and 200 feet at this location. Clapper rails would not be able to venture 200 feet beyond the edge of this channel without wandering onto active soccer and baseball fields, a golf course, or the parking lot for the John F. McInnis Park and Golf Center.

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[11] Knight and Temple 1995. Chapter 6: Origins of wildlife responses of recreationists, Wildlife and Recreationists: Coexistence Through Management and Research. Editors: Richard L. Knight and Kevin J. Gutziller, Island Press, 1995 Washington, D.C.

[12] Knight and Cole 1995. Chapter 5: Factors that influence wildlife responses to recreationists, Wildlife and Recreationists: Coexistence Through Management and Research. Editors: Richard L. Knight and Kevin J. Gutziller, Island Press, 1995 Washington, D.C.

[13] Samuel K. Riffell, Kevin J. Gutzwiller, Stanley H. Anderson. 1996. Ecological Applications Vol 6, No. 2 (May 1996). Pp 492-505

As noted above, the 250-foot set back is site-specific and may be reduced if topographic features or sound barriers attenuate the potential noise impacts. The DEIR points out that the existing levee, which is situated between the marsh habitat and the Project development envelope, will provide an additional buffering effect. Clapper rail nests would be located well below the levee elevation (and below the Project site elevation) down in the creek channel zone. Thus the noise from the Project site would be somewhat buffered or attenuated by the levee. The levee would certainly provide a visual buffer from Project-related disturbance, particularly since the 100+-foot creek protection buffer zone will be maintained between all construction activities of the recreational facility and the top-of-levee along the North Fork of Gallinas Creek. The proposed Project buffer between the Project site development envelope and the top of the levee varies between 130 feet and over 250 feet. Therefore, an appropriate buffer zone would be in place to protect California clapper rails from undue disturbance.

The existing high level of disturbance associated with activities at the John F. McInnis Park and Golf Center immediately adjacent to occupied habitat does not appear to disturb the resident clapper rails. The buffer zones established by the USFWS were based upon a study in a very large marsh that provides insulation between California clapper rails and human activity. Thus the recommended buffers would are not germane to the proposed Project, rather are appropriate for projects adjacent to undisturbed, large marsh habitats.

RESPONSE 40-13: The Project site envelope and the location of the proposed structures on the Project site were carefully selected to minimize impacts to the extent possible and to allow for the greatest buffer between the proposed structure and the marsh habitats, as shown on the Project site plan (**FEIR Appendix A**). However, it is important to note that an airport runway is located immediately to the south of the Project site, constraining any ability to move the Project site further south away from the North Fork of Gallinas Creek. The alternatives analysis provided in **Chapter 16** of DEIR discusses the alternatives considered for this Project, including a discussion of 14 alternative locations in Marin County that were considered prior to submission of the development application for this Project. (DEIR pages 16-25 and 16-26).

RESPONSE 40-14: Information that California black rails were detected in 2009 approximately ½ mile up and ½ mile downstream of the Project site does not merit any changes to the conclusions or mitigations/avoidance measures prescribed for potential California black rail impacts in the DEIR. The information provided in the "Biological Resources" chapter of the *Draft Environmental Impact Report for San Rafael Airport Recreational Facility* is based upon the *Biological Resources Analysis* report prepared by Monk & Associates. Since the DEIR and the supporting biology report were prepared in March 2009 and April 2008, respectively, the California black rail distribution data from ARA's more recent surveys conducted in January through March of 2009 were not available for inclusion in the DEIR or the supporting biology report.

The DEIR and the supporting biology report discuss the closest known CNDDB records for California black rails (CNDDB Occurrence No. 104 and 84) (CDFG Natural Diversity Database, RareFind 3.1 application, CNDDB 2007). Regardless, the DEIR states (page 7-41) that "this rail could occasionally migrate along the North Fork of Gallinas Creek corridor… Mitigation measures are still warranted; however, to ensure that the proposed Project does not result in indirect impacts to this rail species." Thus, presence of California black rail near the Project site in Gallinas Creek is not disputed in the DEIR.

RESPONSE 40-15: **REVISED DEIR Figure 7-5** shows the accurate distances between the proposed Project and the 2009 clapper rail detections, based on Figures 1 and 2 of the 2009 protocol survey report prepared by ARA. The proposed buffer between the Project site development envelope and the top of the levee (edge of occupied habitat) varies between 130 feet and over 250 feet.

RESPONSE 40-16: Correction noted. Given the fact that the marsh is approximately 100 feet wide at this location, the nest site would need to be in the vicinity. As noted above, the rail activity recorded/observed in these areas indicates locations within the adult rail's territory or home range, but does not necessarily indicate the exact nest locations. In response to this comment, the following (*third*) sentence is deleted from the first complete paragraph on DEIR page 7-64:

> "~~The nest sites were situated in areas where there is a significantly wider band of tidal marsh vegetation.~~"

RESPONSE 40-17: The DEIR does not state that California clapper rails do not use the south side of the creek. In fact, **Figure 7-5** in the DEIR (page 7-57) clearly shows that Monk & Associates detected clapper rails along the south side of the creek near listening Station 3. The DEIR states that "the activity of these two pairs of clapper rails were mostly confined or centered on two areas on the north bank of the North Fork of Gallinas Creek on the opposite side of the creek from the Project site," as shown in **Figure 7-5**. **REVISED DEIR Figure 7-5** shows the locations of ARA's 2009 detections relative to the proposed Project. The information provided by the ARA 2009 survey is generally consistent with the information present by Monk & Associates in the DEIR. This information does not merit any changes to the conclusions or mitigations/avoidance measures prescribed for potential California clapper rail impacts in the DEIR.

RESPONSE 40-18: Figure 1 of the 2009 protocol survey report prepared by ARA indicates the locations of clapper rail detections. Based on this map, it does not appear that any clapper rails were detected by ARA in the adjacent uplands during the 2009 survey. Furthermore, the 2009 protocol survey report prepared by ARA does not mention that any clapper rails were detected in the adjacent uplands, rather it states that the rails were detected in the broad marshlands of Gallinas Creek. Regardless, even if there are interpretational errors derived from the "graphic representations" in the 2009 ARA report (which Monk & Associates

believes it is interpreting correctly), the protective buffers established between the North Fork of Gallinas Creek and the Project site development envelop are easily large enough to provide necessary protections to the California clapper rail.

RESPONSE 40-19: This comment is correct. DEIR **Figure 7-4** (page 7-55) does not show the Project Site Plan. In response to this comment, the text of the second sentence in the third complete paragraph on DEIR page 7-64 has been modified to read as follows:

> "The distance between the proposed recreational facility, including the building and the outdoor fields, and the top of the levee along the North Fork of Gallinas Creek will be 100 feet or greater, as shown on the Project site plan (see **Figure 7-5~~7-4~~4**)."

As noted on **REVISED DEIR Figure 7-5**, the distance between the top of the levee and the project envelope varies between 130 feet and over 250 feet. This distance was measured using ArcMap and an aerial photograph registered in the State Plain. This is a far more accurate means of measuring distance than using Google Earth superimposed over the Project map. **FEIR Appendix A** also shows the proposed Project elements and the surrounding land features.

RESPONSE 40-20: Monk & Associates recognizes that clapper rails must occasionally seek refuge in the uplands immediately adjacent to the channel, but it is unlikely that a clapper rail would ever venture beyond the top of the levee or onto the proposed Project site area due to the absence of suitable habitat (no dense marsh vegetation, foraging habitat or escape habitat) and the absence of sufficient cover beyond the top of the levee (this area is frequently mowed for fire suppression). One of the key protection goals of the buffers would be to protect nesting California clapper rails. Any flooding event that forced California clapper rails to the top of levee would typically occur (if at all) in the winter months when California clapper rails are not expected to be nesting. Even if there was an episodic flooding event that drove California clapper rails to the top of the levee in the nesting season, the nesting attempt would be wiped out by this same flooding since the rails can be expected to nest in the marsh habitat inboard of the levee.

As noted above, the 250-foot set back is site specific and may be reduced if topographic features or sound barriers attenuate the potential noise impacts. The DEIR points out that the existing levee, which is situated between the marsh habitat and the Project development envelope, will provide an additional buffering effect. Clapper rail nests would be located well below the levee elevation (and below the Project site elevation) down in the creek channel zone. Thus the noise from the Project site would be somewhat buffered or attenuated by the physical barrier provided by the levee. The levee would certainly provide a visual buffer from Project-related disturbance, particularly since the 100+-foot creek protection buffer zone will be maintained between all construction activities of the recreational facility and the top-of-levee along the North Fork of Gallinas Creek. The proposed buffer between the Project site envelope and the top of the levee varies between 130 feet and over 250 feet.

Therefore, an appropriate buffer zone would be in place to protect California clapper rails from disturbance.

RESPONSE 40-21: This comment is consistent with the DEIR **Mitigation Measure Bio-2d** (as modified – see **RESPONSE 40-1**, above) that details the timing of the Project activities designed to minimize impacts to California clapper rail known to occur in the Project area. According to Albertson (1995), "April and May are the peak nesting months for California clapper rails, with hatching beginning in mid-to-late April and continuing through early June." This statement is consistent with the findings of the M&A protocol clapper rail survey in 2007.

RESPONSE 40-22: As noted above, the multiple surveys conducted along Gallinas Creek indicate that clapper rails establish nesting territories during the nesting season and thus likely successfully nest and reproduce in the marsh habitats along this creek. The DEIR describes the high level of disturbance associated with all sides of the two branches of Gallinas Creek in the vicinity of the Project site (see **FEIR Sheet 1** on page C&R-21 above). Hence, for clapper rails to persist in this area they must be successfully reproducing, and thus one must assume that the clapper rails have become accustomed to heavy human disturbances in this area. Survey data indicates that they nest adjacent to a pedestrian walking path with frequent dog traffic, and adjacent to a golf course and two active athletic fields. Please note that the protective buffers established between the top of the levee along the south bank of the North Fork of Gallinas Creek and the Project development envelope (between 130 feet and over 250 feet) far exceed the distance between the pedestrian pathway on the north side of the creek and the marsh habitat. This pathway is virtually at the top-of-bank of this creek, and yet the California clapper rails not only use the north side of the creek, but likely nest on the north side of the creek. Disturbance on the Project development envelope will remain at a minimum 130 feet away from the top-of-bank of the south bank of this creek.

RESPONSE 40-23: Monk & Associates believes that the construction timeframes prescribed for the proposed Project will protect nesting California clapper rails. It should be noted that after Monk & Associates completed the California clapper rail distributional study, Monk & Associates conducted follow-up California clapper rail surveys on May 2, 2007 in an attempt to more accurately determine where clapper rails were nesting along the North Fork of Gallinas Creek adjacent to the Project site, and again on July 2, 2007 to determine if young of the year were visible and to further assess nesting success. Based on those surveys, Monk & Associates believes that young were well fledged by the July 2nd survey date.

The DEIR provides some biological reasoning for the proposed July 1 construction start date for the recreational facility. By July 1 most young rails can be expected, in most cases, to have fledged. While not typical, there are cases where rails may lose their first clutch of eggs and can then successfully recycle (*i.e.* lay a second clutch of eggs), thereby delaying completion of the nesting cycle by up to a month. Regardless, even with this delay,

commencement of construction of the recreational facility in July would be at a time when the recycle attempt is far enough along to ensure that the adult level of commitment to completing the nesting cycle is firmly established. One should keep in mind that California clapper rails hatch "precocial young" or young that are born with eyes open, that are alert, and that run after their parents shortly after hatching. Precocial young feed themselves almost immediately. Precocial young are also called nidifuge young, or nest fugitives since they leave their nest sites almost immediately after hatching. While some California clapper rail young will follow their parents for up to several weeks, regardless such mobile birds are able to move from disturbance. In consideration of normal and expected reproductive cycles, and even in instances where adults may recycle, Monk & Associates believes that the proposed July 1 construction start date for the recreational facility will protect nesting California clapper rails from adverse affects.

See DEIR **Mitigation Measure Bio-2d** (as modified – see **RESPONSE 40-1**, above) that details the timing of the Project activities designed to minimize impacts to California clapper rail known to occur in the Project area.

RESPONSE 40-24: DEIR **Mitigation Measure Bio-2d** (as modified – see **RESPONSE 40-1**, above) details the timing of the Project activities designed to minimize impacts to California clapper rail, particularly the high decibel noises associated with the pile driving.

Noise abatement measures during construction of the recreational facility shall include restricting construction to the daylight hours. Consequently, noise from the Project construction will not disrupt nocturnal wildlife species' activity patterns. Daytime high decibel construction noise will be buffered by distance from habitat occupied by rails, topography, existing noise and human activity adjacent to areas occupied by rails, and the established noise abatement zone along the North Fork of Gallinas Creek. Finally, four-foot black mesh exclusion fencing shall be installed along the outside edge of the creek buffer zone (100+ feet from the North Fork of Gallinas Creek) to prevent sensitive species, such as clapper rails and black rails, from entering the work areas (during construction). The exact location of this fence shall be determined by a qualified biologist. The fence shall be installed prior to the time any site grading or other construction-related activities are implemented. The fence shall remain in place during site grading or other construction-related activities.

This mitigation measure provides conservation measures that ensure the protection of the California clapper rail.

RESPONSE 40-25: **FEIR Sheet 1** (page C&R-21, above) shows that there are existing active outdoor soccer and baseball fields on the northern side of the North Fork of Gallinas Creek, immediately adjacent to the marsh habitats, with no buffer area provided. The daily activities on these athletic fields do not appear to disturb or disrupt California clapper rail reproductive efforts. In addition, it is important to note that the driving range at the John F. McInnis Park

and Golf Center has existing nighttime lighting immediately next to the North Fork of Gallinas Creek.

The potential light and glare impacts of the Project on the surrounding community are analyzed in **Chapter 5:** ***Aesthetics***, of the DEIR. **Chapter 5** notes that the Project Applicant proposes a state-of-the-art, environmentally friendly lighting system designed by Musco Lighting that uses 50 percent less electricity and produces 50 percent less spill and glare than traditional fixtures. This will keep light impacts to the Gallinas Creek channel minimized to an extent that the impact is not considered significant. **Mitigation Measure Bio-3a** and **Mitigation Measure Bio-3b** will be implemented as part of the proposed Project to minimize lighting impacts, to protect the habitats associated with the North Fork of Gallinas Creek.

On DEIR pages 2-13 and 7-70, the text of **MM Bio-3b: Lighting Curfew** has been modified to read as follows:

> "The recreational facility shall set a 10:00 p.m. outdoor event lighting restriction. While safety lighting allowing visitors to safely leave the site may be illuminated as late as 12:30 p.m., all outdoor field lighting shall be terminated no later than 10:00 p.m. When there are evening outdoor soccer events, the 10:00 p.m. end time will ensure that light generated from use of the recreational facility's outdoor fields will not disrupt nocturnal wildlife species' activity patterns, allowing nocturnal migration movements through the project area after that time."

Implementation of **MM Bio-3a** and **MM Bio-3b** will reduce potential nocturnal lighting impacts to a level considered ***less than significant*** pursuant to CEQA. The 100-foot creek setback/buffer will further reduce this potential impact. Therefore, implementing the mitigation measures above, nocturnal lighting impacts to off-site areas, such as the North Fork of Gallinas Creek, are considered to have been reduced to the greatest extent possible, and are not expected to have a significant impact on wildlife species in the Project vicinity.

Implementation of **Mitigation Measure Bio-2a** (as revised) will prevent intrusion into California clapper rail habitat by errant soccer balls through requiring installation of the ten-foot tall protective fence called for in the DEIR.

Implementation of **MM Bio-2a** will reduce potential intrusion impacts to the marsh habitats to a level considered ***less than significant*** pursuant to CEQA. The 100-foot creek setback/buffer will further reduce this potential impact.

RESPONSE 40-26: It is important to note that the Best Management Practices detailed in the 2003 Invasive Spartina Project (ISP) Draft Programmatic Environmental Impact Statement/Environmental Impact Report are for a completely different project which had direct impacts to marsh habitats that support California clapper rail. The proposed Project will not result in any direct impacts to marsh habitats that support California clapper rail.

RESPONSE 40-27: The conclusions of this comment letter have been addressed by the RESPONSES to comments in LETTER 40 provided above.

Kriegs

LETTER 41

Chris & Marilyn Fries
613 Vendola Drive
San Rafael, CA 94903

RECEIVED

MAY - 6 2009

COMMUNITY DEVELOPMENT
CITY OF SAN RAFAEL

City of San Rafael
1400 Fifth Avenue 3rd Floor
San Rafael, CA 94901

Dear Planning Commissioners:

As Santa Venetia residents, we have concerns about the Proposed Soccer Complex located directly behind our house. One of the most valuable benefits of living in this area is the enjoyment of the surrounding wildlife. The DEIR states that the wildlife will not suffer major consequences from this project. We don't know how that is possible. Clapper rails nest, feed and thrive in the marshlands throughout this area and do not exclude the proposed site as suggested in the report. We have pictures showing the clapper rails with the story poles in the background. There are also river otters that frequent the creek. The clapper rails and the otters are very shy creatures that will evade the noise, light and drainage pollution from such a project dislocating them from their habitat. Numerous birds will also be affected depleting the wildlife this area was meant to protect. **41-1**

The original zoning agreement intended to keep this area designated for small aircraft and "LIGHT" recreational use. The plans have slowly changed allowing more development. Now we find ourselves with the prospect of a "Commercial" Private Recreational Project in a wetland area?? **41-2**

The report also speculates that the soccer revenue derived from this project may not be adequate to sustain financial success leaving room for the possibility of another commercial endeavor? Have studies been conducted to find out the actual need for such a facility in this area and if so are there financial documents supporting financial sustainability??? Are there proposed reductions in membership for those less affluent or is this complex a way to segregate the affluent leaving the lower income households to use McInnis Park?? What are the proposed membership dues? **41-3**

We do not oppose additional recreational sites for Marin residents but this site is not appropriate.

Please keep this wetland area free of development and protect the existing wildlife for recreational bird watchers, kayakers and hikers to enjoy as it was meant to be. **41-4**

Sincerely,

Chris & Marilyn Fries

LETTER 41: Chris & Marilyn Fries, May 6, 2009

RESPONSE 41-1: The presence of California clapper rail near the Project site in the North Fork of Gallinas Creek is not disputed. The proposed buffer between the Project site development envelope and the top of the levee varies between 130 feet and over 250 feet. Therefore, an appropriate buffer zone would be in place to protect California clapper rails and other wildlife that use the North Fork of Gallinas Creek from harm.

Although the DEIR identifies potentially significant indirect Project-related impacts to wildlife near the Project site (including the California Clapper Rail and other birds), these impacts can be reduced to a level considered less than significant through the implementation of the identified mitigation measures (see DEIR pages 7-59 through 7-81). Although the river otter is a protected furbearing mammal in California (it has been illegal to hunt them since 1961, although a number of other states permit hunting and trapping of river otters), it has not been designated as a special status species, and under the thresholds of significance used in the DEIR, any potential Project-related effects on this species would be considered less than significant.

The Project site has not been identified as a "wetland area". Although there are delineated jurisdictional wetlands at the Project site, no Project-related development would take place on any delineated jurisdictional wetlands. See DEIR pages 4-3 through 4-7 regarding previous planning approvals and the development history of the Project site, including the Declaration of Restrictions (see also MASTER RESPONSE PD-2, above, which addresses the Declaration of Restrictions). Opinion regarding the intention of previous zoning agreements is noted.

RESPONSE 41-2: Opinion regarding the intent of the original zoning agreement with respect to development at the airport site is noted. The DEIR analysis in Chapter 4 included review of the Declaration of Restrictions and San Rafael General Plan 2020 Airport/Recreation land use designation, and confirms the conclusion previously made by the City Planning Division and City Attorney's office that the proposed development would be consistent with the underlying land use designation and deed restriction. Thus, there would not be any potential environmental effect, which might otherwise occur if a change in land use designation type were being proposed. Although there are delineated jurisdictional wetlands at the Project site, no project-related development is proposed in any delineated jurisdictional wetlands.

RESPONSE 41-3: The DEIR evaluates the environmental effects associated with development of the Project site as proposed. Although the DEIR indicates that the Project Objectives defined by the Project Applicant include the objective that all field areas must be capable of hosting multiple field/court/rink sports such as soccer, hockey, basketball, lacrosse, etc. (DEIR page 3-10), and that the Project Applicant has requested the flexibility to replace soccer, dance and gymnastics with other recreational users over time (DEIR page 3-11), the DEIR evaluates effects associated with the use of the Project as currently proposed,

which would support soccer, dance and gymnastics at the Project site. As an environmental review document, the DEIR is tasked under CEQA with evaluating Project-related environmental effects, and it is beyond the scope of the DEIR to speculate on possible economic effects associated with the proposed Project. The DEIR does not speculate on whether or not soccer revenue at the Project site will be adequate to sustain financial success, and does not provide any evaluation of the "need" for such a recreational facility or the likelihood of such a facility being financially sustainable. The DEIR does not address the Project Applicant's plans for the fees schedule or membership dues which may be established if the Project is approved by the City.

RESPONSE 41-4: Opinions that the site is not appropriate for recreational uses, and that it should be kept free from development and protected for use by bird watchers, kayakers and hikers, are noted. As noted in RESPONSE 41-2, above, the site has already been designated for purposes of allowing recreational development. The Project site area proposed for development is not designated, restricted or proposed for permanent open space uses. It is worth noting that portions of the site are subject to additional setback standards established by the Wetland Overlay (–WO) district that apply to the site, and the Project complies with these requirements. Specific setbacks have been established from the adjacent North Fork of Gallinas Creek (118' min. proposed) and the wetlands (55' min. proposed) that have been identified on the site, as required under the –WO district standards. It is worth noting that the setbacks proposed by the Project exceed General Plan and zoning minimum required setback distances. See Project plan sheet A-1.

Wetland delineation of the Project site was conducted by WRA (Wetlands Research Associates) on September 7, 2005. The *Jurisdictional Area Delineation* report prepared by WRA was submitted to the U.S. Army Corps of Engineers (USACOE) for verification. The USACOE visited the site on October 26, 2006, and verified a jurisdictional map. DEIR **Figure 7-1** (page 7-27) shows that there are several wetland areas north of the portion of the Project site proposed for development. These areas are not within the area that was confirmed by the USACOE. Regardless, these wetlands will not be affected by the proposed Project, and, in fact, are protected within the 100+ foot buffers from the proposed Project facilities.

LETTER 42

May 6, 2009

Mr. Kraig Tambornini
Senior Planner
City of San Rafael, Community Development
P.O .Box 151560
San Rafael, CA 94915-1560
Email: kraig.tambornini@cityofsanrafael.org

RECEIVED

MAY 11 2009

COMMUNITY DEVELOPMENT
CITY OF SAN RAFAEL

Dear Mr. Tambornini:

I am a resident of Santa Venetia. I strongly oppose the proposed Airport Soccer Field Recreational facility currently under consideration by the City of San Rafael, and Evaluated in a Draft EIR. The project has multiple negative outcomes for our community, including: **42-1**

1. Loss of habitat value and restoration potential of historic diked Baylands and an increase in our coastal flood protection burden which opposes current and regional planning efforts; **42-2**

2. Increase of traffic and use of the airport property, creating increased noise, pollution, and the potential for other uses; **42-3**

3. Costly demands for facilities and infrastructure upgrades and maintenance which could outweigh positive revenue benefits and threaten project sustainability; and **42-4**

4. Direct opposition to the Deed Restriction. **42-5**

The diked bayland where the facility is slated to be built is surrounded by the North and South Forks of Gallinas Creek. The property is below sea level, protected by aging reclamation levees constructed of bay mud in the 1940's. According to City maps contained in the 20/20 General Plan/Conservation Element, the immediate area provides critical habitat for the endangered Clapper Rail (only about 1,000 remain) and other special status species.

The parcel is subject to tidal inundation, sea level rise, and very high shaking from earthquakes. Furthermore, the proposed facility and fields where children will be playing are adjacent to the airport runway.

The project will generate an astonishing 1,700 hundreds car trips per day. Initial feedback during the DEIR process indicates the facility will attract users from all over the Bay Area, increasing vehicle miles traveled (VMT).

The San Rafael Airport is deed restricted. In the 1980's, we - the communities of North San Rafael - were promised that the San Rafael Airport (then known as Smith Ranch Airport) would remain free of development in exchange for VERY high density development on the parcel to the west. The western parcel became the site of Embassy Suites, Autodesk, and Marin Lagoon.

It was understood that **no commercial activity would be allowed** on the Airport parcel. The deed restrictions allow for public and private recreation. Now, the City of San Rafael is stretching the definition of recreation to the point of the ridiculous in an effort to approve this facility. **It is my understanding that this is a commercial enterprise, not a public or City of San Rafael park or recreational facility.**

The City of San Rafael intends to change the zoning. But, in spite of numerous requests by both neighborhood groups and the County of Marin Open Space District - the City has so far declined to explain the implications of the zoning change. It's very likely that approval of the soccer facility will be growth inducing, opening up the entire San Rafael Airport parcel to further development.

The City is experiencing financial difficulties and cannot protect current assets. We are opposed to development on high hazard property that could cost taxpayers dearly to protect over the life of the project. **42-6**

For the reasons cited above, including deed restrictions, hazards from aviation, the threat to endangered and special status species, levee upgrades potentially costing tens of millions, the loss of restoration value, cost to the public, I strongly oppose allowing the San Rafael Airport Soccer Facility to be built. It is an inappropriate site for intense recreational use. **42-7**

Sincerely,

Lion Goodman
400 Upper Road
San Rafael, CA 94903

LETTER 42: Lion Goodman, May 6, 2009

RESPONSE 42-1: Opposition to the Project as proposed is noted. See responses provided below to the specific comments made on the DEIR.

RESPONSE 42-2: As indicated on DEIR page 7-2, the Project site has been and is currently being maintained specifically to discourage use of the site by wildlife, in the interests of aviation safety. The Project site does not provide habitat for any special status species. The Project Applicant has not proposed restoration of any historic diked wetlands at the Project site, and for this reason the environmental effects of such a restoration have not been evaluated in the DEIR. Opinion regarding the extent to which development of the Project site as proposed would add to the local flood protection burden and be inconsistent with regional planning efforts is noted. The Project would be required to maintain the existing stormwater runoff peak discharge rates into the Gallinas Creek, thus, would not result in an incremental increase in flood water volumes that could potentially impact properties located downstream from the site. Further, the Project would be designed to comply with FEMA standards for construction of commercial structures within the flood plain, and the Project Applicant and County of Marin, Flood Control and Water Conservation District staff would remain responsible for maintaining the levee system around the site, which currently protects the existing airport site improvements and the Contempo Marin residential area from flooding. Thus, the proposed Project would not add to the local flood protection burden. Lastly, the Project is consistent with the General Plan 2020 policies and Airport/Recreation land use designation as discussed in DEIR Chapter 4, and would not be inconsistent with any identified regional planning efforts.

RESPONSE 42-3: As indicated in the DEIR discussion of Project-related traffic (pages 13-20 through 13-27), the addition of Project-related traffic to the local roadway network would not result in any significant environmental impacts. Development of the Project site as proposed would result in increased use of the Project site, as it is currently vacant. Noise-impacts associated with development of the Project site as proposed are addressed on DEIR pages 12-13 through 12-26, and all potentially significant impacts identified can be reduced to a level of less than significant through implementation of the mitigation measures identified. Except temporarily during the construction period, development of the project site as proposed would not result in significant air pollution, and construction-related air pollution could be reduced to a level of less than significant through implementation of **Mitigation Measure AQ-1** (DEIR pages 6-14 through 6-22). The DEIR evaluates the environmental effects associated with the Project as proposed, and does not speculate on any additional development that may be proposed for the airport site at some undefined point in the future.

RESPONSE 42-4: Opinion regarding the need for costly infrastructure upgrades and maintenance to support the Project as proposed is noted. As the DEIR is tasked with the evaluation of environmental impacts under CEQA, it is beyond the scope of the DEIR to

evaluate the fiscal aspects associated with possible infrastructure costs and revenue benefits, or how they would relate to the Project's economic sustainability.

RESPONSE 42-5: See MASTER RESPONSE PD-2, above, which addresses issues related to the Declaration of Restrictions. With the levees in their current condition, the Project site is not subject to tidal inundation (as suggested in this comment). See MASTER RESPONSE HYD-4, above, which addresses Project related effects associated with an anticipated increase in sea level. As indicated on DEIR page 9-27, although the Project site is subject to seismic ground shaking, compliance with the California Building Code seismic safety standards is mandatory and would reduce potential impacts associated with seismic ground shaking to a level of less than significant. As shown on DEIR Figure 3-3 (page 3-23), no activity areas proposed at the Project site would be directly adjacent to the airport runway. Development of the Project site (which is currently vacant) would result in a net increase in vehicle miles traveled (VMT) within the local area, as indicated in this comment. An increase in VMT is not considered a significant environmental impact under the thresholds of significance used in preparing the DEIR. See MASTER RESPONSE GI-1, above, which addresses issues associated with Project-related growth inducement. Lastly, the Zoning Amendment to the existing Planned Development (PD1764) District would not have any implications city-wide because it is Project- and site-specific. The PD zoning amendment is required to implement the underlying *San Rafael General Plan 2020,* Airport/Recreation land use designation, which allows for private recreational uses to be considered. Thus, the implications of the PD zoning amendment have been clearly identified in the complete Project Description (DEIR Chapter 3). A summary of the proposed use has also been provided in MASTER RESPONSE PD-1, above, and another summary describing the entire existing and proposed uses at the airport site has been provided in RESPONSE 45-12, below.

It is also worth noting that the decision as to whether or not the City should grant the amendment to the PD, and grant a use permit and related entitlements to allow the Project to proceed as proposed would be determined by the City as part of the Project merits review, which would occur at a future public hearing after the Project EIR has been completed.

RESPONSE 42-6: Opposition to the proposed development of the Project site in light of the cost to the City of protecting current assets is noted. The City would not assume any responsibility for maintenance of the levee and drainage systems that protect the site. The owner has a significant investment in keeping these facilities maintained, and has discussed establishing a permanent maintenance program in cooperation with the County of Marin, which currently is responsible for maintenance of portions of this levee system and levees located elsewhere in the Gallinas Creek flood plain. See MASTER RESPONSES HYD-2, HYD-3 and HYD-4, above, which provided additional information regarding the efforts required to maintain the levee and ownership of the levee, depicted in **FEIR Figure 3**, above. As part of the Project merits review, the City would consider the Applicant's permanent and ongoing program for maintaining the levee and pump draining and flood protection systems.

RESPONSE 42-7: Strong opposition to the Project as proposed for the reasons stated, including the deed restrictions, aviation hazards, threat to endangered species, potential cost of levee upgrades, loss of restoration value, and cost to the public is noted. These general comments have been addressed in the detailed MASTER RESPONSES in Section E, above, and in corresponding RESPONSES to more specific comments made on these subjects that have been provided herein. Opinion that the proposed intensity of recreation development and use of the Project site is inappropriate is also noted. Comments on environmental factors that may be the precursor for this comment are considered to be addressed as noted in the responses provided above. The suitability of the use as proposed would also be addressed as part of Project merits review that will be considered by the City after completion of the EIR's analysis of environmental impacts.

Santa Venetia Neighborhood Association
P.O. BOX 4047, SAN RAFAEL, CALIFORNIA 94913-4047

May 6, 2009

RECEIVED
MAY 08 2009
PLANNING
11:17 am

Mr. Kraig Tambornini
Community Development Department
Planning Division
P.O. Box 151560
San Rafael, CA 9491

Via email and United States Mail

Dear Mr. Tambornini,

This letter constitutes the comments of the Santa Venetia Neighborhood Association in response to the Draft Environmental Impact Report (DEIR) for the proposed San Rafael Airport Recreation Facility. Our neighborhood is in the unincorporated area of the County of Marin and lies immediately across the South Fork of Gallinas Creek from the proposed facility. Few neighborhoods will be more affected by this project than Santa Venetia.

Noise Mitigations are inadequate to protect Santa Venetia from a noise nuisance. 43-1

The DEIR erroneously concludes that there will be no significant impact from additional noise that will be generated from this project even though the fields and indoor facility would be used until 11:00 p.m., Sundays through Thursdays and midnight on Fridays and Saturdays. We find these hours incompatible with the character of the surrounding neighborhood and existing uses.

The DEIR states that the estimated noise levels would exceed the San Rafael noise ordinance (DEIR at 12-16) and concludes at DEIR 12-17:

> residents are unlikely to be outside during the hours of 9 p.m. and midnight to experience any increase (in noise).

We find this statement inaccurate, unsubstantiated and insensitive to our residents. Many of our residents do enjoy their yards and are outdoors at these hours.

The DEIR improperly compares existing noise disturbances from existing playing fields to the new impacts from the project: 43-2

> These residential areas are currently subject to recreational activities at the existing McInnis Park…Playing fields in this park are located a minimum of about 1,400 feet from the homes on Vendola Drive. (DEIR at 12-17)

The existing fields are double the distance from the proposed projects outdoor fields, which are as close as "750 feet from the closest homes to the south". (DEIR at 12-16).

Yet, the DEIR inexplicably and arbitrarily uses a distance of 1,000 feet for its comparison to the San Rafael noise ordinance and concludes:

> At a distance of 1000 feet, hourly noise levels generated by outdoor soccer facilities would be below 41 dBA (L_{eq}) and 45 dBA (L_{max}). (DEIR at 12-16)

A more realistic approach to determining the noise impact to nearby homes would be to analyze noise impacts at 750 feet instead of 1000 feet.

There is no distinction between activities on the soccer field and the soccer warm-up area, nor have the areas been studied separately. Consequently, the DEIR must assume similar noise impacts as the various soccer fields the consultant did study. (DEIR at 12-16) We believe that noise levels from the warm-up area would be louder than those generated by the outdoor soccer field if the impact of multiple groups of players, supervised by multiple coaches doing different drills, were to be properly considered. 43-3

In other words, several teams could simultaneously be using the warm-up area for field, goal, and endurance drills involving all their players and many coaches with whistles, whereas an organized soccer game would ordinarily be limited to two teams of 11 players with one referee and two assistant referees during a game.

Mitigation measure MM N-1 relies on the project sponsor to annually monitor noise levels during nighttime games to: 43-4

> determine whether the use of outdoor fields and warm up areas actually causes the 40 dba (Ldn) night time noise threshold to be exceeded at the closest residential property boundary. If the threshold is exceeded, the outdoor facilities shall close at 9 p.m. Sundays through Thursdays and 10 p.m. on Fridays and Saturdays.

Noise is transient and dependent on the magnitude of the event. A particularly spirited or heavily attended game (such as a league championship) would cause noise disturbances that might not be recorded during a random annual evaluation. Indeed, the sponsor may have incentive to do the annual evaluation during quiet uses of the facilities. This mitigation provides no actual standards as to the frequency or location of measurement.

43-5

The alternative approach suggested in MM-N-1, a "noise wall along the southern boundary of the parking lot and soccer warm-up areas" is similarly flawed as it relies on the project sponsor to evaluate noise levels to determine necessity of the mitigation.

Further, there are no specifications for this future "noise wall" so it is impossible to evaluate it's effectiveness. The SVNA doubts that an effective "noise wall" can be constructed at the southern boundary of the parking lot since it would be limited in height to five feet due to the transitional surface required for aviation safety.

In addition, MM-N-1 is a proposed future mitigation that is impossible to analyze as part of this DEIR and therefore impermissible under CEQA.

The Biological Mitigations Are Inadequate

43-6

The biological assessment does not adequately explain the actual range of the California Clapper Rail, a special status species in Gallinas Creek. The DEIR assessment speculates as to where the Clapper Rail is, and is based only on a few observations.

Yet video evidence, made available to the Community Development Department for the production of this DEIR, show Clapper Rails directly adjacent to the Project Site (See http://www.Galinas Creek.org) on the *project side* of the creek. This is contrary to the DEIR conclusions that Clapper Rails are not likely to be using the north side of the creek,

Indeed, the Rails have been observed using areas of the Project site for foraging and for upland habitat. Members of the SVNA have routinely spotted Rails all along the North Fork of Gallinas Creek.

A map contained in the San Rafael 20/20 General Plan Conservation Element (Exhibit 38, "Threatened and Endangered Species") also shows Clapper Rail utilizing the project side of Gallinas Creek.

Mitigation Measure MM-Bio 2a (construction of a perimeter fence around the project area) is inadequate as it will provide no real protection to sensitive habitat from errant sports equipment (eg soccer balls, footballs, etc), their retrieval and human intrusion. The proposed mitigation states:

> ...retrieval of items from the fenced area shall be done by authorized recreation personnel only."

This provision indicates that the fence will not prevent intrusion by errant items. Further, human intrusions into the buffer area defeat the purpose of the mitigation regardless of whether these intrusions are by "authorized recreation personnel."

Gallinas Creek Channel Maintenance and Dredging 43-7

The DEIR fails to analyze a reasonably foreseeable project that will deposit significant fill at the San Rafael Airport.

In January of 2006 the Marin County Board of Supervisors approved a contract to develop a maintenance dredging project for Las Gallinas Creek.[1] The Creek has been periodically dredged in 1965, 1972, 1981 and 1994 with funding provided by County Service Area 6 (CSA 6).

The Santa Venetia Neighborhood Association is generally in favor of this maintenance dredging pending sound environmental and financial review. These reviews are taking place during the execution of the above-mentioned contract.

The maintenance dredging will remove between 150,000 and 250,000 cubic yards of accumulated sediment from Gallinas Creek.

Per the recommendation of the Marin County Department of Public Works and a negotiated agreement letter from the San Rafael Airport, 150,000 – 200,000 cubic yards of sediment material will be deposited at an undisclosed site at the San Rafael Airport.

The impacts of the fill from this project has not been analyzed in the DEIR and may have significant impacts which must be considered in the DEIR, particularly in the areas of drainage, and flood water accumulation.

Project Description is not specific about uses. 43-8

The applicant is attempting to reserve the right for the "flexibility to replace soccer, dance and gymnastics with other recreational users over time" in the indoor facility. (DEIR at 3-11)

The impacts of these uses have not been analyzed in the DEIR rendering the project description inadequate for meaningful consideration. Furthermore, it is foreseeable that the applicant may seek, or the project may generate user demand, for other uses for both the indoor facility and outdoor fields with significantly more adverse impacts than soccer.

Without definition in the Project description, it is impossible to analyze these impacts. For example, would a cheerleading competition with amplified music be permitted in the indoor or outdoor fields? Would a sports demonstration with numerous spectators be permissible at the facility?

[1] Agreement available at at http://www.co.marin.ca.us/depts/BS/Archive/Meetings.cfm under January 6 agenda.

Aesthetics and Lighting 43-9

The DEIR fails to adequately analyze public views. The Santa Venetia neighborhood is bordered to the south by hills. The Project is visible from many public trails, roadways and vantage points on these hills.[2] The project and nighttime glare from lighting will alter these views yet are not considered in the DEIR.

Headlight glare from traffic entering and exiting the facility on raised roadways and vehicles in the parking lot have not been addressed in the DEIR. Similarly ignored are public views from navigable waterways, particularly those on the North Fork of Gallinas Creek directly opposite the project site.

These issues were raised in our November 8, 2007 letter in response to scoping for this project's environmental review which is included in Appendix A of the Technical Appendices which accompany the DEIR. The SVNA is disappointed by this oversight.

Water use in locker rooms. 43-10

The DEIR does not address a significant use of water at this facility stating only that the: "Marin Municipal Water District (MMWD) has indicated that there is sufficient capacity" in the system to serve the site." (DEIR at 14-9)

There is no analysis of the water usage from showers in the locker room and it is not clear this use has been discussed with MMWD. With as many as 1,000 users per day there is the potential for 1,000 showers. If 80% of the users took a shower at the facility following their activity, water usage can be conservatively estimated at 4,000 gallons per day based on a five minute shower with a low flow showerhead providing one gallon per minute. This is the equivalent annual use of 1,460,000 gallons per year.

This is the equivalent water usage of several dozen new homes. Marin County and the State of California are increasingly subject to water shortages, The SVNA is concerned about the project's potential impact on water rates and conservation along with the ongoing specter of water rationing.

The DEIR improperly dismisses cumulative impacts and Regional Planning Goals 43-11

Santa Venetia and our immediate vicinity is home to major amenities including the Osher Marin Jewish Community Center, the Marin County Civic Center, McInnis Park, China Camp State Park and the Venetia Valley Elementary and Middle School. While these

[2] One such view of the project site is depicted in a photograph mural on permanent display in the stairwell leading to the 2nd floor offices at the San Rafael City Hall.

amenities benefit our community, Marin County and the region beyond, they do place a toll on our environment particularly in terms of traffic congestion[3] and noise.

Additional development, and this Project, demands a concerted regional planning approach to avoid adverse impacts yet the DEIR fails to further this goal. Reasonably foreseeable and/or entitled projects including the SMART Train, Marin County Public Safety Building, a new McGinnis Park master plan, the dredging of Gallinas Creek, a new adolescent Montessori School off North San Pedro Road and a major condominium development at 33 San Pablo are entirely ignored.

The SVNA is frustrated by this lack of regional planning. For example the DEIR fails to address an at-grade crossing for the SMART train that every pedestrian, cyclist and car will need to traverse to reach this facility.[4]

We are also troubled by inferences and assertions throughout the DEIR that cumulative impacts do not exist from this Project. The DEIR asserts that because existing uses have already degraded the environment and that this project, even if done more sensitively than previous development, will not harm the environment further. 43-12

Examples include claims that wetland setbacks for this project exceed those of the levee trail at McInnis Park and that acclimatization by animals to human intervention indicates that this wildlife will not be harmed by additional activity (DEIR at 7-39).

Similarly, the DEIR concludes that since the neighborhood is already subject to noise from aircraft operations at the San Rafael Airport and recreational activity at Mcinnis Park, we will not be disturbed by additional and noise during extended hours that will be generated from this Project (DEIR at 12-15 and 12-17). This faulty logic suggests there is no impact from additional development after the environment has been degraded from the first development. 43-13

In conclusion, this project will have major impacts to our neighborhood which are thus far not explored. Thank you in advance for your prompt attention to these comments. 43-14

Sincerely,
Mark Wallace
President
Santa Venetia Neighborhood Association

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[3] Severe backups of as many as 200 cars are common on North San Pedro road in the morning when users of the Civic Center, the Marin Osher Jewish Community Center and the Civic Center. Intersections and arterials lie in a patchwork of Marin County and San Rafael jurisdictions with inadequate coordination in solving the traffic jam.

[4] Concerns about rail safety and grade crossings were called out by the California Public Utilities Commission in response to the Notice of Preparation. (Technical Appendix NOP Comments)

LETTER 43: Mark Wallace, President, Santa Venetia Neighborhood Association, May 6, 2009

RESPONSE 43-1: Opinion regarding the adequacy of mitigation measures identified in the DEIR to reduce Project-related noise impacts to a level considered less than significant is noted. The DEIR identifies several potentially significant noise impacts associated with project construction (**Impact N-2** and **Impact N-3** on DEIR page 12-22) and operations (**Impact N-1** on DEIR page 12-15). Opinion regarding the compatibility of the use of the project site as proposed with the character of the surrounding neighborhood and existing land uses is noted. Opinion regarding the accuracy of the DEIR statement regarding local residents being outside between the hours of 9:00 PM and midnight is noted. See also MASTER RESPONSE NOI-1, above, which further clarifies the noise impact discussion and mitigation. The Project's potential nighttime noise impacts would be mitigated to less than significant levels through implementation of **Mitigation Measure N-1**, as modified.

RESPONSE 43-2: As indicated on DEIR page 12-3, the southern edge of the proposed soccer warm-up area is located approximately 750 feet from the nearest portion of Santa Venetia. On DEIR page 12-16, it is indicated that anticipated hourly noise levels associated with a soccer game measured at a distance of 180 feet from the center of the field could be as high as 56 dBA (L_{eq}) and 60 dBA (L_{max}), but that at a distance of 1,000 feet, anticipated hourly noise levels generated by outdoor soccer activities would be below 41 dBA (L_{eq}) and 45 dBA (L_{max}). At a distance of 750 feet (the distance to the nearest Vendola Drive homes in Santa Venetia), hourly noise levels would be expected to be marginally higher than those anticipated at 1,000 feet, but considerably less than those anticipated at 180 feet. When the Project's impact on ambient noise levels is considered on a 24-hour basis, the Project's estimated soccer field-related noise levels would not raise existing ambient noise levels by more than 3 dBA or create noise impacts that would increase noise levels to more than 60 dBA (L_{dn}) at nearby residences, so the Project's impact on 24-hour noise levels would be less than significant. However, soccer field-related noise at night would have the potential to increase noise levels at the Project site, which could adversely affect nearby residents (see **Impact N-1** on DEIR page 12-15). This impact could be reduced to a level considered less than significant with implementation of **Mitigation Measure N-1** [as modified] (DEIR pages 12-21 and 12-22).

RESPONSE 43-3: Opinion that noise from warm-up area would be louder than that associated with playing fields (as several teams would be using the warm-up areas simultaneously) is noted. Since the outdoor warm-up area would be unlighted, it would not be used to the same extent as the lighted outdoor soccer field, (i.e., during nighttime hours, which occurs after 9:00 PM Sunday through Thursday and after 10:00 PM Friday and Saturday) and since it would not support competitive soccer matches and spectators (but would instead support stretching and warm-up for soccer matches on the adjacent field), noise levels from the warm-up area are highly unlikely to exceed noise levels associated with the use of the outdoor soccer field.

RESPONSE 43-4: **Mitigation Measure N-1** [as modified] (DEIR page 12-21) does not indicate that annual monitoring of noise levels during nighttime games would be conducted at random to determine whether the use of outdoor fields and warm-up areas actually cause the 40 dBA (L_{dn}) nighttime noise threshold to be exceeded at the closest residential property. Consistent with **Mitigation Measure N-1** [as modified], the City would monitor noise levels during at least five heavily attended games during the first year of operations, to demonstrate that compliance with the City Noise Ordinance would be achieved. Furthermore, ongoing compliance with the City's Noise Ordinance would remain a requirement for the duration of the Project use. Thus, enforcement of the City Noise Ordinance would be an effective measure to ensure ongoing compliance is achieved.

RESPONSE 43-5: Opinion regarding the possible effectiveness of a noise wall as a means to mitigate evening noise from the Project site is noted. As indicated in **Mitigation Measure N-1** [as modified] (DEIR pages 12-21 and 12-22), construction of a noise wall is no longer included as part of this mitigation. See MASTER RESPONSE NOI-1, above, which further addresses the potential noise impacts and effectiveness of the proposed noise mitigation.

RESPONSE 43-6: Opinion regarding the adequacy of the assessment of biological resources at the Project site is noted. See MASTER RESPONSE BIO-1, above, which addresses issues related to the California Clapper Rail. The DEIR documents the results of the 2007 protocol survey conducted by M&A for the California clapper rail in the marsh habitats near the San Rafael Airport Recreation Facility Project site. The DEIR states that in 2007 two nesting territories were identified near the Project site. DEIR Figure 7-5 (page 7-57) clearly shows that M&A detected clapper rails along both sides of the creek adjacent to the Project site.

The DVD's provided by John Parulis provide excellent footage of California clapper rails foraging at the edge of the marsh vegetation along both sides of the Gallinas Creek, foraging on the exposed mudflats, and swimming back and forth across the channel. None of the footage ever shows a clapper rail venturing into the adjacent upland vegetation at the top of the berm or onto the Project site area. The footage does provide views of pedestrians walking on the trail immediately adjacent to the marsh vegetation, and a clapper rail foraging in the opposite bank appears to be completely habituated to the presence of humans that are far less than 100 feet away. The sound of dogs barking in the background does not appear to disturb the clapper rails either, further illustrating that the clapper rails in this area are habituated to relatively high levels of human disturbance and sounds associated with humans.

Opinion regarding the effectiveness of **Mitigation Measure Bio-2a** is noted. See MASTER RESPONSE BIO-5, above, which addresses issues related to fencing and ball retrieval at the Project site. Please review comments provided in LETTER 70, below, for the Project Applicant's assessment of the threat posed by errant sports balls. To ensure that the marsh habitat and the upland buffer along the North Fork of Gallinas Creek is protected, a fence shall be installed around the perimeter of the proposed Project area, and human access into this buffer area will be prohibited except as required by maintenance/operation personnel for

continued levee maintenance and other required airport operational tasks that are routinely practiced today. The fence will be a minimum of ten feet tall for the purpose of preventing balls from the soccer fields from entering the marsh. Any balls that must be retrieved from behind the fence shall be retrieved at the end of any soccer games. A gate will be maintained locked at all times except as necessary to retrieve balls by a single person after games/events have been completed. The optimal ball retrieval period would be the day following soccer events or at times when numbers of spectators are at daily lows. Signs shall be posted stating that public access into the buffer area is strictly prohibited owing to the sensitivity of the habitat and to ensure the continued use of this habitat by special-status wildlife species. Installation of this fence will protect the marsh habitat along the North Fork of Gallinas Creek and the adjacent upland areas. Implementation of **Mitigation Measure Bio-2a** (as modified) will reduce potential intrusion impacts to the marsh habitats to a level considered *less than significant* pursuant to CEQA. The 100+-foot creek setback/buffer will further reduce this potential impact.

RESPONSE 43-7: Although the DEIR indicates on page 9-29 that fill will be utilized for the new parking lot and outdoor sports fields, as well as exterior walkways, it does not identify the source of the approximately 32,000 cubic yards of engineered fill which will be imported, and there is nothing in the DEIR to indicate that dredging sediment will be used for that purpose. Potential impacts associated with the proposed importation and placement of approximately 32,000 cubic yards of engineered fill at the Project site are addressed on DEIR pages 9-28 through 9-32. A potentially significant impact associated with the potential for additional fill to induce settlement (**Impact Geo-1**) could be reduced to a level of less than significant through the implementation of **Mitigation Measure Geo-1**).

RESPONSE 43-8: Opinion regarding the adequacy of the Project Description is noted. The DEIR evaluates the environmental effects associated with development of the Project site as proposed, and an overview of the current proposal for development and use of the Project site is presented on DEIR page 3-9. As indicated on DEIR page 3-11, the Project Applicant has requested the flexibility to be able to replace uses that are currently proposed for the indoor recreational facility (e.g., soccer, dance and gymnastics) with other recreational uses at some undefined point in the future, consistent with the Project Objective that all field areas must be capable of hosting multiple field/court/rink sports such as soccer, hockey, basketball, lacrosse etc., in order to ensure that space is full on a daily basis and to ensure that space remains marketable to new users over time (see DEIR page 3-10). Since CEQA does not permit the DEIR to speculate on the effects of possible undefined future recreational uses of the facilities currently proposed at the Project sites, the DEIR can only evaluate the environmental effects of those uses which are currently proposed (and reasonable anticipated) at the Project site. During Project merits review the City would consider approving recreational uses for the building that are consistent with those uses anticipated and evaluated in the EIR. If the Project is approved and a future use is proposed that was not previously considered, an amendment to Project entitlements and further environmental

review would be required. See MASTER RESPONSE 45-4, below, which further addresses this comment.

RESPONSE 43-9: Opinion regarding the adequacy of the DEIR's evaluation of public views is noted. The photosimulations presented in the DEIR (**Figure 5-2**, **Figure 5-3**, **Figure 5-4** and **Figure 5-5**) present views from various locations in an effort to provide readers with a sense of how the proposed structure would appear from several public viewpoints within the context of the existing views from those viewpoints. Project-related effects on the visual character of the site and surrounding area is addressed on DEIR pages 5-23 and 5-24, and Project-related impacts related to light and glare are addressed on DEIR pages 5-24 through 5-36. See MASTER RESPONSE AES-2, above, which addresses the effects of Project-related glare from the headlights of vehicles entering and exiting the Project site.

RESPONSE 43-10: Concern regarding the use of water at the Project site is noted. Estimate on the amount of water which would be devoted to showering at the Project site is noted. Since the Project site is not currently provided with water, development as proposed would represent an increased demand on the existing local water supply. However, as indicated on DEIR page 14-9, the Marin Municipal Water District has stated that there is sufficient capacity in their system to serve the proposed facilities at the Project site, and the District is aware that Marin County and the State of California are increasingly subject to water shortages.

RESPONSE 43-11: Opinion regarding the need for regional planning to address additional development in the vicinity of the Project site is noted. The DEIR evaluates all aspects of the Project as proposed by the Applicant, including all Project-related individual and cumulative environmental impacts. The Project is consistent with the San Rafael General Plan 2020, as discussed in DEIR Chapter 4, thus no further regional planning effort is required as a result of the Project. The City would be responsible for determining whether to approve the proposed PD zoning amendment for the site as part of the Project merits review. If additional zoning regulations and uses are deemed to be necessary to address the remaining undeveloped portions of the property, which exceeds the scope of the current Project, this may trigger a requirement for further environmental review pursuant to CEQA. See RESPONSE 49-5, below, for further discussion regarding this topic.

In terms of Project-related analysis of cumulative impacts, the DEIR indicates on page 14-11 that this has been based on use of both the long-term buildout projections as outlined in the San Rafael General Plan 2020 and the projects listed in DEIR **Table 14-1** (page 14-12). See MASTER RESPONSE TRA-3, above, which addresses Project-related issues associated with operation of SMART.

RESPONSE 43-12: Opinion regarding the DEIR's evaluation of Project-related cumulative impacts is noted. The EIR must consider the Project impacts on the environment in conjunction with other existing proposed and approved projects within the Project study area,

as indicated in the Cumulative Impacts analysis discussion on DEIR pages 14-11 and 14-12. Existing uses that already affect the environment are identified and discussed in the DEIR as part of the existing environmental setting, against which individual and cumulative impacts are assessed. Project-related impacts and mitigation measures related to biological resources are addressed on DEIR pages 7-61 through 7-81, but no cumulative Project-related impacts to biological resources have been identified (DEIR page 14-12). See RESPONSE 45-47, below, which further addresses this topic.

RESPONSE 43-13: CEQA requires that the Project's potential to have physical impacts on the environmental be assessed based on the existing conditions in the area, which includes the existing airport operations and surrounding development. Analysis of a DEIR must also consider potential future projects, and project contribution to existing impacts. Project impacts cannot be adequately assessed without identifying the existing conditions; which establish the baseline condition. The DEIR's evaluation of Project-related noise impacts (DEIR pages 12-15 through 12-26) identifies the baseline condition, and concluded that there would be potentially significant environmental impacts associated with development of the Project site as proposed, but that these could be reduced to a level of less than significant through the implementation of the identified mitigation measures. See MASTER RESPONSE NOI-1, above, which further discusses the potential noise impacts on neighborhoods as a result of the Project, and recommended mitigation. In the absence of the recommended mitigation measure, the further development of the Project site, as proposed, could be expected to have adverse effects on ambient noise levels locally, even though the dominant noise source within the local area would continue to be aircraft operations at the airport (see DEIR page 12-2).

RESPONSE 43-14: Comment regarding the need to explore other (unspecified) major Project-related impacts to the local neighborhood is accepted, as noted. This general comment does not trigger need for any further responses beyond those already provided to the specific comments above.

LETTER 44

MARIN CONSERVATION LEAGUE
Celebrating 75 Years

May 7, 2009

Planning Commission
City of San Rafael
1400 Fifth Avenue
P.O. Box #151560
San Rafael, CA 94915-1560

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COMMUNITY DEVELOPMENT
CITY OF SAN RAFAEL

Re: Draft Environmental Impact Report (DEIR) for the San Rafael Airport Recreational Facility

Dear Commissioners,

The Marin Conservation League (MCL) has reviewed the DEIR for the San Rafael (Smith Ranch) Airport Recreational Facility (the proposed project) and finds that it is inadequate in a number of respects. Our comments on the adequacy of this DEIR are as follows:

Alternatives. Although alternatives generally conclude an EIR, we feel the alternatives proposed in the DEIR for this project are so important and their analysis so problematic, that we discuss them at the outset. **44-1**

The DEIR provides a rationale for defining the so-called No Project Alternative as the "...practical result of non-approval of the project." Thus, the No Project Alternative incorporates what the Master Use Permit would *allegedly* allow, i.e., the placement of outdoor day-use sports fields on the site similar to those located at McInnis Park across the North Fork of Gallinas Creek. The DEIR makes the claim that the impacts of the No Project Alternative are substantially the same as the mitigated proposed project and therefore the proposed project should be allowed as the preferred alternative. This interpretation of "No Project" can be challenged as not consistent with numerous San Rafael General Plan policies and zoning (see comment below). Therefore, we believe that a fourth "No Action Alternative," consisting of existing uses on the property, should be analyzed. Existing permitted uses include airport and aviation uses, non-aviation uses limited to those uses approved by the Use Permit (". . .and there shall be no increase in the amount of square footage") and private and public recreational uses that are *passive* in nature rather than *active* recreational facilities. Whether it is called "No Project" (with the assumption of anticipated uses the DEIR outlines), or "No Action," an alternative that respects the sensitivities of the site, as reflected in City policy, must be considered in detail!

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The DEIR dismisses the No Project Alternative (the "Environmentally Superior Alternative") as not meeting the key objectives of the Project as proposed. It goes on to conclude that only the proposed project will meet the "crucial" objective of economic viability. The City of San Rafael has absolutely no obligation to dismiss an environmentally superior alternative, or approve a project that is not environmentally superior, on the basis of its economics, particularly where no formula for determining economic viability is provided. CEQA case law on this point is relevant and deserves explanation in the DEIR in order to inform the Planning Commission and the public.

Land Use and Planning.

This project site has a long and controversial history of land use planning issues and considerations. Chapter 4 of the DEIR describes this history in a summary manner only; it does not provide sufficient historical detail for the context of this proposed project. A detailed history of the entire 120-acre airport site, both east toward the Bay and west to Highway 101, should include the rationale of past planning decisions in 1983, and historical maps and photos showing the development history of the site over time. The DEIR should include maps showing all the jurisdictional planning boundaries involved. **44-2**

For example, as mitigation (Biological Resources), the DEIR suggests a protective covenant for a small section of marsh habitats along the North Fork of Gallinas Creek. The protective covenant signed in 1983 limited uses of the entire eastern section of the property to open space and recreational uses along with the small Smith Ranch Airport. In an exchange of density, development of built uses was limited to the western part of the property. If that 1983 covenant can broken, as this proposed project would do, that small DEIR-recommended covenant would be vulnerable as well.

In numerous respects, the DEIR fails to address inconsistencies between the proposed project and San Rafael planning policies and zoning. San Rafael General Plan 2020, Policy CON-13, states that it is the policy of San Rafael to "preserve and protect threatened and endangered species of plants and animals formally listed consistent with state and federal endangered species acts including protection of their habitat." Further, Policy CON-14 calls for "minimization of impacts to special status species through design, construction and operation of the project." The DEIR asserts that the proposed project with mitigations conforms to City of San Rafael General Plan 2020 Land Use Policies but does not adequately demonstrate what the very best design, construction and planned project operations must entail in order to comply with this San Rafael Policy. **44-3**
The City of San Rafael General Plan 2020 Map shows this site to be dedicated for Conservation with its borders to be Open Space. The DEIR should analyze the inherent conflict between the proposed project and the City's policies, and explain in detail why and how the proposed project conforms to the City's land use objectives.

Section S-17 (Levee Upgrading) of the San Rafael General Plan 2020, states that when waterfront properties are developed or redeveloped, (they will) require levee upgrading, as appropriate, based upon anticipated high tide and flood conditions, and maintain an appropriate levee height." Section S-18 (Rise in Sea Level) states that prior to levee heightening for flood control purposes, (the landowner should) contact the **44-4**

Intergovernmental Panel on Climate Change regarding the most current estimates of sea level rise. Land Use and Development History of the Airport Site in the DEIR states in the 1975 approval of the Use Permit: "should a permanent use be applied for in the future, improvement to the levee would be required" The permanent use of the site for airport uses and activities was approved by the San Rafael City Council in 2001. These policies and planning approvals would appear to indicate that it is the responsibility of the property owner to improve and maintain the levee surrounding the site. The DEIR is completely silent on this point. It should explain what actions would be required of the property owner to improve and maintain the levee system to address potential flooding and seal level rise as part and parcel of the proposed project.

The project site lies within a Wetland Overlay District. Section 14.13.030 of the Municipal code states that (under this overlay district) recreation/scientific activities in or near wetlands should be low intensity uses, such as bird watching, fishing, nature photography and study, wildlife observation and scientific research and education. Without an amendment to the code, the project as proposed would clearly violate city law. The DEIR should explain what amendment is sought by the applicant and its impacts on the existing environment. **44-5**

Biological Resources. Gallinas Creek, with its North and South Forks, is part of the San Pablo Bay marshes that extend from Point San Pedro on the south to the Petaluma River on the north. These marshes are noted for their wildlife, including year-round residents such as the endangered California Clapper Rail, and thousands of migrant birds in the winter. The "airport peninsula" between the north and south forks of Gallinas Creek was once tidal marsh. After diking, it became a seasonal marsh. Now after the addition of fill and regular pumping of rain water in recent years, the interior has become grassland with only small areas of ponding and marsh. The DEIR should describe the important habitat attributes of the creek, tidal marsh and grassland of the airport peninsula in the regional marsh and wetland system, and explain wildlife connections within it. **44-6**

The DEIR states that the proposed Project will not result in any direct impacts to marsh habitats along the North Fork of Gallinas Creek. It should note, however, that in addition to noise (which it mentions), the height and bulk of the building, activities on soccer fields, and light on the fields and parking areas could interfere with the movement of wildlife and have definite adverse effects. The DEIR should also address the impact of the intermittent lights of vehicles on adjacent habitats as they turn through the S curves at the bridge and move along the long airport road paralleling the creek. 1,701 daily trips are expected. **44-7** **44-8**

Other impacts to Clapper Rail habitat currently occur through regular mowing by airport workers. The DEIR biologists state that no rail was observed on top of the levee or on the outboard side. Of course, if this area is mowed, there is no habitat there for rails, and naturally they would not be observed there. The DEIR suggests in MMBio-2c that no mowing should be allowed on the outer slopes of the levees in order to preserve vegetative cover for needed refuge from high tides. It should also specify NO mowing on the top as well as outer slopes. **44-9**

Geology and Soils; Hydrology and Water Quality. The DEIR relies upon two test borings and literature review for information concerning the land area. We believe that this is an inadequate basis for determining the potential for liquefaction on site and flooding risks from levee failure in the event of a major earthquake. These risks do affect both building and levee safety. The Countywide Plan designates the airport project site as lying within the 100-year floodplain zone and as having a very high level of susceptibility to liquefaction. Additional test borings of the site, and particularly of the old and poorly maintained perimeter levees, are needed to assess their risk of failure from flooding and from earthquakes, and also to determine necessary measures to strengthen them against such risk

44-10

Hazards. The project's near proximity to San Rafael airport airspace requires as mitigation posted signs cautioning visitors to avoid certain areas of parking – in other words, mitigation of this hazard relies on voluntary behavior to reduce risk. This alone should be sufficient evidence that an airport and a facility that attracts crowds are not compatible uses. Specifically, airport operations and aviation flight hazards at night are not analyzed in the DEIR. It is our understanding that the San Rafael Airport now allows pilot actuated runway lighting for nighttime take-off and landing. The prospect of nighttime use of the airport coinciding with nighttime use of the proposed recreational facility deserves further analysis to determine what additional mitigations may be required to reduce the risk to the anticipated high concentrations of visitors.

44-11

Transportation and Traffic

The DEIR traffic analysis is deficient in several aspects and should be corrected or amplified:

The DEIR does not describe traffic impacts of the project on local residents. The nearest residents live in Contempo Mobile Home Park (396 residences) and Captains Cove (over 50 residences.) Both of these neighborhoods are dependent on one outlet, Yosemite Drive, to Smith Ranch Road and beyond. The DEIR looks at traffic impacts of some intersections farther away, but not for this one, which is nearest to the airport road and critical for these approximately 450 local residents.

44-12

The traffic along Smith Ranch Road moves rapidly, to the movie theater or straight ahead to McInnis Park for soccer games, the restaurant, golf, or other activities there. Alongside this traffic, the Project would add traffic slowing down in the side lane to make the turn on the airport road. Even at the present time when driving north on Yosemite Road, it is difficult to cross Smith Ranch Road across four lanes of fast traffic and maneuver around traffic islands in order to reach and turn left onto a westbound lane. The EIR should consider potential impacts of additional traffic backed up at game times at the Project, when operational, at these already difficult intersections. This is a safety issue and the DEIR should address these impacts and suggest possible mitigation.

44-13

The DEIR describes numbers of participants expected for various soccer games and activities of the Project and contains a chart of various intersection delays at the airport road or at the distant Highway 101. Assumptions of number of participants and car trips are based on estimates of traffic to facilities in other areas. Since this Project is proposed for a remote site, numbers may be greater since participants would not be living within walking or bicycling distances. Thus, trip generation factors may differ substantially from factors for other recreation centers. The DEIR assumptions should reflect this difference. **44-14**

The DEIR concludes that "the proposed project would not cause any study intersections to operate below LOS D." This not only does not describe differences in Project traffic from other locations, but contradicts an earlier section which describes the General Plan + project as being at LOS E for PM traffic. **44-15**

The DEIR states that the impact of traffic queuing at the bridge over Gallinas Creek will be less than significant whether the bridge is a single lane or double-lanes. It bases this on a mitigation MM Traf-1 which requires the City of San Rafael to approve a management plan for events. It does not describe hazards of the bridge, including the S-curve of the road leading to or from the bridge, or the problems of visibility due to weather, flooding, and fogs which are common in this low area. This is another safety issue which the EIR should address. **44-16**

Hazards of the railroad crossing are dismissed with the statement "...shows little evidence of regular use." Since the SMART ballot measure was approved last year, impact of regular rail use should be addressed. It would affect traffic in several directions as well as present safety concerns. **44-17**

Thank you for the opportunity to comment. We believe that the DEIR suffers from a number of serious flaws that must be corrected in the FEIR.

Sincerely,

Nona Dennis
President

cc: Robert Brown, Director, Community Development, City of San Rafael
Kraig Tambornini, Senior Planner , Community Development, City of San Rafael
San Rafael Mayor and City Council Members
Susan Adams, Marin Supervisor, 1st District

LETTER 44: Nona Dennis, President, Marin Conservation League, May 7, 2009

RESPONSE 44-1: Opinion regarding the adequacy of the DEIR's evaluation of the No Project Alternative is noted. See MASTER RESPONSE ALT-2, above, which addresses issues associated with a "no change" alternative. As indicated on DEIR page 16-27, although CEQA does not permit a consideration of economic impacts of the Project in an environmental analysis, the evaluation of alternatives is conducted within the context of the Project Objectives. As defined by the Project Applicant, the Project Objectives clearly indicate a need for the Project to generate income sufficient to pay the mortgage and provide a reasonable rate of return on the 25% project down payment (DEIR page 16-3). Without an indoor sports facility to support high revenue sports in order to subsidize soccer (which would be the case under the No Project alternative), it is unlikely that development of the Project site would generate sufficient revenue to pay the mortgage and provide a reasonable rate of return on the 25% project down payment. The No Project alternative would have fewer environmental impacts than the proposed Project, and is identified as the environmentally superior alternative, but if it does not meet critical economic objectives established by the Project Applicant, it can be regarded as infeasible in the evaluation of alternatives.

RESPONSE 44-2: Opinion regarding the level of detail provided on the development history of the airport site (DEIR pages 4-3 through 4-7) is noted. DEIR Chapter 4 provides sufficient detail to establish the existing Project setting, as required by California Environmental Quality Act (CEQA). Opinion regarding the consistency of the proposed Project with the Declaration of Restrictions, and extent to which this may affect implementation of **Mitigation Measure Bio-2b** (Permanent Conservation Area) and compliance with related restrictions in such a conservation area, is noted. See MASTER RESPONSE PD-2, above, which addresses issues related to the Declaration of Restrictions, and what can be done at the Project site. Further, it is worth noting that the conservation area restriction would establish a permanent buffer zone between development and sensitive habitat areas which is entirely consistent with the San Rafael General Plan 2020 land use designation and Conservation Element policies and the City of San Rafael –WO overlay ordinance; which establish a minimum 100-foot setback from the creek and 50-foot setback from the wetland areas on-site. Establishment of a Permanent Conservation Area that would encumber the required wetland and creek setbacks in perpetuity would permanently protect these setback buffers. See RESPONSE 44-3, below, for further discussion of Project consistency with the City General Plan 2020.

RESPONSE 44-3: Opinion regarding the adequacy of the DEIR's evaluation of Project consistency with City of San Rafael General Plan Policies is noted. The general Plan consistency analysis has been provided in DEIR Appendix C, as referenced in DEIR Chapter 4, page 4-15. Project consistency with General Plan Policy CON-13 and Policy CON-14 is addressed on DEIR page 7-13. It is beyond the scope of the DEIR to "demonstrate what the very best design, construction and planned project operations must entail in order to comply

with San Rafael Policy". The DEIR evaluates the environmental effects associated with development of the Project site as proposed, and in terms of impacts related to land use, it considered whether development would physically divide an established community, whether development would conflict with policies adopted for the purpose of avoiding or mitigating environmental effects, and whether development would conflict with any applicable habitat conservation plan or natural community conservation plan. The City of San Rafael General Plan 2020 Land Use Map shows the entire Project site as "Airport/Recreation" as indicated on DEIR page 4-15. As shown on the General Plan 2020 Land Use Map, no portion of the Project site is "to be dedicated for Conservation with its borders to be Open Space". Opinion that the Project is in conflict with City policies, and that more detail be provided in the DEIR to demonstrate how the Project conforms to the City's land use objectives is noted.

RESPONSE 44-4: See MASTER RESPONSE HYD-2, above, which addresses issues related to the existing condition of the levees and on-going maintenance requirements. See MASTER RESPONSE HYD-4, above, which addresses issues related to anticipated increases in sea level.

RESPONSE 44-5: Opinion regarding Project consistency with the Wetlands Overlay District is noted. The current zoning designation for this site is Planned Development – Wetland Overlay (PD1764-WO) District. The current Planned Development designation for this site allows a private airport use and non-aviation uses consistent with those described in the approved Master Use Permit (UP99-9), which currently implements and controls the allowable uses on the airport site; see DEIR page 3-3. (See also RESPONSE 18-1, above)..

The specific purposes of the Wetlands Overlay District are identified on DEIR pages 4-16 and 4-17. The zoning entitlements and land use approvals requested by the Project Applicant are identified on DEIR page 3-54, and include a rezoning amendment of PD1764 to allow the proposed recreational building and facilities in addition to the existing airport and non-aviation uses, a use permit to amend the Master Use Permit UP99-9 to include the proposed recreational facility uses at the site, and environmental and design review to approve the design of the building and related improvements, including the parking lot, landscaping and lighting. No modifications to the Wetland Overlay District have been requested.

RESPONSE 44-6: Biological resources on, and in the vicinity of, the Project site are addressed on DEIR pages 7-1through 7-3, and 7-23 through 7-57. The DEIR describes the Project site habitats, the seasonal wetlands near the Project site, and the adjacent salt marsh habitats in Gallinas Creek. Evaluation of the regional marsh and wetland ecosystem is beyond the scope of the DEIR.

RESPONSE 44-7: The proposed buffer between the Project site development envelope and the top of the levee varies between 130 feet and over 250 feet. This buffer provides a buffer zone that will provide a wildlife movement corridor along the creek, adjacent to the Project

site. See RESPONSE 38-1 and RESPONSE 39-5, above, which address potential Project-related lighting effects on wildlife.

RESPONSE 44-8: See MASTER RESPONSE AES-2, above, which addresses effects associated with light from headlights on vehicles moving to and from the Project site.

RESPONSE 44-9: Opinion that current levee mowing adversely affects California clapper rail habitat is noted. Opinion that mowing on the top of levees should be prohibited as part of **Mitigation Measure Bio-2c** (DEIR page 7-68) is noted. Mowing of vegetation along levees and disking in the adjacent fields has occurred for many years pursuant to FAA guidelines, and should continue as necessary to continue to meet FAA guidelines for aviation safety. To ensure that clapper rails in the area have necessary vegetative cover to escape predators during high tide events, no mowing shall be allowed on the inboard slopes of the levees (i.e., the slopes that face the creek).

RESPONSE 44-10: Opinion regarding the adequacy of the DEIR's evaluation of potential Project-related liquefaction effects is noted. Additional test borings have been conducted along the levees and at the Project site (see MASTER RESPONSE HYD-2, above, which addresses the existing condition of the levees, and MASTER RESPONSE HYD-3, above, which addresses issues associated with possible levee failure).

RESPONSE 44-11: Opinion regarding the compatibility of the proposed recreational facility and the airport uses adjacent to the Project site is noted. As indicated on DEIR page 10-25, proposed lighting at the Project site may be confusing to pilots or obstruct the pilot's ability to land at the airport. These lights would be required to be shielded to conceal light sources and direct all light downward so that they do not create glare to pilots landing and departing the airport (see **Mitigation Measure HAZ-2**: "Outdoor parking lot lights and outdoor soccer field lights, in particular, should be shielded so that they do not aim above the horizon. Additionally, outdoor lights should be flight checked at night to ensure that they do not create glare during landings and takeoffs.").

RESPONSE 44-12: See MASTER RESPONSE TRA-1, which addresses Project-related traffic impacts at nearby intersections not specifically addressed in the DEIR.

RESPONSE 44-13: Comment regarding the need to consider additional traffic at game times as it may affect intersections is noted. This has been considered and analyzed in the TIR (DEIR **Appendix K**). The purpose of the TIR analysis for intersections is to identify impacts for local residents. If the Project had resulted in significant back up queues at intersections, this would have been required to be addressed. As noted in RESPONSE 3-12, above, the DEIR and TIR did not discuss queue at intersections. The worst peak queue increase identified in the TIR (Baseline PM at westbound Smith Ranch at 101 Northbound Off Ramps) would result in fewer than 6 cars. TIR page 23 discusses the bridge backup that could have occurred on-site, based on the existing 1-lane bridge deck. However, this impact (resulting in a maximum potential queuing potential of 7 cars that could be easily

accommodated within the existing private access road) would not result since the Applicant revised the Project to propose a 2-lane bridge deck; which is included in the Project Description that has been analyzed in the DEIR.

RESPONSE 44-14: Comment regarding the relative remoteness of the Project site and trip generation assumptions is noted. This has been considered and analyzed in the TIR (DEIR **Appendix K**).

RESPONSE 44-15: As shown on DEIR **Table 13-7** (page 13-36), no intersection would operate at an LOS worse than "D" under the General Plan or General Plan + Project conditions. However, as indicated on DEIR page 13-35, the proposed Project traffic was modeled and added to the *General Plan 2020* build-out scenario, which resulted in a drop in arterial LOS conditions on Westbound Smith Ranch Road from LOS D to LOS E with the Project (see DEIR **Table 13-5** on page 13-26, and DEIR **Table 13-8** on page 13-36). The addition of Project-related traffic along this arterial segment would not result in significant cumulative impacts. As noted in the DEIR, intersection LOS operates at an acceptable LOS D. The arterial LOS conditions are not the defined parameter used in the DEIR for determining the acceptable LOS threshold. The traffic level of service standards used by the City are described on DEIR page 13-18, which references the City General Plan Policy C-5A that establishes intersection level of service standard as the City LOS threshold for this Project. Under Policy C-5B, the City traffic engineer may apply arterial level of service as the primary method of analysis. However, based on intersection spacing and the characteristics of the Smith Ranch/Lucas Valley roadway segments, being split into separate halves at US 101, the City traffic engineer did not recommend using this alternate parameter because it would not provide a better LOS predictor.

RESPONSE 44-16: As indicated on DEIR page 13-27, the City Traffic Engineer and Fire department have both found the access to the proposed recreational facility to be safe, and not pose any hazardous design features. While the road leading to the bridge does have an S-curve, and while low visibility may be an issue at times, given the relatively slow traffic speeds in exiting Smith Ranch Road and making both turns on the approach to the bridge coming toward the Project site, vehicles crossing the bridge would not pose significant safety hazards. Once having crossed the bridge to enter the Project site, drivers exiting the Project site would be aware of the S-curve encountered after crossing the bridge, and adjust their speed accordingly.

RESPONSE 44-17: See MASTER RESPONSE TRA-3, above, which addresses issues related to SMART operations.

LETTER 45

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RECEIVED
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PLANNING

Kraig Tambornini, Senior Planner
Community Development Department
Planning Division
1400 Fifth Avenue, 3rd Floor
San Rafael, CA 94901

Re: San Rafael Airport Recreational Facility Draft Environmental Impact Report

Dear Mr. Tambornini:

This firm represents the Gallinas Creek Defense Council on matters relating to the San Rafael Airport Recreational Facility ("Project"). The Gallinas Creek Defense Council is a coalition of citizens and organizations concerned with the well being of the Gallinas Creek watershed. This Project will have serious long-term consequences for the residents of San Rafael and the surrounding region. Those consequences include damage to sensitive wetlands and the wildlife that depends on those wetlands, increased flooding danger, land use conflict with the nearby airport, and the increased traffic and noise that come along with commercial development. **45-1**

The environmental impact report ("EIR") for this proposal should provide both decision-makers and the public a full opportunity to understand and analyze environmental repercussions of the Project. Unfortunately, the draft EIR ("DEIR") fails entirely to live up to this mandate. Indeed, the DEIR violates the minimal standards of adequacy under the California Environmental Quality Act ("CEQA"), Public Resources Code § 21000 et seq., and the CEQA Guidelines, California Code of Regulations, title 14, § 15000 et seq. ("CEQA Guidelines"). **45-2**

To ensure that the public as well as the City's decision-makers have adequate information to consider the effects of the proposed Project – as well as to comply with the law – the City must prepare and recirculate a revised DEIR that properly describes the Project, analyzes its impacts, and considers meaningful alternatives and mitigation measures that would help ameliorate those impacts. 45-3

I. THE DEIR DOES NOT COMPLY WITH THE CALIFORNIA ENVIRONMENTAL QUALITY ACT.

A. The Project Description is Incomplete and Misleading.

The DEIR fails to describe the Project with sufficient detail and stability. "An accurate, stable and finite project description is the sine qua non of an informative and legally sufficient EIR." *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185 192-93. The court in Inyo explained why a thorough project description is necessary: 45-4

> A curtailed or distorted project description may stultify the objectives of the reporting process. Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal (i.e., the "no project" alternative) and weigh other alternatives in the balance.

71 Cal.App.3d at 192-93. The DEIR's project description fails to comply with this mandate in a number of respects.

The project description is unstable because the Applicant has not limited the use of the recreational facility to any particular activity. Although the DEIR contemplates use of the facility for soccer, dance, and gymnastics, the DEIR also indicates that the Applicant wishes to preserve all flexibility to change this focus in the future. (DEIR at 3-11.) But the effects of replacing these sports with other recreational uses are completely unanalyzed in the DEIR. For example, there is a suggestion that a third indoor field/rink may replace the dance and gymnastics uses. (DEIR at 3-12.) The impacts of this possibility are not analyzed. An ice rink, for example, could have energy needs and noise generating features that differ significantly from those of a gymnastics studio.

The project description is further destabilized because (1) the landscaping plan is not finalized (DEIR at 3-16) and (2) the type of turf on the outdoor field is contingent on outdoor lighting being approved. (DEIR at 3-12.) The revised DEIR needs 45-5

to analyze both grass and turf and both lighting scenarios or commit to one version of each. If grass is used, many alleged environmental benefits of the Project will not materialize. See DEIR at 3-19, extolling the environmental benefits of recycled field turf that does not require watering, pesticides, or fertilizers. If grass is used instead what new measures will the Applicant employ to achieve LEED certification? See also DEIR at 10-15, stating that no fertilizers or herbicides will be used on the outdoor fields. Further, the City appears to have taken the Applicant's word, without any data to back it up, that the use of the more expensive turf will only be economically viable if outdoor lighting is approved. The City must exercise its own independent judgment, and the public deserved to see the data underlying this kind of assumption in the DEIR. **45-6** **45-7**

Finally, the DEIR does not adequately describe the kind of zoning and permit changes that will occur, stating only that the Project requires "an amendment" to the Planned Development District and the Master Use Permit for the site. (DEIR at 4-15.) Furthermore, the DEIR fails to satisfactorily analyze whether an amendment to the Declaration of Restrictions will be requried. In order to constitute a legally adequate project description, the revised DEIR must clearly state the exact nature of all zoning, permit, and covenant amendments required. More details regarding this deficiency in the EIR are presented below in the Land Use and Planning section. **45-8** **45-9**

B. The DEIR Fails to Adequately Analyze and Mitigate the Project's Significant Environmental Impacts. **45-10**

The discussion of a proposed project's environmental impacts is fundamental to an EIR. *See* CEQA Guidelines § 15126.2(a) ("[a]n EIR *shall* identify and focus on the significant environmental effects of the proposed project") (emphasis added). As explained below, the DEIR's environmental impacts analysis is deficient under CEQA because it fails to provide the necessary facts and analysis to allow the City and the public to make informed decisions about the Project. An EIR must effectuate the fundamental purpose of CEQA: to "inform the public and responsible officials of the environmental consequences of their decisions before they are made." *Laurel Heights Improvement Assn. v. Regents* (1993) 6 Cal.4th 1112, 1123. To do so, an EIR must contain facts *and* analysis, not just an agency's bare conclusions. *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 568. Thus, a conclusion regarding the significance of an environmental impact that is not based on an analysis of the relevant facts fails to fulfill CEQA's informational goal.

Additionally, an EIR must identify feasible mitigation measures to mitigate significant environmental impacts. CEQA Guidelines § 15126.4. Under CEQA, "public agencies should not approve projects as proposed if there are feasible alternatives or

feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects." Pub. Res. Code § 21002.

1. Land Use and Planning

The Project site is part of a Planned Development-Wetland Overlay Zoning District (PD 1764-WO), which allows non-aviation uses consistent with the Master Use Permit. (DEIR at 4-15.) The DEIR states that amendment of this zoning is required, but does not sufficiently explain what that amendment will consist of. (DEIR at 4-15.) Presumably the amendment will need to include a change to the limitations imposed by the Wetland Overlay District, which only allows "recreational activities compatible with wetland habitat." San Rafael Municipal Code § 14.13.010. Section 14.13.030 of the Municipal Code specifically states that "Recreation/scientific activities in or near wetlands should be low intensity uses, such as bird watching, fishing, nature photography and study, wildlife observation and scientific research and education." Without a zoning amendment, this large active recreation facility complete with a bar, pro shop, and large parking lot would clearly violate City law. Yet the DEIR glosses over this significant land use impact, failing to explore the potential consequences for other wetland properties in the City and failing to alert the public that one of the fundamental goals of the Wetland Overlay District is violated by this Project. The revised DEIR must clarify that this conflict constitutes a significant land use and planning impact. Also, the revised DEIR must explain whether or not the proposed zoning change affects all Wetland Overlay properties, or just the Project site. **45-11**

The DEIR is similarly evasive when it comes to describing the required amendments to the site's Master Use Permit of 2001, which for the first time granted legal authorization to permanent airport operation at the site. (DEIR at 4-5.) Presumably, the amendment will include changing the hours of non-aviation business at the site, which are currently limited to 7 a.m. to 6 p.m., Monday through Saturday. Also the amendment may include a change to the non-aviation uses permitted. The DEIR only states that currently, "[t]he non-aviation uses are limited to those uses approved by the Use Permit and there shall be no increase in the amount of square footage." (DEIR at 4.6.) This begs the question, what are the uses approved by the Use Permit? What are the consequences of the changes to the Use Permit contemplated by the Project. The revised DEIR must explore this subject in depth. **45-12**

The final relevant land use restriction is the recorded Declaration of Restrictions, a 1983 covenant among the City of San Rafael, Marin County, and property owner. (DEIR at 4-6.) The DEIR says that Project is consistent with the covenant because "private and public recreational uses" are permitted. (DEIR at 4-18.) However, in Alternatives section the DEIR says the existing Declaration of Restrictions does not **45-13**

allow for the construction of a recreational facility. DEIR at 16-6. This must be reconciled and thoroughly explained. Evidence not alluded to in the DEIR suggests that the Alternatives section is correct. For instance, City Council minutes from 1983 show that the intent was to restrict the use of the land so that "commercial development would never take place." See Exhibit 1. The minutes mention use of the land as "open space" and "wildlife habitat" but nowhere suggest that an active recreational facility could be built on the property. These restrictions were imposed as part of an exchange of development rights. (See Exhibit 2, newspaper article from 1990 quoting County Counsel as saying "the property owners agreed to these restrictions because they wanted more density at another project" and Exhibit 3, Declaration of Supervisor Roumiguiere testifying to that effect.) If indeed the Declaration of Restrictions do not permit the proposed Project, the permission of all parties to the covenant, including Marin County, would be required to amend the agreement.

Additionally, the Project conflicts with General Plan Policy Con-5: "Protect seasonal wetlands and associated upland habitat contained within undeveloped dyked baylands, or restore to tidal action. Support and promote acquisition from willing property owners." The Project site is a prime candidate for wetland restoration. The site contains historic diked baylands, and wetlands delineations that designate the land as grassland do not capture its powerful ecological potential. **45-14**

Furthermore, the Project meets the third threshold of significance stated on page 4-17, "conflict with any applicable habitat conservation plan or natural community conservation plan," because it is inconsistent with the Bayland Ecosystem Habitat Goals, published by the San Francisco Estuary Institute and available at http://www.sfei.org/sfbaygoals/docs/goals1999/final031799/pdf/sfbaygoals031799.pdf. **45-15**

In summary, the DEIR is incorrect when it concludes that the Project does not conflict with a planning program adopted for the purpose of avoiding environmental effects. The fact that zoning amendments, permit amendments, and covenant amendments are required clearly shows that there are conflicts with these planning programs. Those requirements were adopted to ensure compatibility with the nearby wetlands and airport (see DEIR 10-11). The site is appropriate for passive recreation such as bird watching, but not for a large sports facility that draws thousands of cars to a building that reaches the maximum height permitted under City law, employs nighttime lighting, and draws people to sensitive habitat until late in the evening. Also, the Project conflicts with General Plan Policy Con-5. Thus, the Project will have a significant land use and planning impact and the revised DEIR must disclose and mitigate this impact. **45-16**

2. Hydrology and Water Quality

The site lies within the 100-year floodplain and is a flood hazard area subject to Title 18 of the Municipal Code. (DEIR at 11-2 to 3.) The revised DEIR must reflect the fact that the Project exposes people and structures to "a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam." (DEIR at 11-20.) Therefore the Project's hydrology impacts are significant under CEQA. **45-17**

The elevation values underlying the flooding analysis are based on the National Geodotic Vertical Datum of 1929 methodology, but many other jurisdictions have switched to the North American Vertical Datum of 1988 methodology and San Rafael plans to make this switch in 2009. (DEIR at 11-2.) The revised DEIR should conduct its analysis using the best and most contemporary methodology. The DEIR claims that it cannot use the new methodology because San Rafael has not officially switched. This self-limitation makes no sense. The public deserves to know how the impact analysis would differ if the more current methodology were used. **45-18**

The DEIR's conclusions regarding levee breach-induced flood risk and mitigation are not supported by substantial evidence. The flood mitigation measures rest on the assumption that the levees surrounding the site are well-constructed and well-maintained. (DEIR at 11-31, describing assumptions about the way that a levee breach would begin and then spread over time.) However, the evidence indicates otherwise, so the mitigation measures will not be effective. The levees are old and poorly maintained (see Exhibit 4, email from Marin County Department of Public Works Director Farhad Mansourian discussing a levee breach that is undisclosed in the DEIR), and it is our understanding that the Applicant does not own all the levees and therefore cannot maintain them. Similarly the pump station relied on to drain the site is on land the Applicant does not own. Therefore, the DEIR's conclusion that people at the site during a 100-year storm-induced levee breach will have enough time to evacuate the site is overly optimistic. Finally, the feasibility of the flood mitigation is undermined by the lack of evidence that the airport responded to earlier concerns about flood protection when it finally acquired its permanent use permit. (See DEIR at 4-5 ["should a permanent use be applied for in the future, improvement to the levee... would be required"].) **45-19**

The DEIR fails to provide an evacuation plan for use in the event of a flood, and the revised DEIR must correct this omission. A flood evacuation plan is especially critical because the the site is surrounded by water on three sides with a single access road. FEMA Technical Bulletin 3-93, which contains requirements for non-residential floodproofing, states: "For any floodproofed building, all roads to be used as **45-20**

evacuation routes must remain passable as the floodwaters rise." See Exhibit 5. The revised DEIR must analyze whether or not the sole access route will meet this standard during a levee breach-induced flood.

The DEIR's approach to expected sea level rise also violates CEQA's requirement that all reasonably foreseeable impacts be accounted for. The DEIR explicitly concludes: "It is expected that a 0.5-foot rise in the level of the San Francisco Bay would occur by the year 2050." (DEIR at 11-34.) See also DEIR at 15-11 ("The Project is located in an area that would likely be subject to coastal or other flooding resulting from climate change during the economic life of the Project"). It goes on to contradict itself by claiming that sea level rise is "speculative" and therefore impacts associated with sea level rise are less than significant. (DEIR at 11-35.) The City cannot ignore the weight of scientific evidence and dismiss this impact as speculative. See "The Impacts Of Sea-Level Rise On The California Coast," a report recently published by the California Climate Change Center, attached as Exhibit 6, and available online at http://www.pacinst.org/reports/sea_level_rise/report.pdf. The City's own General Plan S-21 requires the City to take sea level rise into account. The revised DEIR must recognize that sea level rise is reasonably foreseeable. All impact analysis and mitigation measures must be revised accordingly. For example, the building should be redesigned so that it will comply with the City's flood control ordinance even after a 0.5 foot sea level rise. **45-21**

The DEIR's water quality impact analysis is also inadequate. MM Hyd-1a requires the Project Applicant to prepare and submit an erosion control plan, but does not include a clear performance standard for this plan. This is impermissible deferred mitigation. Designing the erosion control plan to "mitigate erosion and sedimentation impacts during construction." (DEIR at 11-23) is too vague a standard. *San Joaquin Raptor v. County of Merced* (2007) 149 Cal.App.4th 645, 670 ("generalized goal" insufficient as CEQA mitigation). **45-22**

Finally, the proposed Project has changed to include a smaller impervious surface area than the project analyzed by the hydrologic consultants. (DEIR at 11-27.) Although a decreased impervious surface area is generally considered to minimize water quality impacts, the consultants should do a follow-up study to see if this change causes any new impacts on the environment. **45-23**

3. Biological Resources

The mitigation measures recommended in the Biological Resources section of the DEIR are inadequate in a number of respects. First, several mitigation measures have been improperly deferred and are unenforceable: **45-24**

(a) The part of MM Bio-1a that reads "precautions shall be taken to prevent silt-laden or contaminated runoff from entering the stream" is vague and therefore unenforceable.

(b) MM Bio-5a is unenforceable because it does not make surveys for western burrowing owls mandatory in both the breeding and non-breeding seasons, stating only that it would be "ideal" to perform both kinds of survey. This should be revised to require surveys during both breeding and non-breeding seasons, especially considering the fact that different consequences are described for the discovery of owls during the different seasons.

(c) MM Bio-5e is unenforceable because it depends on California Department of Fish and Game to "likely" require a burrowing owl mitigation and monitoring program. (DEIR at 7-75.) The City itself should impose the requirement now. Also, the City should clarify that a long-term management endowment fund is mandatory by using the term "the applicant shall" instead of "the applicant will".

Next, MM Bio-2e is insufficient to protect the nocturnal bird activities because its noise restrictions are limited to outdoor events. However, indoor events lasting past 10 p.m. will also be disruptive to nocturnal species because people will make noise as they exit the complex. **45-25**

The permanent conservation area envisioned by MM Bio-2b is only feasible if the Applicant owns all of the marsh habitat land described in that measure. Evidence of this ownership must be presented in the revised DEIR. If the Applicant does not own the entirety of the land necessary for effective protection of these sensitive areas, a new mitigation measure will have to be devised to mitigate the Project's impacts on marsh habitats and their associated species. **45-26**

MM Bio-4c is internally inconsistent. It first states that the 300-foot raptor nest buffer may be reduced it a qualified raptor biologist determines that the nesting raptors are acclimated to people and disturbance **and** otherwise would not be adversely affected by construction activities. Thus, both conditions must be met. But then the measure states "Instances when the buffer could be reduced in size would be if the raptors were well acclimated to disturbance **and/or** if there were physical barriers between the nest site and the construction project that would reduce disturbance to the **45-27**

nesting raptors." This implies that only one of the conditions need be satisfied. This discrepancy must be reconciled in the revised DEIR.

In two instances the Biological Resources chapter errs with respect to permits required by other agencies. First, the DEIR is inconsistent on the subject of whether an Army Corps of Engineers permit will be required. (See DEIR at 3-54 and 7-17.) Note that if such a permit is required, the State Water Board will have to undertake the Clean Water Act section 401 certification process. Second, the Streambed Alteration Agreement from the California Department of Fish and Game is now expired. (DEIR at 7-19 to 20.) A new one must be acquired. If the new agreement imposes any different terms than the old one, MM Bio-9 must be revised. **45-28**

4. Hazards

The best way to protect people from airport hazards is to permit only low intensity land uses near airports. This is a fundamental principle of airport land use planning and is explicitly acknowledged in the DEIR. (DEIR at 10-11.) Despite this, the Project is designed to attract and concentrate hundreds of people right up to the very edge of the San Rafael Airport airspace. This Project is encroaching so closely on navigable airspace that the DEIR recommends that signs be posted advising drivers not to back their cars into certain parking spaces, thus gaining a few extra feet of vertical clearance. (DEIR at 10-21.) **45-29**

The Project exceeds the single-acre concentration standard set in the California Airport Land Use Planning Handbook ("Handbook") (DEIR at 10-17) and it will draw large numbers of children, which the DEIR admits is a "highly risk-sensitive use" (DEIR at 10-12). The DEIR inappropriately backpedals on this problem on page 10-20, fudging the numbers to attempt to come within the limit and then claiming that the Project is consistent with the single-acre criteria. The revised DEIR must consistently and clearly disclose this fundamental conflict between the proposed Project and the existing airport. Mitigation fares no better than impact analysis. The DEIR claims that the Project's conflict with the single-acre criterion can be mitigated through the incorporation of "risk-reduction design features" into the design of the facility such as the provision of a sprinkler system and an extra emergency exit. However, the Handbook discourages reliance on such risk reduction features, stating that "avoidance of intensive uses is always preferable" and that risk-reduction features "should be limited to airports which are situated in highly urbanized locations." Handbook at 9-53 (available at http://www.dot.ca.gov/hq/planning/aeronaut/documents/ALUPHComplete-7-02rev.pdf). Relevant portion of Handbook attached as Exhibit 7. In other words, when an airport is located in a city and there is no viable way to avoid all land use conflict, risk-reduction design is better than nothing. But when there is another choice, it is "always preferable" **45-30** **45-31**

to avoid locating intensive uses near airports. Because the San Rafael Airport is not located in a highly urbanized area, the correct approach is to reject intensive uses for this site.

In sum, this Project is clearly inappropriate for the location, and will have the significant and unavoidable effect of subjecting children and families to unnecessary hazards due to the proximity to the airport.

5. Noise

The Project would subject people to extremely loud noise generated by aircraft taking off or landing at the airport: up to eleven 18-second aircraft events per day at 100 dBA. (DEIR at 12-15.) The DEIR, however, concludes that the Project is compatible with the local noise environment and that this is a less than significant impact because this level of noise exposure "would not cause hearing damage to soccer participants or spectators." Hearing loss is a completely inappropriate threshold of significance. These loud aircraft events would disrupt speech on a regular basis. Reliable verbal communication is crucial to team sports, as recognized on page 12-24 of the DEIR ("Speech interference effects could disrupt soccer or softball practices or games."). Coaches would regularly be unable to hear their players and vice versa. Much can happen during 18 seconds in a soccer game. The DEIR must be revised to reflect the Project's incompatibility with the local noise environment and conclude that this is a significant impact. **45-32**

Additionally, the DEIR fails to analyze single-event noises generated by the Project, such as roars from the crowd or referee whistles. The DEIR only analyzes the Project's impact on ambient noise levels averaged over 24 hours (DEIR at 12-16), thus violating the principles established in *Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners* (2001) 91 Cal.App.4th 1344. The Court of Appeal in that case stressed the need to provide information in a form that is useful to help nearby residents evaluate the impact of proposed projects on their daily lives. In particular, the EIR must enable residents to evaluate the degree to which loud "single events" interfere with their sleep, conversation, and the quiet enjoyment of their property. *Id.* at 1372-83. **45-33**

Next, ambient nighttime noise at nearest residences will exceed the limits established in the San Rafael Noise Ordinance. (DEIR at 12-16.) This is a potentially significant impact, requiring mitigation. But MM N-1 is insufficient because one of the alternative approaches it allows, revision of the site plan to accommodate a noise wall, is inadequate mitigation. First, there is no performance standard for the noise wall. Also, there are no consequences if the wall is ineffective. The mitigation measure must be revised to require closure of the outdoor fields at 9 p.m. if the wall proves ineffective to **45-34**

meet the standards set by the Noise Ordinance. Moreover, changing the site plan to accommodate a noise wall needs to be further analyzed in case it will unintentionally cause or exacerbate any impacts on the environment.

Finally, with respect to construction noise, there is no evidence that MM N-3 will be sufficient to mitigate the impact of pile driving noise. For example, if the Applicant does pre-drill holes, what will the resultant noise diminution be? The pile driving noise likely will still be significant, and therefore the revised DEIR must disclose that this impact is significant and unavoidable. **45-35**

6. Transportation and Traffic

The DEIR uses the wrong baseline for measuring the Project's traffic impacts. "The baseline scenario includes existing transportation conditions plus traffic generated from approved developments that are under construction." (DEIR at 13-2.) CEQA case law holds that existing conditions, rather than some hypothetical future scenario, should be the basis for determining the significance of impacts. *Environmental Planning & Information Council v. County of El Dorado* (1982) 131 Cal.App.3d 350 ("*EPIC*"). The primary legal principle set forth in *EPIC* is that the use of a future scenario as a baseline should be avoided where the practical consequence of such an approach would be to artificially understate the true environmental consequences of a proposed project. Here, by using existing condition plus expected traffic as the baseline, the DEIR understates the effect the Project alone will have on the traffic situation in the region. The traffic expected from approved developments under construction should be analyzed thoroughly as a cumulative impact, but it should not be built into the baseline. **45-36**

Next, MM Traf-1 constitutes impermissible deferred mitigation because it contains no performance standard. This measure simply requires the Applicant to submit a traffic management plan if the proposed two-lane bridge deck is not built. Ensuring "adequate queuing and pedestrian safety" is not specific enough to rescue this mitigation measure from being illegally deferred mitigation. **45-37**

Finally, the traffic analysis fails to analyze potential conflicts with the commuter train that the Sonoma-Marin Area Rail Transit District plans to operate along the railroad tracks mentioned on page 13-27 of the DEIR. It is our understanding that this commuter train will be operating at peak hours and will require drivers using the only road to and from the Project to stop and wait at the crossing. This blockage could cause traffic to back up, resulting in other indirect traffic impacts throughout the region. This possible interaction must be analyzed as a cumulative impact in the revised DEIR. **45-38**

7. Climate Change

The climate change discussion appear to have been cut and pasted from some other document, given its assertion that the Project's greenhouse gas emissions cannot be quantified because "[a]s yet, there is no study that quantitatively assesses all of the GHG emissions associated with each phase of the construction and use of an individual residential development." (Also the analysis later refers to "this Initial Study" – DEIR at 15-16.) Obviously, the Project is not a residential development. The revised DEIR must make a reasonable attempt to quantify the Project's greenhouse gas emissions. Also, the contribution of the Project to climate change should be deemed cumulatively considerable even if the Project by itself will not influence global climate change. (DEIR at 15-13.) Feasible mitigation measures should be proposed in the revised DEIR. See Exhibit 8, "Addressing Global Warming Impacts at the Local Agency Level." 45-39 45-40

Not only will the project affect climate change, but also climate change will affect the Project. However, the analysis on page 15-12 of the DEIR is incoherent and internally contradictory. Despite admitting that "it is expected that a 0.5 fit-rise in the level of the San Francisco Bay would occur by the year 2050," the DEIR concludes that sea level rise cannot be predicted with certainty and therefore the impacts of climate change on the Project are less than significant. This must be revised to disclose the significant impact that climate change will have on the Project. 45-41

8. Air Quality

The DEIR's air quality analysis fails to analyze or even mention the air pollution generated by the existing airport use of the site. Despite noting on page 6-10 that playgrounds and athletic centers are considered to be "sensitive receptors," describing on page 6-13 the General Plan's policy AW-2a against siting new sensitive receptors without adequate buffers from existing sources of toxic air contaminants and odors, and recognizing the exposure of sensitive receptors to substantial pollutant concentrations as a CEQA threshold of significance, the DEIR fails to take the next logical step and analyze how the adjacent airport will affect the quality of the air breathed by users of the recreational facility. Children will be running around outdoors at the Project site, causing their lungs to uptake greater than normal quantities of whatever lingers in the air after airplanes take off, land, and are serviced. This impact must be analyzed and mitigated in the revised DEIR. 45-42

9. Utilities and Services

The DEIR states that a water pipeline will need to be extended in order to serve the Project. (DEIR at 14-9.) But the impacts of this extension are not analyzed. 45-43

Similarly, sewer lines will need to be laid, and the revised DEIR must analyze the environmental impacts, including growth-inducing impacts, of those new sewer and water lines. (DEIR at 14-9.) **45-44**

10. Aesthetics

The DEIR fails to analyze the effect of glare from the headlights of cars traveling to and from the Project. In some instances these lights will shine directly into residential properties, potentially disturbing sleep. This concern was discussed in a February 28, 2006 staff report to the Planning Commission, but is nowhere mentioned in the DEIR. The revised DEIR must analyze and mitigate this impact. **45-45**

11. Geology and Soils

The DEIR fails to analyze the ability of the levees to withstand seismic shaking. On page 15 of Appendix C, the DEIR states that the integrity of the levees and the ability of the levees to withstand seismic shaking is being further analyzed and will be presented to the Planning Commission in the future. This impact analysis must be included in the revised DEIR. **45-46**

12. Cumulative Impacts

"An EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable." CEQA Guidelines § 15130(a). The DEIR does not comply with this legal standard. Although the DEIR provides a list of cumulative projects, no actual analysis has been done about how the incremental effects of those projects might interact with those of the Project. The DEIR quickly goes through a few issue areas and concludes that, because none of the project-specific impacts were found to be significant and unavoidable, there can be no cumulative impacts. (DEIR at 14-12 to 14.) This approach does not comply with the law, which contemplates that an impact might be insignificant on a project-specific level and yet still be cumulatively considerable. Additionally, the DEIR incorrectly states that the Project is consistent with the site's zoning designation, Master Use Permit, and restrictive covenants. (DEIR at 14-13.) The DEIR dismisses any possibility that there might be cumulative land use and planning impacts based on this inaccurate assertion. The entire cumulative impact analysis must be revisited in the revised DEIR. **45-47** **45-48** **45-49**

13. Growth-Inducing Impacts

An EIR must discuss the ways a project could directly or indirectly facilitate or remove obstacles to population growth or new development in the surrounding environment. Pub. Res. Code § 21100(b)(5). The appropriate components **45-50**

for an adequate analysis include: (1) estimating the amount, location and time frame of growth that may occur as a result of the project (e.g., additional housing, infrastructure, and mixed use developments); (2) applying impact assessment methodology to determine the significance of secondary or indirect impacts as a result of growth inducement; and (3) identifying mitigation measures or alternatives to address significant secondary or indirect impacts.

Despite admitting that growth-inducing impacts can result from the development of public institutions and the introduction of employment opportunities, the DEIR makes the unsupported assertion that "[i]t is not likely that the proposed Project in and of itself would attract new permanent residents to the City or region." (DEIR at 14-14.) This unsupported assertion also appears in the discussion on Population and Housing Impacts, where the DEIR concludes that a recreational facility "by nature" would not induce population growth, but rather serve the recreational needs of the population. (DEIR at 14-3.) 45-51

To the contrary, the Project provides employment and recreation possibilities and therefore has the potential to induce population growth in the area. The Project also extends water and sewer service to the site and improves bridge access, both of which remove an obstacle to future population growth onsite. Increased population will have its own impacts. These must be analyzed and mitigated.

C. The DEIR Does Not Adequately Discuss Alternatives to the Proposed Project. 45-52

The analysis of alternatives to the proposed project lies at "[t]he core of an EIR." *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564. Every EIR must describe a range of alternatives to the proposed project and its location that would feasibly attain the project's basic objectives while avoiding or substantially lessening the project's significant impacts. CEQA § 21100(b)(4); CEQA Guidelines § 15126(d). A proper analysis of alternatives is essential for the City to comply with CEQA's mandate that significant environmental damage be avoided or substantially lessened where feasible. Pub. Res. Code. § 21002; CEQA Guidelines §§ 15002(a)(3), 15021(a)(2), 15126(d); *Citizens for Quality Growth v. City of Mount Shasta*, 198 Cal.App.3d 433, 443-45 (1988). As stated in *Laurel Heights Improvement Association v. Regents of University of California*, "[w]ithout meaningful analysis of alternatives in the DEIR, neither the courts nor the public can fulfill their proper roles in the CEQA process. . . . [Courts will not] countenance a result that would require blind trust by the public, especially in light of CEQA's fundamental goal that the public be fully informed as to the consequences of action by their public officials." 47 Cal.3d 376, 404 (1988). The DEIR's discussion of alternatives fails, in numerous respects, to live up to these standards.

First, the DEIR does not discuss any alternatives that could meet most of the Project's objectives. Thus, the alternatives are set up to fail. The revised DEIR must analyze alternatives that reduce the Proposed Project's impacts on the environment but still achieve basic project objectives. CEQA Guidelines § 15126.6(f) ("the EIR need examine in detail only the [alternatives] that the Lead Agency determines could feasibly attain most of the basic objectives of the project"). **45-53**

Second, the selection of the No Project Alternative is not supported by the evidence. The DEIR purports to analyze, as the No Project Alternative, a future project application that fully conforms to the existing zoning and Master Use Permit. (DEIR at 16-7.) However, the uses that the DEIR anticipates would be permissible without amending the zoning or the Master Use Permit (outdoor soccer fields and playgrounds) would not comply with the Wetland Overlay limitation to "low intensity uses, such as bird watching, fishing, nature photography and study, wildlife observation and scientific research and education." Nor is it clear that outdoor soccer fields and playgrounds would comply with the Master Use Permit and the Declaration of Restrictions. **45-54**

Third, when comparing the alternatives to the proposed Project, the DEIR inappropriately concludes that various impacts of the No Project Alternative and the Reduced Development Alternative would be "similar" to the Proposed Project on the basis that the Proposed Project had been found not to have significant impacts. (See, e.g., DEIR at 16-7.) This is faulty reasoning. Just because the Project's impact would be less than significant does not mean the No Project Alternative would have similar impacts. Moreover, had the DEIR adequately analyzed the Project's environmental impacts, it would have determined that the Project would have significant environmental impacts. The EIR is obligated to identify and analyze alternatives that are capable of minimizing the Project's impacts. **45-55**

Fourth, the DEIR fails to adequately explore the feasibility of an Alternative Location. The DEIR concludes with no evidence or analysis that, of a list of 14 alternative sites compiled by the Applicant, none proved to be suitable to obtain the Applicant's basic objectives. (DEIR at 16-26.) This mere conclusion does not provide the public and decision-makers with enough information to meaningfully participate in the decision not to promote alternative locations. "To facilitate CEQA's informational role, the EIR must contain facts and analysis, not just the agency's bare conclusions or opinions. An EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project." *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 404-405 (EIR should have discussed reasons for rejecting alternative locations). **45-56**

Moreover, the reasoning that alternative locations are infeasible because "the Applicant does not possess development rights on another site in the City" is faulty. This line of thinking implies that there was no actual consideration of alternative locations, because "if the Applicant were to be required to find an alternative site, it is likely that the Applicant would withdraw the development application." (DEIR at 16-26.) Already possessing development rights is not the legal standard for feasibility. *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553 describes in detail the circumstances in which an EIR should consider off-site alternatives. When a developer "ha[s] the ability to purchase or lease [alternative sites], or may otherwise have access to suitable alternatives," then analysis of such sites is called for. *Id.* at 575. The revised DEIR must explore whether the Applicant has the ability to purchase, lease, or otherwise access the 14 sites on the list compiled by the Applicant as well as other sites that the City, using its independent judgment, concludes might be potentially viable alternative locations. **45-57**

Fifth, the alternatives are all rejected as infeasible on page 16-27 because they supposedly are commercially unviable. However, the City appears to have merely taken the Applicant's word on this. The DEIR must disclose the economic data that underlies these conclusions. Moreover, as a legal matter, some decrease in profitability is not a sufficient reason for rejecting an alternative as infeasible. CEQA Guidelines § 15126.6(b). "The fact that an alternative may be more expensive or less profitable is not sufficient to show that the alternative is financially infeasible. What is required is evidence that the additional costs or lost profitability are sufficiently severe as to render it impractical to proceed with the project." *Preservation Action Council v. City of San Jose*, 141 Cal.App.4th 1336, 1351 (2006). **45-58**

II. A REVISED DRAFT EIR MUST BE PREPARED AND RECIRCULATED. **45-59**

CEQA requires recirculation of a revised draft DEIR "[w]hen significant new information is added to an environmental impact report" after public review and comment on the earlier draft DEIR. Pub. Res. Code § 21092.1. The opportunity for meaningful public review of significant new information is essential "to test, assess, and evaluate the data and make an informed judgment as to the validity of the conclusions to be drawn therefrom." *Sutter Sensible Planning, Inc. v. Sutter County Board of Supervisors* (1981) 122 Cal.App.3d 813, 822; *City of San Jose v. Great Oaks Water Co.* (1987) 192 Cal.App.3d 1005, 1017. An agency cannot simply release a draft report "that hedges on important environmental issues while deferring a more detailed analysis to the final [EIR] that is insulated from public review." *Mountain Lion Coalition v. California Fish and Game Comm'n.* (1989) 214 Cal.App.3d 1043, 1053.

In order to cure the panoply of DEIR defects identified in this letter, the City must obtain substantial new information to adequately assess the proposed Project's environmental impacts, and to identify effective mitigation and alternatives capable of alleviating the Project's significant impacts. This new information will clearly necessitate recirculation. CEQA requires that the public have a meaningful opportunity to review and comment upon this significant new information in the form of a recirculated draft supplemental EIR. **45-60**

III. CONCLUSION

For the foregoing reasons, the Gallinas Creek Defense Council urges the City to delay further consideration of the San Rafael Airport Recreational Facility unless and until the City prepares and recirculates a revised draft EIR that fully complies with CEQA and the CEQA Guidelines. **45-61**

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP

Ellison Folk
Jeannette MacMillan

Attachments:

Exhibit 1 – City Council minutes
Exhibit 2 – "Airport owners file suit to lift building restrictions," San Rafael/Terra Linda News Pointer
Exhibit 3 – Declaration of Supervisor Roumiguiere
Exhibit 4 – email from Marin County Department of Public Works Director Farhad Mansourian
Exhibit 5 – FEMA Technical Bulletin 3-93
Exhibit 6 – The Impacts of Sea-Level Rise on the California Coast
Exhibit 7 – portion of California Airport Land Use Planning Handbook
Exhibit 8 – The California Environmental Quality Act: Addressing Global Warming Impacts at the Local Agency Level

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Exhibit 1

Condition 9, regarding the wording of the light and noise easement. All other issues are basically consistent with discussions. The County is recommending, and City staff has concurred, that a Joint Powers Agreement between the City and County be drawn up, which would establish a revised boundary to the Flood Control Zone which would cover a larger area, the Gallinas Creek watershed on the South Fork. The other point on which there is still disagreement between the County and the developer relates to the language of the light and noise easement, which the respective attorneys for the County and developer hopefully will be working out.

Ms. Macris stated that the County's recommendation is that the City Council approve the rezoning/prezoning, subject to the fourteen conditions recommended, with Conditions 3 and 9 to be discussed further, and including points 1 through 5 as outlined in the letter from the County Planning Department. It is felt that the other issues are basically consistent.

Attorney Bianchi added that a revised version of the light and noise easement agreement, with toned down language, has been submitted to the County. He feels that a notice in the CC&R's would be just as effective as granting an easement.

Mayor Mulryan recommended approving the action, with respective counsels from the County, applicants and City to work out the wording to protect the light and easement problem. Supervisor Roumiguiere agreed that the wording should be worked out by the various counsels.

Supervisor Roumiguiere urged annexation to Flood Control Zone #7, as outlined under Condition 3. He then addressed Condition 14, which has been worked out with the property owner's representative. This is an added condition which, basically, says that prior to approval of the final map of the project the property owner will sign and record a covenant binding themselves or successors, restricting the use of the 116 acre airport parcel to those uses restrcting uses existing as of the date of the tentative map approval, and the following permitted uses: a. Public Utility uses as approved by the appropriate governmental agencies, which would include flood control, sanitary sewer, gas and electric and public safety facilities; b. Private and public recreational use; c. Continue to airport and airport related uses; d. The covenant to run with the land and be enforceable by the County of Marin and City of San Rafael, and include open space, wildlife habitat and other uses in accordance with those agreed to by the City and County in the future. This would mean that high density or commercial development would never take place on that parcel.

Mayor Mulryan asked if this is City or County property. Ms. Moore indicated that it is within the City except for fringe areas close to the creek, probably due to the modification of the creek. Mayor Mulryan asked if there is consent from the property owner on that, and Mr. Bianchi replied that has been worked out. Mayor Mulryan stated that the concept is excellent, except that if it is within the City, the matter should be in accordance with the approval of the City, and not with the County. He said he felt the concept is excellent.

Supervisor Roumiguiere again urged annexation to Flood Control Zone 7, even though it means diversion of approximately $20,000 in property tax monies from the City to the Flood Control Zone. Mayor Mulryan asked Ms. Moore about the maintenance by the County, which was not included in their initial proposal, and Ms. Moore replied that in the latest letter, dated February 18, from the County, they agreed that the Flood Control Zone will maintain the levees (with the exception of aesthetic considerations), the pumps, the inflow/outflow pipes, and the level of the lake. Mayor Mulryan asked how this could be assured, and Ms. Moore suggested that this could be covered in a Joint Powers Agreement. She recommended that the agreement could specify that City would agree to annexation to Flood Control Zone 7 "or a modified flood control zone", so long as the City/County coordination as outlined in the City staff recommendation of revised Condition 's' is met within a specified period of time. In that way, the Joint Powers Agreement can be negotiated. Mayor Mulryan stated it could even remain at Flood Control Zone 7, so long as it is agreed who will do the maintenance. Mr. Roumiguiere reassured the Council that there is no problem whatsoever about Flood Control Zone 7 doing the maintenance work. Otherwise, he feels it would not be fair to the City after giving up property taxes.

File #: ZC05-01/UP05-08/ED05-15
Title: City Council Minutes, 2/22/83
Exhibit: 3-5

The aesthetics will be taken care of by the Homeowners' Association, but the flood control work will be taken care of by the Zone. The only requirement is for the levees to be put in good shape before the Flood Control Zone takes over. Mayor Mulryan assured Mr. Roumiguiere that the City would be more than glad to do that.

Dwight Winther again spoke, regarding Condition 's', which states that the density for the medium density residential area shall be 87 units, with the possibility of going to 125 units. Throughout the proposal for the project, 125 units have been proposed for the medium density area, and they feel it is appropriate for the property. Schematic plans have been prepared showing how 125 units can be built on the property, and if additional outside levee areas are included the density drops from the 14 to 15 units per acre as proposed, to as low as 9 units per acre if you were to include all of the water areas. The developer has been asked, and is paying $1,500,000 in traffic mitigation fees, and will be paying very expensive sewer and water connection fees. For these reasons Mr. Winther asked Council to reverse the Planning Commission and give the developers clear entitlement to the 125 units for the medium density residential area. Mayor Mulryan asked Ms. Moore for comment on this, and she explained the matter, indicating that at the time of design review the density may go up to 125 units, but that is not known at this time, and depends upon design adequacy.

Roger Ahlenius of the Advisory Board, Flood Control Districts 7, spoke in favor of modifying the Flood Control District as just discussed.

Attorney James Hatfield, representing Smith Ranch Airport, stated that Smith Ranch is presently considering topping all of their levees around the Ranch, which will require some 8,000 feet, which will cost a minimum of $61,000. Mr. Hatfield's question is whether the Smith Ranch Airport area is included in Flood Control Zone 7 - that is, the area north of the south fork of Gallinas Creek. Mayor Mulryan indicated that it is not.

Mr. Hatfield then addressed Condition 9, regarding the noise easement. They do not feel they would be involved in that, but wish to make clear the fact that they do not wish to have to go to the County for permission to fly an airplane out of Smith Ranch Airport. Therefore, if there is any question about the language of the easement in this regard he would like to be consulted. Mr. Hatfield stated that with regard to Condition 14, it is the position of the people at Smith Ranch that, in the event they are successful in their bid to buy the property they will have a condition that it will only be used as open space and an airport. If the deal is successful, they will be coming back to the City for a grant of some sort of control so the property can never be used for anything other than as it is today.

There being no further public input, the public hearing was closed.

Councilmember Breiner suggested a revision to Condition 'o', to keep the first sentence as it is, that "Development of the one acre park site at the northernmost end of the property shall be funded by the two different residential areas." Then, "Maintenance of the park shall be the responsibility of the residential areas." It might be added that this will be part of the CC&R's.

Councilmember Breiner then suggested that staff's Condition 'l', which is the same general item as County's Condition '4', regarding an unimpeded through vehicular connection from Northbank Drive to the rear parking lot of Marin Center (Exhibit Building Parking Lot), is a very important one, for a connection between the hotel/motel and convention areas, which would relieve participants in Marin Center events from driving out to Civic Center Drive and back in on the Marin Center property. Ms. Moore stated that, at the design review level, the City can exercise their discretion regarding the design of the bridge, and also a bridge from the rear of the property to the Marin Center property.

Mayor Mulryan called for a motion, stating that it appears agreement has been reached with the exception of the 87 units vs 125. He feels in that case the Planning Commission has exercised discretion.

Planning Director Moore pointed out that several items in the County letter refer to approval by the County, whereas they only recommend and final decision rests with the City.

Councilmember Breiner moved and Councilmember Miskimen seconded, to certify the Negative Declaration.

AYES: COUNCILMEMBERS: Breiner, Frugoli, Jensen, Miskimen & Mayor Mulryan
NOES: COUNCILMEMBERS: None
ABSENT: COUNCILMEMBERS: None

Councilmember Breiner moved and Councilmember Jensen seconded, to pass the Prezoning Ordinance to print, with revised Conditions x, l, o, s, u, v, and the addition of Condition 14 from the County, as discussed.

An Ordinance of the City of San Rafael, Amending the Zoning Map of the City of San Rafael, California, Adopted by Reference by Section 14.15.020 of the Municipal Code of San Rafael, California, so as to Prezone Certain Real Property from the County of Marin Zone BFC:RSP-4.36 (Bay Front Conservation, Single Family Planned Residential) District to P-D (Planned Development) District - Civic Center North, and numbering Charter Ordinance No. 1448, was read, introduced and ordered passed to print as amended by the following vote, to wit:

AYES: COUNCILMEMBERS: Breiner, Frugoli, Jensen, Miskimen & Mayor Mulryan
NOES: COUNCILMEMBERS: None
ABSENT: COUNCILMEMBERS: None

Councilmember Miskimen moved and Councilmember Jensen seconded, to pass the Rezoning Ordinance to print, with revised Conditions x, l, o, s, u, v, and the addition of Condition 14 from the County, as discussed.

An Ordinance of the City of San Rafael, Amending the Zoning Map of the City of San Rafael, California, Adopted by Reference by Section 14.15.020 of the Municipal Code of San Rafael, California, so as to Reclassify Certain Real Property from "U" (Unclassified) District to P-D (Planned Development) District, and numbering Charter Ordinance No. 1449, was read, introduced, and ordered passed to print as amended by the following vote, to wit:

AYES: COUNCILMEMBERS: Breiner, Frugoli, Jensen, Miskimen & Mayor Mulryan
NOES: COUNCILMEMBERS: None
ABSENT: COUNCILMEMBERS: None

Supervisor Roumiguiere asked for clarification, whether the action just taken puts the property in Flood Control Zone 7, subject to working out the maintenance. Mayor Mulryan replied that it does, with the proviso that it may, between the City and County staffs, result in a new flood control area. Supervisor Roumiguiere responded that it would not be a new Flood Control Zone, but an expansion of the present one, and Mayor Mulryan agreed, and also recognized that since the expansion project may take a couple of years the agreement would not be held up because of that. Mr. Roumiguiere asked if this includes the property across the creek, and Mayor Mulryan replied in the affirmative.

Supervisor Roumiguiere thanked the Council and City staff for their many courtesies and for their cooperation with the County in working on the complex facets of this project.

13. PUBLIC HEARING - APPEAL OF PLANNING COMMISSION DECISION DENYING THE APPLICATION FOR A USE PERMIT TO OPERATE A VIDEO ENTERTAINMENT CENTER; 512 THIRD STREET; R. N. CLAYTON, OWNER; CHERYL GRIFFIN, REPRESENTATIVE; AP14-123-26 (P1) - File 10-5

Mayor Mulryan declared the public hearing opened.

Planning Director Moore briefed the Council, informing them that the appellant is proposing a 70 game video entertainment center at 512 Third Street, to operate seven days a week, to 10:00 PM. The Planning Commission denied the request, finding that the use would likely create or increase the incidence of loitering and/or vandalism in the area, which would have an adverse effect on adjacent and vicinity businesses, residences and/or properties. The Police Department has emphasized that police problems have been common in the immediate vicinity of 512 Third Street because of the existing Marin Pizza Pub and Cellars Bar uses. The Police Chief feels that the introduction of youth-oriented recreational use would invite additional problems in this block. Staff and Planning Commission are also concerned about the intensity of the use attracting vehicular and bicycle as well as significant pedestrian traffic into the area.

Councilmember Frugoli moved and Councilmember Miskimen seconded, to adopt the proposed Resolution certifying a Negative Declaration and conditionally approving a Certificate of Compliance; and, further, concurring with the Planning Commission and directing staff to prepare standardized procedures and criteria for evaluating the development potential of such small lots.

RESOLUTION NO. 6501 - CONDITIONALLY APPROVING CC81-19: CERTIFICATE OF COMPLIANCE FOR 347 PROSPECT DRIVE

AYES: COUNCILMEMBERS: Frugoli, Jensen, Miskimen & Mayor Mulryan
NOES: COUNCILMEMBERS: Breiner
ABSENT: COUNCILMEMBERS: None

17. ORDINANCE RE SAN RAFAEL YACHT CLUB LEASE (CA) - File 2-8-11

Item continued to the April 4th meeting.

Councilmember Jensen moved and Councilmember Miskimen seconded, to extend the San Rafael Yacht Club lease to April 11, 1983.

AYES: COUNCILMEMBERS: Breiner, Frugoli, Jensen, Miskimen & Mayor Mulryan
NOES: COUNCILMEMBERS: None
ABSENT: COUNCILMEMBERS: None

18. ORDINANCES RE: CIVIC CENTER NORTH (P1) - File 10-1

a. Final Adoption - Ordinance No. 1448 - Amending the Zoning Map of the City of San Rafael, California, Adopted by Reference by Section 14.15.020 of the Municipal Code of San Rafael, California, so as to Prezone Certain Real Property from the County of Marin Zone BFC:RSP-4.36 (Bay Front Conservation, Single Family Planned Residential) District to P-D (Planned Development) District - Civic Center North.

b. Final Adoption - Ordinance No. 1449 - Amending the Zoning Map of the City of San Rafael, California, Adopted by Reference by Section 14.15.020 of the Municipal Code of San Rafael, California, so as to Reclassify Certain Real Property from "U" (Unclassified) District to P-D (Planned Development) District - Civic Center North.

Councilmember Jensen moved and Councilmember Frugoli seconded, to approve final adoption of Ordinance No. 1448.

Under question, Councilmember Breiner proposed a revision to Condition (1) which deals with the vehicular bridge. Mrs. Breiner felt that it should reflect the fact that the City would reserve the right to require construction, or provision for future construction, of the vehicular bridge, as a condition of any future approval for the hotel parcel.

Councilmember Jensen was of the opinion that such a change would require re-noticing and re-publishing of the Ordinance. However, Assistant City Attorney Stewart Andrew stated he would not consider this a substantive change.

Attorney Albert Bianchi, representing the First National State Bank of New Jersey, owners of the property in question, stated he has concerns regarding the new language being suggested. He felt it is stronger than even the County language. He felt that the future need for a vehicular bridge would not be created by the proposed hotel, but by the County because of activities at the Marin County Civic Center. Therefore, he questions whether there should be a burden imposed forcibly upon the hotel for the provision of the vehicular bridge, if there should be a decision to have such a bridge. Also, the hotel parking has been carefully calculated, and a vehicular bridge would no doubt add more cars when motorists would use the hotel parking when attending functions at the Civic Center. This would also result in problems of litter, policing and security. Mr. Bianchi also felt that the County should be brought into the picture, when and if such a bridge is considered, since so much of the impact would be from their activities.

Councilmember Breiner stated she did not intend to exclude the County from any such discussion, and they would certainly be included. Mrs. Breiner asked Mr. Bianchi if he would prefer some wording about the County's participation, and Mr. Bianchi replied he would be satisfied with a reference about the developer, the City and the County working together toward contributions if it were deemed necessary by the City.

Mr. Bianchi added that he feels it should be the City's decision whether the bridge is required, at all.

Councilmember Miskimen recommended that the sentence in question be revised to read, "Prior to the approval of a design review application for the hotel complex, the decision will be made regarding whether to upgrade the bridge to a vehicular structure, and County participation thereof."

Mayor Mulryan again asked Assistant City Attorney Andrew for his opinion as to whether this amendment as stated was a substantive change. Mr. Andrew stated that in his opinion this would not be considered substantive, since it is essentially what had been agreed upon previously and since the developer agrees with this amended wording.

Before voting, Mrs. Breiner felt that an inconsistency exists regarding the low density acreage. Planning Director Moore informed the Council that a discrepancy was found in the developer's submitted Development Booklet, and that the accurate acreage figure for the low density residential area is 35 acres. (Page 22 of the Booklet)

Ms. Moore added that a letter was being sent to the Mayor from Supervisor Bob Roumiguiere regarding certain County comments about the last meeting, and that it can be taken care of by a memo to the file.

Councilmember Jensen accepted the amendment, as did Councilmember Frugoli, who had seconded the motion.

Ordinance No. 1448 - Amending the Zoning Map of the City of San Rafael, California, Adopted by Reference by Section 14.15.020 of the Municipal Code of San Rafael, California, so as to Prezone Certain Real Property from the County of Marin Zone BFC:4.36 (Bay Front Conservation, Single Family Planned Residential) District to P-D (Planned Development) District-Civic Center North, was adopted, as amended, as an Ordinance of the City of San Rafael by the following vote, to wit:

AYES: COUNCILMEMBERS: Breiner, Frugoli, Jensen, Miskimen & Mayor Mulryan
NOES: COUNCILMEMBERS: None
ABSENT: COUNCILMEMBERS: None

Ordinance No. 1449 - Amending the Zoning Map of the City of San Rafael, California, Adopted by Reference by Section 14.15.020 of the Municipal Code of San Rafael, California, so as to Reclassify Certain Real Property from "U" (Unclassified) District to P-D (Planned Development) District - Civic Center North, was adopted, as amended, as an Ordinance of the City of San Rafael by the following vote, to wit:

AYES: COUNCILMEMBERS: Breiner, Frugoli, Jensen, Miskimen & Mayor Mulryan
NOES: COUNCILMEMBERS: None
ABSENT: COUNCILMEMBERS: None

19. STATUS REPORT RE PLANNING AND SPHERE OF INFLUENCE MATTERS: (Pl) - File 191

a. North San Rafael Plan
b. Luiz/Grady - Big Rock Annexation
c. Bacciocco Daphne LAFCo Study
d. LAFCo Special District Sphere of Influence Study

It was agreed that no action would be taken on this report, but staff will make a report on developments in the near future.

(Councilmember Miskimen left meeting)

21. CONSIDERATION OF IMPACT OF SAN QUENTIN PRISON'S PROPOSED TENT CITY ON THE CITY OF SAN RAFAEL - File 13-1

Councilmember Breiner expressed concern regarding the proposed sanitation facilities for the proposed tent city at San Quentin, and what impact it would have on the City of San Rafael. Staff was asked to obtain details, including overcrowding, and report back on any possible impacts on the City.

22. DISCUSSION RE PROPOSED HIGHWAY 101 CORRIDOR PLAN AND PROGRAM, PHASE I (Pl) - File 11-16

This item was continued to the April 4th meeting for City and County staffs to have an opportunity to meet and discuss.

File #: ZC05-01/UP05-08/ED05-15
Title: City Council Minutes, 3/21/83
Exhibit: 3-9

Exhibit 2

SAN RAFAEL/TERRA LINDA
NEWS POINTER
A MARIN SCOPE COMMUNITY WEEKLY
Volume 37 Issue 22
August 28-September 4, 1999

Airport owners file suit to lift building restrictions

County Counsel Douglas Maloney: "This is not a public interest lawsuit."

JOE LEIBEK
Editor

A lawsuit seeking to lift development restrictions on a 41-acre parcel in north San Rafael has been filed by the property's owners against the City and County, while the property's owners claim the covenants should not apply, the County's chief attorney plans to ask a judge to dismiss the suit.

The suit was filed August 17 by Novato attorney Robert Levy, on behalf of developers William Bleiser and Joe Shekou, and Westland Housing Corporation. Westland Housing, who became partial owners of the property during a complicated option arrangement, is comprised of landscape contractor Tom Cagwin of Mill Valley, owner of Cagwin and Dorward in Novato; restaurateur Al Delecio of Novato; and the San Rafael contracting firm of Maggiora and Ghilotti.

The disputed parcel, portions of Marin Ranch Airport, is part of a 90-acre plot located off Smith Ranch Road near McInnis Park and the Marin Lagoon subdivision. Restrictions on the property, signed by the City, County and the property owners, limit any future use to airport-related projects, roadways, open space, and private and public recreation.

County Counsel Douglas Maloney said the City and County were named in the suit because the development restrictions benefit both jurisdictions, although the airport is in San Rafael City limits.

Citing the kind of restrictions placed upon the property and the wishes of the property's owners to develop, Maloney said, "This is not a public-interest lawsuit."

The evolution of the airport property's ownership is lengthy and complex. The First National State Bank of New Jersey originally owned much of the land that stretches north of the Civic Center to Smith Ranch Road and west of Highway 101 to the Bay. Many of the parcels were sold to Shekou. Shekou sold land to Southwest Diversified, who built the Marin Lagoon subdivision; and to Embassy Suites, who is building the hotel adjacent to the Civic Center.

Shekou kept the land fronting Highway 101, where he plans to build an office building and restaurant. Shekou was one of the developers who recently and successfully fought the Marin Municipal Water District's moratorium on new hookups, citing the need for water for his proposed projects. Although a Marin County Superior Court Judge ruled in the developers' favor, MMWD has appealed the decision.

In 1981, the bank agreed to grant an option on the airport property to the Las Gallinas Valley Sanitary District, who planned to build an effluent pond. In 1983, the development restrictions were signed by the bank. The option was subsequently purchased from the Sanitary District by Bleiser, Shekou and Westland Housing for $500,000.

Maloney said he plans to ask a judge to dismiss the suit, because the property owners have not provided enough of a reason to lift the restrictions. San Rafael City Attorney Gary Ragghianti said although he has not yet studied the case, he will likely coordinate the City's legal efforts with the County.

"It's a question of equity," Maloney said. "The property owners agreed to these restrictions because they wanted more density at another project." The higher densities were granted by the City to the hotel and office properties near Highway 101.

Maloney said the property owner's argument is a technicality. They contend the bank agreed to the restriction after they granted the option to the Sanitary District. The new owners — Bleiser, Shekou and Westland Housing — feel restrictions were subject only to the option between the two previous parties, and should no longer apply.

Bleiser, former City Manager of San Rafael and now principal owner of San Rafael-based Capitol Investment Resources, declined to comment on the suit when reached by the *Newspointer*. Bleiser said all of the plaintiffs agreed they would refer all questions to their attorney, Levy, who could not be reached by the *Newspointer* by August 26.

When reached at his Novato office, Cagwin said he also would not comment on the suit. Plans for the property, although not finalized, may include a small shopping center, condominiums, and possibly a golf

continued on page 14

hina Camp for public TV

pa and Soviet participants in the Global Environmental Exchange
2 film crew during a conservation demonstration at China Camp near San
ogulio. Heads With Care, a new series about North Bay efforts to preserve
i awareness. The show will air on Thursday, September 13, at 7:30

Airport

continued from page 1

course, Cagwin said.

The San Rafael General Plan's Northgate Policies says the property may not be developed unless the restrictions are lifted or modified by the City, County and the property owners. Should the restrictions be lifted, the land may then be developed for low- to medium-density residential uses, a neighborhood shopping center, a marina or golf course, and possibly a park for Northgate-area residents.

Traffic allocations in the General Plan would allow up to 375 housing units and up to 73,000 square feet of neighborhood commercial use.

San Rafael Senior Planner Jean Freitas said Bleiser met with City officials and neighborhood groups during the General Plan revision process in 1988. The plan's residential and commercial designation for the property was written following those meetings.

According to the plan, two major roads must be built before the airport is developed — the Lincoln-Los Ranchitos connector, which has been built, and the controversial McInnis Parkway. The latter road, proposed to be an arterial connector between Highway 101 and Highway 37, currently dead-ends at Marin Lagoon. To continue to the airport, the road must cut through wetlands areas.

Karin Urquhart, executive director of the Marin Conservation League, said the League is adamantly opposed to the construction of McInnis Parkway because of the potential loss of wetlands. For that reason, she added, the League would be "very opposed" to any lifting of the airport property's development restrictions.

"It would seem a real shame," Urquhart said. "There were reasons for those covenants. It does not bode well for the process."

Jean Stankweather, a longtime environmental activist who lives in Terra Linda, said, if the restrictions are lifted, the public will distrust all covenants in the future. "Who can you trust," she said, "if two or more cubics agree to the restrictions?"

Stankweather, who chairs the Marin Conservation League's Bayfront Committee, said the restrictions are a "reasonable" use of the land.

"Let's keep to it," she said.

The airport property was the subject of recent citizens' complaints about the amount of landfill dumped there by a landscape contractor. People living in Santa Venetia, Captain's Cove, and other nearby areas told the San Rafael City Council the level of fill was too high. The use permit for the property is due to expire, and a new one is currently being processed by the San Rafael Planning Department.

Liveaboards

continued from page 1

mornings," he said. "Action needs to be taken now."

Bud Lowrie, owner of Lowrie's Yacht Harbor, cautioned the City against taking too tough a stance. His harbor does contain a few liveaboards, he said, but he has shower and sewage facilities. Lowrie, who feels the live-aboard problem is not growing, suggested forming a committee made up of City staff and Waterways, requires all liveaboards in County waters to be hooked up to sewer lines. Most marinas lack these facilities, Brown said. The proposed amendment, slated for completion in two weeks, is designed to facilitate enforcement.

Sausalito special harbormaster Andy Anderson, a member of the County committee drafting the new amendment, said the new laws will affect all boats in unincorporated County waters. "All boats in Marin waters can no longer dump enforcement is virtually "useless," Anderson said.

The County will perform random checks on boats in County waters. If the seal is broken, a $500 fine will be levied against the boat's owner. The sealing procedure will cost approximately $10.

Boat owners who have returned from outside the three-mile inland waterways will have to have their Y-valves sealed again, Anderson said.

The city of Sausalito is also expected to adopt the new

Exhibit 3

COPY

DOUGLAS J. MALONEY, County Counsel
Suite 342, Civic Center
San Rafael, CA 94903
Telephone: (415) 499-6117

Attorney for Defendant, COUNTY OF MARIN

SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF MARIN

JOE SHEKOU, HAIDY SHEKOU, WILLIAM J. BIELSER, AUDREY BIELSER, ASHLEY BIELSER, CHRISTOPHER BIELSER, WESTLAND HOUSING INC., a California Corporation,

Plaintiffs

vs.

CITY OF SAN RAFAEL, a municipal corporation and COUNTY OF MARIN, a political subdivision of the State of California,

Defendants.

CITY OF SAN RAFAEL,

Cross-Complainant,

vs.

JOE SHEKOU, et al.

Cross-Defendant.

No. 147042

DECLARATION OF ROBERT ROUMIGUIERE IN SUPPORT OF COUNTY OF MARIN'S SEPARATE STATEMENT IN OPPOSITION TO PLAINTIFFS' MOTION FOR SUMMARY JUDGMENT
HEARING DATE: 10/30/91
TIME: 9:00 A.M.
DEPARTMENT: 5
TRIAL DATE: None

ROBERT ROUMIGUIERE declares:

1. I have been a Marin County Supervisor since September 26, 1972.

EXHIBIT ESM 2 PAGE 1 OF 2

2. On or about December 14, 1983, I was the Chairman of the Marin County Board of Supervisors. At that time I was contacted by Dwight Winther on behalf of Coleman Consultants, which firm represented the owners of a development project known as Civic Center North, located in the City of San Rafael and my supervisorial district.

3. Mr. Winther asked me to present the declaration of restrictions, which is the subject matter of this litigation, to the Board of Supervisors for consideration and approval on an expedited basis, due to time constraints the developer was experiencing.

4. I had previously urged the City of San Rafael to require a declaration of restrictions of this type and nature as a condition of approval of the Civic Center North project to ameliorate adverse impacts engendered by the density allowed for this project. If the Declaration of Restrictions had not been required, I, on behalf of my constituents in the vicinity, would have urged to city to reduce the allowed density for the project.

5. In my opinion, based on my experience as a County Supervisor, during which I considered scores of land development projects, the Declaration of Restrictions was an integral factor in the approval of the Civic Center North project at the allowed density.

I DECLARE UNDER PENALTY OF PERJURY, that the foregoing is true and correct.

Executed at San Rafael, California, October 15, 1991.

Robert Roumiguiere
ROBERT ROUMIGUIERE

G:\DJM\AFF

EXHIBIT ESM 2 PAGE 2 OF 2 2

8306

14, 1985

CITY

by Lawrence E. Mulryan
LAWRENCE E. MULRYAN, Mayor

ATTEST: by Joanne N. Ledoux
JOANNE N. LEDOUX, City Clerk

26 14, 1985

COUNTY

by Bob Pommeranz

by _____

File #: ZC05-01/UP05-08/ED05-15
Title: Covenant of Restrictions
Exhibit: 3-3

53 0421

Exhibit 4

From: "Mary Hanley" <maryinmarin@comcast.net>
Subject: **[GallinasCreek] FW: Levee Breach at San Rafael Airport**
Date: November 14, 2006 4:00:13 PM PST
To: <GallinasCreek@yahoogroups.com>
Reply-To: GallinasCreek@yahoogroups.com

Here is the response from Farhad to my email to his Assistant.
-- Mary

From: Mansourian, Farhad [mailto:FMansourian@co.marin.ca.us]
Sent: Tuesday, November 14, 2006 1:54 PM
To: maryinmarin@comcast.net; Stewart, Jeri
Cc: Ford, Ron; Adams, Susan
Subject: RE: Levee Breach at San Rafael Airport

Greetings

Here is quick answers to the questions you asked:

1- the fill material came from one of County's Flood Control job sites in Mill Valley. The work was done as an emergency measure by County Crew

2- the cause of the partial failure of the levee is old age and lack of maintenance by us

3- the location of the partial failure was nearest to the end of the runway. This levee is owned and maintained by the County of Marin

take care

farhad

From: Mary Hanley [mailto:maryinmarin@comcast.net]
Sent: Tuesday, November 14, 2006 11:46 AM
To: Stewart, Jeri
Cc: Ford, Ron; Mansourian, Farhad; GallinasCreek@yahoogroups.com
Subject: Levee Breach at San Rafael Airport

Ms. Stewart (Executive Assistant to Farhad Mansourian):

Due to my (I thought) repressed frustration, coupled with your attitude and threatening to hang up on me, I believe it is in OUR best interest to communicate

Email Disclaimer: http://www.co.marin.ca.us/nav/misc/EmailDisclaimer.cfm

Messages in this topic (1) Reply (via web post) | Start a new topic

Messages | Files | Photos | Links | Database | Polls | Members | Calendar

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YAHOO! GROUPS

Change settings via the Web (Yahoo! ID required)
Change settings via email: Switch delivery to Daily Digest | Switch format to Traditional
Visit Your Group | Yahoo! Groups Terms of Use | Unsubscribe

Exhibit 5

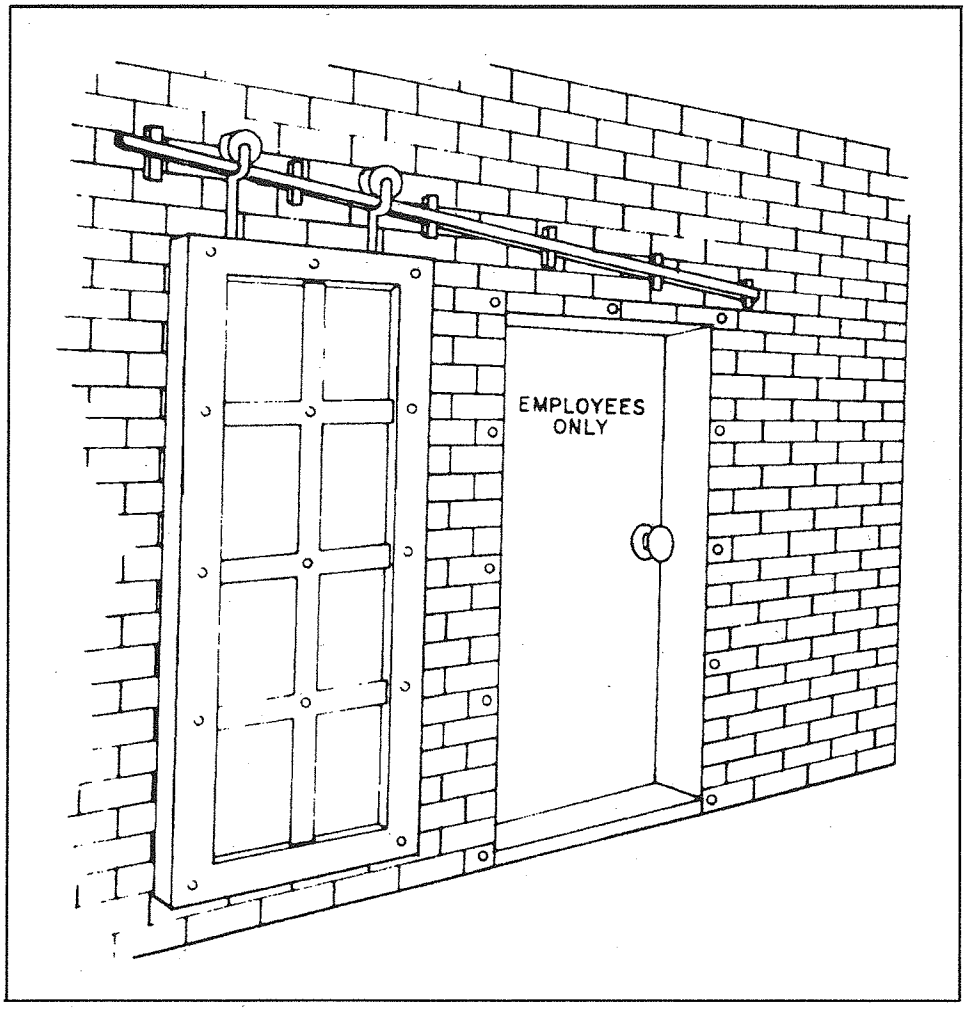
Technical Bulletin 3-93

Non-Residential Floodproofing — Requirements and Certification

for Buildings Located in Special Flood Hazard Areas

in accordance with the

National Flood Insurance Program



FEDERAL EMERGENCY MANAGEMENT AGENCY
FEDERAL INSURANCE ADMINISRTATION

FIA-TB-3
4/93

Key Word/Subject index:

This index allows the user to quickly locate key words and subjects in this Technical Bulletin. The Technical Bulletin User's Guide (printed separately) provides references to key words and subjects throughout the Technical Bulletins. For definitions of selected terms, refer to the Glossary at the end of this bulletin.

Any comments on the Technical Bulletins should be directed to:

FEMA/FIA
Office of Loss Reduction
Technical Standards Division
500 C St., SW, Room 417
Washington, D.C. 20472

Technical Bulletin 3-93 replaces Technical Bulletin 90-3 (draft) "Non-Residential Floodproofing Certification Requirements."

Graphic design based on the Japanese print The *Great Wave Off Kanagawa,* by Katsushika Hokusai (1760-1849), Asiatic collection, Museum of Fine Arts, Boston.

TECHNICAL BULLETIN 3-93

Non-Residential Floodproofing — Requirements and Certification for Buildings Located in Special Flood Hazard Areas in accordance with the National Flood Insurance Program

Introduction

This bulletin describes design, construction, and planning requirements for the floodproofing of non-residential buildings under the 'National Flood Insurance Program (NFIP) regulations and how to correctly complete the NFIP's Floodproofing Certificate for Non-Residential Structures form. For the purposes of this bulletin, floodproofing means making a building watertight, substantially impermeable to floodwaters.

Before a floodproofed building is designed, numerous planning considerations, including flood warning time, uses of the building, mode of entry to and exit from the building and the site in general, floodwater velocities, flood depths, debris impact potential, and flood frequency, must be addressed to ensure that dry floodproofing will be a viable floodplain management tool. These critical considerations are discussed within this bulletin.

In the FEMA publication "Floodproofing of Non-Residential Structures," floodproofing is described as a combination of adjustments and/or additions of features to buildings that eliminate or reduce the potential for flood damage. Examples of such adjustments and additions include anchoring of the building to resist flotation, collapse, and lateral movement; installation of watertight closures for doors and windows; reinforcement of walls to withstand floodwater pressures and impact forces generated by floating debris; use of membranes and other sealants to reduce seepage of floodwater through walls and wall penetrations; installation of pumps to control interior water levels; installation of check valves to prevent the entrance of floodwater or sewage flows through utilities; and the location of electrical, mechanical, utility, and other valuable damageable equipment and contents above the expected flood level.

Floodproofing components for an individual building may also include floodwalls, small localized levees, or berms around buildings. However, such components, because they are not part of the building itself, are generally not credited for the flood insurance rating of a building under the NFIP and are therefore not detailed within this bulletin.

The NFIP allows a new or substantially improved non-residential building in an A zone (Zone A, AE, A 1-A30, AR, AO, or AH) to have a lowest floor below the base flood elevation (BFE), provided that the building has been designed, constructed, and certified to be floodproofed and to meet established criteria. Floodproofing of areas below the BFE in residential buildings is not permitted under the NFIP. In a Coastal High Hazard Area (Zone V, VE, or V 1 -V30), construction or substantial improvement of a building with a lowest floor elevation below the BFE is not allowed, regardless of any floodproofing techniques employed.

A Floodproofing Certificate for Non-Residential Structures (FEMA Form 81 -65) has been developed by FEMA for use in the certification of non-residential floodproofing designs. Because of the increased potential for significant building damage due to the failure of the floodproofing system, the NFIP requires a design certification for all floodproofed buildings. In

accordance with Section 60.3(c)(4), communities shall require a correctly completed certificate (or its equivalent) for every floodproofed building within a Special Flood Hazard Area (SFHA) and shall maintain the completed certificates on file.

A Floodproofing Certificate for Non-Residential Structures is required for the following types of buildings (in A zones only):

- Floodproofed non-residential buildings (no residential uses).
- Floodproofed mixed-use buildings that are professionally designed with all residential uses located above the floodproofing design elevation.

NFIP Regulations

The NFIP regulations that specifically apply to the design of floodproofing for non-residential buildings are within Section 60.3(c)(3), which states that the community shall:

> ***"Require that all new construction and substantial improvements of non-residential structures within Zones A1 -A30, AE, and AH on the community's FIRM (i) have the lowest floor (including basement) elevated to or above the base flood level, or (ii) together with attendant utility and sanitary facilities, be designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. "***

Section 60.3(c)(8) further states that the community shall:

> ***"Require within any AO zone on the community's FIRM that all new construction or substantial improvements of non-residential structures (i) have the lowest floor (including basement) elevated above the highest adjacent grade at least as high as the depth number specified in feet on the community's FIRM (at least two feet if no depth number is specified), or (ii) together with attendant utility and sanitary facilities, be completely floodproofed to that (base flood) level to meet the floodproofing standard specified in paragraph 60.3(c)(3)(ii)."***

Additionally, Section 60.3(c)(4) requires that any floodproofing design be certified in the following manner:

> ***"Provide that where a non-residential structure is intended to be made watertight below the base flood level, (i) a registered professional engineer or architect shall develop and/or review structural design, specifications, and plans for the construction, and shall certify that the design and methods of construction are in accordance with the accepted standards of practice for meeting the applicable provisions of paragraphs (c)(3)(ii) or (c)(8)(ii) of this section, and (ii) a record of such certificates which includes the specific elevation (in relation to mean sea level) to which such structures are floodproofed shall be maintained with the official designated by the community... "***

It should be noted that Technical Bulletins provide guidance on the minimum requirements of the NFIP regulations. Community or State requirements that exceed those of the NFIP take precedence. Design professionals should contact the community to determine whether more restrictive local or State regulations apply to the building or site in question. All applicable standards of the State or local building code must also be met for any building in a flood hazard area.

Planning Considerations

A review of the following factors for the site in question will assist the design professional in determining whether floodproofing is appropriate. For example, if a site will be surrounded by rapidly rising, high-velocity floodwaters during a flood, and the available warning time is short, then the site is unsuitable for a floodproofed building.

Warning Time

The rate-of-rise of floodwaters for the site in question, the established flood warning system (if any), the flood warning time available, and the reliability of the flood warning must be reviewed to determine appropriate floodproof design elements. The rate-of-rise or the flood warning time available through an existing reliable (community-based or regionally based) flood warning system must be adequate to provide sufficient lead time to evacuate a floodprone building when flooding threatens. In addition, sufficient warning time must exist to successfully place floodproofing components, such as removable flood shields or gates, if such components are to be included in the floodproofing design. Other examples of floodproofing techniques that can require human intervention are operating sump pumps and closing valves. The amount of time necessary to put human intervention floodproofing components in place will depend upon the number of components, their complexity, and the availability of personnel to place them. Floodproofed buildings are not appropriate for any site in a flash flood area, because of the potentially short warning time.

Safety and Access

Safe access to a floodproofed building is a critical factor in the determination of whether floodproofing is an appropriate design alternative. In 1987, Colorado State University conducted a study of human stability in flood flow conditions based on the product number of depth of flow multiplied by the floodwater velocity. Results of this study indicated that any floodplain location with a product number of 4 or greater represents a significant hazard to individuals. Floodplain sites with a base flood product number number of 4 or greater (depth in feet multiplied by velocity in feet per second) will create a hazard for anyone attempting to escape from or gain access to the site. Such sites are not generally acceptable for floodproofed buildings, unless modifications are made to the site to reduce the flood hazard.

For any floodproofed building, all roads to be used as evacuation routes must remain passable as the floodwaters rise. In addition, all roads that provide access to buildings whose dry-floodproofing components require human intervention must remain passable long enough for the

floodproofing components to be installed and for all personnel to safely evacuate the site. For sites with an acceptably low hazard (product number less than 4) that are contiguous to land above the BFE, evacuation and access during times of flooding are generally not critical considerations.

Flood Velocities, Flood Depths, and Debris

For sites with flood velocities in excess of 5 feet per second or base flood depths in excess of 3 feet, the cost of dry-floodproofed construction may be prohibitive. Part 3 of the section of this bulletin titled "Minimum Engineering Considerations" describes the flood forces that a floodproofed building must be able to resist. Flood-borne debris can generate impact forces that may make a dry-floodproofed design technically infeasible and therefore inappropriate. A level of safety above the BFE, referred to as freeboard, is recommended, as discussed under "Minimum Engineering Considerations. "

> Note: While buildings need only be protected to the BFE for floodplain management purposes, freeboard is considered for flood insurance rating purposes. Because of the additional risk associated with any floodproofed building, 1 foot is subtracted from the elevation to which a building has been floodproofed, for insurance rating (if the building is floodproofed at least to the BFE). Therefore, to receive an insurance rating based on 100-year flood protection, the building must be floodproofed to an elevation at least 1 foot above the BFE. Insurance premiums will be lower if floodproofing exceeds this requirement.

Flood Frequency

A site that has been flooded frequently may not be appropriate for a dry-floodproofed building. The cumulative wear-and-tear on a building's external components as a result of recurring inundation may render a dry floodproofing strategy infeasible. The cost of repeated business interruption and of frequent cleanup activities, as well as the effects of having to repeatedly implement a flood emergency plan, must be assessed.

If the evaluation of each of the aforementioned factors indicates that dry floodproofing is a viable floodplain management alternative, then a floodproofing design is developed. For all floodproofed buildings, the design professional must then produce both a Flood Emergency Operation Plan and an Inspection and Maintenance Plan for the building.

Flood Emergency Operation Plan

A Flood Emergency Operation Plan is an integral part of any building's floodproofing design and is critical when the floodproofing requires human intervention such as the installation of flood gates or flood shields. A Flood Emergency Operation Plan is necessary for any floodproofed building to ensure that the floodproofing components will operate properly under all conditions, including power failures. A continuous source of electricity to operate any necessary floodproofing components, such as pumps, will be needed for any floodproofing design that

includes such components. The design professional must produce the plan. An adequate plan must include the following:

1. An established chain of command and responsibility with leadership responsibilities clearly defined for all aspects of the plan.

2. A procedure for notification of necessary parties when flooding threatens and flood warnings are issued. Personnel required to be at the building should have a planned and safe means of ingress and should have no other emergency response duties during a flood event. Alternates should be assigned in the event that the primary persons responsible are unable to complete their assigned duties under the plan.

3. A list of specific duties assigned to ensure that all responsibilities are addressed expeditiously. The locations of materials necessary to properly install all floodproofing components must be included in the list.

4. An evacuation plan for all personnel—those without duties for the flood emergency as well as those with duties for implementing the plan. All possible ingress and egress routes must be identified.

5. A periodic training and exercise program to keep personnel aware of their duties and responsibilities. Training drills should be held at least once a year and should be coordinated with community officials. Flood safety precautions should be repeated during each training drill.

Inspection and Maintenance Plan

Every floodproofing design requires some degree of periodic maintenance and inspection to ensure that all components will operate properly under flood conditions. The necessary inspection and maintenance activities, including inspection intervals and repair requirements, must be described in the Inspection and Maintenance Plan. Components that should be inspected as part of an annual (as a minimum) maintenance and inspection program include the following:

1. Mechanical equipment such as sump pumps and generators.

2. Flood shields and closures, to ensure that they fit properly and that the gaskets and seals are in good working order, properly labeled, and stored as indicated in the Flood Emergency Operation Plan.

3. Walls and wall penetrations, for cracks and potential leaks.

4. Levees and berms, for excessive vegetative growth, cracks, or leaks.

Both the Flood Emergency Operation Plan and the Inspection and Maintenance Plan are necessary at the time that the Non-Residential Floodproofing Certificate is submitted to the community. Before issuing a building permit, the community should require that the property owner sign an agreement stating that the plan will be adhered to. The community should also be assured that the inspection and maintenance activities required by the plan will continue regardless of changes in the ownership of the floodproofed building. This assurance should be accomplished by appropriate deed restrictions. Any lease agreement should also contain clear language stating the leaseholder's responsibilities for the floodproofed building.

Minimum Engineering Considerations

The design professional, a registered professional engineer or architect, must certify that the following requirements have been met by the building's design, specifications, and plans:

1. The building must be watertight (i.e., floodwaters must not enter the building envelope):

    a. The building must be watertight to the floodproof design elevation, which is further defined as being at least the BFE. As previously noted, floodproofing to any elevation less than 1 foot above the BFE will have a serious negative impact on the flood insurance rating for the building. Generally a minimum of 1 foot of freeboard is recommended. Additional freeboard is warranted for sites where predicted flood depths may be inaccurate, such as sites within large drainage areas and rapidly urbanizing areas.

    b. The building's walls must be "substantially impermeable to the passage of water." FEMA has adopted the U.S. Army Corps of Engineers (COE) definition of substantially impermeable from the COE publication "Flood Proofing Regulations." This document states that a substantially impermeable wall "shall not permit the accumulation of more than 4 inches of water depth during a 24-hour period if there were no devices provided for its removal. However, sump pumps shall be required to control this seepage." Flood-resistant materials, described in Technical Bulletin 2, "Flood-Resistant Materials Requirements," must be used in all areas where such seepage is likely to occur.

2. The building's utilities and sanitary facilities, including heating, air conditioning, electrical, water supply, and sanitary sewage services, must be located above the BFE, completely enclosed within the building's watertight walls, or made watertight and capable of resisting damage during flood conditions.

3. All of the building's structural components must be capable of resisting specific flood-related forces. These are the forces that would be exerted upon the building as a result of floodwaters reaching the BFE (at a minimum) or floodproofing design level, and include the following:

    a. Hydrostatic Flood Force—This is the force that water at rest exerts on any submerged object. For a floodproofed building design, the calculations of hydrostatic flood forces must include saturated soil pressure on any portion of the building that is below grade (see Figure 1). Guidelines for determining hydrostatic pressure are provided on the following page.

HYDROSTATIC PRESSURES BY WATER DEPTH	
HEIGHT (H) (WATER DEPTH]	Ph (LBS/SQ.FT.)
1	62.4
2	124.8
3	187.2
4	249.6
5	312.0
6	374.4
7	436.8
8	499.2
9	561.6
10	624.0

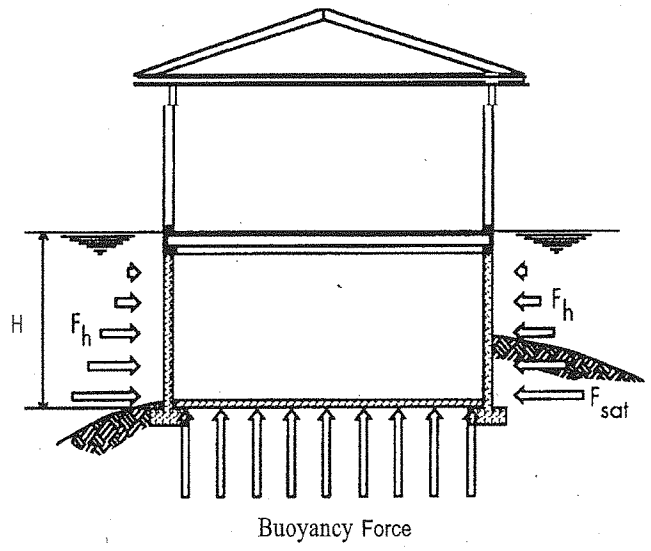


Figure 1. Hydrostatic Pressure Diagram

Resultant Lateral Force Due to Hydrostatic Pressure from Freestanding Water:

$F_h = \frac{1}{2}wH^2$

where: F_h is the lateral force from freestanding water (in pounds per linear foot of surface)

w is the specific weight of water (62.4 pounds per cubic foot)

H is the height of the standing water (to the floodproof design level)

If any portion of the building is below grade, then calculate the Resultant Cumulative Lateral Force Due to Hydrostatic Pressure from Saturated Soil:

$F_{sat} = \frac{1}{2}SD^2 + F_h$

where: F_{sat} is the lateral force from saturated soil

S is the equivalent fluid weight of saturated soil (in pounds per cubic foot)

D is the depth of saturated soil (in feet)

F_h is the lateral force from freestanding water

Note: See Appendix C of the FEMA "Design Manual for Retrofitting Flood-Prone Residential Structures" for further information.

b. Buoyancy-This is the vertical force associated with the building's tendency to float when inundated or surrounded by floodwaters. This force can be calculated as shown below.

Buoyancy Force:

$F_b = wAH$

where:
- F_b is the force due to buoyancy
- w is the specific weight of water (62.4 pounds per cubic foot)
- A is the area of horizontal surface (floor or slab) being acted upon (in square feet)
- H is the depth of building below the floodproofing design level (in feet)

Note: See Appendix C of the FEMA "Design Manual for Retrofitting Ftood-Prone Residential Structures" for further information.

c. Hydrodynamic Force—This is the force exerted on vertical surfaces exposed to moving floodwaters. The determination of hydrodynamic force is based on the expected velocity of the floodwaters with depths to the floodproofing design level (BFE or higher). The projected average base flood velocity within the floodway may be obtained using FEMA Flood Insurance Studies (FISS) where a floodway has been identified. It should be noted that velocities in the flood fringe will generally be less than the floodway velocities presented in the FIS. Where no FIS velocity data exist, velocities should be determined using Manning's equation, as found in most hydraulic reference and text books.

Hydrodynamic Force:

$F_d = C_d m ½ (V)^2 A$

where:
- F_d is the lateral force due to hydrodynamic pressure
- C_d is the drag coefficient
- m is the mass density of water (1.94 slugs per cubic foot)
- V is the velocity of the water (in feet per second)
- A is the area of the wall affected (in square feet)

Note: See Appendix C of the FEMA "Design Manual for Retrofitting Ftood-Prone Residential Structures" for further information.

d. Debris Impact Force—This is the force associated with flood-borne debris striking the side of a building. This force presents the greatest unknown to the designer, but a value must be estimated to develop an effective floodproofing design. Unless more detailed information is available, such as historical debris flow data, the formula shown below should be used. This formula assumes a 1-second duration of impact. The weight of the object is generally estimated at 1,000 pounds but can be reduced to 500 pounds for areas subject to minor debris flow potential. Any areas subject to severe debris (such as mountainous regions or areas subject to ice floes) are not appropriate sites for floodproofed buildings unless the designer takes these forces into account in designing and armouring the building. Armouring often results in designs that are not cost-effective.

Debris Impact Force:

$$F_i = \frac{WV}{gt}$$

where:

F_i	is the Impact Force
w	is the weight of the object (in pounds)
v	is the velocity of the object (in feet per second)
g	is the acceleration due to gravity (32.2 feet per second^2)
t	is the duration of impact (in seconds)

Note: See Appendix C of the FEMA "Design Manual for Retrofitting Flood-Prone Residential Structures" for further information.

4. Like all construction that falls under the NFIP regulations, the building must meet the requirements of all applicable portions of local and State building codes, including the provisions of the Americans with Disabilities Act; life-safety codes for ingress, egress, and clearing; and venting and combustion air requirements.

Preparation of the Floodproofing Certificate for Non-Residential Buildings

The Floodproofing Certificate is required for all non-residential buildings to be floodproofed and is to be completed by the design professional. The first part of the Certificate contains information concerning the location and ownership of the building.

FEDERAL EMERGENCY MANAGEMENT AGENCY
NATIONAL FLOOD INSURANCE PROGRAM

O.M.B. No. 3067-007

FLOODPROOFING CERTIFICATE

FOR NON-RESIDENTIAL STRUCTURES

The floodproofing of non-residential buildings maybe permitted as an alternative to elevating to or above the Base Flood Elevation; however, a floodproofing design certification is required. This form is to be used for that certification. Floodproofing of a residential building does not alter a cummunity's floodplain management elevation requirements or affect the insurance rating unless the community has been issued an exception by FEMA to allow floodproofed residential basements. The permitting of a floodproofed residential basement requires a separate certification specifying that the design complies with the local floodplain management ordinance.

	FOR INSURANCE COMPANY USE
BUILDING OWNER'S NAME	POLICY NUMBER
STREET ADDRESS (including Apt., Unit, Suite and/or Bldg. Number) OR P.O ROUTE AND BOX NUMBER	COMPANY NAIC NUMBER
OTHER DESCRIPTION (Lot and Block Numbers, etc.)	
CITY	STATE ZIP CODE

Building location and Ownership information

Section I of the Certificate is the Flood Insurance Rate Map (FIRM) information, including the BFE used in designing the floodproofing system. Copies of the FIRM should be available through the community's floodplain administrator.

SECTION I FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

Provide the following from the proper FIRM:

COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	DATE OF FIRM INDEX	FIRM ZONE	BASE FLOOD ELEVATION (in AO Zones use depth)

Section I

Section II requests information regarding the floodproofing design. The first item is the elevation, referenced to the datum of the FIRM (generally the National Geodetic Vertical Datum of 1929), to which the building is floodproofed. This elevation must be equal to or greater than the BFE. It is important to note that for insurance rating purposes, the floodproofing design must provide protection to 1 foot above the BFE to receive rating credit. If the building is floodproofed only to the BFE, then the building's insurance rating will result in a higher premium. Before a decision is made to floodproof to less than 1 foot above the BFE, insurance implications should be carefully considered.

The second item is the height of the floodproofing above the lowest adjacent grade. This information is intended to be used by community building officials, FEMA, and NFIP insurance underwriters to analyze the level of safety that the floodproofing design will provide. Since floodwaters exert greater pressure on the floodproofed building as the height of the flooding increases (see Figure 1), floodproofing that exceeds 3 feet in height represents a greater risk and may result in insurance rates that reflect this increased risk.

SECTION II FLOODPROOFING INFORMATION (By a Registered Professional Engineer or Architect)

Floodproofing Design Elevation Information:

Building is floodproofed to an elevation of __.__ feet NGVD. (Elevation datum used must be the same as that on the FIRM.)

Height of floodproofing on the building above the lowest adjacent grade is feet.

(NOTE: for insurance rating purposes, the building's floodproofed design elevation must be at least one foot above the Base Flood Elevation to receive rating credit. If the building is floodproofed only to the Base Flood Elevation, then the building's insurance rating will result in a higher premium.)

Section II

Section III is the actual certification of the floodproofing design as required in Section 60.3(c)(4) of the NFIP regulations. It is important to note that design professionals signing this form are certifying that they have developed and/or reviewed the design plans and specifications and find them in compliance with accepted standards of practice for dry floodproofing. This certification is based on the floodproofing design, not the as-built condition of the building. The person signing this form must be a registered professional engineer or architect within the state or territory where the building will be constructed or substantially improved.

SECTION III CERTIFICATION (By a Registered Professional Engineer or Architect)			
Non-Residential Floodproofed Construction Certification: *I certify that based upon development and/or review of structural design, specifications, and plans for construction that the design and methods of construction are in accordance with accepted standards of practice for meeting the following provisions:* The structure, together with attendant utilities and sanitary facilities, is watertight to the floodproofed design elevation indicated above, with walls that are substantially impermeable to the passage of water. All structural components are capable of resisting hydrostatic and hydrodynamic flood forces, including the effects of buoyancy, and anticipated debris impact forces. *I certify that the information on this certificate represents my best effort to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.*			
CERTIFIER'S NAME	LICENSE NUMBER (or Affix Seal)		
TITLE	COMPANY NAME		
ADDRESS	CITY	STATE	ZIP
SIGNATURE	DATE	PHONE	
Copies should be made of this certificate for: 1) community official, 2) insurance agent/company, 3) building owner.			
FEMA Form 81-65			

Section III

The NFIP

The NFIP was created by Congress in 1968 to provide federally backed flood insurance coverage, because flood insurance was generally unavailable from private insurance companies. The NFIP is also intended to reduce future flood losses by identifying floodprone areas and ensuring that new development in these areas is adequately protected from flood damage. The NFIP is based on an agreement between the federal government and participating communities that have been identified as being floodprone. FEMA, through the Federal Insurance Administration (FIA), makes flood insurance available to the residents of a participating community provided that the community adopts and enforces adequate floodplain management regulations that meet the minimum NFIP requirements. The NFIP encourages communities to adopt floodplain management ordinances that exceed the minimum NFIP criteria. Included in the NFIP requirements, found under Title 44 of the U.S. Code of Federal Regulations, are minimum building design and

construction standards for buildings located in SFHAs. Through their floodplain management ordinances, communities adopt the NFIP design performance standards for new and substantially improved buildings located in floodprone areas identified on FIA's FIRMs.

Technical Bulletins

This is one of a series of Technical Bulletins FEMA has produced to provide guidance concerning the building performance standards of the NFIP. These standards are contained in Title 44 of the U.S. Code of Federal Regulations at Section 60.3. The bulletins are intended for use primarily by State and local officials responsible for interpreting and enforcing NFIP regulations and by members of the development community, such as design professionals and builders. New bulletins, as well as updates of existing bulletins, are issued periodically, as necessary. The bulletins do not create regulations; rather they provide specific guidance for complying with the minimum requirements of existing NFIP regulations. Users of the Technical Bulletins who need additional guidance concerning NFIP regulatory requirements should contact the Natural Hazards Branch of the appropriate FEMA regional office. The "User's Guide to Technical Bulletins" lists the bulletins issued to date and provides a key word/subject index for the entire series.

Ordering Information

Copies of the Technical Bulletins can be obtained from the appropriate FEMA regional office. Technical Bulletins can also be ordered from the FEMA publications warehouse. Use of FEMA Form 60-8 will result in a more timely delivery from the warehouse — the form can be obtained from FEMA regional offices and your state's Office of Emergency Management. Send publication requests to FEMA Publications, P.O. Box 70274, Washington, D.C. 20024.

Further Information

The following publications provide further information concerning non-residential floodproofing:

1. "Answers to Questions About Substantially Damaged Buildings," FEMA, May 1991, FEMA-213.

2. "Block and Brick Wall Integrity Against Water Heights and Systems and Materials to Prevent Flood Waters From Entering Buildings," Carl E. Pace, U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, Mississippi, 1984.

3. "Commercial-Industrial Flood Audit," New England District, U.S. Army Corps of Engineers, n.d.

4. "Cooperative Flood Loss Reduction, A Technical Manual for Communities and Industries," Flood Loss Reduction Associates, 1981.

5. "Design Manual for Retrofitting Flood-Prone Residential Structures," FEMA, September 1986, FEMA-1 14.

6. "Floodproofing Non-Residential Structures," FEMA, May 1986, FEMA- 102.

7. "Flood Proofing Regulations," U.S. Army Corps of Engineers, March 1992, EP 1165-2-314.

8. "Human Stability in a High Flood Hazard Zone," S.R. Abt, R.J. Whittlen, A. Taylor, and D.J. Love, Water Resource Bulletin, August 1989.

9. "Sealants, Part 1," John P. Cook, Progressive Architecture, December 1974.

10. "Sealants, Part 2," John P. Cook, Progressive Architecture, February 1975.

11. "Systems and Materials to Prevent Flood Waters from Entering Buildings," U.S. Army Corps of Engineers, 1984.

12. "Tests of Brick-Veneer Walls and Enclosures for Resistance to Flood Waters," Carl E. Pace, U.S. Army Corps of Engineers, Lower Mississippi Division, Vicksburg, Mississippi, 1978.

Glossary

Base flood — The flood that has a 1-percent probability of being equaled or exceeded in any given year (also referred to as the 100-year flood).

Base Flood Elevation (BFE) — The height of the base flood, usually in feet, in relation to the National Geodetic Vertical Datum of 1929 or other datum as specified.

Basement — Any area of a building having its floor subgrade (below ground level) on all sides.

Coastal High Hazard Area — An area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high-velocity wave action from storms or seismic sources.

Federal Emergency Management Agency (FEMA) — The independent federal agency that, in addition to carrying out other activities, oversees the administration of the National Flood Insurance Program.

Federal Insurance Administration (FIA) — The component of FEMA directly responsible for administering the National Flood Insurance Program.

Flood Insurance Rate Map (FIRM) — The insurance and floodplain management map issued by FEMA that identifies, on the basis of detailed or approximate analyses, areas of 100-year flood hazard in a community.

Floodprone area — Any land area susceptible to being inundated by floodwater from any source.

Lowest floor — The lowest floor of the lowest enclosed area of a building, including a basement. Any NFIP-compliant unfinished or flood-resistant enclosure useable solely for parking of vehicles, building access, or storage (in an area other than a basement) is @ considered a building's lowest floor.

Special Flood Hazard Area (SFHA) — Area delineated on a Flood Insurance Rate Map as being subject to inundation by the base flood and designated as Zone A, AE, A1-A30, AR, AO, AH, V, VE, or V1-V30.

Substantial damage — Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

Substantial improvement — Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures that have incurred "substantial damage," regardless of the actual repair work performed.

Exhibit 6

THE IMPACTS OF SEA-LEVEL RISE ON THE CALIFORNIA COAST

A Paper From:
California Climate Change Center

Prepared By:
Matthew Heberger, Heather Cooley, Pablo Herrera, Peter H. Gleick, and Eli Moore of the Pacific Institute

DRAFT PAPER

DISCLAIMER

PACIFIC INSTITUTE

CALIFORNIA OCEAN PROTECTION COUNCIL

Arnold Schwarzenegger, *Governor*

March 2009
CEC-500-2009-024-D

Acknowledgments

In this report, the Pacific Institute evaluates the areas at risk from sea-level rise on the California coast and San Francisco Bay. We assess the population, infrastructure, and property at risk and provide an estimate of the cost of protecting those areas. We also offer a set of recommendations to inform policy- and decision-makers as they develop land-use plans for coastal regions. A series of maps that demonstrate the areas at risk are available on our website at www.pacinst.org/reports/sea_level_rise. It should be noted that these maps are not the result of detailed site studies and were created to quantify risk over a large geographic area. They are not meant to replace or supplement flood insurance maps from the Federal Emergency Management Agency or flood risk maps from the California Office of Emergency Services.

Major funds for this report were made through the California Energy Commission's Public Interest Energy Research (PIER) Program. Additional support was provided by the Metropolitan Transportation Commission and the Ocean Protection Council. We thank them for their generosity and foresight.

The scientists and engineers at Philip Williams and Associates provided us with information and analysis on coastal flood and erosion hazards. Thanks to Dr. David L. Revell, Robert Battalio, Jeremy Lowe, Justin Vandever, Brian Spear, and Seungjin Baek. For additional information about their work on this project, please see www.pwa-ltd.com/resources/resource_publications.html.

Many individuals, organizations, and agencies helped make this work possible by providing data, information, and input and review of the final report. We owe thanks to Will Travis, director of the Bay Conservation and Development Commission, for initiating the study and suggesting our involvement and to staff members Leslie Lacko, Tim Doherty, Adam Parris, and Steve Goldbeck, who worked closely with us as we prepared this report.

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Preface

The California Energy Commission's Public Interest Energy Research (PIER) Program supports public interest energy research and development that will help improve the quality of life in California by bringing environmentally safe, affordable, and reliable energy services and products to the marketplace.

The PIER Program conducts public interest research, development, and demonstration (RD&D) projects to benefit California's electricity and natural gas ratepayers. The PIER Program strives to conduct the most promising public interest energy research by partnering with RD&D entities, including individuals, businesses, utilities, and public or private research institutions.

PIER funding efforts focus on the following RD&D program areas:

- Buildings End-Use Energy Efficiency
- Energy-Related Environmental Research
- Energy Systems Integration
- Environmentally Preferred Advanced Generation
- Industrial/Agricultural/Water End-Use Energy Efficiency
- Renewable Energy Technologies
- Transportation

In 2003, the California Energy Commission's PIER Program established the **California Climate Change Center** to document climate change research relevant to the states. This center is a virtual organization with core research activities at Scripps Institution of Oceanography and the University of California, Berkeley, complemented by efforts at other research institutions. Priority research areas defined in PIER's five-year Climate Change Research Plan are: monitoring, analysis, and modeling of climate; analysis of options to reduce greenhouse gas emissions; assessment of physical impacts and of adaptation strategies; and analysis of the economic consequences of both climate change impacts and the efforts designed to reduce emissions.

The California Climate Change Center Report Series details ongoing center-sponsored research. As interim project results, the information contained in these reports may change; authors should be contacted for the most recent project results. By providing ready access to this timely research, the center seeks to inform the public and expand dissemination of climate change information, thereby leveraging collaborative efforts and increasing the benefits of this research to California's citizens, environment, and economy.

For more information on the PIER Program, please visit the Energy Commission's website at www.energy.ca.gov/pier/ or contract the Energy Commission at (916) 654-5164.

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Abstract

Over the past century, sea level has risen nearly eight inches along the California coast, and general circulation model scenarios suggest very substantial increases in sea level as a significant impact of climate change over the coming century. This study includes a detailed analysis of the current population, infrastructure, and property at risk from projected sea-level rise if no actions are taken to protect the coast. The sea-level rise scenario was developed by the State of California from medium to high greenhouse gas emissions scenarios from the Intergovernmental Panel on Climate Change (IPCC) but does not reflect the worst-case sea-level rise that could occur. We also evaluate the cost of building structural measures to reduce that risk. If development continues in the areas at risk, all of these estimates will rise. No matter what policies are implemented in the future, sea-level rise will inevitably change the character of the California coast.

We estimate that a 1.4 meter sea-level rise will put 480,000 people at risk of a 100-year flood event, given today's population. Among those affected are large numbers of low-income people and communities of color, which are especially vulnerable. A wide range of critical infrastructure, such as roads, hospitals, schools, emergency facilities, wastewater treatment plants, power plants, and more will also be at increased risk of inundation, as are vast areas of wetlands and other natural ecosystems. In addition, the cost of replacing property at risk of coastal flooding under this sea-level rise scenario is estimated to be nearly $100 billion (in year 2000 dollars). A number of structural and non-structural policies and actions could be implemented to reduce these risks. For example, we estimate that protecting some vulnerable areas from flooding by building seawalls and levees will cost at least $14 billion (in year 2000 dollars), with added maintenance costs of another $1.4 billion per year. Continued development in vulnerable areas will put additional areas at risk and raise protection costs.

Large sections of the Pacific coast are not vulnerable to flooding, but are highly susceptible to erosion. We estimate that a 1.4 meter sea-level rise will accelerate erosion, resulting in a loss of 41 square miles (over 26,000 acres) of California's coast by 2100. A total of 14,000 people currently live in the area at risk of future erosion. Additionally, significant transportation-related infrastructure and property are vulnerable to erosion. Statewide flood risk exceeds erosion risk, but in some counties and localities, coastal erosion poses a greater risk. This report also provides a comprehensive set of recommendations and strategies for adapting to sea-level rise.

Keywords: sea-level rise, climate change, California, San Francisco Bay, flood, erosion, climate adaptation, climate impacts, levees, seawalls, greenhouse effect

1.0 Introduction

California's coastline, which includes more than 2,000 miles of open coast and enclosed bays, is vulnerable to a range of natural hazards, including storms, extreme high tides, and rising sea levels resulting from global climate change. Development along California's coast is extensive. In 2000, 26 million Californians lived in coastal counties, and by 2003, this number had grown to nearly 31 million (U.S. Census Bureau 2000; NOAA 2004). Indeed, six of the ten fastest growing coastal counties in the United States between 1980 and 2003 were in California (NOAA 2004). Major transportation corridors and other critical infrastructure are found along the California coast, including oil, natural gas, and nuclear energy facilities, as well as major ports, harbors, and water and wastewater plants. The California coast is also an extraordinary cultural and ecological resource and offers extensive tourism and recreational opportunities.

Flooding and erosion pose a threat to communities along the California coast and there is compelling evidence that these risks will increase in the future. Based on a set of climate scenarios prepared for the California Energy Commission's Public Interest Energy Research (PIER) Climate Change Research Program, Cayan et al. (2008) project that, under medium to medium-high emissions scenarios, mean sea level along the California coast will rise from 1.0 to 1.4 meters (m) by the year 2100.[1] Rising seas put new areas at risk of flooding and increase the likelihood and intensity of floods in areas that are already at risk. In areas where the coast erodes easily, sea-level rise will likely accelerate shoreline recession due to erosion. Erosion of some barrier dunes may expose previously protected areas to flooding.

National studies on the economic cost of sea-level rise suggest that while adapting to climate change will be expensive, so are the costs of doing nothing, as substantial investments are already at risk and vulnerable.[2] Because the economic costs of flooding are highly site-specific, regional analyses are critical for guiding land-use decisions and evaluating adaptive strategies.

The Pacific Institute published one of the earliest comprehensive regional assessments of sea-level rise (Gleick and Maurer 1990), concluding that a one-meter sea-level rise would threaten existing commercial, residential, and industrial structures around San Francisco Bay valued at $48 billion (in year 1990 dollars). Building or strengthening levees and seawalls simply to protect existing high-value development was estimated to require an immediate capital investment of approximately $1 billion (in year 1990 dollars) and would require an additional $100 million per year in ongoing maintenance.[3] The report also noted that substantial areas of the San Francisco Bay, especially wetlands and marshes, could not be protected and would likely be damaged or lost.

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[1] It is important to note that most climate models fail to include ice-melt contributions from the Greenland and Antarctic ice sheets, and as a result, the potential increase in mean sea level may be much higher.

[2] See, for example, Titus et al. (1992) and Yohe et al. (1996).

[3] This estimate does not include the cost of protecting and restoring wetlands, groundwater aquifers, etc.

This assessment updates and expands our 1990 analysis using more comprehensive data, new climate scenarios, and modern computerized analytical tools. We made extensive use of geographic information system (GIS) software and updated sea-level rise scenarios from the Scripps Institution of Oceanography to estimate the population, infrastructure, ecosystems, and property at risk. We also estimate the cost of armoring the coast, one potential adaptation strategy to reduce that risk. This work is part of a larger set of research projects by the California Climate Action Team to understand the impacts of climate change to Californians, funded by the California Energy Commission's Public Interest Energy Research (PIER) program. The Pacific Institute also received significant financial support from two other state agencies: the Ocean Protection Council and the Metropolitan Transportation Commission, part of the Department of Transportation.

1.1. Key Findings

Over the past century, sea level has risen nearly eight inches along the California coast, and general circulation model scenarios suggest very substantial increases in sea level as a significant impact of climate change over the coming century. This study includes a detailed analysis of the current population, infrastructure, and property at risk from projected sea-level rise if no actions are taken to protect the coast, and the cost of building structural measures to reduce that risk. We find the following:

- Under medium to medium-high greenhouse-gas emissions scenarios, mean sea level along the California coast is projected to rise from 1.0 to 1.4 meters (m) by the year 2100. A series of maps for the entire coast of California demonstrating the extent of the areas at risk are posted at www.pacinst.org/reports/sea_level_rise.[4]

- A 1.4 meter sea-level rise will put 480,000 people at risk of a 100-year flood event, given today's population. Populations in San Mateo and Orange Counties are especially vulnerable. In each, at least 110,000 people are at risk. Large numbers of residents (66,000) in Alameda County are also at risk.

- A demographic analysis identified large numbers of people at risk with heightened vulnerability, including low-income households and communities of color. Additionally, adapting to sea-level rise will require tremendous financial investment. Given the high cost and the likelihood that we will not protect everything, adaptation raises additional environmental justice concerns.

- A wide range of critical infrastructure, such as roads, hospitals, schools, emergency facilities, wastewater treatment plants, power plants, and more will also be at increased risk of inundation in a 100-year flood event. This infrastructure at risk includes:

[4] These maps are not the result of detailed site studies and were created to quantify risk over a large geographic area. They should not be used to assess actual coastal hazards, insurance requirements or property values, and specifically shall not be used in lieu of Flood insurance Studies and Flood Insurance Rate Maps issued by the Federal Emergency Management Agency (FEMA). Local governments or regional planning agencies should conduct detailed studies to better understand the potential impacts of sea-level rise in their communities.

- nearly 140 schools;
- 34 police and fire stations;
- more than 330 U.S. Environmental Protection Agency (U.S. EPA)-regulated hazardous waste facilities or sites, with large numbers in Alameda, Santa Clara, San Mateo, and Los Angeles counties;
- an estimated 3,500 miles of roads and highways and 280 miles of railways;
- 30 coastal power plants, with a combined capacity of more than 10,000 megawatts;
- 29 wastewater treatment plants, 22 on the San Francisco Bay and 7 on the Pacific coast, with a combined capacity of 530 million gallons per day; and
- the San Francisco and Oakland airports.

- Vast areas of wetlands and other natural ecosystems are vulnerable to sea-level rise. An estimated 670 square miles, or 430,000 acres, of wetlands exist along the California coast, but additional work is needed to evaluate the extent to which these wetlands would be destroyed, degraded, or modified over time. A sea-level rise of 1.4 m would flood approximately 150 square miles of land immediately adjacent to current wetlands, potentially creating new wetland habitat if those lands are protected from further development.
- We estimate that nearly $100 billion (in year 2000 dollars) worth of property, measured as the current replacement value of buildings and contents, is at risk of flooding from a 100-year event with a 1.4 m sea level rise if no adaptation actions are taken. An overwhelming two-thirds of that property is concentrated on San Francisco Bay. The majority of this property is residential.
- Coastal armoring is one potential adaptation strategy. Approximately 1,100 miles of new or modified coastal protection structures are needed on the Pacific Coast and San Francisco Bay to protect against coastal flooding. The total cost of building new or upgrading existing structures is estimated at about $14 billion (in year 2000 dollars). We estimate that operating and maintaining the protection structures would cost approximately 10% of the initial capital investment, or around another $1.4 billion per year (in year 2000 dollars).
- Large sections of the Pacific coast are not vulnerable to flooding, but are highly susceptible to erosion. We estimate that a 1.4 m sea-level rise will accelerate erosion, resulting in a loss of 41 square miles of California's coast by 2100. A total of 14,000 people live in areas at risk of erosion. In addition, significant transportation-related infrastructure and property are also at risk. Throughout most of the state, flood risk exceeds erosion risk, but in some counties, coastal erosion poses a greater risk.

- Continued development in vulnerable areas will put additional areas at risk and raise protection costs.

2.0 Methods

Numerous studies have attempted to quantify the cost of sea-level rise and have been based primarily on a framework developed in Yohe (1989) and refined in Yohe et al. (1996) and Yohe and Schlesinger (1998). That framework employs a cost-benefit model to evaluate the property at risk and the cost of protecting or abandoning that property. Property is protected if the value of the property exceeds the protection cost at the time of inundation, and the protection cost is equal to the construction cost of the protective structure. If the value of the property does not exceed the cost of protection, then the property is abandoned, with the cost equal to the value of the land and structure at the time of inundation. The total economic cost is then the sum of the protection cost plus the value of the lost property.

To determine the value of lost property, the Yohe approach considers land and structure values separately. In most locations, coastal land commands a premium price, with the price declining as one moves inland. With inundation, the Yohe method assumes that land values will simply migrate inland, and thus, the economic value of lost land is equal to the economic value of interior land. The value of structures is calculated under two conditions: with and without foresight. With perfect foresight, the economic value of structures is assumed to depreciate over time as the "impending inundation and abandonment become known" (Yohe and Schlesinger 1998), approaching $0 at the time of inundation. Without foresight, the structure value does not depreciate.

Despite its wide application, the Yohe method has a number of limitations, many of which are discussed in Hanemann (2008):

- First, it ignores any transfers among property owners and looks only at the net social cost. In reality, there will be winners (those who had inland property that is now closer to the coast and thus more valuable) and losers (those who have lost their property), and the gross social cost "could be enormous" (Yohe et al. 1996).
- Second, it assumes that coastal protection will be constructed just in time to avoid damage from flooding. This is unlikely. If coastal protection is constructed too late, then the property would incur some damage, thereby increasing the cost. If constructed too early, then the discounted net present value of the cost of building the structure would be higher (Hanemann 2008).
- Third, it only examines changes in mean sea level (eustatic change), thereby ignoring damage from storm surge and extreme events.
- Fourth, by focusing on property values, it ignores other potentially expensive costs. For example, the flooding of transportation infrastructure essential for moving people or goods, e.g., highways and ports, could cause major interruptions to the local economy. Flooding also causes impacts on the health and well-being of the affected individuals and environmental damage, including erosion, oils spills, and discharge of pollution

from coastal industry (Hanemann 2008). Over the long-term, flooding can lead to the loss of wetlands.

- Fifth, prioritization of protection based on property value may directly undermine an environmental justice framework for protection.

This study used a different approach to estimate the economic impact of sea-level rise. We adopted the scenarios developed for the PIER studies and mapped the extent of inundation from a 100-year flood event that is likely to occur with rising sea levels. We also identified areas at increased risk from erosion as a result of rising seas. The inundation and erosion geodata were overlaid with other geospatial data using GIS to produce quantitative estimates of the population, infrastructure, and replacement value of property at risk from sea-level rise, as well as the impacts on harder-to-quantify coastal ecosystems. We also produced an initial estimate of the cost of adaptation measures, specifically building seawalls and levees in high-valued coastal zones to protect against future flooding. Greater detail on the methods is provided below.

2.1. Study Area

The study area spans approximately 1,100 miles of California's Pacific coast and 1,000 miles of shoreline along the perimeter of the San Francisco Bay. The San Francisco Bay study area extends from the Golden Gate in the west to Pittsburg, California, in the east and San Jose in the south. The eastern boundary of the San Francisco Bay study was set according to where United States Geological Survey (USGS) researchers were able to extract reliable flood elevations from the Bay hydrodynamic model. We provide a more detailed analysis in the San Francisco Bay due to the extensive, high-valued development in the region and the availability of higher-resolution geographic data.

The study area of the erosion analysis extended from Santa Barbara to the Oregon border, covering about 930 miles (1,450 kilometers, km). Much of the Southern California coast was excluded from the erosion analysis due to the myriad of ongoing initiatives focused on climate change and hazards mapping.

2.2. Sea-Level Rise Projections

2.2.1. Mean Water Levels and Extreme Events

Sea levels are constantly in flux, subject to the influence of astronomical forces from the sun, moon, and earth, as well as meteorological effects like El Niño. A worldwide network of more than 1,750 tidal gages continuously collects data on water levels relative to a nearby geodetic reference, and new satellite-based sensors are extending measurements. Tide gage data indicate that the global mean sea level is rising. Water level measurements from the San Francisco gage (CA Station ID: 9414290), shown in Figure 1, indicate that mean sea level rose by an average of

2.1 millimeters (mm) per year from 1906 to 2001, equivalent to a change of eight inches in the last century.[5]

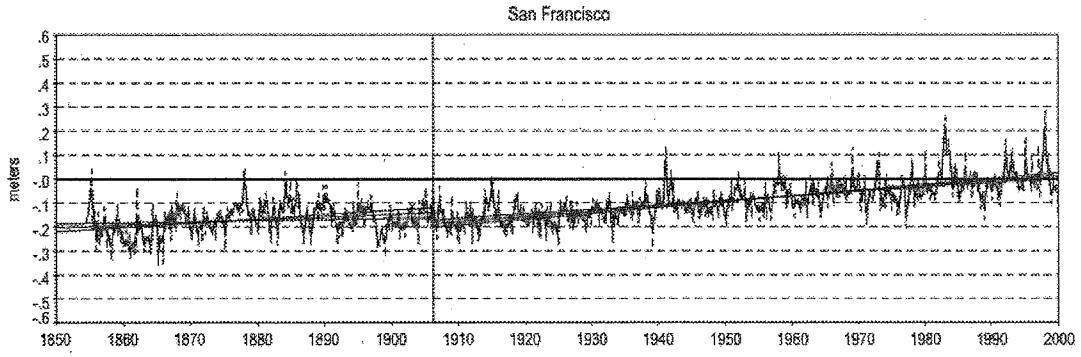

Figure 1. Trend in monthly mean sea level at the San Francisco tide station from 1854–2000

Source: NOAA Sea Levels Online, http://co-ops.nos.noaa.gov/sltrends/sltrends_station.shtml?stnid=9414290

Sea levels are expected to continue to rise, and the rate of increase will likely accelerate. In order to evaluate climate change impacts, the Intergovernmental Panel on Climate Change (IPCC) developed future emission scenarios that differ based on assumptions about economic development, population, regulation, and technology (see Box 1 for a description of the scenarios). Based on these scenarios, mean sea level is projected to rise by 0.2 m to 0.6 m by 2100, relative to a baseline of 1980–1999, in response to changes in oceanic temperature and the exchange of water between oceans and land-based reservoirs, such as glaciers and ice sheets (Meehl et al. 2007).

Recent research by leading climate scientists, which includes more accurate sea-level measurements by satellites, indicates that sea-level rise from 1993–2006 has outpaced the IPCC projections (Rahmstorf et al. 2007). The authors suggest that the climate system, particularly sea levels, may be responding to climate changes more quickly than the models predict. Additionally, most climate models fail to include ice-melt contributions from the Greenland and Antarctic ice sheets and may underestimate the change in volume of the world's oceans.

To address these new factors, the PIER projects used sea-level rise forecasts developed by a team at the Scripps Institution of Oceanography led by Dr. Dan Cayan. Using a methodology developed by Rahmstorf (2007), Cayan et al. (2008) produced global sea-level estimates based on projected surface air temperatures from global climate simulations for both the IPCC A2 and B1 scenarios using the output from six global climate models: the National Center for Atmospheric Research (NCAR) Parallel Climate Model (PCM); the National Oceanic and

[5] The solid vertical line shows the earthquake of 1906. NOAA researchers fit separate trendlines before and after major seismic events because of the possibility of vertical movement of the land surface where gages are located, disrupting consistent measurements.

Atmospheric Administration (NOAA) Geophysical Fluids Dynamics Laboratory (GFDL) version 2.1; the NCAR Community Climate System Model (CCSM); the Max Planck Institute ECHAM3; the MIROC 3.2 medium-resolution model from the Center for Climate System Research of the University of Tokyo and collaborators; and the French Centre National de Recherches Meteorologiques (CNRM) models.

Box 1: IPCC Climate Change Scenarios

The impacts of climate change will ultimately depend on future greenhouse gas concentrations. Future greenhouse gas emissions remain uncertain and are influenced by a variety of demographic, socio-economic, and technological factors. Scenarios can be a useful tool for examining how changes in these driving factors affect greenhouse gas concentrations. These scenarios can be useful for evaluating impacts associated with climate change as well as assessing adaptation and mitigation activities. The Special Report on Emissions Scenarios (SRES) outlines four storylines that differ according to demographics, social, economic, environmental, and technological factors and lead to different levels of greenhouse gas emissions. Each storyline has a number of different scenarios, referred to as a family. A total of 40 scenarios have been developed.

The four storylines are described below:

The **A1** storyline is characterized by "a future world of very rapid economic growth, global population that peaks in mid-century and declines thereafter, and the rapid introduction of new and more efficient technologies. Major underlying themes are convergence among regions, capacity building, and increased cultural and social interactions, with a substantial reduction in regional differences in per capita income" (IPCC 2000). The A1 family is further divided into three subgroups that are differentiated according to energy source: fossil intensive (**A1FI**), non-fossil sources (**A1T**), and a mix of fossil and non-fossil sources (**A1B**).

The **A2** storyline is characterized by "self-reliance and preservation of local identities" (IPCC 2000). Population is expected to continuously increase, but economic growth and technological development are expected to be slow.

The **B1** storyline has the same population projections as the A1 storyline but "rapid changes in economic structures toward a service and information economy, with reductions in material intensity, and the introduction of clean and resource-efficient technologies" (IPCC 2000).

The **B2** storyline is characterized by "a world with continuously increasing global population at a rate lower than A2, intermediate levels of economic development, and less rapid and more diverse technological change than in the B1 and A1 storylines" (IPCC 2000).

Additionally, Cayan et al. (2008) modified the sea-level rise estimates to account for water trapped in dams and reservoirs that artificially reduced runoff into the oceans (Chao et al. 2008). Absolute sea-level rise along the California coast was assumed to be the same as the global estimate. Based on these methods, Cayan et al. (2008) estimate an overall projected rise in mean sea level along the California coast for the B1 and A2 scenarios of 1.0 m and 1.4 m, respectively, by 2100 (Figure 2). The more severe A1FI scenario, which assumes a continued high level use of fossil fuels, was not used in this analysis, but is shown for comparative purposes.

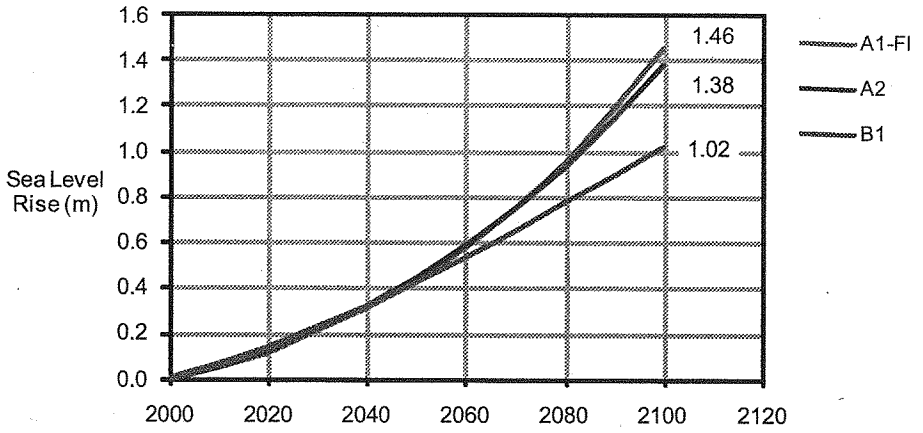

Figure 2. Scenarios of sea-level rise to 2100
Source: Dan Cayan, Scripps Institution of Oceanography, NCAR CCSM3 simulations, Rahmstorf method.

The majority of studies on climate change have emphasized changes in average conditions, yet the greatest socio-economic impacts tend to occur as a result of extreme events. Coastal flooding is often caused by storm surges, which are caused by high winds and pressure differentials associated with storms. Along the California coast, wave-induced storm surge can exceed 1.5 m (Cayan et al. 2006), flooding low-lying areas and eroding coastal bluffs. Increases in mean sea level are expected to increase the frequency and intensity of these extreme events. Although this study does not explicitly account for changes in storm surge, we do account for higher flood elevations associated with extreme events, as described below in Section 2.3.

2.3. Expected Risk to the Coast

2.3.1. Coastal Inundation Risk

Sea-level rise increases the risk of flooding in low-lying areas. For the California coast, we used GIS to produce maps of the areas at risk of inundation from a 1.4 m sea-level rise. For the San Francisco Bay, we produced maps of the areas at risk of inundation under three different sea-level rise scenarios: 0.5 m, 1.0 m, and 1.4 m. Below, we describe the methods used to determine the areas at risk of flooding along the Pacific coast and in the San Francisco Bay. Erosion is discussed in Section 2.3.2.

Pacific Coast

A flood is often described by its recurrence interval, which is the period of time between floods of a particular intensity that is based on historic conditions for a given area. The terminology used to describe the recurrence interval, however, can be misleading and is often misinterpreted. A "100-year flood" does not refer to a flood level that occurs every 100 years. Rather, it refers to a flood that has a 1/100, or 1%, chance of occurring in any year. Thus, over a typical 30-year mortgage period, a 100-year flood has a 1-in-4 chance of occurring (see Box 2).

For the Pacific coast, we approximate the potential future flood impact by adding projected sea-level rise estimates to water levels associated with a 100-year flood event; that is, current flood elevations for the 100-year flood are increased by 1.4 meters, the projected increase in sea level by 2100 under the A2 scenario (Figure 3).

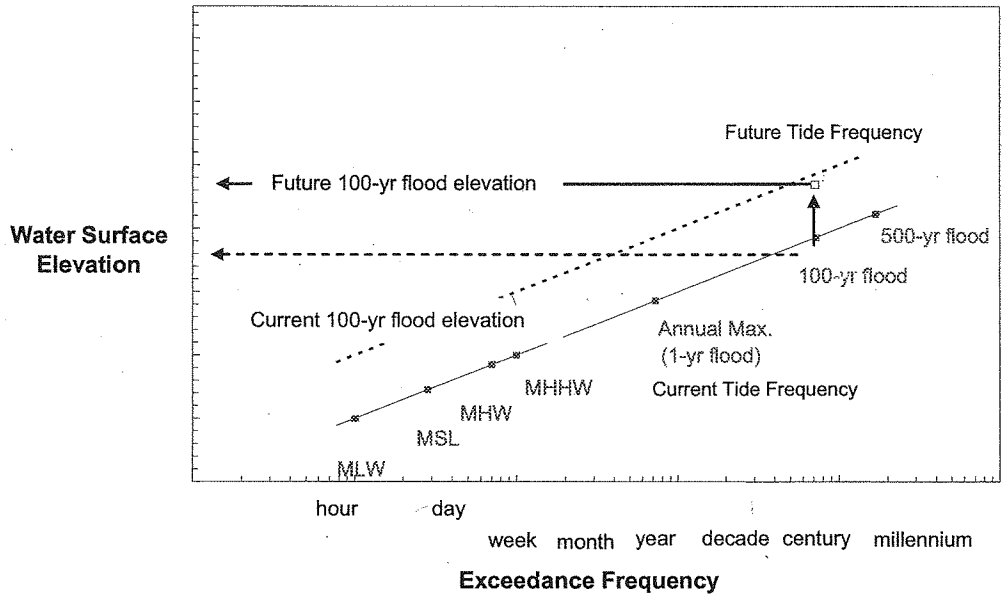

Figure 3. Determining future flood elevations

Note: The solid line represents the current tide frequency. The dotted line represents the future flood frequency. As can be seen, an increase in water surface elevation increases the frequency and intensity of flood events. For example, a 100-year flood event could become an annual flood event. The flood frequency estimates shown are for demonstration purposes only and are not based on actual data. See the Glossary for definitions of the abbreviations MLW, MSL, MHW, and MHHW.

This approach assumes that all tide datums, e.g., mean high tide and flood elevations, will increase by the same amount as mean sea level. There is some evidence that this assumption may not always hold true. Flick et al. (1999) found that, in San Francisco, mean higher high water (MHHW) was increasing at a rate of 258 mm per century, while the mean sea level increased at a lower rate of 217 mm per century (Figure 4). Thus, while the overall trend is one of rising seas, the intertidal range, i.e., the difference between MHHW and mean lower low water (MLLW), also seems to be widening. In addition, an increase in storminess due to climate change might cause more frequent storm surges and an increase in the frequency of high water events, although there is not yet consensus among climate scientists on changes in storm intensity or frequency, and such changes are not included here explicitly.

Box 2: Estimating Flood Risk

What are the chances that a 100-year flood will occur during a 30-year period?

To make this determination, we must apply basic probability theory. Flooding is a random event, i.e., the odds of it occurring in any year are independent of past conditions. Thus the odds of a storm not occurring over a 30-year period can be calculated using the following methodology.

If an event has an X percent chance of occurring in a given year, then the odds that the event will **not** occur in a given year are

$$1\text{-}X$$

The odds that an event will not occur in two successive years is

$$(1\text{-}X)(1\text{-}X) = (1\text{-}X)^2$$

And the odds of an event not occurring over y number of years is

$$(1\text{-}X)^y$$

Let's now calculate the odds that a 100-year flood event will not occur over 30 years.

In this case,

$$X = 1/100 = 0.01 \text{ and } y = 30$$

$$(1\text{-}X)^y = (1\text{-}0.01)^{30} = 0.74$$

Thus there is a 74% change that a 100-year storm will not occur over a 30-year period; and a 26%, or approximately a 1 in 4 chance that it will occur.

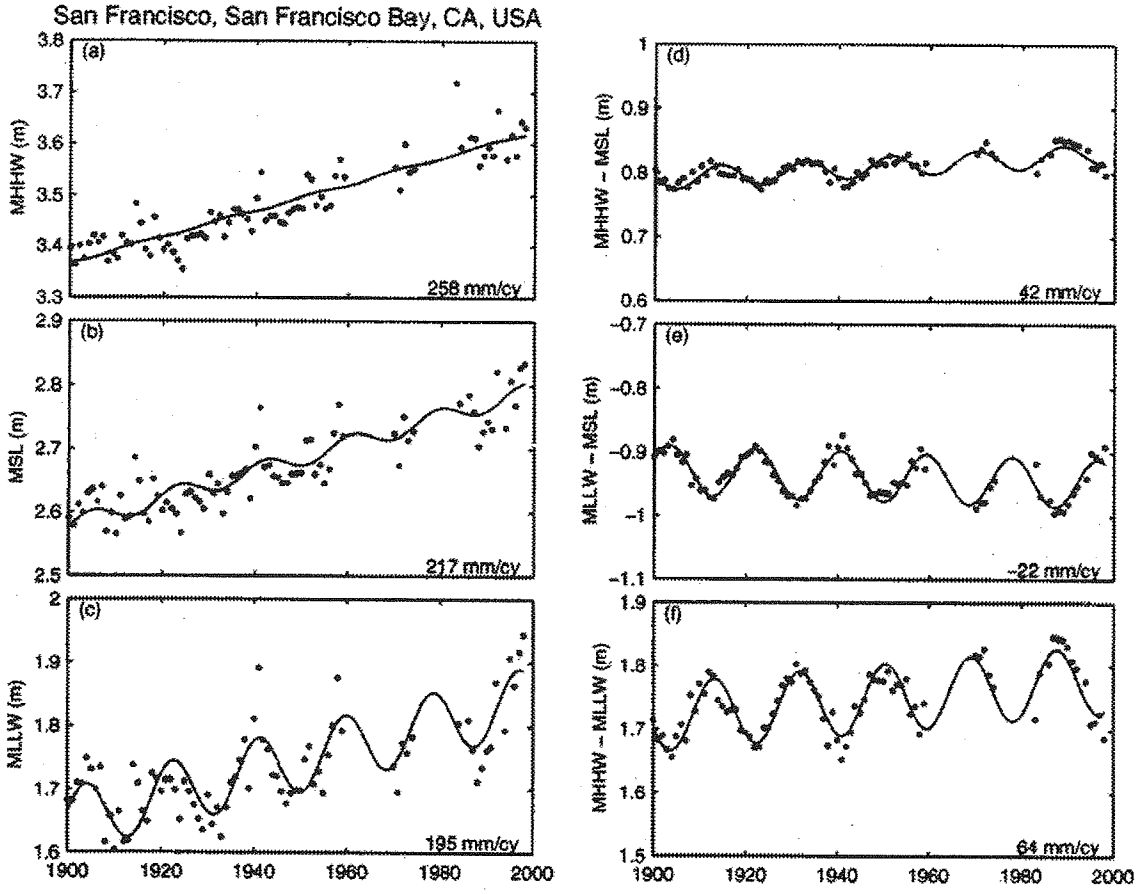

Figure 4. Rates of change of tidal datums, San Francisco from 1900–2000
Source: Flick et al. 1999

Existing flood levels were based on estimates of the 100-year flood elevation (also called the *base flood elevation* or BFE) from Flood Insurance Studies published by the Federal Emergency Management Agency (FEMA). The Federal Emergency Management Agency BFEs, however, only cover a part of the coast. We contracted with Philip Williams and Associates (PWA) to provide estimates of BFEs where none exist. Their work consisted of the following:

1. Compiled available coastal flood BFEs published by FEMA for the California coast.
2. Estimated BFEs where FEMA estimates are not available using professional judgment.
3. Converted elevations to the North American Vertical Datum (NAVD).
4. Adjusted elevations to nearest half foot based on observed sea-level rise to present day.

Further information on the methods used by PWA is available in a separate technical memorandum (Battalio et al. 2008).

We used automated mapping methods in GIS to delineate areas inundated by the current and future flood elevations. The key inputs to this analysis are digital elevation models (DEMs), gridded datasets that contain values representing elevations of the earth's surface. We used the most accurate, high-resolution, up-to-date terrain data available. For portions of the Central and Northern California coast, Interferometric Synthetic Aperture Radar (IfSAR) data were available from NOAA. NOAA's coastal service center assisted us in processing and obtaining each of these data sets.

For much of the Southern California coast, high-accuracy Light Detection and Ranging (LIDAR) data were available from Airborne LIDAR Assessment of Coastal Erosion (ALACE) project, a partnership between NOAA, the National Aeronautics and Space Administration (NASA), and USGS. The ALACE project emphasized shoreline change, and so the data were available for a relatively narrow swath of the coast. The coverage did not always extend inland far enough to fully map the coastal floodplain. In addition, there were several gaps in coverage along the entire coast. We supplemented these datasets, and filled in coverage gaps with topographic information from the USGS National Elevation dataset. Although these data are at a much lower resolution and accuracy, they allowed us to map the entire coast. The elevation datasets used for this project are summarized in Table 1.

Table 1. Elevation datasets used for mapping coastal flood risks

Dataset	National Elevation Dataset	ALACE 1998	ALACE 2002	So. Cal. IFSAR
Source/Mission	USGS	NASA, NOAA, USGS	NASA, NOAA, USGS	NOAA
Geographic Coverage	National	Stinson Beach to Santa Barbara	Northern border of California to Stinson Beach	Santa Barbara to Mexican border
Data Collection Method	Various	LIDAR	LIDAR	IFSAR
Resolution	10 m	3 m	2 m	3 m
Year Collected	Various	1998	2002	2003
Stated Vertical Accuracy	± 7.5 m	± 0.07 m	± 0.07 m	± 2.2 m

GIS raster math tools were used to compare the elevation of land surfaces with the adjacent flood elevation to determine the extent of flooding. Because of the large file sizes, and the large area being studied, we worked with the terrain datasets in over 600 tiles. Pacific Institute researchers wrote scripts to automate the processing steps on each of these tiles. The resulting inundation grids were boundary-smoothed and small isolated ponds and islands were

removed. The raster datasets were then converted to vector polygons and merged so they could be used in the social and economic analyses. A separate technical memorandum is available at www.pacinst.org/reports/sea_level_rise that describes the GIS flood delineation methodology in greater detail.

San Francisco Bay

While our study looks at the entire California coastline, we also produced more detailed estimates of coastal flood risk in San Francisco Bay. While the distance from Oregon to Mexico is approximately 1,000 miles, the interior of San Francisco Bay has another 1,000 miles of coastline at risk. Inundation maps generated from the climate scenarios were provided to the Pacific Institute by Dr. Noah Knowles of the United States Geological Survey (Knowles 2008). Dr. Knowles developed a suite of computer models under the CASCADE project that simulate the hydrodynamics of San Francisco Bay under future climate scenarios. The Bay model simulates the water surface elevation for each hour from 2000–2099 and is driven by both upstream and downstream boundary conditions (Figure 5). The upstream boundary condition, inflow from the Sacramento/San Joaquin River Delta, is simulated by a hydrologic model of the upstream watershed and the CALSIM model to simulate the outflow from numerous upstream reservoirs. The downstream boundary condition is the water surface elevation of the ocean at the Golden Gate Bridge, which were provided by Dr. Cayan's group at Scripps.

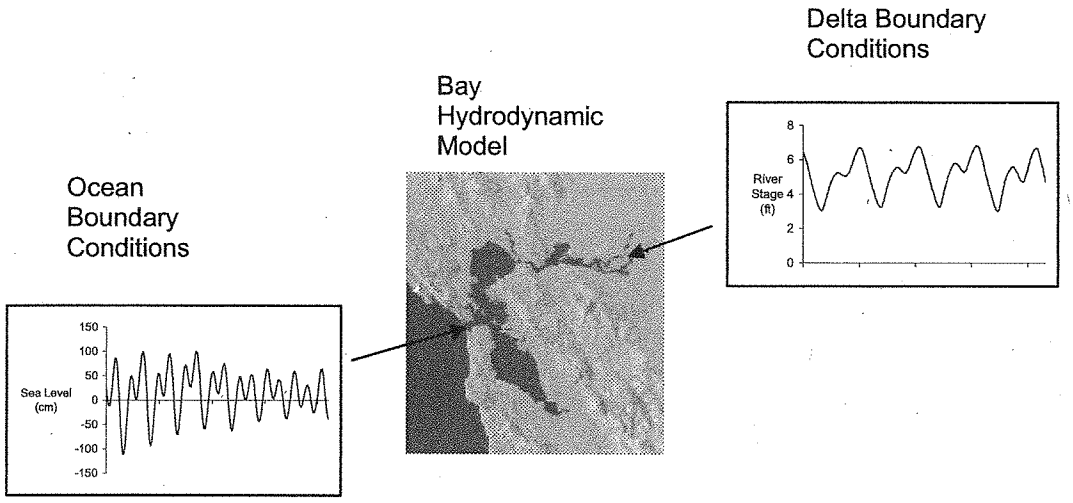

Figure 5. Simple schematic of USGS San Francisco Bay hydrodynamic model

Dr. Knowles performed statistical analyses on the Bay model output to determine flood quantiles at various times and provided outputs in the form of GIS raster files to the Pacific Institute. These files were provided for five flood recurrence intervals (Table 2) for each of four years between 2000 and 2099, for a total of 20 files. Based on this information, we produced GIS layers of the areas at risk of inundation with a 0.5 m, 1.0 m, and 1.4 m sea-level rise, which, for the A2 scenario, correspond to 2050, 2081, and 2099, respectively.

It is important to note that we report results based on the vertical rise in sea level rather than a particular year in which the rise is projected to occur. As shown in Table 3, the year in which a 0.5 m sea-level rise is projected to occur under the A2 and B1 scenarios differs by only three years. Additionally, sea-level rise estimates are continuously updated as climate science advances and greenhouse gas emissions change over time. Indeed, carbon dioxide emissions in 2005 and 2006 were well above even the highest future emissions scenario, as shown in Figure 6 (Raupach et al. 2007). Because the results of this analysis are driven by sea levels and are not directly tied to any set of scenarios, the results of this study will be relevant even when climate projections change.

Table 2. Recurrence intervals of inundation estimates

Flood Interval	Annual probability
1-year	1
10-year	0.1
50-year	0.02
100-year	0.01
500-year	0.002

Table 3. Year and estimated mean sea-level for inundation estimates under the A2 and B1 scenarios

Mean Sea-Level Rise (m)	Year Reached	
	A2	B1
0	2000	2000
0.5	2054	2057
1.0	2083	2098
1.4	2100	2125

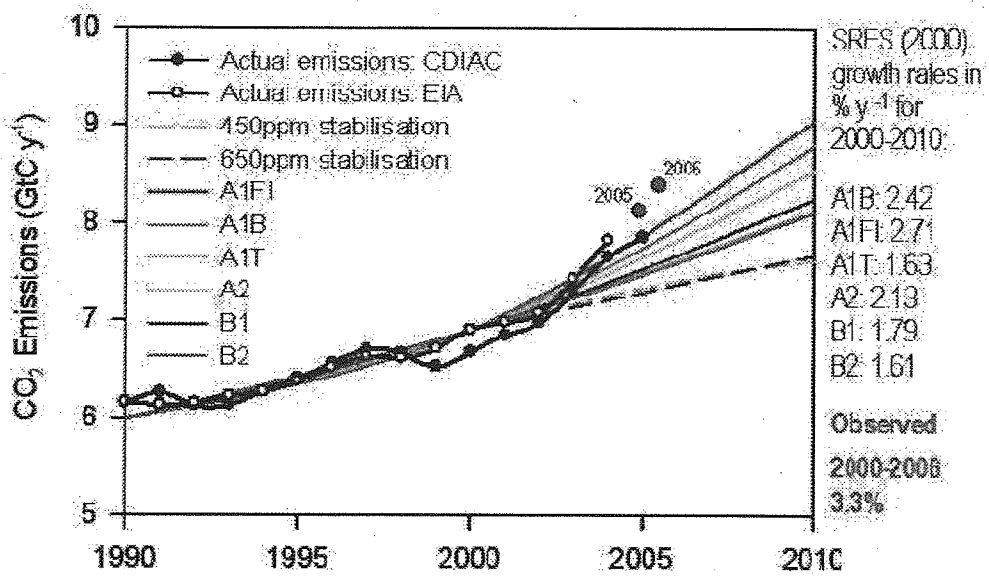

Figure 6. Historical and projected carbon dioxide emissions scenarios, 1990–2010

Note that actual emissions already appear to be exceeding the highest IPCC scenarios.

Source: Raupach et al. 2007

2.3.2. Erosion Risk

Large sections of the Pacific coast, especially those with rocky headlands or sea cliffs, are not vulnerable to flooding, but are highly susceptible to erosion. In areas where the coast erodes easily, higher sea levels are likely to accelerate shoreline erosion due to increased wave attack. In addition, erosion of some sand spits and dunes may expose previously protected areas to flooding.

The amount of erosion can be estimated by several methods. The most widely applied method of predicting shoreline recession based on a sea-level rise was developed by Bruun in 1962. This is based on the concept that the depth of water near the coast remains constant with sea-level rise, that the basic beach profile will remain the same, and that there is a well-defined offshore limit of sediment transport. The sediment required to maintain the beach profile through water-level changes is derived from erosion of the shore material. Based on this, an approximate estimate of the shoreline recession due to readjustment of the beach profile to an equilibrium state is 1.0-to-1.5 meters of shore recession per centimeter of sea-level rise.

Although once widely used, the Bruun rule has been largely abandoned because it makes several assumptions that may not be accurate (Pilkey and Cooper 2004). The formulation is based on a two-dimensional concept, while the sediment transport along a shoreline is a three-dimensional process. The Bruun rule assumes a shoreline profile in equilibrium, which is difficult to confirm at any site. Another problem is that this approach always predicts shoreline recession with offshore sediment transport as sea-level rises, yet there are several cases where shorelines have accreted as a result of sea-level rise due to the movement of sand onshore from offshore deposits. Depending on local sources and sinks of sediment, wave climate, topography, and other conditions governing sediment transport mechanisms, the predictions of shoreline recession obtained using the Bruun rule can significantly over- or underestimate the future recession. More specific methods are needed for particular sites, and should be conducted to better evaluate the impact of sea-level rise on a given region.

A team of scientists and engineers at Philip Williams Associates (PWA) developed an alternative approach to evaluate erosion risk. They evaluated potential future erosion by examining changes to a time series of total-water level (TWL) elevations. TWL is a water elevation determined by the sum of mean sea level, tides, waves and wave run-up, other storm components (including surge), and El Niños (Ruggiero et al. 1996; Ruggiero et al. 2001). Studies suggest that erosion will accelerate as sea levels rise and the coast is exposed to higher waves. Higher water levels result in greater wave energy being dissipated higher up on the shoreline and directly onto the face of cliffs and dunes. The exceedance of TWL above the elevation of the toe junction has been related to erosion (Sallenger et al. 2002; Ruggiero et al. 2001; Hampton and Griggs 2004; FEMA 2005).

To generate the TWL predictions, PWA used a 100-year time series of "measured tides" and deepwater waves from Dr. Dan Cayan and colleagues at Scripps (Cayan et al. 2008). The deepwater wave heights were transformed to 140 nearshore locations by the Coastal Data Information Program to account for differences in wave exposure and shoreline orientation. Finally wave run-up was calculated using the relationship between wave height, wave period,

and beach slope (Stockdon et al. 2006). The combination of sea levels and wave run-up were evaluated over time to estimate future elevations of TWL, which were then intersected with the land elevations along 4,100 segments of the coast.

California's coastline is geologically and morphologically complex and each major geologic unit will exhibit differential response to rising sea levels. Philip Williams Associates classified the shoreline based on geologic formations and type, such as sea cliffs and dunes. For each type of coast, slightly different methods were used to project the response to rising seas. For sea cliffs, which accounted for 720 miles of the study area, erosion was estimated based on an acceleration of the historic erosion rate and a percent increase in TWL exceeding the elevation of the toe of the sea cliffs. The historic sea cliff erosion data were obtained from the USGS National Shoreline Change Assessment (Hapke and Reid 2007). The data were averaged by geologic unit with an additional factor of safety (two standard deviations) included to account for subtle changes in geology along the coast.

For the dune classified shorelines, which covered about 170 miles of the study area, erosion rates were based on the following information:

- Recession based on changes in TWL from sea level-rise.
- Historic shoreline change trends from the USGS National Shoreline Change Assessment (Hapke et al. 2006).
- The impact of a "100-year storm event" extracted from the TWL time series and estimated using a storm-response geometric model of dune erosion (Komar et al. 1999).

Based on this approach, PWA developed digital GIS shapefiles representing future coastal erosion hazard zones for cliff-backed and dune-backed coastal areas for 2025, 2050, and 2100 under a low (1.0 m) and a high (1.4 m) sea-level rise scenario. For this analysis, we evaluate the socio-economic impacts of erosion under the 1.4 m sea-level rise scenario for 2100. Note that for erosion, the year is important because it includes a background erosion rate plus accelerated erosion rates resulting from sea-level rise.

The study area of the erosion analysis extended from Santa Barbara to the Oregon border, covering about 930 miles (1,450 km). Much of the Southern California coast was excluded due to the myriad of ongoing initiatives focused on climate change and hazards mapping. Due to insufficient data, however, PWA was only able to include 80% of the 930 mile study area (see Section 2.4 for additional discussion of the limitations).

The erosion analysis represents a first-order evaluation of coastal hazards based on currently available projections of water levels and wave conditions and interpretations of sea-level rise, shoreline change rates, and geomorphic conditions. Available methods and data are not sufficient to model coastal erosion with high confidence. While the methodology used to develop the hazard zones was kept relatively simple and modular to facilitate understanding and future application with minimal effort, it represents one of the most comprehensive erosion hazard assessments under conditions of climate change ever completed for the California coast. For additional information, see PWA (2008).

2.3.3. *Limitations of the Analysis*

Researchers at Scripps Institution of Oceanography and USGS performed hydrographic modeling of the San Francisco Bay Estuary to determine the flood elevations under climate change scenarios. All models are subject to errors and inaccuracies. It was not possible to directly calibrate or verify a model that predicts flood frequencies. We performed an independent evaluation of USGS-predicted San Francisco Bay flood elevations and found that the model estimates of the 100-year water surface elevation for the year 2000 were generally similar to flood elevations predicted by the U.S. Army Corps of Engineers (1984a). We compared all 52 points on the San Francisco Bay shoreline shown on the 1984 Corps maps and found that 75% of the flood elevations were within 0.25 feet of those predicted by USGS. Most of the new estimates were slightly lower than the heights estimated by the Corps, as shown in Figure 7.

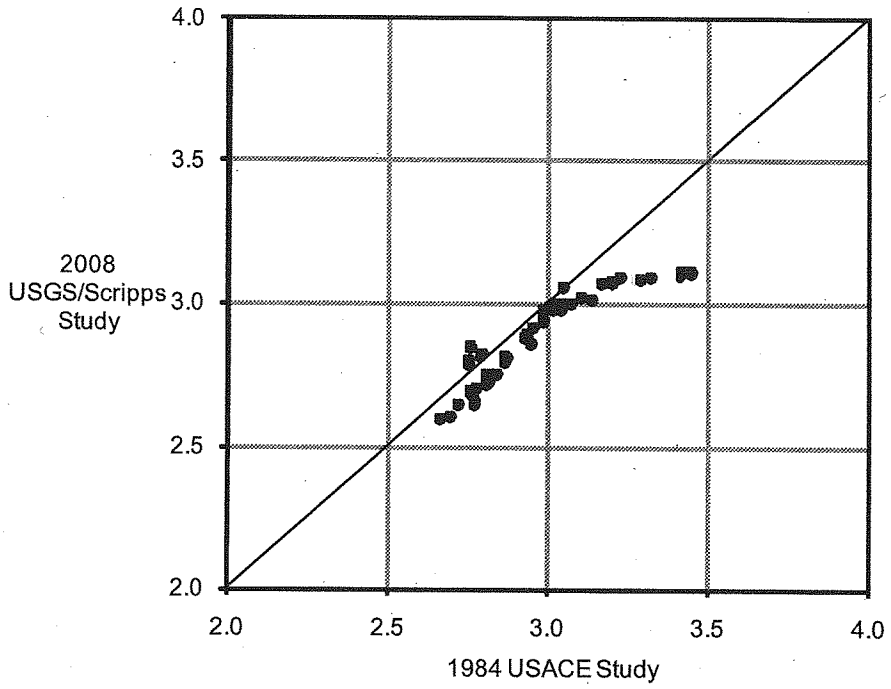

Figure 7. Comparison of 100-year flood elevations (in meters NAVD88)

Furthermore, the location of the shoreline is inexact and probably subjective. Knowles used a "mask" of open water as a filter, so as to report only land areas that are flooded. However, the shoreline is constantly in flux and difficult to map precisely. Further, there are errors and inaccuracies in the terrain data. The digital terrain model creates a smoothed or average surface from the raw elevation data, and it does not accurately depict breaks in elevation that occur at a vertical wall such as a cliff or a curb.

Another limitation is that the automatic, computerized method classifies flooding by depth only. The algorithm using depth alone to determine flooding does not factor in the presence of a flow pathway. In some cases, the high ground may be a levee specifically designed to protect adjacent low-lying areas. In other locations, there are simply depressions, but they are not really at risk because there is no path for seawater to flow into them. This means low-lying objects or features such as ditches, stormwater detention basins, subway tunnels, and empty swimming pools are filled in inappropriately at times, as shown in Figure 8.

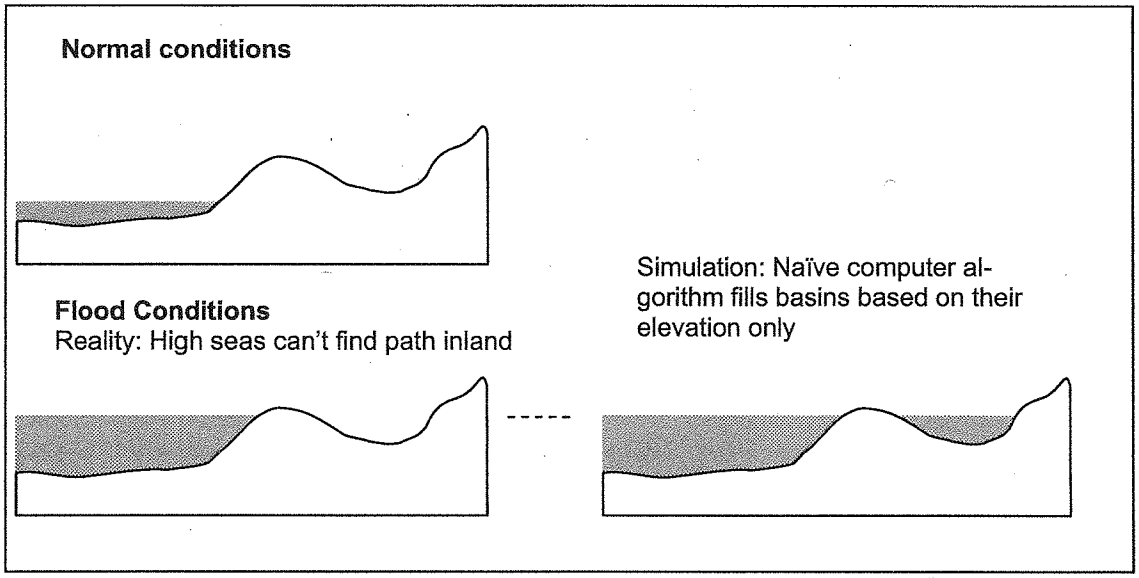

Figure 8. Limitations of the computer's ability to accurately map coastal flooding in areas protected by seawalls or levees or natural barriers

The study area for the erosion analysis was constrained by data availability. The erosion analysis covered only the 11 counties north of Santa Barbara County. Furthermore, data limitations limited the analysis to only 81% of the coast in the 11 counties (Table 4). The three counties with the least coverage include Humboldt County, Monterey, and Santa Barbara. Humboldt County included the Kings Range and the Lost Coast, public lands with no development. The Monterey County analysis was limited along the Big Sur coast where high levels of erosion currently affect the major transportation corridor of Highway 1 and are expected to continue. In Santa Barbara, missing data along the region between Pt. Conception and Goleta and the ending of the erosion analysis south of Santa Barbara harbor explain the missing erosion analysis. As a result, the vulnerability assessments underestimate the actual economic impact from erosion. Note that the flood analysis covered the entire Pacific coast of California and results for the erosion analysis were not adjusted to account for missing segments of the coast.

Table 4. Miles and fraction of coastline studied for the erosion hazard study, by county

County	Studied	Total	% Studied
Del Norte	42.7	49.7	86
Humboldt	72.9	123.3	59
Marin	69.5	75.2	93
Mendocino	145.5	151.4	96
Monterey	94.4	132.0	71
San Francisco	7.5	8.8	85
San Luis Obispo	77.0	102.6	75
San Mateo	57.8	59.6	97
Santa Barbara	84.4	116.5	72
Santa Cruz	46.0	46.0	100
Sonoma	63.0	68.9	91
Total	**760.7**	**934.1**	**81**

2.4. Resources Threatened by Sea-Level Rise

In any given area, rising seas pose a threat to many different types of resources. Among the vulnerable coastal systems are transportation facilities such as roadways, airports, bridges, and mass transit systems; electric utility systems and power plants; stormwater systems and wastewater treatment plants and outfalls; groundwater aquifers; wetlands and fisheries; and many other human and natural systems from homes to schools, hospitals, and industry. Any impacts on resources within the affected area may lead to secondary impacts elsewhere. Determining the types of resources threatened by sea-level rise is a crucial step toward choosing an appropriate level of response and method of protection.

2.4.1. Population

Sea-level rise and increased coastal flooding will lead to disruption due to evacuations, displacement from destruction of homes and property, and possibly the loss of lives. To determine populations at risk if no adaptation actions are taken, we overlay the inundation and erosion hazard maps with year 2000 census block data. We use current population data aggregated by census block, the highest resolution available for California. We make an assumption common in regional GIS analyses that the population is distributed evenly within a block's boundaries. So if our mapping shows that 50% of a 500-person census block is inundated by a flood, we estimate that 250 people are at risk. This method may underestimate (where the houses are clustered on the coast) or overestimate (when the houses are set back from the coast) the actual risk.

While disasters do not discriminate, the existing societal and environmental conditions before, during, and after a disaster produce differences in vulnerability among groups within the population affected.

It is critical to understand that our estimates of populations at risk are based on current population data, not a projection of populations that might be at risk in the future. If no policies are put in place to limit new exposure in areas at risk of rising seas, our estimates will be low—perhaps substantially low. If, however, policymakers are proactive about reducing coastal risks in coming decades, the levels of risk could be substantially reduced.

We also evaluate potential environmental justice impacts of sea-level rise.[6] As seen during Hurricane Katrina, flooding and other natural disasters often do the greatest harm to low-income communities and communities of color. Hurricane Audrey, for example, struck the coast of Louisiana in 1957 and had a death rate of 38 per thousand among whites and 322 per thousand among blacks (Bates et al. 1963, cited in Pastor et al. 2006). A study of all U.S. disasters between 1970 and 1980 found that white households had $2,370 less of a financial burden following a disaster than other racial groups (Rossi et al. 1983). One year after Hurricane Katrina, the black population of New Orleans had decreased 57% while the white population had fallen 36% (Frey 2007). Racial disparities are mirrored in economic disparities where low-income communities have shouldered a disproportionate burden of harm resulting from disasters: reports following Hurricanes Hugo and Katrina pointed to a range of problems related to the "invisibility" of low-income communities before the disasters (Pastor et al. 2006).

The uneven distribution of natural disasters' harms mirrors racial and economic inequities in the distribution of other environmental risks and benefits, which in the 1980s catalyzed affected communities to develop the framework of "environmental justice." This framework was ultimately affirmed by the Environmental Protection Agency in its 1992 creation of what is now called the Office of Environmental Justice, which holds that

> "no group of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal environmental programs" (U.S. EPA).

Presidential Order 12898 of 1994 expanded the application of environmental justice principles in its decree that "each Federal agency shall make achieving environmental justice part of its mission" (Presidential Executive Order 12898).

We use the environmental justice framework in two analyses that are relevant to understanding the full costs of sea-level rise in California. The first is a simple analysis looking for potential inequities in who is likely to be directly exposed to sea-level rise, within the geographic units at which relevant political decisions are made. In this case these geographic units include the state of California as a whole and each county affected by sea-level rise. We urge further studies looking at possible inequities at different spatial scales, e.g., within cities, neighborhoods, and metropolitan regions. Our second environmental justice analysis focuses on the factors of

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[6] Here, we evaluate the environmental justice impacts of flooding but not erosion. Additional analysis should examine erosion as well.

vulnerability and the differential vulnerability to the impacts of sea-level rise of people from different demographic groups.

A third analysis, which is beyond the scope of this study, should focus on potential inequities in the distribution of benefits of the resources that are invested in protecting from and adapting to sea-level rise. Here we focus on completing a part of the first and second analyses, and leave the third analysis for future studies.

Any analysis of populations affected by sea-level rise should include a broader discussion of vulnerability to these events. According to the Intergovernmental Panel on Climate Change, "Vulnerability to climate change is the degree to which these systems are susceptible to, and unable to cope with, adverse impacts" (Schneider et al. 2007). Vulnerability is a function of the magnitude of the impact, the sensitivity of the system to that impact, and the system's ability to adapt. Vulnerabilities, like lack of access to a vehicle or other means of transportation, are shaped by "intervening conditions" that are not tied to a specific hazard but will greatly determine the human impact of the disaster and the specific needs for preparedness, response, and recovery (Hewitt 1997).

Here, we report key population characteristics that increase vulnerability to the adverse impacts of flood events and disasters for low-income people and communities of color. We sort the types of vulnerabilities and key demographics correlated with increased vulnerability, according to the three phases of a disaster event: preconditions, disaster, and recovery and reconstruction (Hewitt 1997). Figure 9 offers a conceptual model of the relationship between demographics, vulnerabilities, and human impact. Our analysis is limited to two factors: the distribution of race and income. A more comprehensive analysis of the human impact of sea-level rise is needed for all vulnerable subgroups, including children, elderly, homeless, and incarcerated residents.

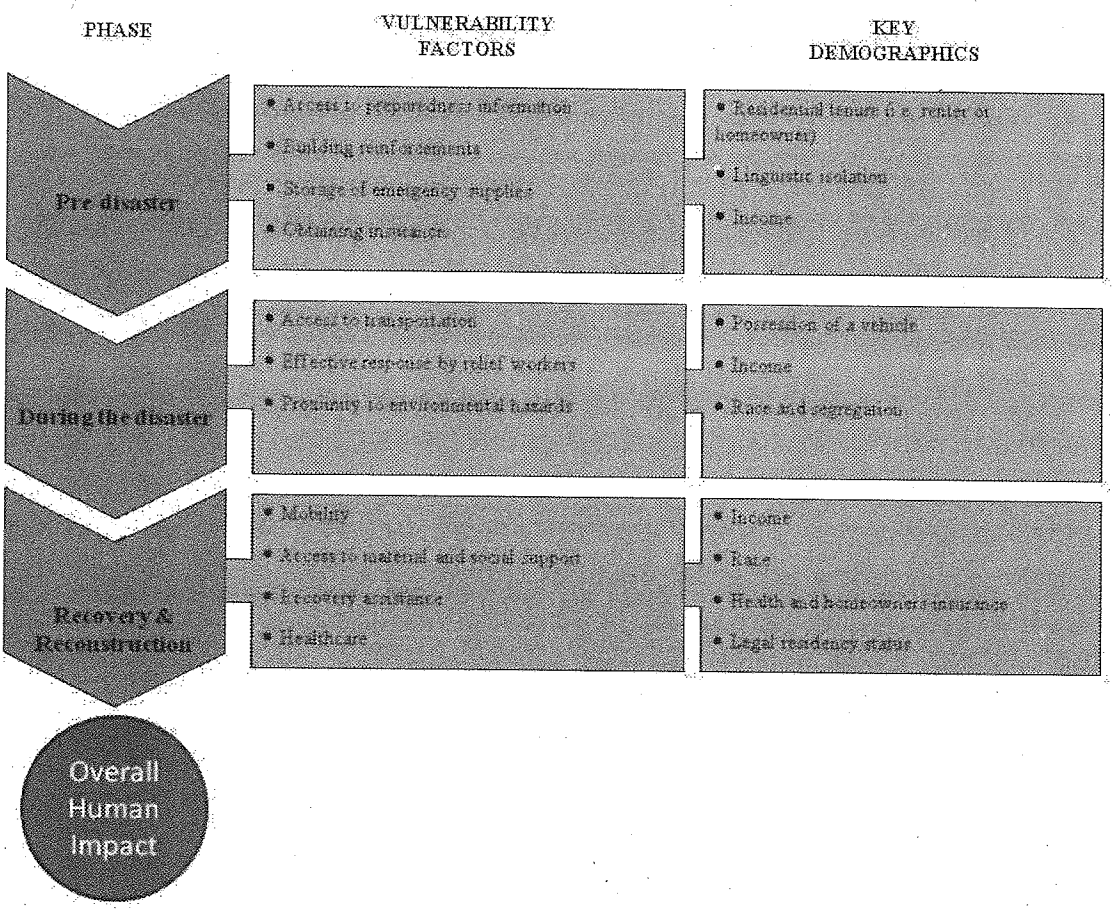

Figure 9. Relationship between demographics and vulnerabilities

2.4.2. Impacts on the Built Environment

Extensive development has occurred in areas already threatened by erosion and floods along the California coast. Residential homes along the California coast often draw a premium price as a result of their location. Some homes in coastal zones are protected by levees and revetments; many are not protected at all. Additionally, high-value commercial, industrial, and transportation facilities are also located along the coast. Such facilities make use of the waterfront for waste disposal, movement of goods or people, or commercial activities. Among the most common coastal facilities are airports, railroad tracks and terminals, highways, power plants, waste-disposal sites, waste-treatment plants, ports and docks, warehouses, salt ponds, and marinas. Existing forms of protection for these facilities vary greatly, from bulkheads and engineered seawalls to riprap and non-engineered levees. An increase in sea level will increase the severity of possible damages in threatened areas and will expand the size of flood and erosion zones.

Data on the replacement value of buildings and contents was taken from datasets supplied with the HAZUS model, which was developed for FEMA's Mitigation Division by the National Institute of Building Sciences. HAZUS was designed to help planners estimate the potential

losses from natural disasters such as earthquakes, floods, and hurricane winds. HAZUS uses a database called the "General Building Stock Inventory" that contains the value of buildings and contents based on data from a number of sources including the U.S. Census Bureau, Dun & Bradstreet (a business listing service), and the U.S. Department of Energy. HAZUS estimates direct economic losses based on the repair and replacement of damaged or destroyed buildings and their contents, and includes the following:

- Cost of repair and replacement of damaged and destroyed buildings.
- Cost of damage to building contents.
- Losses of building inventory (contents related to business activities).

Replacement values are provided for residential, commercial, industrial, agricultural, religious, governmental, and educational developments and are compiled at the census block level. See Section 14.2 of the HAZUS technical manual for additional detail (FEMA 2006). To determine the replacement value for the areas at risk, we overlay the inundation maps with year 2000 census block data. We assume that if 50% of an area is affected, then 50% of its assets are at risk. For inundation risks, we use replacement value, as described in more detail below, because 1-100 year inundation does not completely destroy property and land value. In contrast, erosion often completely destroys the property. As a result, replacement value is not appropriate for evaluating the economic cost of erosion and was not used for that part of the study.

We compared replacement costs and the market value of homes at a few locations along the California coast and found that the replacement costs in HAZUS can substantially underestimate actual market values for residential properties. According to the HAZUS database, the median home replacement values range from $63,000 in Del Norte County to $135,000 in San Mateo County (Figure 10). In comparison, the median home price in California was $286,000 in November 2008. In Northern California, the median price was $307,000, and in the San Francisco Bay Area, the median price was $474,000. Of course, homes on the coast are usually much more expensive. For the erosion analysis, we assume that the value of the average coastal property is about $1.4 million (Heinz Center 2000).

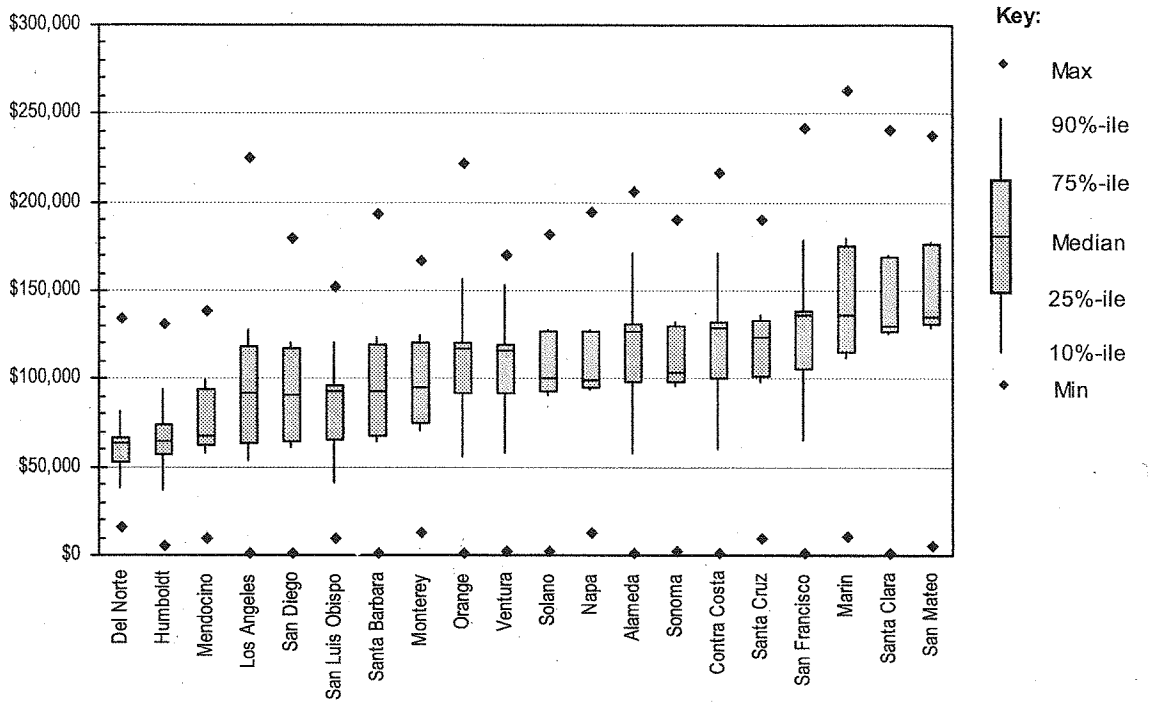

Figure 10. Distribution of census-block average replacement costs for single-family homes from HAZUS

The difference between the replacement value and the market value of a home is likely due to several factors. Home values are determined by more than the cost to build the house, including land value, neighborhood, school district, and dozens of other tangible and intangible factors. In addition, the HAZUS documentation warns that replacement value is based on national-average construction costs, which are much lower than construction costs in California. Future studies should include more detailed estimates of California construction costs.

Parcel data from each county's assessor's office provides higher spatial resolution, but there are some significant limitations to using these data. First, we were unable to obtain a complete coverage for all coastal counties. In some counties, parcel data have not been converted to a digital format, while others claimed that sharing these data was a threat to Homeland Security. Second, even where parcel boundary files are available, these must be linked to the value of the property. While obtaining a list of affected parcels is straightforward, most counties do not readily share their tax rolls or tables with assessed value. This information is part of the public record, and can legally be requested in person or by phone from a county assessor's office, but this approach is not feasible for a regional analysis where hundreds or thousands of parcels are affected. Third, even if assessed value were readily available to us, it often bears little relationship with the actual market value of a property. Finally, assessed value will not include

any publicly owned buildings, so it would exclude many police and fire stations, government buildings, park buildings, schools, water treatment plants, and others.

Important transportation infrastructure is also at risk of flooding and erosion from projected increases in sea-level rise (Figure 11). We estimate the miles of roadways and railroads at risk by overlaying the GIS inundation and erosion hazard layers with transportation data from Tele Atlas. We note that because there are not elevations associated with the roadways, it is difficult to infer the extent to which the roadway is at risk from flooding. Additionally, the railroad data does not provide information on the number of tracks, e.g., single, double. We also do not provide estimates of the value of this infrastructure because adequate data are not available. Thus, the information on roads and railways is presented as miles of structures at risk rather than value, but it provides an indication of the areas at risk and those warranting additional analysis.

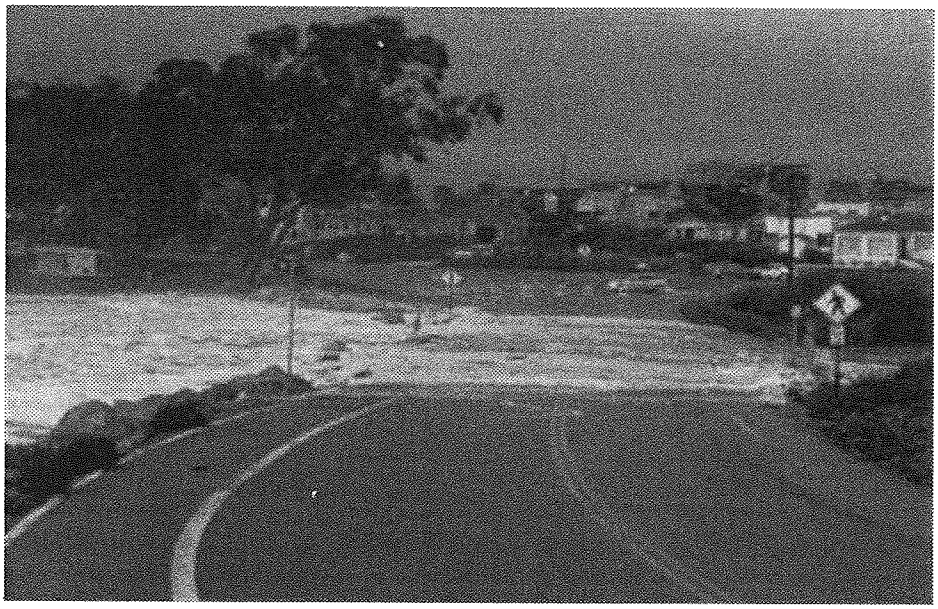

Figure 11. Flooding of a coastal road in Santa Cruz, California

Photo courtesy of David L. Revell

A number of other facilities along the coast are also at risk of flooding and erosion. We evaluate the sites and facilities at risk by overlaying the GIS inundation layer with the relevant spatial data. Data on the locations of schools and emergency facilities come from the HAZUS geographic database (FEMA 2006). Data on licensed healthcare facilities come from the California Office of Statewide Health Planning and Development (2006). Data on coastal power plants were provided by the California Energy Commission.

Data on U.S. EPA-monitored hazardous materials sites were from the U.S. EPA Geospatial Data Access Project 2008 and included Superfund sites, hazardous waste generators, facilities required to report emissions for the Toxics Release Inventory, facilities regulated under the National Pollutant Discharge Elimination System (NPDES), major dischargers of air pollutants with Title V permits, and brownfield properties.[7] The Pacific Institute developed a geographic database of wastewater treatment plants based on data in the U.S. EPA's Permit Compliance System (PCS) database, by interpreting aerial photos and by telephone and Internet research.

2.4.3. Natural Resources

Wetlands are among the Earth's most productive ecosystems. Once abundant across the United States, wetlands have been extensively drained and filled to make way for agricultural, industrial, commercial, and residential development. Pollution and invasive species threaten the health of the remaining areas. The U.S. EPA estimates that more than 220 million acres of wetlands existed in the lower 48 states in the 1600s. By 2000, only 100 million acres of wetlands remained (U.S. EPA 2001). In some parts of the United States, wetland loss was even more severe. In California, for example, more than 90% of the historic wetlands have been lost to development. Growing recognition of their importance and concern about their rapid decline has prompted wetland restoration efforts across the United States, including the San Francisco Bay. A recent U.S. Fish and Wildlife Service report suggests that the net wetland acreage actually increased between 1998 and 2004 for the first time as a result of restoration efforts and the construction of engineered wetlands (Dahl 2006).

While legislation has partly protected wetlands from further destruction, rising seas threaten to substantially modify or destroy remaining wetland habitat. Most coastal wetlands in the United States are within one tidal range of mean sea level (Titus 1988), i.e., between mean high tide and mean low tide. Thus, as noted by Titus (1988), if sea levels rose by one tidal range overnight, "then all of the existing wetlands in an area would drown." Rising seas, however, may also inundate land that is now dry, thereby creating new wetlands. Wetlands may also be able to adapt to rising water levels over time by trapping sediment or building on the peat the sediment creates, a process referred to as vertical accretion. These compensatory mechanisms may be hindered by coastal development that limits wetland migration or rates of sea-level rise that exceed natural accretion rates.

Spatial Extent of Wetlands

In this analysis, we use GIS data from the National Wetlands Inventory (NWI) to determine the current spatial extent of wetlands along the California coast and the San Francisco Bay. While there is currently no single source that contains the boundaries of all existing wetlands, the NWI is the best dataset available. It is important to note that all datasets likely underestimate the actual wetland area. Wetland delineation is a time- and labor-intensive task requiring extensive field work by experts; vast areas have never been subject to detailed study.

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[7] A *brownfield* is an abandoned industrial site available for redevelopment, often with environmental contamination.

The NWI does not make a clear distinction between coastal and upland wetlands. The datasets are distributed in tiles, with each tile containing a mix of marine, estuarine, and freshwater wetlands. We used a simple rule-based approach to decide which wetlands are coastal, or "coast-dependent"" we assume that coastal wetlands are generally limited to within 100 feet (horizontally) of the mean higher-high water line (Figure 12).

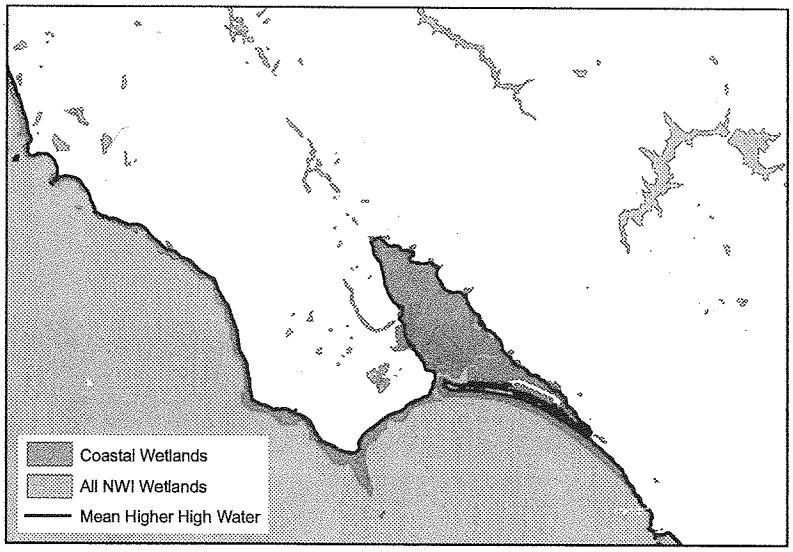

Figure 12. National Wetlands Inventory wetlands classified as "coastal" are below or adjacent to the MHHW line

Economic Value of Wetlands

Wetlands are highly diverse ecosystems that provide a variety of goods and services, including flood protection, water purification, wildlife habitat, recreational opportunities, and carbon sequestration. While there are rarely any direct market values for services provided by wetlands, such as biodiversity and flood control, there is a growing recognition that these services have real economic values and should be included in decision-making processes.

Methods for estimating the economic value of an ecosystem, including wetlands, can be done in one of three ways: direct, indirect, and proxy (Table 5). Each of these methods has strengths and weaknesses; each fails to fully capture the value of ecosystems. The unacceptable alternative, however, is to assign an economic value of $0—clearly acknowledged to be wrong. To put it simply, "we don't protect what we don't value" (Myers and Reichert 1997).

In recent years, a number of studies have attempted to estimate the economic value of wetlands. Based on a literature review and some original calculations, Costanza et al. (1997) estimate that the value of tidal marshes is around $5,700 per acre per year (in year 2007 dollars). In a meta-analysis of 39 wetland valuation studies, Woodward and Wui (2001) found that wetland values varied considerably according to the methods used, the type and location of wetlands evaluated, and the study characteristics. While the valuation method affected the value

obtained, the method was not the primary determinant of value. However, study quality was not a strong determinant either; weak studies yielded wetland values similar to strong studies, but with more error, suggesting that the quality of the study affects precision. The authors conclude: "From our analysis it is clear that the prediction of a wetland's value based on previous studies is, at best, an imprecise science. The need for site-specific studies remains" (Woodward and Wui 2001).

For this analysis, we estimate the economic value of wetlands in California using recent cost estimates for restoring wetlands. Numerous wetland restoration projects have been initiated in the San Francisco Bay, with the cost of restoring these tidal marshes ranging from $5,000 to $200,000 per acre (Hutzel 2008). The South Bay wetland restoration project, for example, is estimated to cost about $67,000 per acre (Hutzel 2008). We note that these estimates represent the public's willingness to pay for these ecosystems rather than their actual value, but without a more detailed site-specific analysis, the restoration costs are the best estimates available. We do not evaluate the ability of wetlands to adapt to these changes through vertical accretion or landward migration, but note that these processes could reduce damage to wetlands. We urge more detailed wetland valuation studies be conducted to improve these estimates.

Table 5. Approaches for estimating ecosystem values

Approaches	Description	Example	Weaknesses	Strengths
Direct	Surveys can be used to ascertain people's willingness to pay for benefits provided by the wetland or the level of compensation they would expect for the loss of those benefits. Such surveys measure the value of specific benefits.	A survey that asks users what they would be willing to pay to retain a recreational area.	This approach requires sophisticated survey design, analysis and interpretation.	This approach can measure relatively subtle changes in value and can also be used to calculate the value of non-use benefits.
Indirect	Economists use mathematical models to estimate wetland values based on the market demand for related goods and services.	Expenditures and the distance traveled by people visiting a wetland are used as indicators of the value of the wetland for recreational purposes. Similarly, real-estate price differences could be used to estimate the value of the wetland's aesthetic benefits.	This approach cannot measure non-use benefits (e.g., option or bequest benefits) or benefits that do not currently exist (e.g., the benefits of an enlarged wetland).	This approach is usually faster and less expensive, as it can be based on easily accessible data.
Proxy	The values of other goods and services are used to approximate the values of wetland benefits.	The replacement cost for a wetland benefit (e.g., water filtration), such as the cost of installing a buffer strip or building a water treatment plant, is used as a measure of the value of the benefit.	This approach may confuse costs and benefits. For example, using the cost of a water treatment plant estimates the cost rather than the value of water filtration, (i.e., people's willingness to pay for clean water).	This approach can be more quickly calculated, but the result is only a very rough estimate of value.

Source: Environment Canada 2001

Impact of Sea-Level Rise on Wetlands

Evaluating the impacts of sea-level rise on a particular coastal wetland area requires site-specific data on various physical and biological factors, as described above. While this information is clearly important for developing adaptation strategies, it is beyond the scope of this analysis. A simple method to estimate wetland loss is to compare wetland elevations to future tide elevations. If the areas are permanently inundated in the future, they will be converted to open

water and lose their value as wetland habitat. Data limitations, however, prevent us from performing even this simple analysis: the existing digital elevation models (DEMs) do not include data below the shoreline and the modeled mean lower low water mark, even with 1.4 m of sea-level rise, falls below this elevation. This means there are no data in the critical area where the boundary must be drawn. We recommend additional work in this area to create a DEM for the California coast that combines land surface elevations with accurate bathymetry to allow for more detailed study of potential wetland responses to sea-level rise. Given these data limitations, we evaluate the land cover *adjacent* to existing wetlands and the potential for these areas to support suitable wetland habitat. We note that this simplified analysis does not take into account erosion or accretion due to sediment movement, which is difficult to predict with any accuracy.

Wetlands exist in areas that are frequently but not permanently inundated. In *The Effects of Sea Level Rise on US Coastal Wetlands*, Park et al. (1989) assumed that all areas between mean lower water (MLW) and mean higher water springs (MHWS) are tidal wetlands (Figure 13). The MHWS is only a few centimeters from the mean higher high water (MHHW) datum, which is more readily calculated and tabulated in tide reports. We assume that wetlands will migrate to land areas that are below the future MHHW, which we estimate as current MHHW plus the projected 1.4 m sea-level rise.

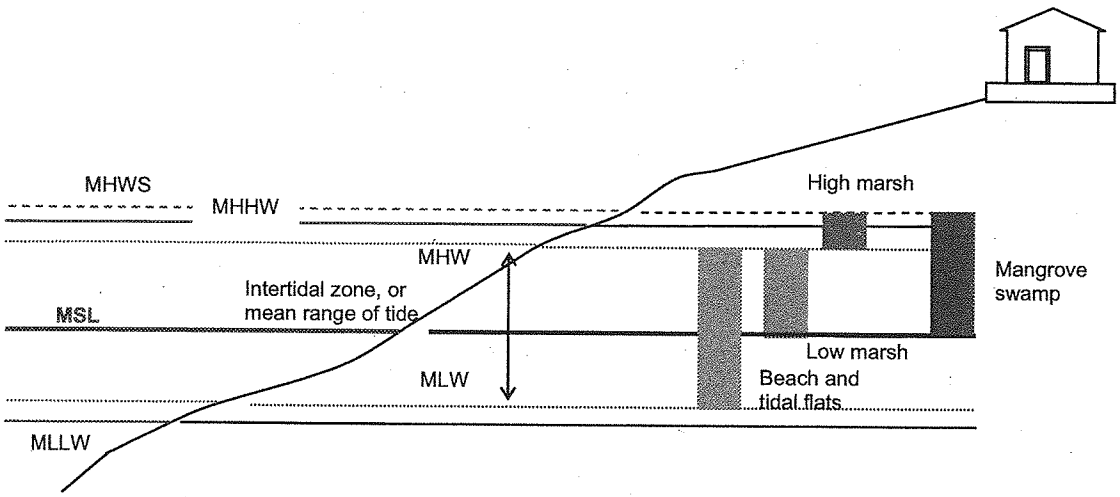

Figure 13. Assumed wetland area defined by the intertidal range

Adapted from Park et al. 1989.

The National Oceanic and Atmospheric Administration maintains tide stations along the California coast that provide measurements of MHHW. We interpolated the high-water elevation for the entire California Pacific coast using data from 12 long-term coastal tide gages. Each of these NOAA tide stations has been in continuous operation for over 25 years. The MHHW elevation for each of these stations is listed in Table 6. Using spatial interpolation tools

available in ArcGIS software, we developed a continuous grid or "surface" of MHHW elevations in year 2000.[8] To estimate MHHW elevations with a 1.4 m sea-level rise for the Pacific coast of California, we created a second surface by adding 1.4 m to each pixel in the year 2000 MHHW surface. The difference between the high water lines is the "wetland migration zone": the land into which wetlands must migrate to survive.

Table 6. Mean higher high water (MHWH) for long-term tide stations on California's Pacific coast

NOAA Station ID	Station Name	MHHW
9410170	San Diego, CA	1.61
9410230	La Jolla, CA	1.57
9410660	Los Angeles, CA	1.61
9410840	Santa Monica, CA	1.60
9411340	Santa Barbara, CA	1.61
9412110	Port San Luis, CA	1.60
9413450	Monterey, CA	1.67
9414290	San Francisco, CA	1.80
9415020	Point Reyes, CA	1.75
9416841	Arena Cove, CA	1.76
9418767	North Spit, CA	1.99
9419750	Crescent City, CA	1.98

Note: Elevations in meters above NAVD88 vertical datum. Tide datums calculated by NOAA for the 1983–2001 epoch.

Source: http://tidesandcurrents.noaa.gov/

We analyzed the land cover in the potential wetland migration zone using 2001 land cover data from NOAA's Coastal Change Analysis Program (C-CAP).[9] We rated each land cover type according to its suitability to support wetland habitat in the future. We assume that natural lands such as woodland, grassland, or shrub could provide suitable habitat for wetland plants and animals in the future when they are in the new intertidal zone and are intermittently wetted. Other land cover types may be viable for conversion to wetlands, but at a loss of some direct value to humans, e.g., farmland or parks. The third and final category represents built-up

[8] In some areas of Southern California, however, the available digital terrain data was not sufficiently detailed to complete the analysis. The terrain data did not include points below an elevation of 1.5 m NAVD88, and we could not map the current MHHW inundation extent for the entire coast. We mapped about 49% of Santa Barbara County, 23% of Los Angeles County, and 65% of Orange County. The coverage was 100% in the other 11 counties on the Pacific coast.

[9] The C-CAP data layer classifies land cover based on an adapted version of the Anderson et al. (1976) classification scheme and is estimated to have an accuracy of 85% (NOAA Land Cover Analysis website www.csc.noaa.gov/crs/lca/ccap.html).

areas that will likely provide unsuitable habitat for wetlands in the future due to the presence of buildings and other paved areas.

2.4.4. Limitations

Our analysis also has limitations related to the economic valuation methodology. For the flood analysis, we estimate the economic cost of sea-level rise based on estimates of the replacement value of buildings and their contents. We do not include estimates of the property or land value, which are much higher and should be included if inundation is permanent or leads the abandonment of property. Replacement values are also not appropriate for estimating the cost of erosion because it typically results in the total loss of property and land. We make a rough estimate of land values along the coast but note that additional study is needed.

Flooding and erosion can cause serious economic and social disruptions that are not captured in estimates of the buildings and infrastructure. For example, flooding events can cause deaths and injuries. Flooding or erosion of a major highway can prevent people from getting to work. Estimating the replacement value and even some wetland values thus substantially underestimates the total cost of flood impacts and as a result, our results should be considered conservative. A more detailed analysis would include transportation risks, lost work days, health issues, impacts on migratory bird habitat, and others.

We also do not factor in any expected changes in population density or the level of development in the regions at risk over the next century; these are largely unknown and will be determined by future policies. If policies are put in place to reduce development in regions of future flooding, society could over time reduce the risks. While limiting coastal development (an institutional adaptation) is likely the most effective way to reduce risk, this approach can also incur costs. Development permits designed to provide flexibility for future generations to address sea-level rise (e.g., development permits that allow development but stipulate that the area reverts to nature if seas rise a specified amount) may reduce today's cost. Conversely, if current development in coastal areas continues unchecked, a far larger population and a far larger infrastructure set will be vulnerable than at present. We make no estimates of these changes, but future research could look at different scenarios for growth and coastal development and integrate them into the assessment tools developed here.

2.5. Determine the Protective Responses Appropriate for the Region

Each of the resources and facilities described in Section 2.4 can be protected by some combination of structural and non-structural measures. Some of the possible structural measures include building or improving coastal defenses such as dikes and dunes, seawalls, bulkheads, and other structures. Non-structural measures include abandoning property and land and moving to less threatened areas and beach nourishment. Perhaps the most effective non-structural response is to prohibit development in regions likely to be threatened in the future. This choice, however, requires the most forethought and planning. Below, we describe some of the structural measures and their associated costs.

2.5.1. Structural Coastal Protection Measures

Beach Nourishment

The addition of beach sand to a shoreline has been used to construct beaches where none had previously existed and to replenish eroded sand. As a response to the expected increase in erosion due to sea-level rise, the purpose of beach nourishment is to restore the width of an eroding beach on a temporary basis, although nourishment can also provide long-term restoration in certain types of areas. The rate at which the replenished beach erodes is a function of wave action, the uniformity of placement of the sand, and the grain size (U.S. Army Corps of Engineers 1984b). The sand used for a beach nourishment project usually comes from offshore dredging and pumping to the desired site; less frequently material is imported from an off-site location. The cost of the material can vary greatly depending on its origin and associated transportation costs.

Groins

One type of structure designed to lessen the impact of coastal processes on a shoreline is a groin —a structure oriented perpendicular to the shore that serves to reduce the flow of sediment along a shore (the local littoral drift rate). Sand collects on the updrift side of the groin until it is filled to capacity, when longshore drift is allowed to pass. Groins are often used in fields (sets of more than one groin) to protect a long section of coastline. The shoreline immediately downfield of the groin field, however, is often subjected to accelerated erosion, especially when the groins are not filled with sand during construction (National Research Council 1987).

Sea-level rise can affect a groin by reducing its effectiveness due to "flanking" or "submergence." A groin typically extends landward to the dune line, and the dune line may retreat due to sea-level rise, leaving the groin susceptible to flanking during high or storm tides, allowing sand to bypass the groin. Submergence of the groin can lead to overtopping by the longshore current, further decreasing the structures' efficiency at stabilizing the area (National Research Council 1987).

Seawalls, Bulkheads, and Revetments

There are three principal forms of vertical shoreline walls used to protect upland areas from storm surges and high tides: seawalls, bulkheads, and revetments. The differences between seawalls, bulkheads, and revetments are in their protective function. Seawalls are designed to resist the forces of storm waves; bulkheads are to retain the fill; and revetments are to protect the shoreline against the erosion associated with light waves (U.S. Army Corps of Engineers 1984b). These structures tend to fix the position of the coast. While this strategy may protect upland development, there are two kinds of adverse consequences of these types of structures. *Placement loss* refers to the loss of beach due to the footprint of the structure. For seawalls this is not as great as a revetment, which is usually built at a 2:1 (horizontal:vertical) slope. The other impact of these structures is called *passive erosion.* As sea level rises, and the structure fixes the position of the shoreline, the beach in front of the structures can be "drowned," resulting in a loss of recreation opportunities and habitat (Griggs 2005).

Breakwaters

Offshore breakwaters are above-water structures parallel to the shore that reduce both wave heights at the shoreline and littoral drift. Sea-level rise will reduce the protective capacities of breakwaters in two ways: rising water levels will effectively move the shoreline farther from the breakwater, increasing the ability of the waves to diffract behind the structure and reducing the sheltering and efficacy of the device; and the increased frequency of overtopping will diminish the ability of the breakwater to reduce the wave energy in the sheltered region (National Research Council 1987).

Dikes and Levees

Dikes or levees are embankments to protect low-lying land. A sea-level rise can result in reduced stability and increased overtopping of existing levees. New levees may be constructed to protect developed areas (National Research Council 1987). Whether existing levees can be modified for a rise in sea level depends on the availability of material for raising the levee, the suitability of the foundation material to support the additional weight of the material, the stability of the levee with the increased water level, and the accessibility of additional area for widening the base of the levee. Considerations for new levees also include issues such as land condemnation and interference of the levee with navigation (National Research Council 1987).

Raise Existing Structures (Roadways, Railroads, and Other Structures)

In some regions, building levees or seawalls to protect a small number of structures may not be cost effective. In these instances, raising the structures may be a better alternative. Roadways, railroads, and other structures may be raised so as to avoid damage from flooding. Over time, for example, we think it likely that important economic assets such as airports, transmission lines, or roadways will be raised rather than protected with levees or seawalls.

2.5.2. Cost of Structural Protection Measures

The cost of flood defenses is site-specific and little reliable information is available to generalize these costs. Gleick and Maurer (1990) developed cost estimates for building new coastal protection structures and raising existing ones, as well as raising roadways, railroads, and individual structures. We update these costs for this analysis based on a literature review (Table 7). Costs are converted to year 2000 dollars. Given the site specificity of construction costs, we relied on cost information from California where possible.

Data suggest that a new levee between 10 and 20 feet in height with a waterside slope of 3:1 would cost about $1,500 per linear foot (in year 2000 dollars). This represents a 320% increase over the 1990 estimate, much higher than the rate of inflation. The increase is likely due to large increases in construction and material costs in recent years. We estimate that raising existing levees would cost about $530 per linear foot (in year 2000 dollars). Seawalls, while providing significant protection, are among the most expensive option, estimated at about $5,300 per linear foot (in year 2000 dollars).

Table 7. Costs (in year 2000 dollars) for building new levees, raising existing levees, and building new seawalls

	Cost ($ per linear foot)	Location	Sources
New Levee	$725–$2,228	San Francisco, CA	Pang (2008)
Average New Levee	**$1,500**		
Raise Levee	$319	Central Valley, CA	Mount and Twiss (2005)
	$223–$1,085	San Francisco, CA	Moffatt and Nichol Engineers (2005)
	$278–$944	Central Valley, CA	Mount and Twiss (2005)
Average Levee Upgrade	**$530**		
New Seawall	$1,292	New England	Kanak (2008)
	$3,828	Southern California	Gustaitis (2002)
	$2,646–$6,173	Northern California	Stamski (2005)
	$5,654–$8,078	Philadelphia	PennPraxis (2008)
	$4,847	California	Crampton (2008)
Average New Seawall	**$5,300**		

Note: All costs are shown in year 2000 dollars. Costs shown for a new levee are based on a U.S. Army Corps of Engineers cost-estimation model, for a levee between 10 and 20 feet in height with a waterside slope of 3:1 and built using local materials.

In addition to the construction costs of the various structures described above, maintenance costs are often significant. In general, the greater the engineering employed in the construction of a shore protection scheme, the lower the proportion of maintenance costs. The maintenance cost of engineered riprap-revetment, for example, can amount to 2%–4% of the construction cost per year over the life of the project. This can be compared with the maintenance cost for a non-engineered revetment of 5%–15% of the construction cost per year (Fulton-Bennett and Griggs 1986). Average maintenance costs for levees are about 10% per year of the costs of construction. The estimated maintenance costs for seawalls run from 1%–4% per year, reflecting the higher level of engineering that goes into their construction. Because the majority of structures in our study are levees, we assume here an annual operation and maintenance cost equal to 10% of the capital cost of construction.

Levees, seawalls, and other structural methods have a number of environmental and social costs that are not reflected in the cost estimates shown in Table 7. Armoring the coast prevents natural movement and migration of the beach and associated ecosystems. In some areas, beaches may disappear completely, as shown in Figure 14. Structural measures can also increase vulnerability by encouraging development in flood-prone areas and giving those who live behind the structure a false sense of security. According to the United Nations,

"protective works have a tendency to increase the level of development in floodprone areas, as the assumption is made that it is now safe to build and invest in areas that are protected. However, it must be recognized that at some point in the future the design event will likely be exceeded and catastrophic damages will result" (United Nations 2004).

In addition, structural measures require regular maintenance, a task that is often overlooked due to budgetary constraints. Failure to maintain protective structures can lead to structural failures and catastrophic damage.

Figure 14. An example of coastal armoring leading to the disappearance of beach
Source: David L. Revell

2.5.3. Estimating Needed Coastal Defenses

Details about what level of protection to choose are a function of the perception of the value of the threatened property, the cost of alternative measures, and political and societal factors. In this analysis, we evaluate one scenario: the cost associated with raising the height of existing structures to maintain current flood protection levels and building new structures to protect development that will be at risk of flooding with a 1.4 m sea-level rise. We do not evaluate coastal protection costs for erosion and urge additional studies on this topic.

In order to determine the cost of protecting development along the San Francisco Bay and California coast, we first needed to determine the location and type of existing coastal protection structures. Unfortunately, neither the U.S. Army Corps of Engineers nor any other agency maintains a comprehensive database with this information. The California Coastal Commission, however, recently compiled spatial data on the location and type of protective structure along the Pacific coast, e.g., groins, revetments, levees, and seawalls. Similar data were not available for the San Francisco Bay. Digital Flood Insurance Maps (DFIRMs) that showed

the presence of protective structures in the San Francisco Bay, however, were available in some areas. We supplemented the DFIRMS with a visual assessment of aerial imagery of the region. Because the DFIRMs do not distinguish between the types of structure, we assumed that seawalls were located around high-density, highly valued areas and levees were located around all other areas.

Geospatial data on the existing coastal protection structures were overlaid with the inundation maps to determine where existing structures needed to be raised and new structures built. To make this determination, we made the following assumptions:

- Existing coastal protection structures are strengthened and raised by 1.4 m with no change in the type of protection, e.g., levees are raised but are not replaced by a seawall.
- New coastal protection structures are needed wherever built structures are at risk of flooding. Agricultural land was not protected, unless a levee already existed.
- Seawalls are used in areas along the Pacific coast that are currently not protected but will need protection in the future and in areas where space limitations due to development prohibit the construction of new levees.
- Levees are used within enclosed areas, like the San Francisco Bay, that are currently not protected but will need protection in the future. These bays are protected from wave action, and we assume that levees will provide sufficient protection.

3.0 Results

Here we report on the results of our analyses for San Francisco Bay and the Pacific coast. In particular, we report on the population, infrastructure, and property at risk from sea-level rise, as well as the impacts on harder-to-quantify coastal ecosystems. We also provide an estimate of the economic costs of building coastal protections of different types to protect lives and property from flooding. All economic values are reported in year 2000 dollars. Results are reported separately for the flood and erosion risks.

3.1. Flood-Related Risks

In this analysis, we use the 100-year flood levels to evaluate the vulnerability to inundation. The 100-year flood is used as a standard for planning, insurance, and environmental regulations. It is important to note that people, infrastructure, and property are already located in areas vulnerable to flooding from a 100-year event. Many Californians are already at risk from coastal flooding. Sea-level rise will cause more frequent and more damaging floods to those already at risk and will increase the size of the coastal floodplain, placing new areas at risk where there were none before. In Figure 15, for example, those areas shown in light blue are currently vulnerable to a 100-year flood event in the Santa Cruz area. With a 1.4 m sea-level rise, additional areas (shown in dark blue) will be at risk. Thus, the damage attributed to a 1.4 m sea-level rise is equal to the area currently vulnerable to a 100-year flood event (but now protected by levees, seawalls, etc.) plus new inundated areas, i.e., the areas shown in light blue and dark blue in Figure 15.

A series of maps for the entire coast of California demonstrating the extent of the areas at risk are posted at www.pacinst.org/reports/sea_level_rise. It should be noted again that these maps are not the result of detailed site studies, and were created to quantify risk over a large geographic area. **They should not be used to assess actual coastal hazards, insurance requirements or property values, and specifically shall not be used in lieu of Flood insurance Studies and Flood Insurance Rate Maps issued by the Federal Emergency Management Agency (FEMA). Local governments or regional planning agencies should conduct detailed studies to better understand the potential impacts of sea-level rise in their communities.**

Coastal Flood Risk Area

Current Base Flood
(approximate 100-year flood extent)

Sea Level Rise Scenario
Base Flood + 1.4 meters (55 inches)

Figure 15. Estimated current and future 100-year coastal flood risk areas around Santa Cruz

3.1.1. Population at Risk

Major population centers are located all along California's coast. Nearly 26 million people lived in coastal counties in 2000. Of these, 74% lived along the Pacific coast and the remaining 26% lived along the San Francisco Bay. An estimated 260,000 people, or 1% of California's coastal

population, live in areas that are currently vulnerable to a 100-year flood event. As discussed in Section 2.3.3, the inundated area does not adequately take into account existing flood barriers. It is likely that most existing coastal protection structures are sufficient to protect people living in these areas against the present-day flood risk. Most existing defenses, however, will not be adequate to protect inhabitants following significant sea level rise.

As sea levels rise, the area and the number of people vulnerable to flooding will also rise. Rising sea levels will overwhelm the existing protection structures, putting the 260,000 people currently living in vulnerable areas at increased risk. In total, we estimate that a 1.4 m sea-level rise will put around 480,000 people (nearly half a million) at risk from a 100-year flood event (Figure 16). Continued development in these regions could put additional people at risk.

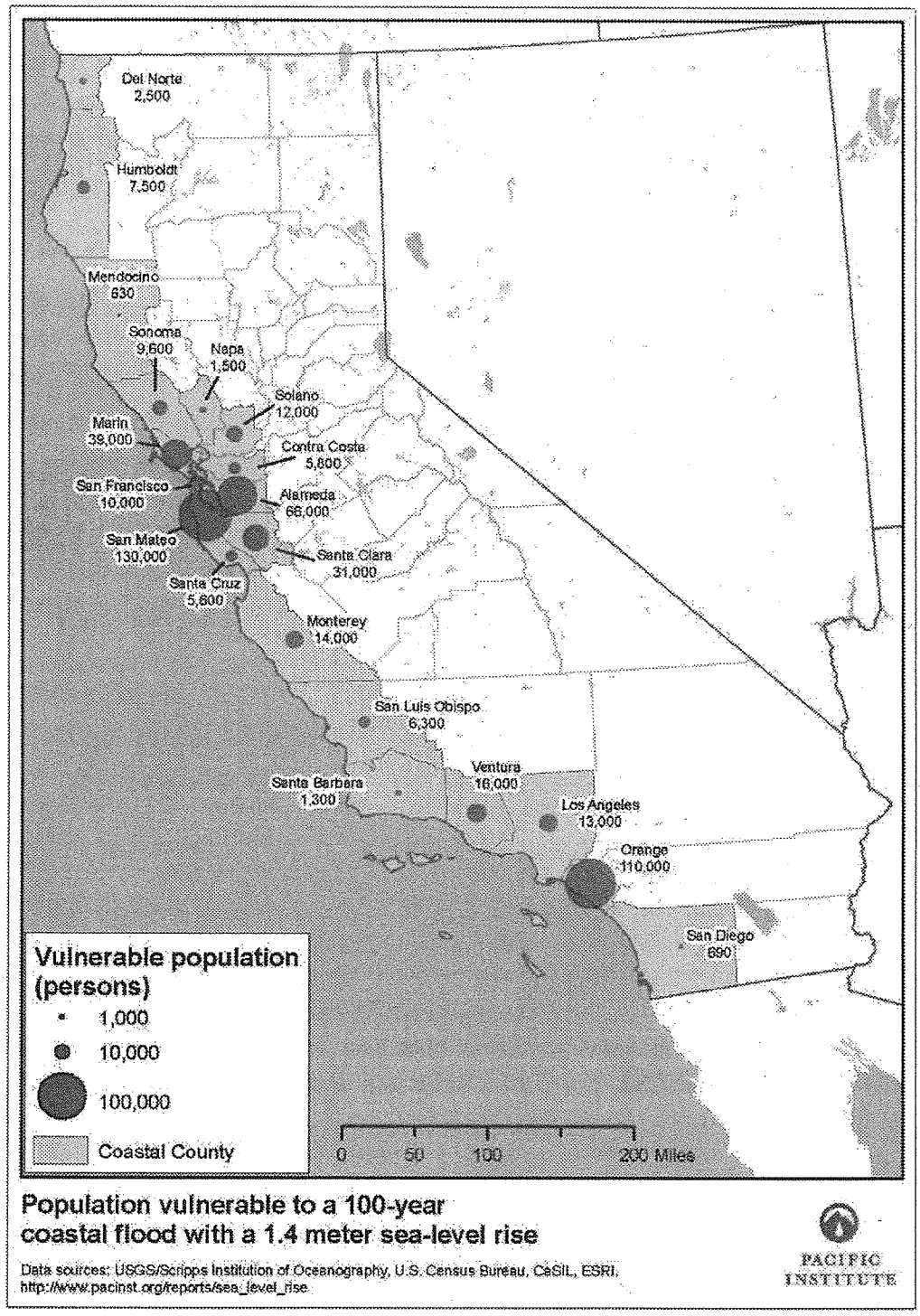

Figure 16. Population vulnerable to a 100-year coastal flood with a 1.4 m sea-level rise, by county

Table 8 shows the population vulnerable to a 100-year flood event along the Pacific coast by county. In 2000, an estimated 120,000 people lived in areas vulnerable to a 100-year flood event. A 1.4 m sea-level rise will increase the number of people vulnerable to a 100-year flood event to 210,000. More than half of these residents live in Orange County, although significant numbers of people are also at risk in Los Angeles, Monterey, San Mateo, Sonoma, and Ventura Counties.

Table 8. Population vulnerable to a 100-year flood along the Pacific coast, by county

County	Current Risk	Risk with 1.4 m sea-level rise	Percent increase
Del Norte	1,700	2,500	47
Humboldt	3,600	7,500	110
Los Angeles	3,600	13,000	270
Marin	520	620	20
Mendocino	520	630	22
Monterey	10,000	14,000	36
Orange	70,000	110,000	55
Sonoma	2,900	9,100	210
San Luis Obispo	4,600	6,300	35
Santa Barbara	660	1,300	98
Santa Cruz	4,500	5,600	24
San Francisco	3,400	6,500	94
San Mateo	11,000	16,000	49
San Diego	570	690	21
Ventura	7,000	16,000	120
Total	**120,000**	**210,000**	68

Note: Counties with borders on the Pacific coast and the San Francisco Bay (e.g., San Mateo) were separated based on the shoreline affected. Numbers may not add up due to rounding.

In San Francisco Bay, the population vulnerable to flooding is even greater. Table 9 shows the population vulnerable to a 100-year flood event in 2000 and with a 0.5 m, 1.0 m, and 1.4 m sea-level rise. In 2000, an estimated 140,000 people lived in areas at risk from a 100-year flood event. An increase in sea levels of 0.5 m has only a modest effect on the number of people at risk. With a 1.4 m increase in sea levels, however, the number of people at risk of a 100-year flood event doubles to 270,000. Populations in San Mateo County are especially vulnerable, accounting for about 40% of those at risk with a 1.4 m sea-level rise. Large numbers of residents in Alameda, Marin, and Santa Clara counties are also at risk.

Table 9. Population vulnerable to a 100-year flood along the San Francisco Bay, by county

County	Current risk	Risk with sea-level rise			Percent increase (with 1.4 m rise)
		0.5 m	1.0 m	1.4 m	
Alameda	12,000	22,000	43,000	66,000	470
Contra Costa	840	1,600	3,400	5,800	590
Marin	25,000	29,000	34,000	39,000	55
Napa	760	830	970	1,500	99
San Francisco	190	600	1,600	3,800	1900
San Mateo	80,000	88,000	99,000	110,000	34
Santa Clara	13,000	17,000	24,000	31,000	140
Solano	3,700	5,500	8,800	12,000	230
Sonoma	250	300	420	540	110
Total	**140,000**	**160,000**	**220,000**	**270,000**	**98**

Note: Counties with borders on the Pacific coast and the San Francisco Bay (e.g., San Mateo) were separated based on the shoreline affected. Numbers may not add up due to rounding.

Environmental Justice Concerns

The analysis of the potential environmental justice impacts of sea-level rise considers who currently lives within the areas at risk and the vulnerabilities of this population to the potential adverse impacts. There is little difference between the overall racial and income demographics of Californians affected by a 1.4 m sea-level rise and those of the state as a whole. However, we do find some important differences between the racial and income demographics of those affected and those of the total population of each county.

Table 10 and Figure 17 show a simplified racial breakdown of the flood-affected population and the population of the counties as a whole. Sea-level rise induced flooding may disproportionately affect whites in the majority of counties along the California coast. In Los Angeles County, for example, 73% of those affected are white, while only 31% of the population in the county is white. Conversely, along the San Francisco Bay, however, communities of color are disproportionately impacted by sea-level rise. In total, communities of color are disproportionately impacted in 10 of the 20 counties studied. The greater proportion of people of color in areas affected by a 1.4-meter sea-level rise highlights the need for these counties to take concerted efforts to understand and mitigate potential environmental injustice.

The results presented above highlight the importance of conducting socio-economic analyses and comparisons at various geographic scales. It is significant to note that these numbers only reflect exposure to the hazard. In the next section, we also evaluate other vulnerability factors, such as access to transportation and ability to speak English.

Table 10. Total county population and population vulnerable to a 100-year flood with a 1.4-meter sea-level rise along the Pacific coast, by race

County	White		Asian, Black, Latino, Native American, or Other Race	
	Affected population (%)	County population (%)	Affected population (%)	County population (%)
Alameda	35	41	60	55
Contra Costa	28	58	69	39
Del Norte	75	70	21	26
Humboldt	82	82	15	15
Los Angeles	72	31	26	67
Marin	59	79	38	19
Mendocino	74	75	23	22
Monterey	29	40	69	57
Napa	63	69	35	29
Orange	80	51	18	46
San Diego	73	55	25	42
San Francisco	51	44	46	53
San Luis Obispo	85	76	13	22
San Mateo	46	50	51	47
Santa Barbara	68	57	30	41
Santa Clara	49	44	47	53
Santa Cruz	43	66	54	32
Solano	38	49	58	46
Sonoma	70	75	28	23
Ventura	56	57	41	41
All coastal counties	56	44	41	53

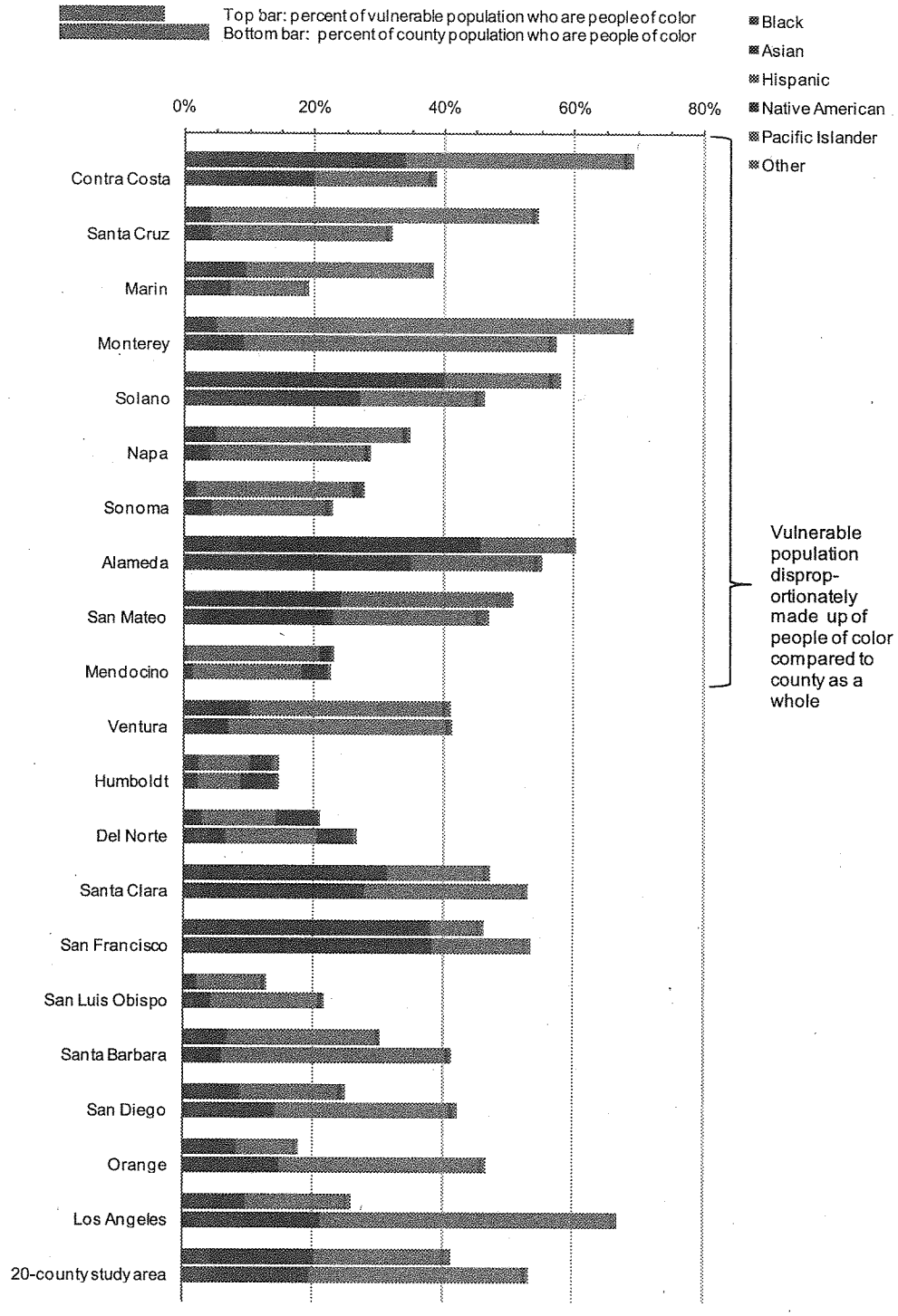

Figure 17. Total county population and population vulnerable to a 100-year flood with a 1.4 meter sea-level rise along the Pacific coast, by race

Note: The lower bar shows the percentage of the county's population that is classified as a person of color, and the top bar shows the percentage of the population at risk of a 100-year flood with a 1.4 m sea-level rise that is classified as a person of color. A county for which the top bar is longer indicates that there is a disproportionate impact on communities of color.

Preconditions

The period preceding a disaster is the key phase for taking action to reduce vulnerabilities and proactively prevent harm. For example, reinforcing residential buildings, obtaining insurance, and storing emergency supplies can reduce injury and loss. Studies show that those who are the most vulnerable are the least likely to adopt these preventive measures. Below, we evaluate key demographic factors affecting vulnerability during the pre-disaster phase, including residential tenure (renter or homeowner), income, and linguistic isolation.

Preventive measures such as reinforcing buildings and buying insurance are adopted at lower rates by people with low income levels (Bolin and Bolton 1986; Blanchard-Boehm 1997). In California, 31% of households earn less than 150% of the federal poverty threshold ($30,000). Low-income households make up 29% of the 20-county study area, slightly less than the statewide total.

An estimated 56,000 households along the Pacific coast, or about 27% of those vulnerable to a 100-year flood with a 1.4 m sea-level rise, earn less than $30,000. Likewise, an estimated 51,000 people along the San Francisco Bay, or about 19% of the affected population, earn less than $30,000 (Table 11). Income demographics vary markedly among the vulnerable populations and counties in this study (Figure 18). Our analysis indicates that there is a disproportionate impact on low-income households in 13 of the 20 coastal counties. These households are less likely than their counterparts to be able to afford emergency preparedness materials, buy insurance policies, and obtain needed building reinforcements.

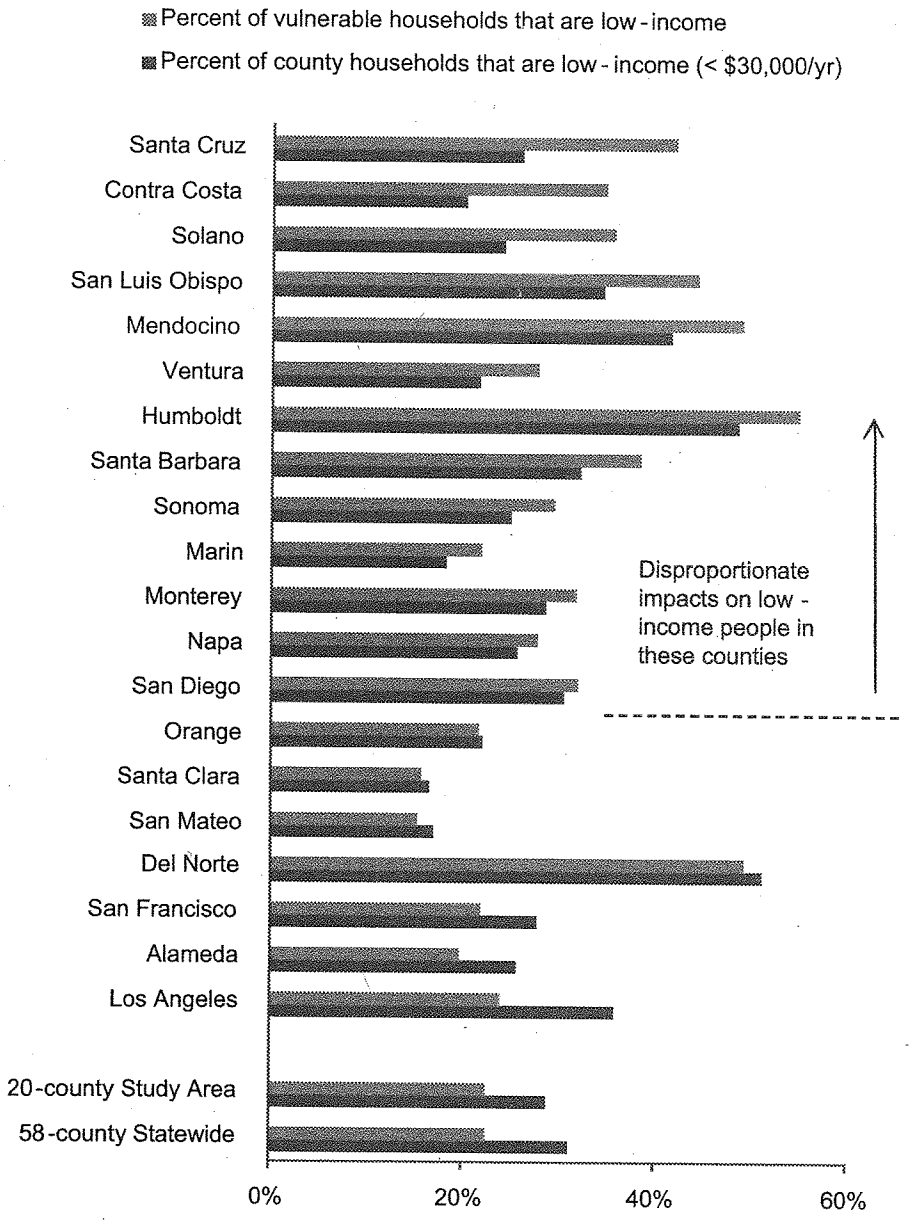

Figure 18. Percentages of low-income households among the population vulnerable to a 100-year flood with a 1.4 m sea-level rise compared with the county total

Note: The lower bar shows the percentage of low-income households in the county, and the top bar shows the percentage of low-income households within the population at risk of a 100-year flood with a 1.4 m sea-level rise. A county for which the top bar is longer indicates that there is a disproportionate impact on low-income households.

Table 11. Key demographics of populations vulnerable to a 100-year flood event with a 1.4 m sea-level rise

	Pacific Coast		San Francisco Bay	
	Number in 100-year flood zone	Percent of total in flood zone	Number in 100-year flood zone	Percent of total in flood zone
Households				
Linguistically isolated	4,700	4	9,700	9
With no vehicle	7,600	7	8,200	7
People				
Earn less than 150% the federal poverty threshold ($30,000)	56,000	27	51,000	19
People of color	60,000	29	148,000	55
Who rent (not own) their home	45,000	43	47,000	41

Data source: Census 2000

Renters are also less likely to reinforce buildings and buy insurance because the decision to make major improvements and financial gains typically lies with the property owner. Of those vulnerable to a 100-year flood event with a 1.4 m sea-level rise, about 45,000 people along the Pacific coast and 47,000 people along the San Francisco Bay rent their homes. These households comprise 43% and 41%, respectively, of the homes within the areas at risk.

Language ability is also an important factor in assessing vulnerability (Wang and Yasui 2008). Earthquake preparedness materials following the 1987 Whittier-Narrows earthquake in California, for example, were available only in English, despite other language needs of the victims (Tierney 1993, cited in Pastor et al. 2006). Additionally, emergency response crews may be unable to communicate with non-English speakers. A recent study of 148 emergency preparedness and public health entities found that only 72% provided links on their website to translated materials, and only 14% offered courses for service providers that addressed potential language issues and cultural competence (Andrulis et al. 2008). Among the population at risk from a 100-year flood event with a 1.4 m sea-level rise, 9,700 households along the San Francisco Bay and 4,700 households along the Pacific coast are "linguistically isolated," meaning no one over age 14 speaks English well (Table 11). These 14,000 households are the most likely to need preparedness materials and outreach strategies suitable for non-English speakers of various backgrounds.

Even among those for whom language is not a barrier, cultural factors can influence the effectiveness of preparedness outreach. Numerous studies show that black and Latino communities prefer neighborhood meetings as a way of receiving information about hazards (Blanchard-Boehm 1997; Perry and Mushkatel 1986; Phillips and Ephraim 1992, cited in Pastor et al. 2006). The historic role of African-American churches in providing disaster planning and

response provides a unique asset and partner to public efforts in these communities (Trader-Leigh 2008).

The representation of low-income and people of color in the groups with heightened vulnerabilities during the pre-disaster phase are higher than these communities' representation in the overall population. In 2000, 65% of white Californian heads of households were homeowners, while 55% of Asian, 46% of Native American, 44% of Latino, and 39% of black heads of household owned their home (U.S. Census Bureau 2000). Eighty-one percent (81%) of Californians who cannot speak English "well" or "well at all" are people of color, while people of color are 31% of the California population (U.S. Census Bureau 2000). Additionally, people of color tend to earn less than white wage earners. The median household income of black, Latino, and Native households in California was $15,000 less than white and Asian households (Census 2000). These factors raise vulnerability to a disaster and increase the likelihood that communities of color and low-income Californians will share a disproportionate burden of harm.

During a disaster

The ability to remain safe and/or evacuate high-risk areas during a flood event is shaped by factors such as quality of residential structures, access to transportation, availability of emergency supplies, effective service by emergency responders, and exposure to environmental hazards. Key demographics associated with these vulnerabilities are income, possession of a vehicle, race, and proximity to environmental hazards that compound health risk, such as toxic waste facilities.

Low-income communities have been unable to evacuate during disasters like Hurricane Andrew due to lack of financial means to buy supplies or transportation (Morrow and Enarson 1996). In a survey after Hurricane Katrina, 55% of respondents who did not evacuate said one of the main reasons was that they did not have a car or other means of transportation (Brodie et al. 2006). Our study shows that nearly 16,000 households in areas vulnerable to a 100-year flood event with a 1.4 m sea-level rise do not have a vehicle (Table 11). Half of these households are located along the San Francisco Bay and the remaining half along the Pacific coast. These households will be more vulnerable to the adverse effects of sea-level rise due to their increased chance of lacking the transportation means necessary to evacuate.

Race has been an important factor influencing the effectiveness of past emergency response efforts. Perceptions of emergency response workers toward neighborhoods that are predominantly people of color can increase the vulnerability of these communities. In a recent report, the International Federation of Red Cross and Red Crescent Societies (IFRCC) found that "stereotypical views of a specific group can overwhelm the scientific methods employed to prioritize the order of relief works, even if some of those involved are professionally trained, such as disaster managers and relief workers" (Klynman 2007). Along the Pacific coast, we estimate that nearly 59,000 Asian, black, and Latino residents live in areas vulnerable to a 100-year flood event with a 1.4 m sea-level rise. The numbers are even higher along the San Francisco Bay, where an estimated 133,000 Asian, black, and Latino residents live in vulnerable

areas. The areas with the highest concentrations of people of color are more likely to be subject to problems with stereotypes that may result in less effective emergency services.

Section 3.1.3, below, describes the number of U.S. EPA-regulated facilities that are at risk of flooding. These facilities contain a range of toxic chemicals that result in increased risk during a flood event due to the possibility that environmental hazards could be released and nearby residents exposed. In California as a whole, the population living within 3 kilometers (1.8 miles) of a commercial hazardous waste facility is disproportionately (81%) people of color compared to communities without such facilities (51% people of color) (Bullard et al. 2007). The same national study concluded that "race continues to be an independent predictor of where hazardous wastes are located, and it is a stronger predictor than income, education, and other socioeconomic indicators" (Bullard et al. 2007). The combination of higher concentrations of environmental hazards and higher rates of demographic characteristics that increase vulnerability has been termed "double jeopardy" by the Institute of Medicine (1999).

This disproportionate representation of people of color living near hazardous waste facilities is coupled with an overrepresentation among households with no vehicle. While black and Latino households comprised 7% and 22% of California's households in 2000, respectively, they comprised 13% and 32% of the households with no vehicle (U.S. Census Bureau 2000), and, as noted above, people of color are also over-represented among low-income Californians. Their higher rates of characteristics associated with vulnerabilities during the time of a disaster raise the possibility that communities of color and low-income people will be disproportionately affected.

Recovery and reconstruction

Following a flood event or other disaster, a range of conditions determines the victims' ability to recover and reconstruct their homes and lives. Important vulnerability factors include the ability to move where opportunities arise, obtain insurance compensation for losses, and receive medical care and public services. The demographic characteristics of income, insurance coverage, legal residency status, and race affect the vulnerability of individuals living in potential flood areas.

White and upper middle-class groups have been found to receive more disaster recovery assistance than black and low-income groups (Bolin and Bolton 1986; Fothergill 2004). For example, following the 1995 flooding of New Orleans, low-income elderly women were one-third as likely than other elderly victims to receive FEMA low-interest loans (Childers 1999). Disaster recovery services have often targeted homeowners to the disadvantage of renters and residents of public housing (Pastor et al. 2006). Reconstruction efforts of the past have inadequately rebuilt housing suitable for low-income families. Four years after the Loma Prieta earthquake, half of the affected multifamily units remained uninhabitable (Comerio et al. 1994). Government agencies explicitly denied housing assistance to those who were homeless before the earthquake (Tierney 2007).

The loss of wealth to homeowners resulting from a disaster is greater for those whose home equity comprises a greater proportion of their wealth. This effect is particularly problematic for

black homeowners, whose home equity accounts for 20% more of their wealth than white homeowners (Oliver and Shapiro 1995; Gittleman and Wolff 2000).

Legal residency status influences recovery efforts as well. Undocumented residents fear that participating in recovery assistance programs will put them at risk of deportation (Subervi-Velez et al. 1992; Yelvington 1997). Data on the number of undocumented immigrants are elusive, but the Public Policy Institute of California (2008) estimates that 8% of Californians are undocumented. The number and distribution of undocumented immigrants in areas vulnerable to current and future flood events deserves further study.

Recovery for disaster victims suffering adverse health effects is dependent upon their access to health insurance. The uninsured get about half as much medical care as the insured, are less likely to receive preventive screening and care, and overall have worse health outcomes (Bovbjerg and Hadley 2007). Race is a predictor of rates of health insurance coverage in California: 34% of California Latinos did not have health insurance in 2005, while 22% of Native Californians, 18% of Asians, 15% of black Californians, and 13% of whites were not insured, according to the California Health Interview Survey (Brown et al. 2007).

The correlation of lower income and race, and the over-representation of communities of color among those without legal residency and without health insurance, increases these communities' vulnerability to the harms of sea-level rise even in the period following a disaster. The history of disparate treatment of people of color in recovery assistance services suggests another level of increased vulnerability.

Summary of Environmental Justice Concerns

The adverse impacts of sea-level rise on Californians will depend upon the population's vulnerabilities, which are heightened for certain demographic groups. Race and income cut across many of the key vulnerabilities, with low-income and communities of color overly represented in the most vulnerable segments of the population. Additionally, adapting to sea-level rise will require tremendous financial investment. Given the high cost and the likelihood that we will not protect everything, adaptation raises additional environmental justice concerns. Specifically, what we choose to protect and how we pay for it may have a disproportionate impact on low-income neighborhoods and communities of color. Decisions about how to use public funds can lead to inequitable distribution of costs and benefits, whether they are based on economics (protect the most valuable assets) or utility (protect the largest number of people). We urge, therefore, that policy makers planning responses to sea-level rise understand and address environmental justice concerns carefully and proactively.

3.1.2. Emergency and Healthcare Facilities at Risk

Table 12 shows the schools and emergency and healthcare facilities along the Pacific coast that are currently at risk from a 100-year flood event and that will be at risk with a 1.4 m sea-level rise. Numerous schools are vulnerable to flooding along the Pacific coast. In 2000, 30 schools were vulnerable to a 100-year flood event. With a 1.4 m sea-level rise, however, the number of schools at risk nearly doubles, rising to 56 schools. Emergency and healthcare facilities are also at risk.

Table 12. Schools and emergency and healthcare facilities along the Pacific coast that are at risk from a 100-year flood event in 2000 and with a 1.4 m sea-level rise

Facility	Current risk	Risk with 1.4 m sea-level rise
Schools	30	56
Healthcare facilities	5	13
Fire stations and training facilities	2	6
Police stations	4	8

Note: Healthcare facilities include clinics, long-term care facilities, hospitals, and home health agencies/hospices. Counties with borders on the Pacific coast and the San Francisco Bay (e.g., San Mateo) were separated based on the shoreline affected.

Table 13 shows the schools and emergency and healthcare facilities along San Francisco Bay that are currently at risk of a 100-year flood event and that will be at risk with a 0.5, 1.0, and 1.4 m sea-level rise. The risk for each of these facilities is greater than along the remainder of the Pacific coast. Schools in particular are at significant risk. In 2000, 35 schools were at risk of a 100-year flood event. With a 1.4 m sea-level rise, the number of schools at risk more than doubles, to 81. Significant numbers of healthcare facilities are also at risk. In 2000, there were 15 healthcare facilities at risk of a 100-year flood. With a 1.4 m sea-level rise, however, the number of healthcare facilities at risk rises to 42.

Table 13. Schools and emergency and healthcare facilities along San Francisco Bay that are at risk of a 100-year flood event in 2000 and with a 0.5 m, 1.0 m, and 1.4 m sea-level rise.

Facility	Current risk	Risk with sea-level rise		
		0.5 m	1.0 m	1.4 m
Schools	35	41	60	81
Healthcare facilities	15	19	29	42
Fire stations and training facilities	6	7	10	11
Police stations	5	6	8	9

Note: Healthcare facilities include clinics, long-term care facilities, hospitals, and home health agencies/hospices. Counties with borders on the Pacific coast and the San Francisco Bay (e.g., San Mateo) were separated based on the shoreline affected.

3.1.3. Hazardous Materials Sites

The presence of land or facilities containing hazardous materials in areas at risk of inundation increases the risk of exposure to toxic chemicals for nearby residents and ecosystems. For example, sediment samples in New Orleans taken one month after Hurricane Katrina found

excess levels of arsenic, lead, and the gasoline constituent benzene, all considered toxic pollutants by the U.S. EPA (Adams et al. 2007). Those living or working near these facilities may be affected by the potential release and spreading of contamination through floodwaters or through flood-related facility malfunctions.

We evaluated sites containing hazardous materials at risk of flooding along the Pacific coast and the San Francisco Bay. Here, we report on a range of sites monitored by the U.S. EPA, including Superfund sites; hazardous waste generators; facilities required to report emissions for the Toxics Release Inventory; facilities regulated under the National Pollutant Discharge Elimination System (NPDES); major dischargers of air pollutants with Title V permits; and brownfield properties. An estimated 130 U.S. EPA-regulated sites are currently vulnerable to a 100-year flood event (Table 14). Nearly 60% of these facilities are located in San Mateo and Santa Clara counties. Sea-level rise will put additional facilities, people, and the environment at risk. The number of facilities at risk increases by 250% with a 1.4 sea-level rise, with more than 330 facilities at risk of a 100-year flood event. San Mateo, Alameda, and Santa Clara counties have the highest numbers of U.S. EPA-regulated sites within future flood areas.

Table 14. U.S. EPA-regulated sites within areas vulnerable to 100-year flood event in 2000 and with a 1.4 m sea-level rise

County	Sites currently at risk	Risk with 1.4 m sea-level rise
Alameda	6	63
Contra Costa	4	22
Del Norte	1	3
Humboldt	10	13
Los Angeles	13	26
Marin	1	6
Monterey	1	1
Napa	1	2
Orange	4	16
San Diego	-	13
San Francisco	-	4
San Luis Obispo	-	1
San Mateo	39	78
Santa Barbara	1	5
Santa Clara	41	53
Santa Cruz	5	6
Solano	2	5
Sonoma	-	2
Ventura	5	13
Total	**134**	**332**

Data Source: EPA Geospatial Data Access Project 2008
Note: Table combines risk for those counties along the San Francisco Bay and Pacific coast.

3.1.4. Infrastructure at Risk

LETTER 45 (continued)

Roads and Railways

Roads and railways are vulnerable to flooding due to a 100-year flood today and with sea-level rise (Tables 15, 16, and 17). In 2000, 300 miles of roads and highways and 70 miles of railways along the Pacific coast were at risk of flooding. With a 1.4 m sea-level rise, an estimated 530 miles of roads and highways and 110 miles of railways are at risk from a 100-year flood event (Figures 19 and 20).

Table 15. Miles of roads and railways vulnerable to a 100-year flood in 2000 and with a 1.4 m sea-level rise along the Pacific coast, by county and type

	Highways (miles)		Roads (miles)		Railways (miles)	
County	Current risk	Risk with 1.4 m sea-level rise	Current risk	Risk with 1.4 m sea-level rise	Current Risk	Risk with 1.4 m sea-level rise
Del Norte	6.6	8.2	59	80	-	-
Humboldt	37	58	120	190	21	28
Los Angeles	14	31	42	140	5.6	14
Marin	1.2	4.1	22	27	-	-
Mendocino	5.6	7.9	28	41	2.7	4.0
Monterey	27	31	85	110	19	23
Orange	32	48	340	490	5.3	6.6
San Diego	0.62	8.0	12	57	3.0	9.8
San Francisco	0.20	0.37	17	22	-	-
San Luis Obispo	5.3	7.4	10	21	0.019	0.31
San Mateo	3.4	5.0	23	30	-	-
Santa Barbara	1.5	8.0	9.1	25	3.4	7.0
Santa Cruz	9.4	11	52	67	4.2	5.5
Sonoma	4.5	5.9	14	20	-	-
Ventura	2.4	11	69	150	3.7	10
Total	150	250	910	1,500	68	110

Note: Counties with borders on the Pacific coast and San Francisco Bay (e.g., San Mateo) were separated based on the shoreline affected. Numbers may not add up due to rounding.

Risks to transportation-related infrastructure are substantially higher along San Francisco Bay (Tables 16 and 17). In 2000, nearly 800 miles of roads and highways and 78 miles of railways were at risk of flooding from a 100-year event. Much of this infrastructure is protected by levees, seawalls, and other structures. Projected sea-level rise estimates increase this risk markedly. Even a relatively modest increase in sea levels of 0.5 m puts 1,130 miles of roads and highways and 94 miles of railways at risk. The projected 1.4 m rise in sea level more than doubles the roads and railways at risk of flooding, placing 1,800 miles of roads and highways and 173 miles of railways at risk of flooding from a 100-year event.

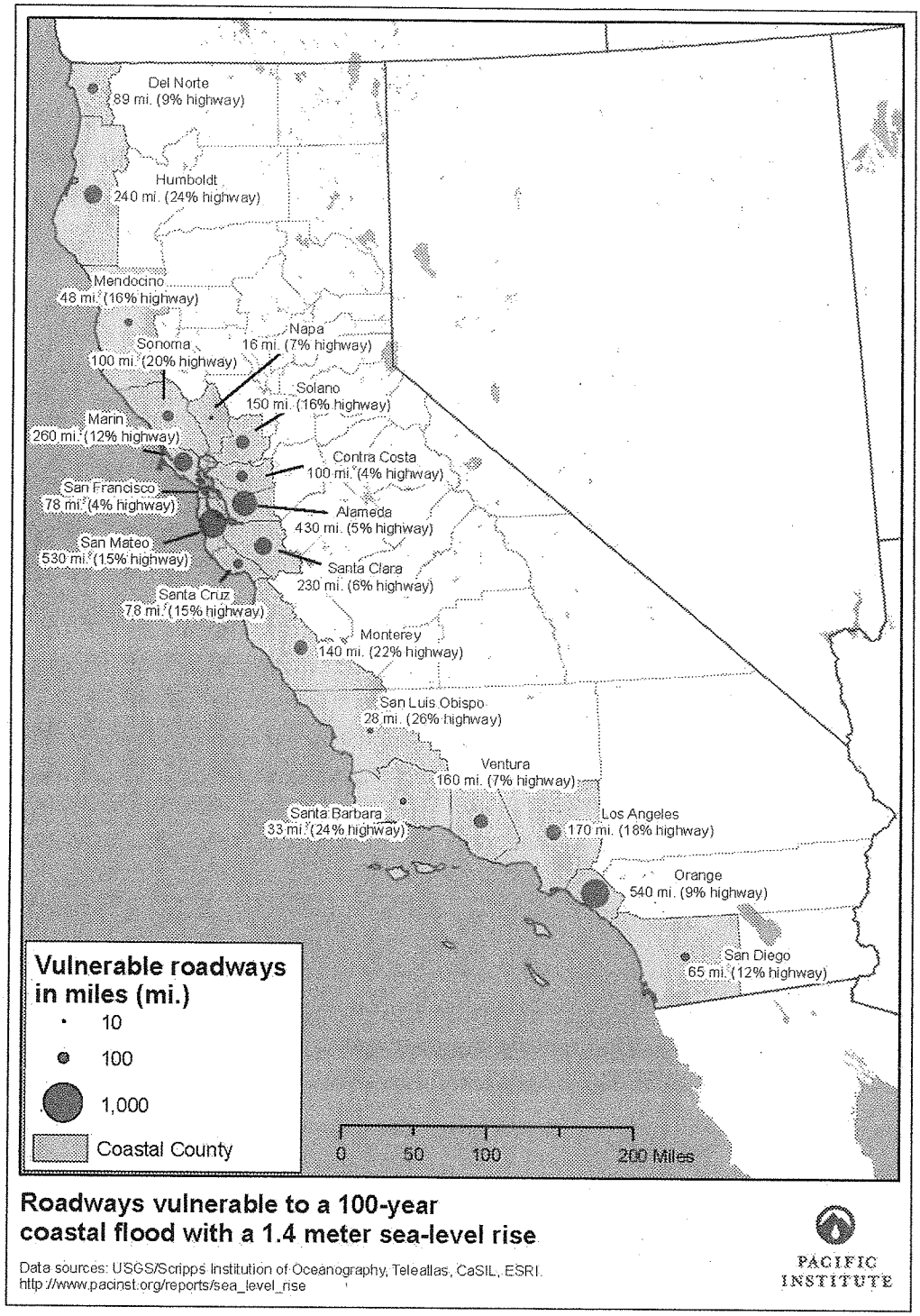

Figure 19. Roadways vulnerable to a 100-year coastal flood with a 1.4 m sea-level rise

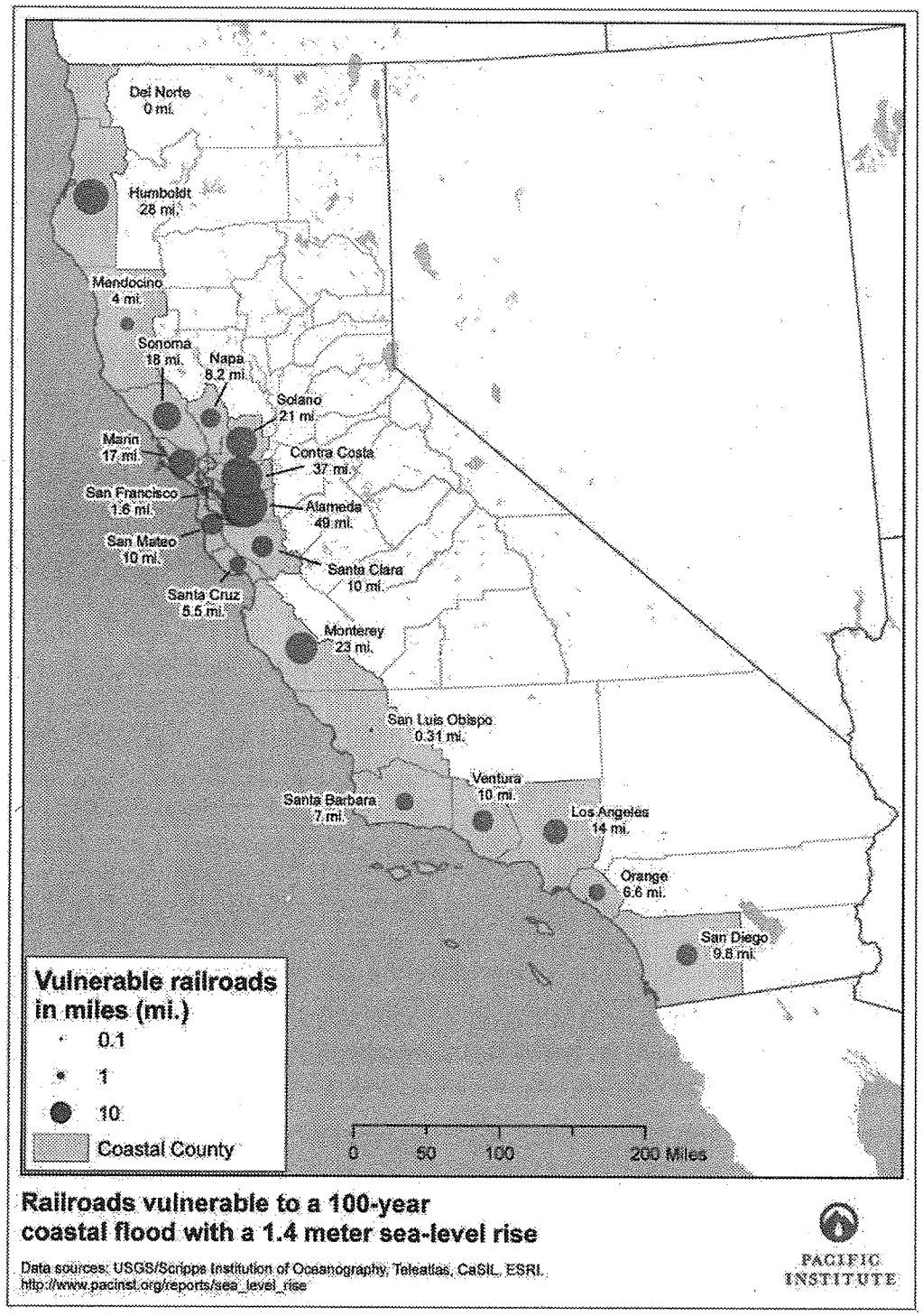

Figure 20. Railroads vulnerable to a 100-year coastal flood with a 1.4 m sea-level rise

Table 16. Miles of roads vulnerable to a 100-year flood along San Francisco Bay, by county and type

County	Current Risk		Risk with sea-level rise					
			0.5 m		1.0 m		1.4 m	
	Highways (miles)	Roads (miles)	Highways (miles)	Roads (miles)	Highways (miles)	Roads (miles)	Highways (miles)	Roads (miles)
Alameda	1.1	76	4.8	160	14	280	23	410
Contra Costa	2.4	20	2.7	42	3.4	67	4.5	96
Marin	16	110	20	150	24	180	28	200
Napa	0.70	7.0	0.70	9.0	0.80	11	1.2	15
San Francisco	0.30	3.4	0.60	11	1.5	29	3.1	53
San Mateo	27	300	49	360	66	390	72	420
Santa Clara	9.4	110	12	150	14	180	15	220
Solano	5.7	53	14	78	19	100	23	120
Sonoma	11	53	12	57	13	59	14	61
Total	**72**	**730**	**120**	**1,000**	**160**	**1,300**	**180**	**1,600**

Note: Counties with borders on the Pacific coast and San Francisco Bay (e.g., San Mateo) were separated based on the shoreline affected. Numbers may not add up due to rounding.

Table 17. Miles of railways vulnerable to a 100-year flood along San Francisco Bay, by county

County	Current risk	Risk with sea-level rise			Percent increase (with 1.4 m rise)
		0.5 m	1.0 m	1.4 m	
Alameda	9.1	17	35	49	81
Contra Costa	10	17	25	37	73
Marin	12	15	16	17	29
Napa	6.0	7.0	7.9	8.2	27
San Francisco	0.26	0.56	0.91	1.6	84
San Mateo	3.7	5.2	7.8	10	65
Santa Clara	5.9	7.2	8.9	10	43
Solano	9.3	12	17	21	56
Sonoma	11	14	17	18	39
Total	**68**	**94**	**140**	**170**	**61**

Note: Counties with borders on the Pacific coast and San Francisco Bay (e.g., San Mateo) were separated based on the shoreline affected. Numbers may not add up due to rounding.

We do not attempt to quantify the cost of flooding on roads and railways. In some cases, damages may be minor, resulting in temporary closures and modest repairs. As the frequency and intensity of flooding increases, however, closures may become longer and the cost of repair may rise. Eventually, roads and railways may need to be raised or rerouted. The cost of repairing, moving, or raising roads and railways is highly site-specific and dependent on the level of damage that is sustained.

Furthermore, flooding and closure of roads and railways can have significant impacts on the local, state, and national economy. Railways are particularly important for the conveyance of goods shipped to and from California ports. In addition, road closures can prevent people from getting to work, causing major economic disruptions. Additional research is needed to improve our understanding of specific transportation risks.

Power Plants

Figures 21, 22, and 23 show California's coastal power plants vulnerable to a 100-year flood event with a 1.4 m sea-level rise. In some cases, actual power generating infrastructure is at risk; in others, intake or other peripheral structures are vulnerable. Specific site assessments are needed for each coastal plant. In total, around 30 coastal power plants, with a combined capacity of more than 10,000 megawatts (MW), are at risk from a 100-year flood with a 1.4 m sea-level rise. The capacities of the vulnerable power plants range from a relatively small 0.2 MW plant to one that is more than 2,000 MW. The majority of vulnerable plants are located in Southern California and along the San Francisco Bay.

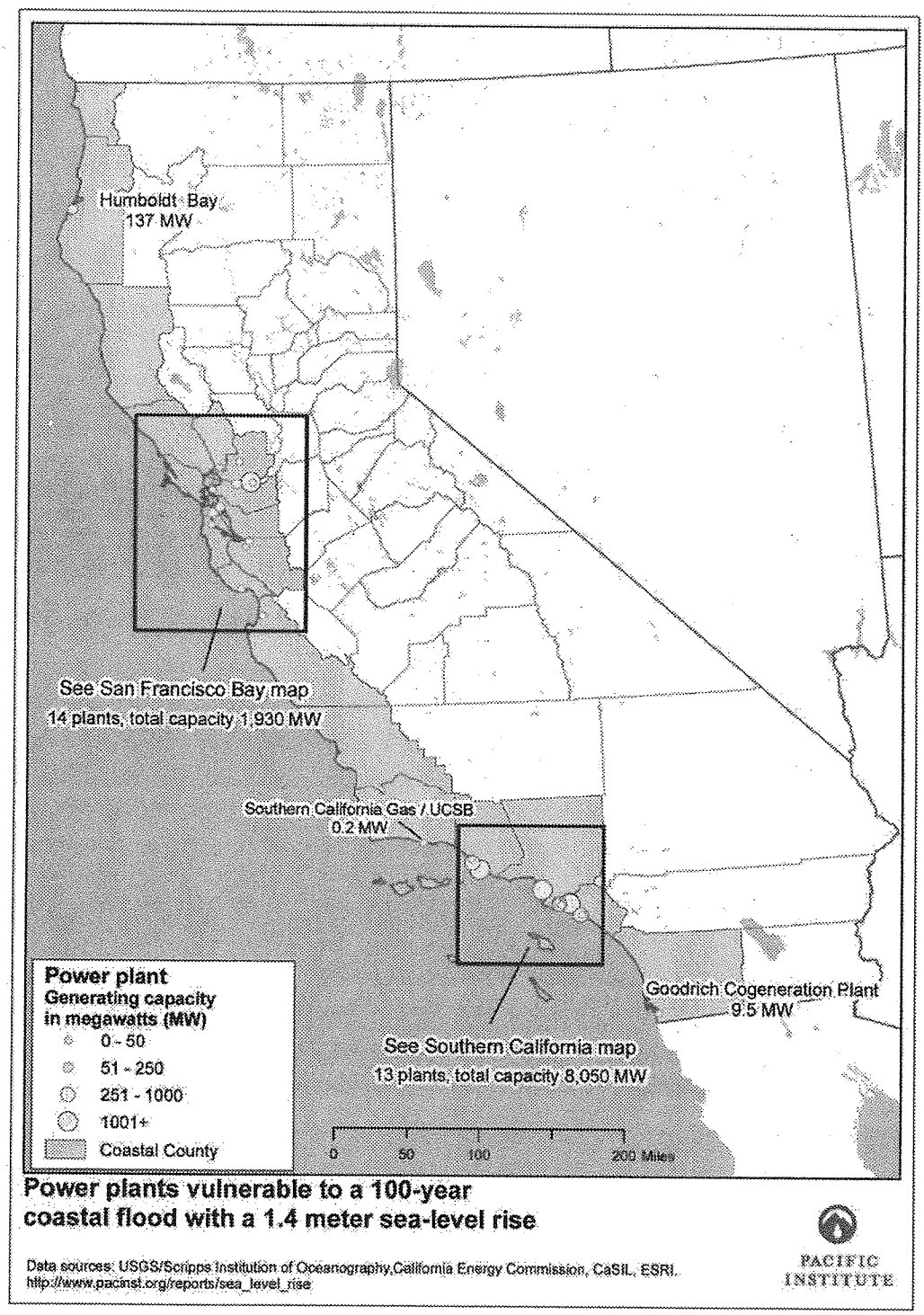

Figure 21. Power plants vulnerable to a 100-year coastal flood with a 1.4 m sea-level rise

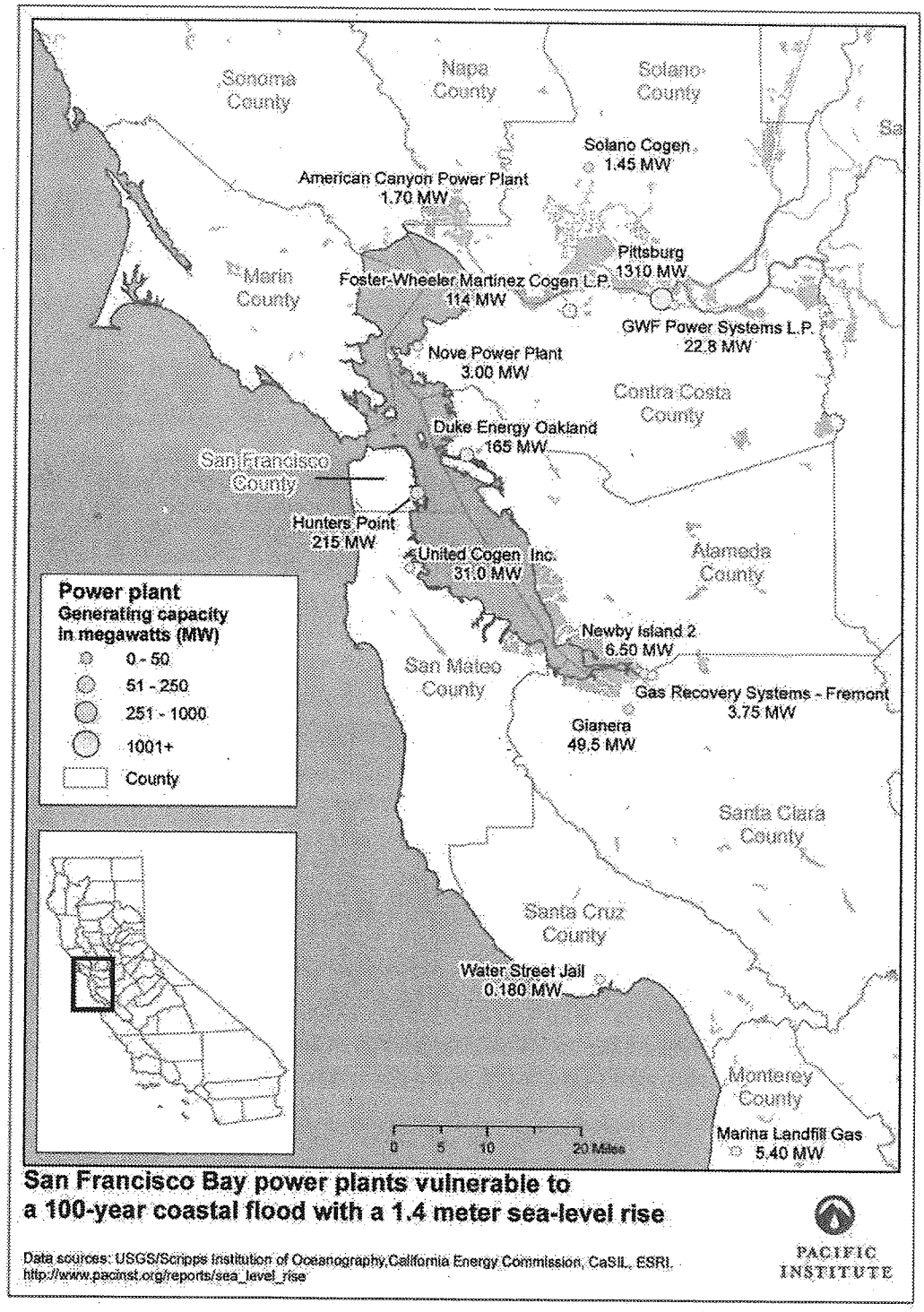

Figure 22. San Francisco Bay power plants vulnerable to a 100-year coastal flood with a 1.4 m sea-level rise

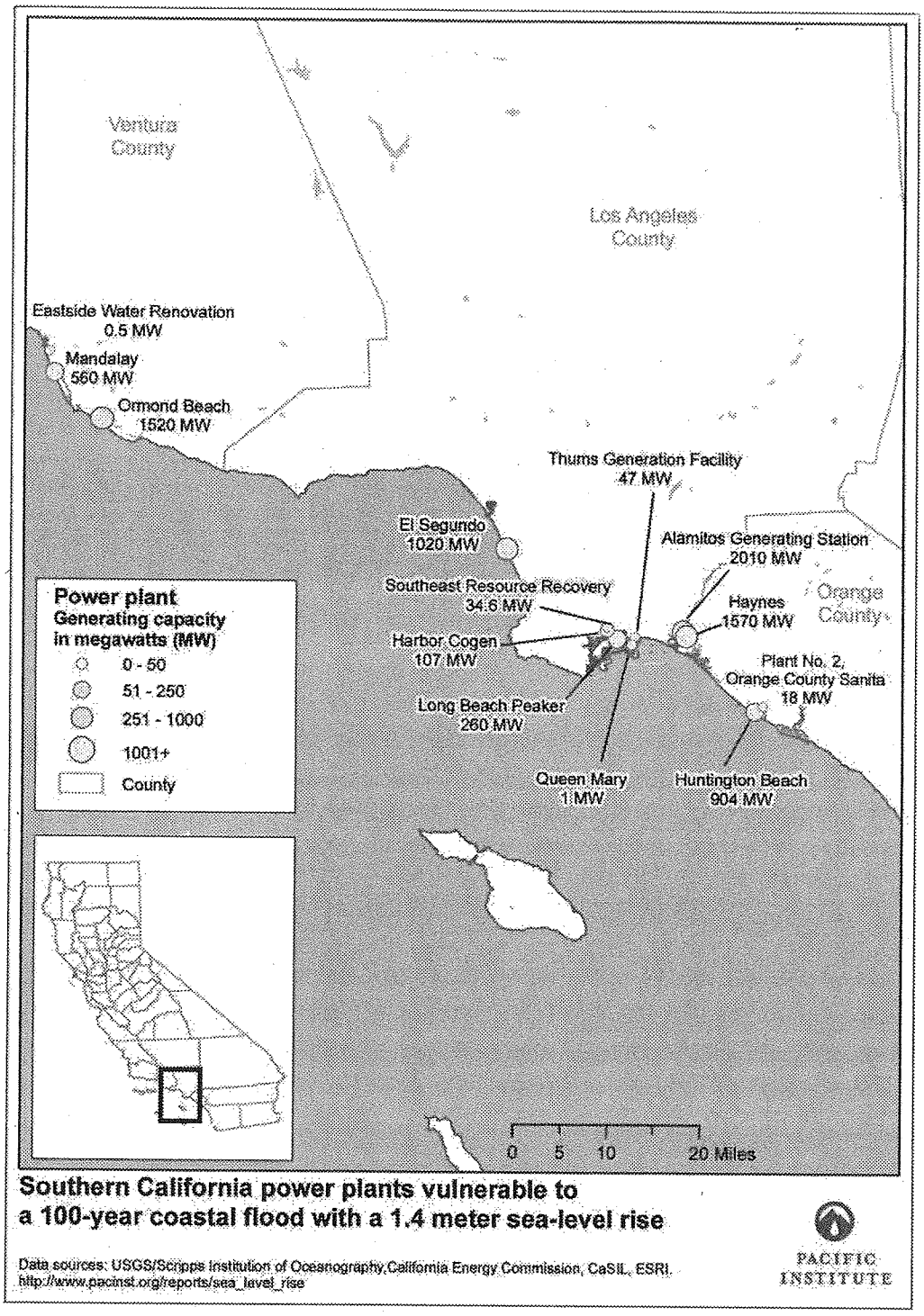

Figure 23. Southern California power plants vulnerable to a 100-year coastal flood with a 1.4 m sea-level rise

Wastewater Treatment Plants

Figures 24 and 25 show the wastewater treatment plants vulnerable to a 100-year flood event with a 1.4 m sea-level rise. We identified a total of 29 vulnerable wastewater treatment plants: 22 on the San Francisco Bay and 7 on the Pacific coast. The combined capacity of these plants is 530 million gallons per day (MGD). Inundation from floods could damage pumps and other equipment, and lead to untreated sewage discharges. Besides the flood risk to plants, higher water levels could interfere with discharge from outfalls sited on the coast. Cities and sanitation districts should begin to assess how higher water levels will affect plant operations and plan for future conditions.

Ports

Goods movement in California, and especially the San Francisco Bay Area, is critically important to the state's economy. A recent report by the Metropolitan Transportation Commission stated that "over 37 percent of Bay Area economic output is in manufacturing, freight transportation, and warehouse and distribution businesses. Collectively, these goods-movement-dependent businesses spend approximately $6.6 billion on transportation services. The businesses providing these services also play a critical role as generators of jobs and economic activity in their own right" (MTC 2004).

Our assessment of future flood risk with sea-level rise show significant flooding is possible at California's major ports in Oakland, Los Angeles, and Long Beach. These ports are central to the economy of California, the nation, and the world. The Port of Los Angeles-Long Beach, for example, handles 45%–50% of the containers shipped into the United States. Of these containers, 77% leave the state; half by train and half by truck (Christensen 2008). Many port managers have already experienced how disasters can affect their operations. Following the Loma Prieta earthquake in 1989, for example, the Port of Oakland sustained damages that interrupted business for 18 months. These disruptions have economic implications for the nation and the world, as evident by a 2002 contract dispute that resulted in a work slowdown at west coast ports and cost the U.S. economy an estimated $1billion to $2 billion per day. Others speculated that Japan and China would lose several percentage points off their gross domestic product if the ports closed for longer than a week (Farris 2008).

In addition to directly affecting port operations, sea-level rise may cause other interruptions to goods movement at ports. Sea-level rise can reduce bridge clearance, thereby reducing the size of ships able to pass or restricting their movements to times of low tide. Higher seas may cause ships to sit higher in the water, possibly resulting in less efficient port operations (National Research Council 1987). These impacts are highly site specific, and somewhat speculative, requiring detailed local study. We also note the connection between possible direct impacts of sea-level rise on the ports themselves and possible flooding of transportation (rail and road) corridors to and from the ports.

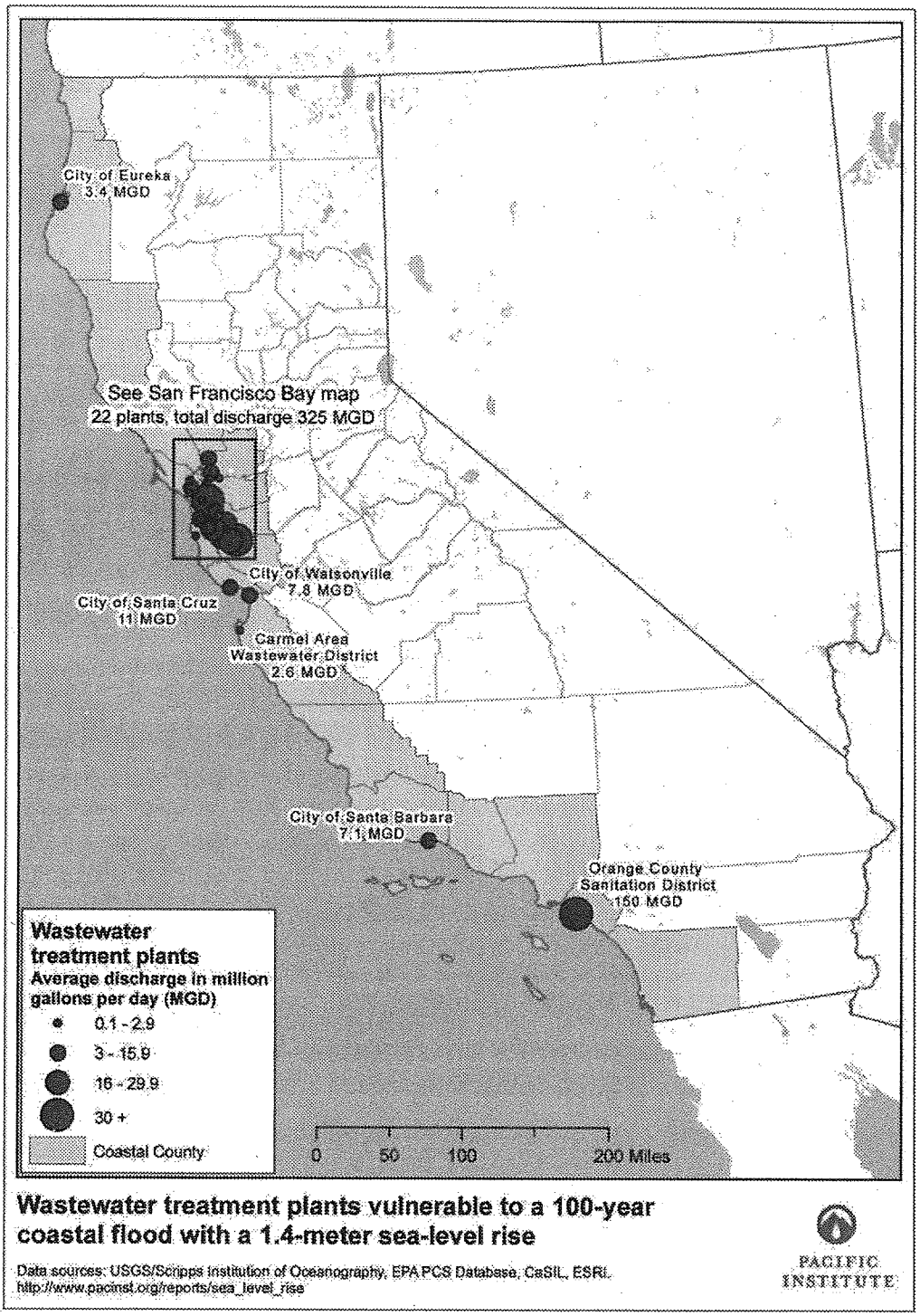

Figure 24. Wastewater treatment plants on the Pacific coast vulnerable to a 100-year flood with a 1.4 m sea-level rise

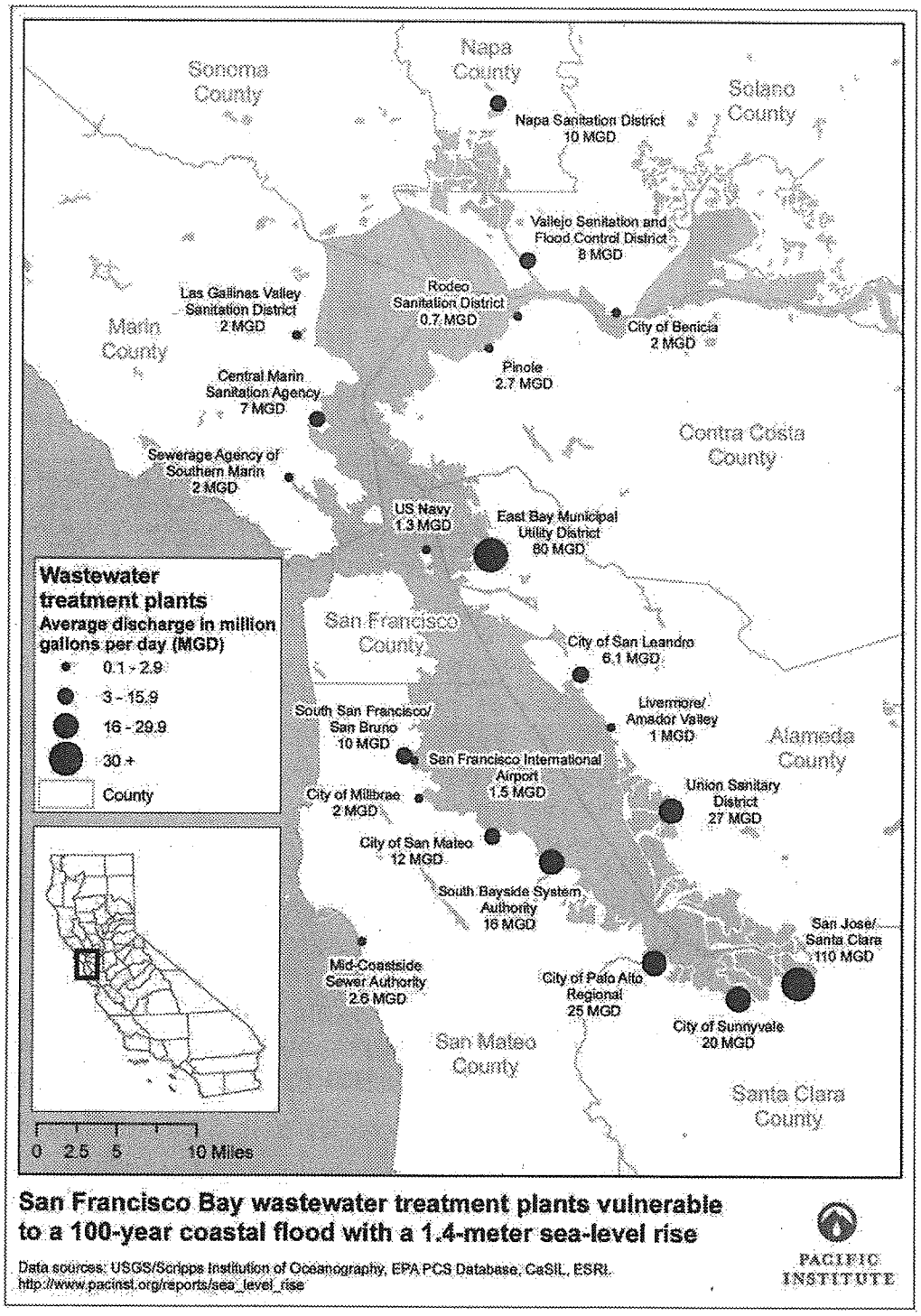

Figure 25. Wastewater treatment plants on the San Francisco Bay vulnerable to a 100-year flood with a 1.4 m sea-level rise

Airports

The San Francisco and Oakland airports are vulnerable to flooding with a 1.4-meter sea level rise. Other major airports near the coast, such as the San Diego, San Jose, and Los Angeles airports, were not identified as vulnerable in our analysis.

The economic impact of a disruption in airport traffic in San Francisco and Oakland is potentially large, and it would have significant effects on the state and regional economy. In 2007, the Oakland International airport transported 15 million passengers and 647,000 metric tons of freight. Activity at the San Francisco International airport is even greater than in Oakland. The San Francisco International Airport is the nation's thirteenth busiest airport, transporting 36 million people in 2007 (Airports Council International 2007). It also plays a significant role in the movement of goods regionally and internationally. In 2007, the San Francisco airport handled 560,000 metric tons of freight. San Francisco Airport ranked twelfth among foreign trade freight gateways by value of shipments in 2005, handling $25 billion in exports and $32 billion in imports (Bureau of Trade Statistics 2006), more than double that of the $23.7 billion handled by vessels at the Port of Oakland.

3.1.5. Wetlands

Today, there are approximately 430,000 acres, or 670 square miles, of coastal wetlands in California (Figure 26). Based on an approximated wetland value of $5,000 to $200,000 per acre, we estimate that California's coastal wetlands are worth from $2.2 billion to $86 billion. Large wetland areas are found in almost every county on the California coast (Table 18). The vast majority of coastal wetlands are in San Francisco Bay and the Sacramento-San Joaquin Delta.

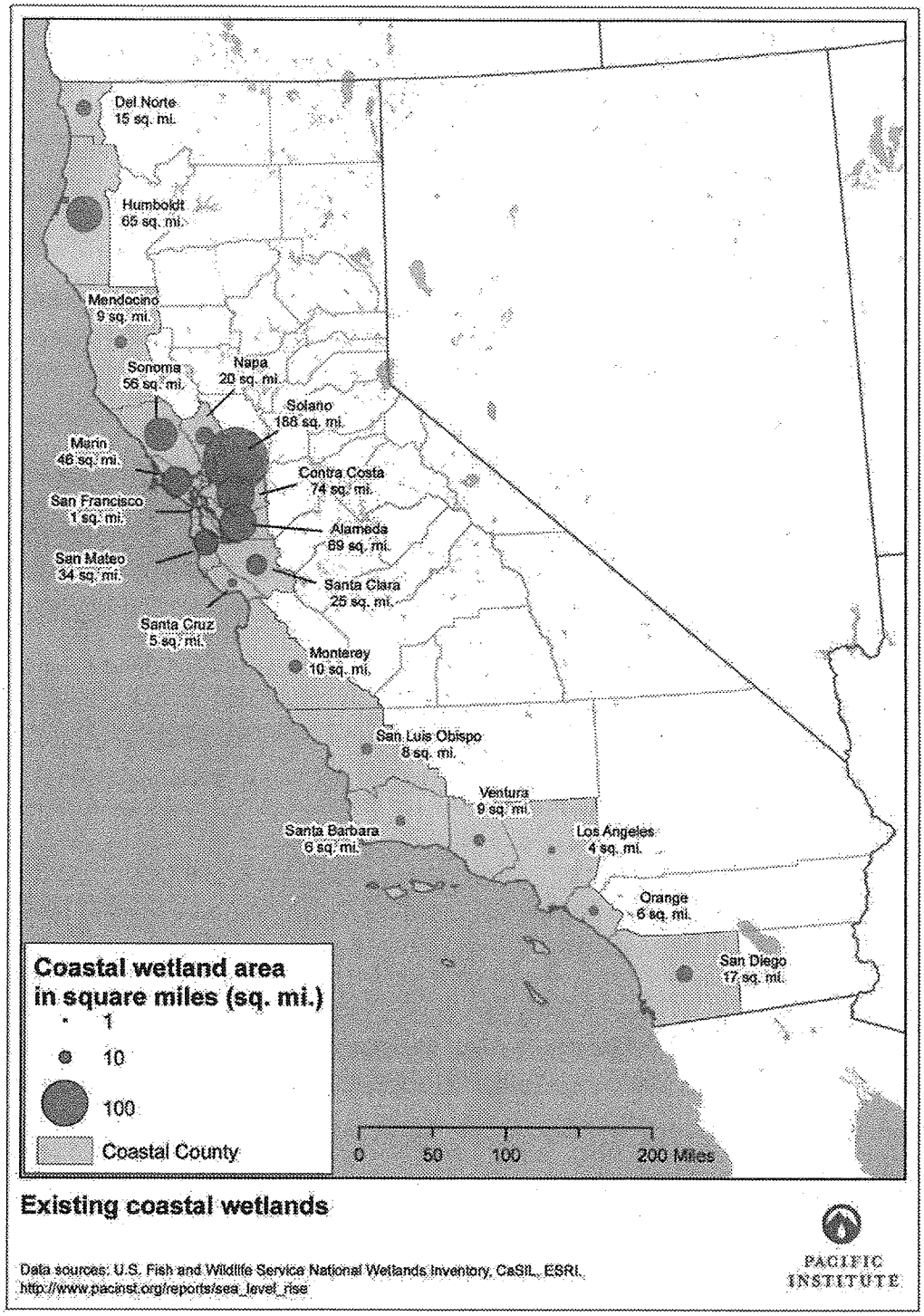

Figure 26. Existing coastal wetlands

There are also significant and important coastal wetlands in Northern California, especially in and around Humboldt and Eureka. Much of the Central California coast, from the Lost Coast in Mendocino County to Big Sur in Monterey, San Luis Obispo, and Santa Barbara counties, is dominated by rugged hills and cliffs plunging into the sea. In these areas, there are very few coastal wetlands. There are critically important wetlands that may be of small size, but that serve vital ecological functions—we understand that size is not the only measure of wetland value. We note that adequate wetland delineation has not been performed on vast areas of California and the actual wetland area may be larger.

Table 18. Existing California coastal wetland area by county

County	Area (acres)	Area (square miles)	Percent of state total
Alameda	44,000	69	10
Contra Costa	47,000	73	11
Del Norte	9,300	15	2.2
Humboldt	42,000	66	10
Los Angeles	2,400	3.8	0.6
Marin	29,000	45	6.8
Mendocino	6,000	9.4	1.4
Monterey	6,600	10	1.6
Napa	13,000	20	3.0
Orange	3,800	5.9	0.9
San Diego	11,000	17	2.6
San Francisco	770	1.2	0.2
San Luis Obispo	5,300	8.3	1.2
San Mateo	22,000	34	5.1
Santa Barbara	4,000	6.3	0.9
Santa Clara	16,000	25	3.7
Santa Cruz	3,400	5.3	0.8
Solano	120,000	190	28
Sonoma	36,000	56	8.4
Ventura	5,700	8.9	1.3
Total	**430,000**	**670**	**100**

Note: Numbers may not add up due to rounding.

Evaluating the impacts of sea-level rise on a particular coastal wetland area requires site-specific data on various physical and biological factors. A simple method to estimate wetland loss is to compare wetland elevations to future tide elevations. Data limitations, however, prevent us from performing even this simple analysis, i.e., there are no data in the critical area where the boundary must be drawn. Given these data limitations, we evaluated the land cover *adjacent* to existing wetlands and the potential for these areas to support suitable wetland habitat. We note that this simplified analysis does not take into account erosion or accretion due to sediment movement, which is difficult to predict with any accuracy.

We estimate that a sea-level rise of 1.4 m provides approximately 150 square miles of potential wetland migration area. Of this amount, 83 square miles, or 55%, would make viable wetland habitat (Table 19). These areas should be protected to ensure their viability as wetland habitat is maintained. Twenty-three square miles, or 15%, is land that is viable for wetland migration but at some loss of value, including parks, orchards, and agricultural land. The remaining 30% of the available accommodation space is unsuitable for wetland migration.

Table 19. Wetland migration frontier area classified by land cover type and conversion potential

Land cover type	Total frontier area (square miles)
Not viable for wetland migration	
High Intensity Developed	12
Medium Intensity Developed	12
Low Intensity Developed	21
Subtotal	**45**
Viable for wetland migration, but will cause property loss	
Developed Open Space	4.7
Pasture/Hay	11
Cultivated	7.0
Subtotal	**23**
Viable for wetland migration	
Evergreen Forest	0.28
Deciduous Forest	0.040
Mixed Forest	0.27
Scrub/Shrub	1.3
Grassland	16
Bare Land	0.89
Palustrine Scrub/Shrub Wetland	0.85
Palustrine Forested Wetland	0.47
Palustrine Emergent Wetland	4.7
Estuarine Scrub/Shrub Wetland	42
Estuarine Forested Wetland	2.4
Estuarine Emergent Wetland	0.11
Estuarine Aquatic Bed	0.046
Unconsolidated Shore	4.0
Water	10
Subtotal	**83**
Total	**150**

Figures 27, 28, 29, and 30 and Table 20 summarize the potential wetland migration area by county. Solano County has the largest wetland migration area, totaling 22 miles, and 85% of that area is currently viable wetland habitat. Of the potential 20 miles of wetland migration area in Humboldt County, only 39% is viable wetland habitat, although an additional 54% is viable but with some economic loss. San Francisco and Los Angeles Counties have only small potential wetland migration areas, in part because there are few wetlands in these counties. Unfortunately, those that do exist are at high risk because 70% and 60% of the potential wetland migration area in San Francisco and Los Angeles Counties, respectively, is not viable wetland habitat.

Table 20. Land area available for wetland migration, by county, in square miles, with percent of county total in italics

County	Wetland migration viable		Migration viable with loss of value		Migration not viable		Total	Percent of State Total
Alameda	8.5	*49%*	0.94	*5%*	8.1	*46%*	17	10%
Contra Costa	8.1	*72%*	0.68	*6%*	2.5	*22%*	11	6.7%
Del Norte	2.1	*81%*	0.39	*15%*	0.13	*5%*	2.6	1.6%
Humboldt	7.7	*39%*	11	*54%*	1.2	*6%*	20	12%
Los Angeles*	0.10	*35%*	0.012	*4%*	0.17	*60%*	0.28	0.17%
Marin	5.7	*54%*	0.29	*3%*	4.7	*44%*	11	6.3%
Mendocino	1.3	*93%*	0.035	*2%*	0.059	*4%*	1.4	0.8%
Monterey	4.1	*56%*	2.6	*36%*	0.60	*8%*	7.3	4.3%
Napa	2.9	*80%*	0.24	*6%*	0.51	*14%*	3.7	2.2%
Orange*	0.72	*22%*	0.20	*6%*	2.4	*72%*	3.3	2.0%
San Diego	3.7	*64%*	0.33	*6%*	1.7	*30%*	5.8	3.4%
San Francisco	0.20	*18%*	0.15	*13%*	0.80	*70%*	1.1	0.7%
San Luis Obispo	0.78	*69%*	0.081	*7%*	0.27	*24%*	1.1	0.7%
San Mateo	2.9	*20%*	0.54	*4%*	11	*76%*	15	8.7%
Santa Barbara*	0.87	*86%*	0.023	*2%*	0.12	*12%*	1.0	0.6%
Santa Clara	2.2	*29%*	0.81	*11%*	4.6	*60%*	7.6	4.5%
Santa Cruz	0.98	*40%*	1.1	*43%*	0.42	*17%*	2.5	1.5%
Solano	19	*85%*	0.87	*4%*	2.5	*11%*	22	13%
Sonoma	7.6	*87%*	0.53	*6%*	0.59	*7%*	8.8	5.2%
Ventura	**3.4**	*45%*	2.2	*29%*	2.0	*26%*	7.6	4.5%
Total	**83**	***55%***	**23**	***15%***	**45**	***30%***	**150**	**100%**

*Given data limitations, we mapped about 49% of Santa Barbara County, 23% of Los Angeles County, and 65% of Orange County. The coverage was 100% in the other 11 counties on the Pacific coast.

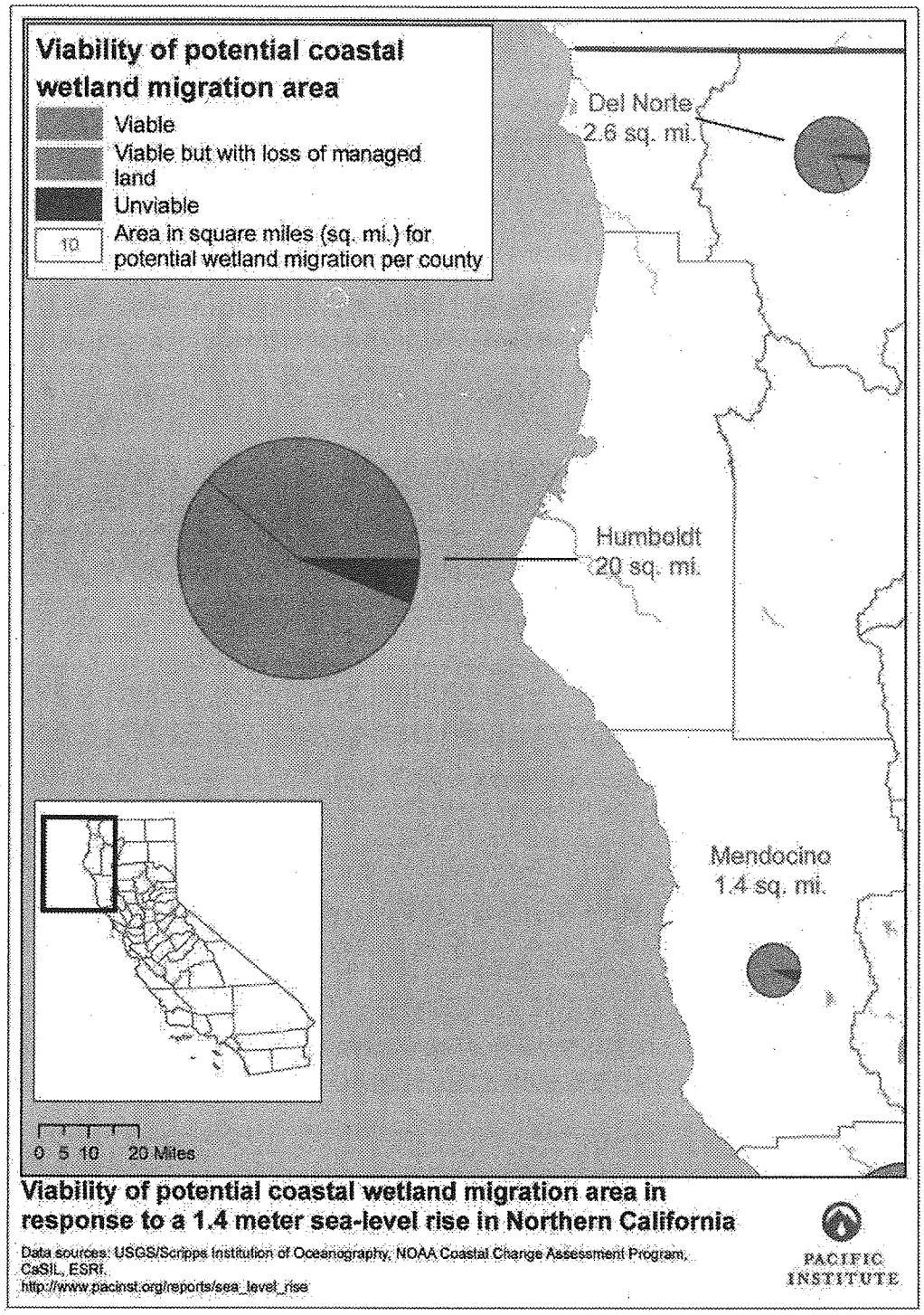

Figure 27. Viability of potential wetland migration area in response to a 1.4 m sea-level rise in Northern California

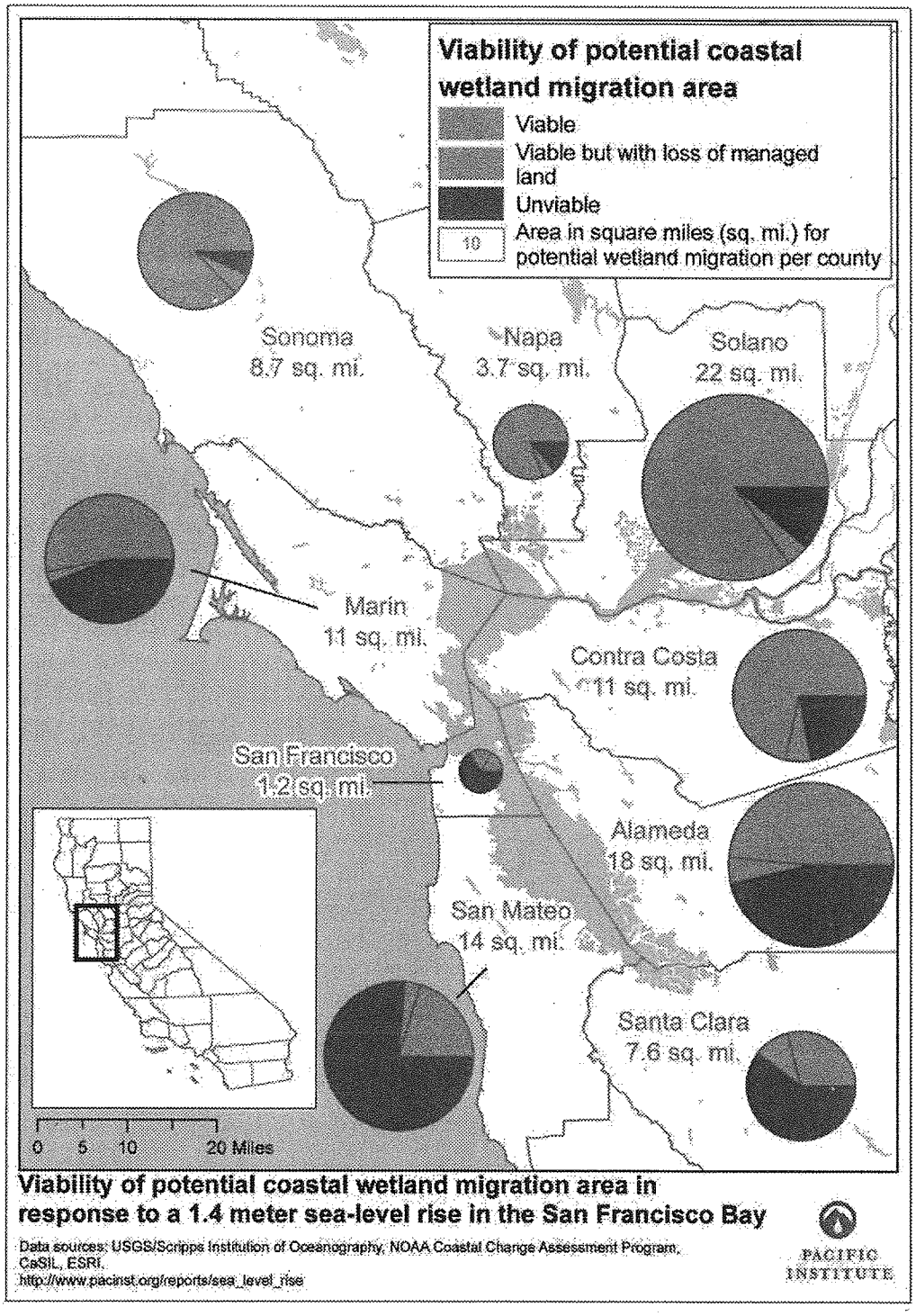

Figure 28. Viability of potential wetland migration area in response to a 1.4 m sea-level rise in the San Francisco Bay

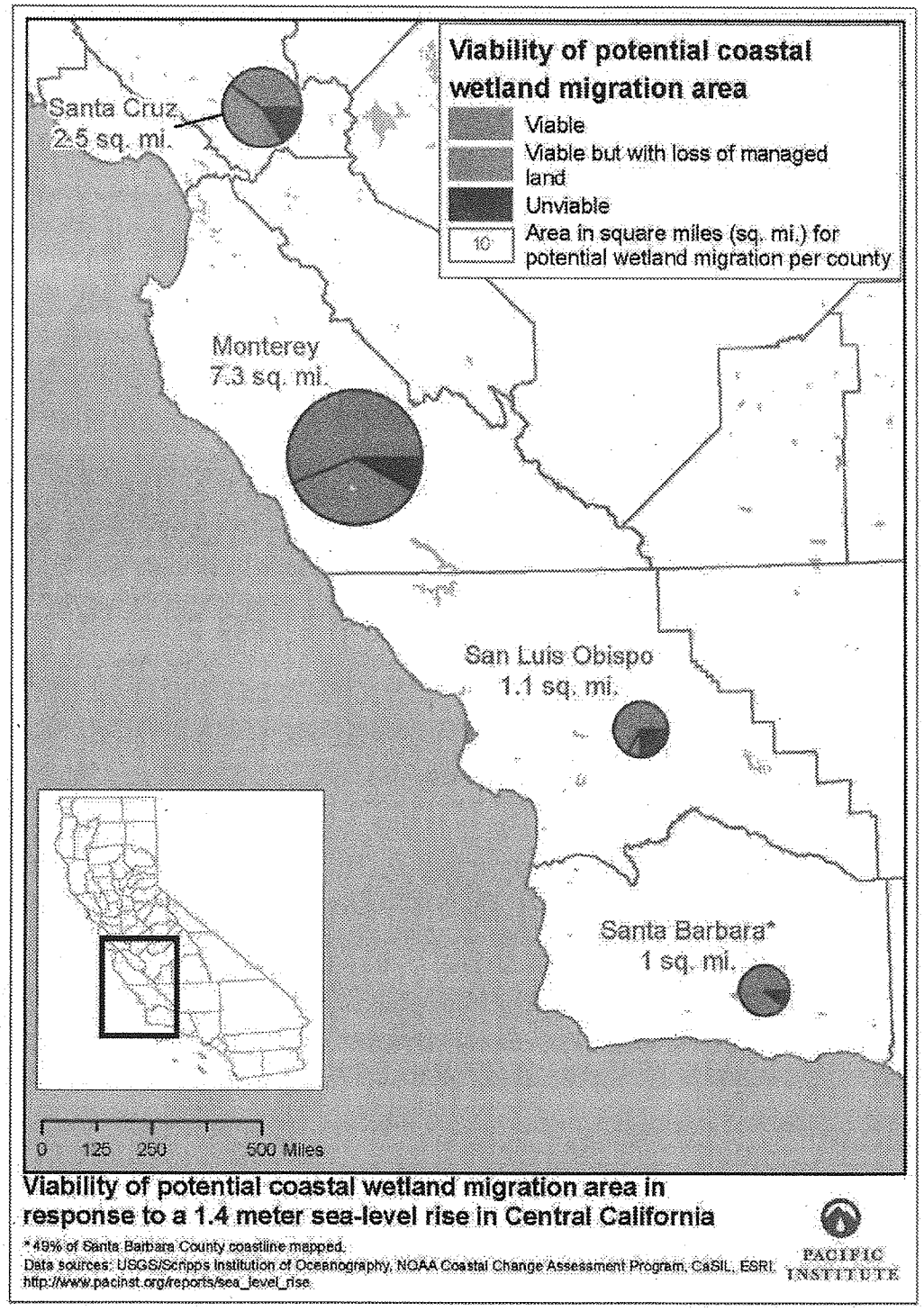

Figure 29. Viability of potential wetland migration area in response to a 1.4 m sea-level rise in Central California

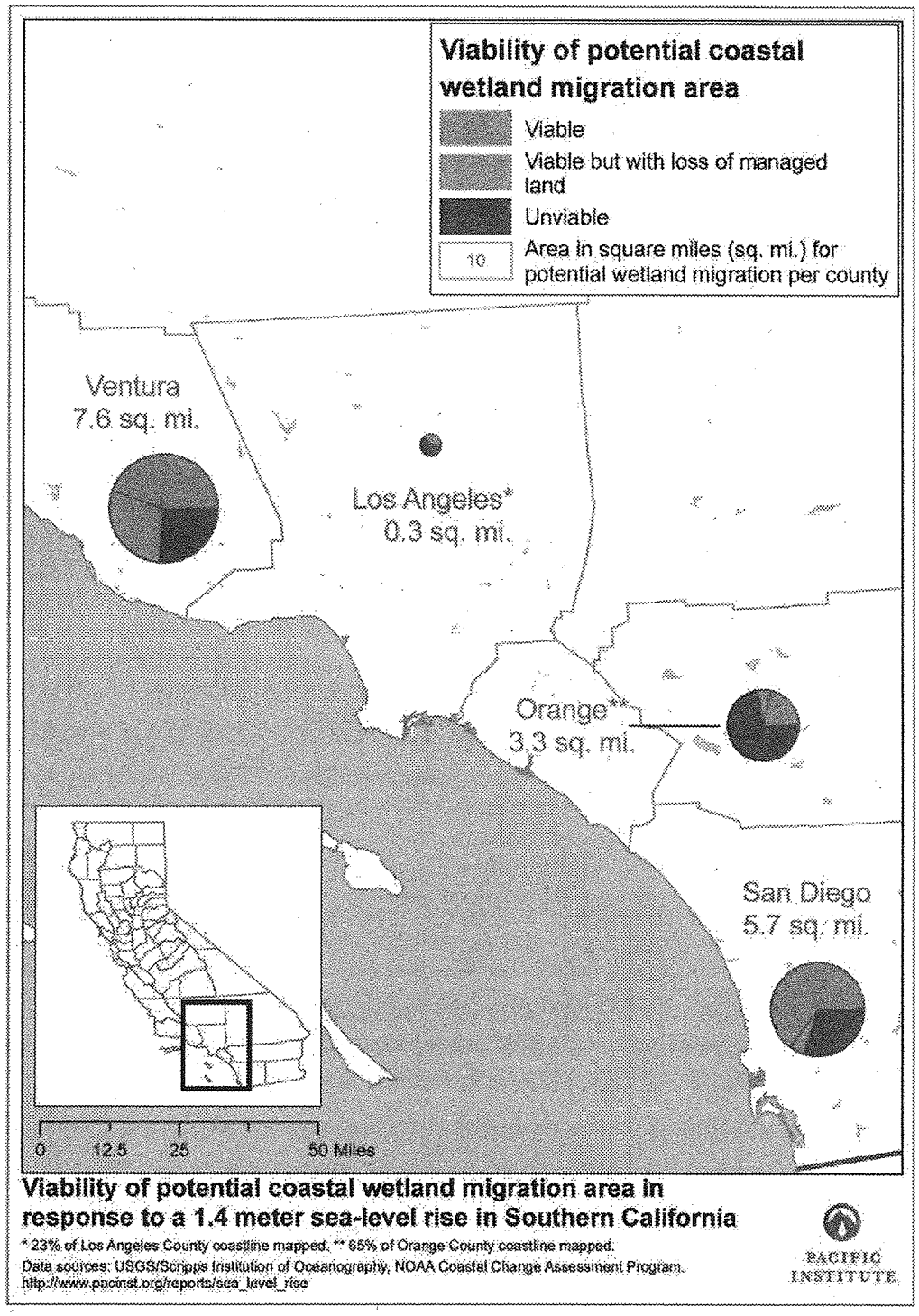

Figure 30. Viability of potential wetland migration area in response to a 1.4 m sea-level rise in Southern California

3.1.6. Property at Risk

Significant property is at risk of flooding from 100-year flood events as a result of a 1.4 m sea-level rise (Cayan et al. 2008). In total, we estimate that the replacement value of this property totals nearly $100 billion (Figure 31). An overwhelming two-thirds of that property is concentrated on San Francisco Bay, indicating that this region is particularly vulnerable to impacts associated with sea-level rise due to extensive development on the margins of the Bay (Figure 32).

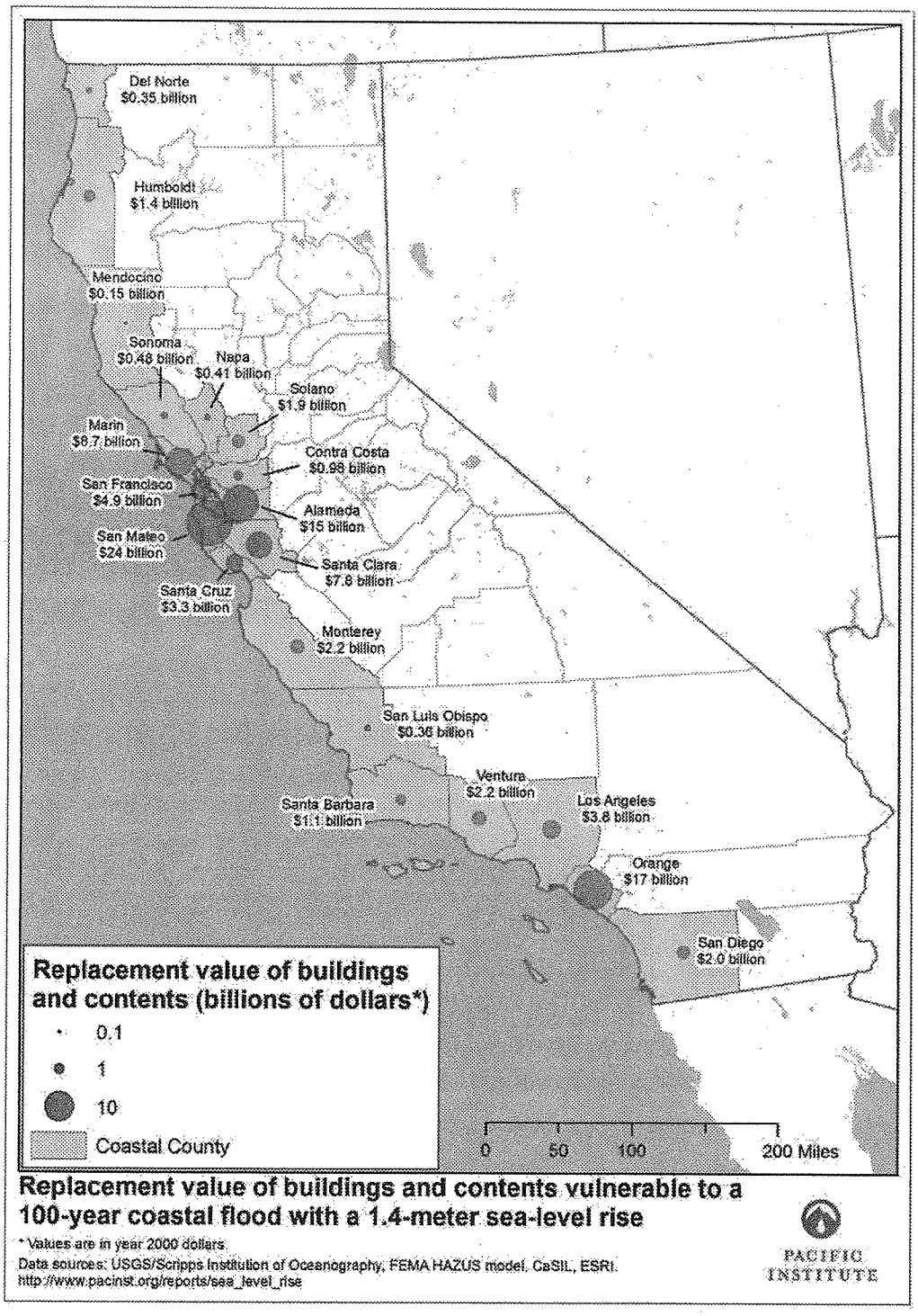

Figure 31. Replacement value of buildings and contents vulnerable to a 100-year coastal flood with a 1.4 m sea-level rise

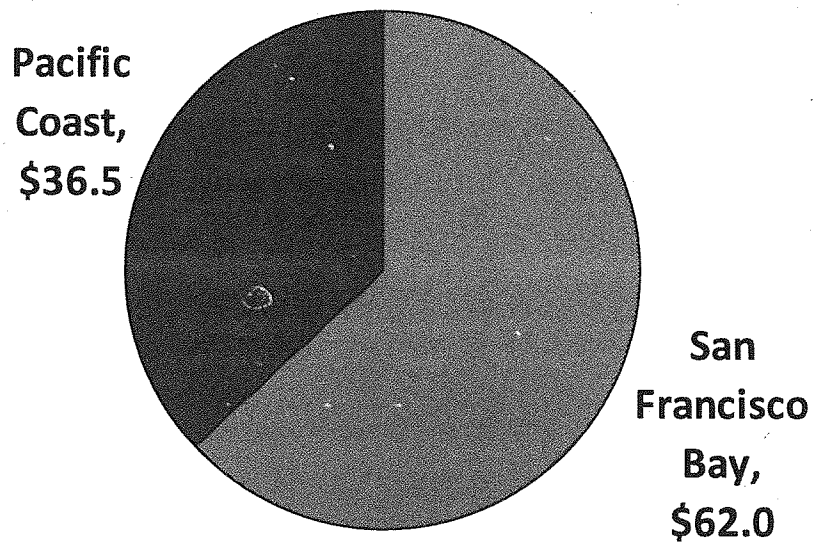

Figure 32. Replacement value (in billions of year 2000 dollars) of buildings and contents at risk of a 100-year flood event with a 1.4 m sea-level rise, by region

Note: Counties with borders on the Pacific coast and San Francisco Bay (e.g., San Mateo) were separated based on the shoreline affected.

Pacific Coast

Within each region, vulnerability to sea-level rise is highly variable. Table 21 shows the replacement value of buildings and their contents at risk of a 100-year flood event with a 1.4 m sea-level rise for the Pacific coast by county. Property at risk during a 100-year flood increases from about $21 billion in 2000 to $37 billion (in year 2000 dollars) with a 1.4 m sea-level rise. About $17 billion of property, or about 50% of the total property at risk, is in Orange County. Los Angeles, Santa Cruz, Monterey, and Ventura Counties also have significant assets at risk, totaling in excess of $2 billion each.

Table 21. Replacement value of buildings and contents (millions of year 2000 dollars) at risk of a 100-year flood event along the Pacific coast, by county

County	Current risk	Risk with 1.4 m sea-level rise	Percent increase
Del Norte	240	350	43
Humboldt	680	1,400	110
Los Angeles	1,400	3,800	180
Marin	220	260	16
Mendocino	120	150	22
Monterey	1,700	2,200	36
Orange	11,000	17,000	63
San Diego	690	2,000	190
San Francisco	670	890	33
San Luis Obispo	220	360	67
San Mateo	730	910	26
Santa Barbara	460	1,100	140
Santa Cruz	2,400	3,300	34
Sonoma	170	200	20
Ventura	980	2,200	120
Total	**21,000**	**37,000**	**71**

Note: All values are shown in millions of year 2000 dollars. Counties with borders on the Pacific coast and San Francisco Bay (e.g., San Mateo) were separated based on the shoreline affected.

All economic sectors are vulnerable to impacts associated with sea-level rise. Figure 33 shows the breakdown of the buildings and contents at risk of 100-year flood by major economic sector for the Pacific coast (specific sectors, such as transportation, are discussed in Section 3.2). More than 70% of the assets at risk are residential. The commercial sector, accounting for nearly 20% of the value at risk, will also likely encounter significant costs. Agriculture, education, religion, and government each account for about 1% of the assets at risk, thus, their exposure to risk is relatively small.

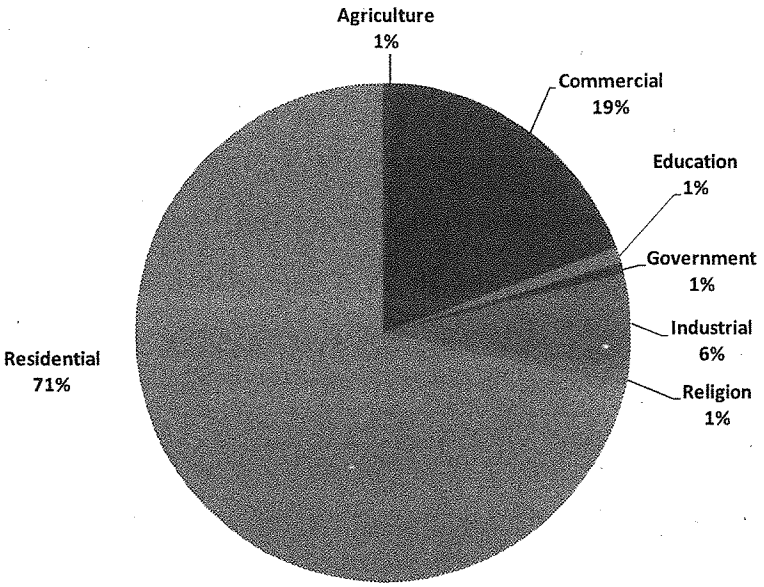

Figure 33. Value of buildings and contents at risk of 100-year flood event with a 1.4 m sea-level rise along the Pacific coast, by major economic sector

San Francisco Bay

The value of assets at risk on San Francisco Bay is substantially higher than along the Pacific coast. Table 22 shows the replacement value of buildings and their contents vulnerable to a 100-year flood event with a 0.5 m, 1.0 m, and 1.4 m sea-level rise. Note that the model used to develop inundation maps for San Francisco Bay allows us to determine the property at risk from any flood intensity. Assets at risk during a 100-year flood increase from about $29 billion in 2000 to $36 billion, $49 billion, and $62 billion (in year 2000 dollars) with a 0.5 m, 1.0 m, and 1.4 m sea-level rise, respectively.

The assets at risk are not evenly distributed among the counties on San Francisco Bay (Table 22). San Mateo and Alameda counties have the greatest assets at risk, accounting for about 60% of the total assets at risk with sea-level rise. Marin, Santa Clara, and San Francisco counties are also exposed to a high degree of risk; exposure to risk in these counties is higher than in all other counties along the Pacific coast, with the exception of Orange County. Exposure to risk in Sonoma and Napa counties is relatively modest.

Table 22. Value of buildings and contents at risk of a 100-year flood on San Francisco Bay, by county (in millions of year 2000 dollars)

County	Risk with sea-level rise			Percent Increase (1.4 m)
	0.5 m	1.0 m	1.4 m	
Alameda	5,300	10,000	15,000	370
Contra Costa	330	620	980	430
Marin	5,900	7,400	8,500	79
Napa	260	320	410	89
San Francisco	370	1,400	4,000	3400
San Mateo	18,000	21,000	23,000	41
Santa Clara	4,700	6,400	7,800	110
Solano	940	1,400	1,900	210
Sonoma	180	240	280	82
Total	**36,000**	**49,000**	**62,000**	**110**

Note: Counties with borders on the Pacific coast and San Francisco Bay (e.g., San Mateo) were separated based on the shoreline affected.

As it is along the Pacific coast, the residential sector on San Francisco Bay faces the greatest risk. Figure 34 shows the buildings and contents at risk of a 100-year flood by major economic sector on San Francisco Bay (specific sectors, such as transportation, are discussed in Section 3.1.4). Of the $62 billion of property at risk with a 1.4 m sea-level rise, about 50% of the assets at risk are residential, substantially smaller than along the Pacific coast. The commercial and industrial sectors face much greater risk on San Francisco Bay than on the Pacific coast. Agriculture, education, religion, and government each account for about 1% of the assets at risk, thus their exposure to risk is fairly small.

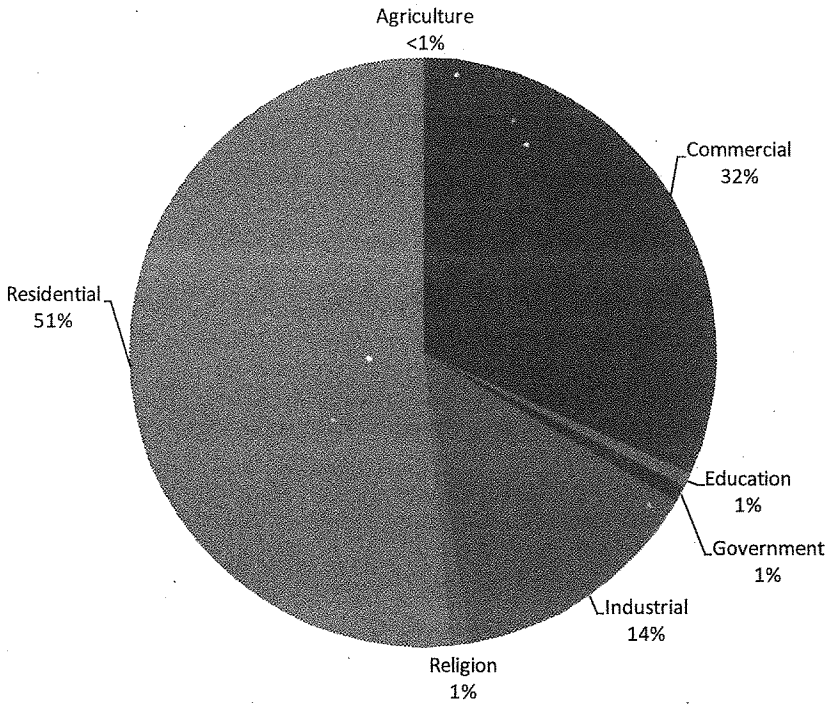

Figure 34. Value of buildings and contents at risk of a 100-year flood with a 1.4 m sea-level rise on San Francisco Bay, by major economic sector

3.1.7. Cost of Protection

Approximately 1,070 miles of new or modified coastal protection structures are needed on the Pacific Coast and San Francisco Bay (Table 23). The total cost of building new or upgrading existing structures is estimated at about $14 billion (in year 2000 dollars). The majority of the investment is needed in Southern California. Nearly 20% of that investment would be needed in Los Angeles County alone. Significant investments would also be needed in Orange and San Diego counties. Mendocino would need the least amount of coastal armoring, although this area is particularly vulnerable to erosion, which is not reflected in this analysis. We estimate that operating and maintaining the protection structures would cost approximately 10 percent of the initial capital investment, or around another $1.5 billion per year.

Table 23. Estimated length (in miles) and capital cost of required defenses needed to guard against flooding from a 1.4 m sea-level rise, by county.

County	Raise levee (miles)	New levee (miles)	New seawall (miles)	Total (miles)	Capital Cost (millions of year 2000 dollars)
Alameda	45	49	16	110	$950
Contra Costa	26	29	8.0	63	$520
Del Norte	-	38	1.0	39	$330
Humboldt	-	36	6.6	42	$460
Los Angeles	0.88	2.5	94	97	$2,600
Marin	43	77	7.7	130	$930
Mendocino	-	0.29	1.2	1.4	$34
Monterey	27	6.4	19	53	$650
Napa	2.8	62	-	64	$490
Orange	-	11	66	77	$1,900
San Diego	-	-	47	47	$1,300
San Francisco	-	10	21	31	$680
San Luis Obispo	-	7.4	5.4	13	$210
San Mateo	35	29	9.2	73	$580
Santa Barbara	2.4	5.6	4.5	13	$180
Santa Clara	47	4.0	-	51	$160
Santa Cruz	3.9	1.6	9.3	15	$280
Solano	2.7	63	8.0	73	$720
Sonoma	30	15	1.3	47	$240
Ventura	-	0.35	28	29	$790
Total	**270**	**450**	**350**	**1,100**	**$14,000**

3.2. Erosion-Related Risks

3.2.1. Population at Risk from Erosion

The erosion hazard zone totals 41 square miles within the 11 coastal counties evaluated in this analysis (Table 24). There is significant variation in the areas at risk of erosion. In Humboldt County, for example, 6.2 square miles of coast would be lost by 2100 under a sea-level rise scenario of 1.4 meters. In San Francisco, however, the erosion-related risk is small.

Table 24. Erosion with a 1.4 m sea-level rise, by county.

County	Dune erosion (sq. miles)	Cliff erosion (sq. miles)	Total erosion (sq. miles)
Del Norte	1.9	2.6	4.5
Humboldt	3.7	2.4	6.1
Marin	1.0	3.7	4.7
Mendocino	0.74	7.5	8.3
Monterey	1.9	2.5	4.4
San Francisco	0.23	0.30	0.53
San Luis Obispo	1.4	1.5	2.9
San Mateo	0.82	2.4	3.2
Santa Barbara	0.62	1.9	2.6
Santa Cruz	0.87	0.9	1.8
Sonoma	0.60	1.6	2.2
Total	**14**	**27**	**41**

As discussed in Section 2.3.2, dunes and cliffs will exhibit differential responses to rising sea levels. Our results indicated that cliffs will erode an average distance of about 66 m by the year 2100 (Table 25). In some areas, however, erosion is projected to be much higher. In Del Norte County, for example, cliffs erode a maximum distance of 520 m. Cliff erosion is much less severe in the other counties along the coast, although still significant. Dunes exhibit much less resistance to erosion. On average, dunes will erode about 170 m by 2100. In Humboldt County, for example, dunes are projected to erode nearly 600 m by 2100.

Table 25. Average and maximum erosion distance in 2000 for cliffs and dunes, by county.

	Dune erosion		Cliff erosion	
County	Average distance (m)	Maximum distance (m)	Average distance (m)	Maximum distance (m)
Del Norte	180	400	160	520
Humboldt	160	600	61	260
Marin	140	270	110	240
Mendocino	190	440	33	160
Monterey	180	400	37	220
San Francisco	150	230	90	220
San Luis Obispo	140	330	78	280
San Mateo	230	430	31	220
Santa Barbara	190	320	54	240
Santa Cruz	170	340	36	130
Sonoma	150	320	41	190
Average	**170**	**370**	**66**	**240**

Table 26 shows the population at risk from erosion with a 1.4 m sea-level rise in 2100. Flood-related risk is shown for comparative purposes. In the 11 coastal counties north of Santa Barbara, a total of 14,000 people live within areas at risk of erosion. In comparison, 69,000 people are vulnerable to a 100-year flood event within these counties. In most counties, the flood-related risk is substantially higher than the erosion-related risk. In Mendocino and Santa Barbara counties, however, erosion poses a greater threat than flooding. In Marin, the flood-related and erosion-related risks are comparable. In addition to those who live in areas vulnerable to erosion, approximately 6,600 people are employed in facilities located there, of which 95% are employed in the commercial sector and the remaining 5% are employed in the industrial sector.

Table 26. Population vulnerable to flood and erosion from a 1.4 m sea-level rise along the Pacific coast, by county

County	Flood-related Risk	Erosion-related Risk
Del Norte	2,500	620
Humboldt	7,400	580
Marin	620	570
Mendocino	630	930
Monterey	14,000	820
San Francisco	6,500	1,200
San Luis Obispo	6,200	1,100
San Mateo	16,000	2,900
Santa Barbara	1,300	2,100
Santa Cruz	5,600	2,600
Sonoma	9,100	300
Total	**69,000**	**14,000**

Note: Numbers may not add up due to rounding.

3.2.2. Emergency and Healthcare Facilities at Risk from Erosion

Emergency and healthcare facilities at risk from erosion along the California coast are limited. The analysis identified a single health care facility near Pacifica that is vulnerable to erosion. There are no schools or fire and police stations within the erosion hazard zone.

3.2.3. Infrastructure at Risk from Erosion

Roads and Railways

Significant transportation-related infrastructure is vulnerable to erosion. Nearly 240 miles of highways and roads and 10 miles of railways are at risk of erosion in the 11 coastal counties north of Santa Barbara (Table 27). This is far fewer than the transportation-related infrastructure at risk from flooding but as mentioned previously, erosion causes far greater and potentially more permanent damage than flooding. In addition, areas such as Big Sur already have significant routine highway maintenance costs due to existing erosion conditions and these costs are likely to increase as erosion rates increase (Figure 35).

Little critical infrastructure is located within the erosion hazard zone. We identified but no wastewater treatment plants within the area at risk of erosion.

Table 27. Miles of roads and railways vulnerable to erosion and flood from a 1.4 m sea-level rise along the Pacific coast, by county and type

County	Highways (miles)		Roads (miles)		Railways (miles)	
	Erosion-risk	Flood-risk	Erosion-risk	Flood-risk	Erosion-risk	Flood-risk
Del Norte	4.3	8.2	14	80	-	-
Humboldt	6.0	58	20	190	-	28
Marin	2.1	4.1	19	27	-	-
Mendocino	13	7.9	25	41	-	4.0
Monterey	11	31	15	110	2.1	23
San Francisco	0	8.0	17	25	-	-
San Luis Obispo	2.5	0.4	18	22	-	0.3
San Mateo	9.8	11	18	67	-	-
Santa Barbara	0.74	7.4	12	21	6.4	7.0
Santa Cruz	2.4	5.0	20	30	1.6	5.5
Sonoma	6.2	8.0	8.4	57	-	-
Total	**58**		**180**		**10**	

Note: Numbers may not add up due to rounding.

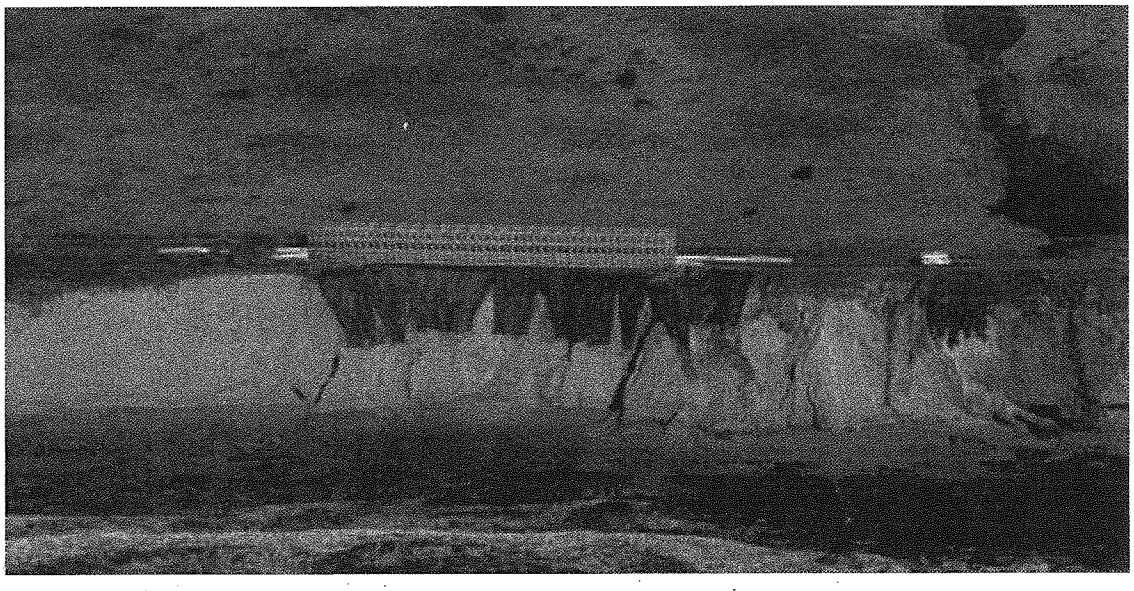

Figure 35. Road erosion along Highway 1 with deployment of erosion mitigation strategy

3.2.4. Property at Risk from Erosion

Land on or near the coast is highly desirable and often commands a premium price. Homes lost to erosion cannot be replaced because the land will have disappeared. As a result, the replacement values reported in the HAZUS database cannot be used in evaluate erosion. A detailed estimate of the value of land and homes that would be completely lost was beyond the scope of this analysis. In order to bound the problem, however, we sought to determine the number of parcels at risk by overlaying the erosion hazard zone layer with the available parcel data. Note that the erosion hazard zone was identified for portions of 11 of California's coastal counties. Eight of these 11 counties had parcel data in digital format.

Parcels are used by counties to levy property taxes. Assessor's offices divide entire counties into parcels, which can represent publicly-owned land, roads, lakes, and other features. A single parcel may also contain an apartment building with many hundreds of residences. Thus, this is an imprecise way of estimating how much property may be lost to coastal erosion. This is an area of study that can and should be pursued in more detail by local governments and regional planning agencies.

We estimate that approximately 10,000 parcels lie within the erosion hazard zone, as summarized in Table 28. Of these parcels, 66%, or two-thirds, lie completely in the erosion hazard zone, meaning the property would be lost completely. The remaining third are partially eroded. If we assume that the value of the average coastal parcel is $1.4 million (Heinz Center 2000), then the economic cost to property of erosion from a 1.4 m sea-level rise would total $14 billion. More work on the economic consequences of erosion is needed.

Table 28. Number of properties within the erosion zone hazard zone with a 1.4 m sea-level rise, by county

County	Number of parcels
Del Norte	No data
Humboldt	570
Marin	1,300
Mendocino	No data
Monterey	1,600
San Francisco	850
San Luis Obispo	No data
San Mateo	1,900
Santa Barbara	580
Santa Cruz	3,000
Sonoma	500
Total	**10,000**

Note: Numbers may not add up due to rounding.

4.0 Conclusions and Recommendations

4.1. Conclusions

Rising sea levels will be among the most significant impacts of climate change to California. Sea level will rise as a result of thermal expansion of the oceans and an increase in ocean volume as land ice melts and runs off. Over the past century, sea level has risen nearly eight inches along the California coast and general circulation model scenarios suggest very substantial increases in sea level due to climate change over the coming century. This study evaluates the current population, infrastructure, and property at risk from projected sea-level rise if no actions are taken to protect the coast. The sea-level rise scenario was developed by the State of California from medium to medium-high greenhouse gas emissions scenarios from the Intergovernmental Panel on Climate Change (IPCC) but does not reflect the worst case sea-level rise that could occur.

We estimate that a 1.4 m sea-level rise will put 480,000 people at risk of a 100-year flood event. Among those affected are large numbers of low-income people and communities of color, which are especially vulnerable. A wide range of critical infrastructure, such as roads, hospitals, schools, emergency facilities, wastewater treatment plants, power plants, and wetlands is also vulnerable. In addition, $100 billion (in year 2000 dollars) worth of property is at risk of coastal flooding. A number of structural and non-structural policies and actions could be implemented to reduce these risks. For example, we estimate that protecting vulnerable areas from flooding by building seawalls and levees will cost $14 billion (in year 2000 dollars), along with an additional $1.4 billion per year (in year 2000 dollars) in maintenance costs. Continued development in vulnerable areas will put additional assets at risk and raise protection costs. Determining what to protect, how to pay for it, and how those choices are made raises concerns over equity and environmental justice.

Large sections of the Pacific coast are not vulnerable to flooding, but are highly susceptible to erosion. We estimate that a 1.4 m sea-level rise will accelerate erosion, resulting in a loss of 41 square miles of California's coast by 2100. A total of 14,000 people live in areas at risk of erosion. In addition, significant transportation-related infrastructure and property are also at risk. Throughout most of the state, flood risk exceeds erosion risk, but in some counties, coastal erosion poses a greater risk. We also provide, below, a set of recommendations for actions and policies that can reduce future risks and vulnerabilities.

4.2. Recommendations

Climate changes are inevitable, and adaptation to unavoidable impacts must be evaluated, tested, and implemented. Sea levels have risen observably in the past century, and scientists forecast that sea-level rise will continue for centuries, even if we stop emitting greenhouse gases immediately. As a result, coastal areas will be subject to increasing risk of inundation and erosion. Below, we provide a series of recommendations and principles to guide the adaptation process.

4.2.1. Principles for Adaptation

The decisions about what to protect, how to protect it, and who will have to pay will be both challenging and controversial. Given the complexity of these issues, it is important to develop an open and transparent process involving all affected stakeholders. Below, we provide some general principles to guide this process:

- Human life must be protected.
- Critical ecological systems should be preserved.
- Development and protection of the coast should be governed by the principles of sustainability. Simply stated, this means "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987).
- Equal and full participation must be a central element of any decision-making process. No social or economic group should be excluded from decision-making that will affect its well-being.
- Communities must determine the resources and features they value, e.g., beaches, public access, fisheries, etc., and develop plans to protect those resources.
- Consideration should be given to equitable distribution and apportionment of costs and benefits of adaptation measures.
- Adaptation strategies should account for the distinct vulnerabilities of potentially affected subpopulations.
- Local and regional planning processes must begin early to incorporate estimates of sea-level rise and strategies for adaptation.

4.2.2. Recommended Practices and Policies

Climate change must be integrated into the design of all coastal structures.

Current efforts to build, maintain, or modify structures in coastal areas at risk of sea-level rise must now be based on estimates of that rise. The costs of modifying structures in the design phase are often far lower than the costs of later reconstruction or flood damage.

The federal government and the insurance industry should develop and implement a methodology for integrating climate change into insurance policies and strategies.

Properly designed insurance policies are vital for helping landowners choose whether to protect or abandon risky property. The design, availability, and cost of flood insurance will be a key instrument in implementing floodplain policy. For example, the government should not continue to subsidize flood insurance for properties that have suffered repetitive losses. Nor should insurance be available for properties highly likely to be inundated under future conditions.

Federal flood insurance maps should include information on future flood risks due to sea-level rise.

The Federal Emergency Management Agency's official flood insurance studies show hazard zones that reflect past or present flood risks. Because these are the *de facto* planning documents used by most local governments, they should be updated to show the *future* hazard areas and include the current science on climate change and sea-level rise.

Wetlands and the potential migratory paths should be protected.

Development should be prohibited on natural lands that are immediately adjacent to wetlands at risk. These buffer areas may be the only areas suitable for future wetland restorations projects.

Future development should be limited in areas that are at risk from rising seas.

In regions at risk that are not yet heavily developed, local communities and coastal planning agencies have the opportunity to limit development and reduce future threats to life and property. Policies that maintain such low-lying areas will help to accommodate rising seas. In addition to insurance policies, discussed above, such policies may include local ordinances, statewide coastal development policies, and explicit purchases of land for conservation purposes. This is often the least expensive option for currently undeveloped areas.

While limiting coastal development is the most effective way to reduce risk, this approach can incur costs today. Development permits designed to provide flexibility for future generations to address sea-level rise will reduce today's cost. For example, permits might allow development but stipulate that the area reverts to nature if seas rise by a specified amount.

Local planning processes need to involve communities most vulnerable to harm when developing appropriate preparation and adaptation strategies.

The particular needs of vulnerable communities, and appropriate adaptation policies, are best identified and developed through processes in which the affected communities are at the center of decision making. The vulnerabilities to sea-level rise created by access to transportation, legal residency, income, and language abilities can only be fully understood and protected when members of these communities are directly involved in the process.

Consider phased abandonment of low- and medium-density areas at high risk.

In some low- and medium- density areas, the monetary and environmental cost of holding back the sea may become unacceptably high. The lowest-cost option may be to allow natural

processes take place. Policies that prevent flood-damaged homes or businesses from rebuilding may help ease this transition.

Protect vital societal resources, especially those that are "coastal-dependent."

In many cases, the value of an area's infrastructure far exceeds the cost to raise structures or build protective barriers. For example, the San Francisco airport and the Port of Long Beach are extremely important to the state and national economy. In choosing what to protect, we should favor infrastructure that necessarily belongs on the coast, such as ports, bridges, and marinas.

Cost-benefit analyses should explicitly evaluate the social and environmental costs of building coastal protection structures.

Armoring the coastline can save lives and property, but it also comes at a cost. The natural dynamics that occur between water and land are disrupted. Beaches and wetlands disappear and habitat is lost. Traditional cost-benefit analyses, such as those required for all US Army Corps of Engineers projects, do not adequately account for these inherent tradeoffs.

Coastal emergencies are inevitable. Coastal communities should improve disaster response and recovery.

In this analysis, we have focused on increased risk of coastal flooding and erosion as a result of sea-level rise. California is also subject to tsunamis, earthquakes, wildfires, terrorist attack, and other hazards. Improving community preparedness provides benefits for responding to any type of emergency. Before a disaster strikes, communities must plan for evacuation routes, emergency action plans, and shelters, and take into account the specific needs of vulnerable populations. In addition, roles and responsibilities must be clearly defined among local, state, and federal agencies.

Coastal managers should consider adopting the principles of "No Adverse Impact" when designing and permitting flood protection, beach nourishment, and other coastal protection projects.

Current coastal protection projects are often done with no regard for how they will affect adjacent portions of the coast. According to the Association of State Floodplain Managers: "Over the past 50 years a system has developed through which local and individual accountability has been supplanted by federal programs for flood control, disaster assistance, and tax incentives that encourage and subsidize floodplain occupation and development." We recommend that coastal managers consider adopting a policy similar to "No Adverse Impact" where the "actions of one property owner are not allowed to adversely affect the rights of other property owners" (ASFM 2008).

4.2.3. Additional Research and Analysis

Local governments or regional planning agencies should conduct detailed studies to better understand the potential impacts of sea-level rise in their communities.

The analysis presented here provides an initial estimate of the impacts of sea-level rise along the California coast. More detailed assessments of local impacts and potential response strategies are needed. While the effects of sea-level rise, responses, and threatened resources must all be evaluated at a local level, broader regional effects must also be incorporated into final protection strategies.

Our analysis was hindered by inadequate data on existing coastal structures. Existing levees and other flood defenses should be surveyed, assessed, and cataloged.

The U.S. Congress passed the Water Resources Development Act of 2007, creating a National Levee Safety. The act requires the establishment and maintenance of an inventory of the nation's levees and inspection of all federally owned, operated, or constructed levees. This program should be fully funded and quickly implemented, and the information it compiles should be made readily available to residents, local government, and others.

Conduct further research focused on all vulnerable subpopulations, including children, elderly, homeless, physically disabled, and people with limited mobility (e.g., incarcerated residents and healthcare facility patients), accurately measuring and analyzing the potential human costs of sea-level rise and adaptation measures.

This analysis does not include various demographic groups that can be expected to have unique vulnerabilities to potential disasters. For pre-disaster, disaster response, and recovery efforts to effectively safeguard all Californians, further study is needed to identify all vulnerable populations and assess the unique vulnerabilities of each group.

Assess the environmental justice implications of potential mitigation measures, and develop strategies to effectively safeguard all communities.

The measures taken to adapt to sea-level rise must not distribute costs and benefits of protection in ways that place a disproportionate burden on the low-income households and communities of color who are most vulnerable to a potential disaster. The means of prioritizing protection measures must be analyzed with and held to the principles of environmental justice.

Natural ecosystems are at serious risk from sea-level rise, but are undervalued or ignored in traditional economic analyses. Improved methods for incorporating them into future studies are needed.

Wetlands are highly diverse ecosystems that provide a variety of goods and services, including flood protection, water purification, wildlife habitat, recreational opportunities, and carbon

sequestration. Large tracts of wetlands along the California coast are vulnerable to sea-level rise. No satisfactory method for incorporating their environmental values has been developed, and we thus risk ignoring them when we make policy decisions. This would be a serious mistake. Additional work is needed to evaluate the costs and values of natural ecosystems.

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6.0 Acronyms and Abbreviations

ALACE	Airborne LIDAR Assessment of Coastal Erosion
ASFM	Association of State Floodplain Managers
BFE	Base flood elevation; elevation of floodwaters with an annual probability of 1%. Also referred to as the 100-year flood.
CALSIM	A computer simulation model of river basins developed by California's Department of Water Resources
CASCADE	Computational Assessments of Scenarios of Climate Change in the Delta Ecosystem; a suite of computer models of the hydrology and biology of California's Sacramento/San Joaquin river delta developed by the US Geological Survey
C-CAP	Coastal Change Analysis Program, a NOAA initiative
CCC	California Coastal Commission
CCSM	Community Climate System Model

CNRM	Centre National de Recherches Meteorologiques (France's National Center for Meteorological Research)
DEM	Digital Elevation Model, a digital database of land surface elevations
DFIRM	Digital Flood Insurance Map, electronic maps and databases published by FEMA
EPA	US Environmental Protection Agency
FEMA	Federal Emergency Management Agency
GFDL	Geophysical Fluids Dynamics Laboratory
GIS	Geographic Information System
HAZUS	Hazards U.S. Multi-Hazard, a computer model for estimating damages from natural disasters
IFRCC	International Federation of Red Cross and Red Crescent Societies
IfSAR	Interferometric Synthetic Aperture Radar
IPCC	Intergovernmental Panel on Climate Change
LIDAR	Light Detection and Ranging, a remote sensing technology used to collect terrain elevation data
MGD	million gallons per day
MHHW	Mean higher-high water
MHW	Mean high water
MHWS	Mean high water springs
MIROC	The Model for Interdisciplinary Research on Climate
MLLW	Mean lower-low water
MLW	Mean low water
MSL	Mean sea level
NASA	National Aeronautics and Space Administration
NAVD88	North American Vertical Datum of 1988; modern reference system for measuring heights above the earth's surface
NCAR	National Center for Atmospheric Research
NPDES	National Pollutant Discharge Elimination System
NGVD29	National Geodetic Vertical Datum of 1929; a reference system for

	measuring heights above the earth's surface, superseded by NAVD88
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System; an EPA program to track and regulate pollutants discharged to surface waters of the United States
NRC	National Research Council
NWI	National Wetlands Inventory, a geographic database of US wetlands published by the US Fish and Wildlife Service
OPC	Ocean Protection Council
PCM	Parallel Climate Model
PCS	Permit Compliance System; an EPA database of licensed discharges to the surface waters of the United States
PIER	Public Interest Energy Research
PWA	Philip Williams and Associates
SLR	Sea level rise
TWL	Total water level
USACE	US Army Corps of Engineers
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey

Exhibit 7

CHAPTER 9

Establishing Airport Safety Compatibility Policies

OVERVIEW

Compared to noise compatibility issues, the need to address the safety aspects of interactions between airports and surrounding land uses is largely a forgotten compatibility planning topic. Perhaps this is because aircraft noise is experienced daily, but off-airport accidents are rare. Except for regulations on airspace obstructions and clearance requirements in the immediate vicinity of runways, there are few formal federal or state standards addressing safety compatibility concerns. This *Handbook* provides the most comprehensive guidance known to be available.

Most of the discussion in this chapter deals with the development of safety compatibility zones and associated criteria aimed at limiting the consequences which aircraft accidents can have upon people and property near airports. The need for establishment of safety compatibility zones does not imply that airports are unsafe. Neither does it suggest that existing land uses near airports are necessarily unsafe. Indeed, aircraft accidents in the vicinity of airports are very infrequent occurrences and, historically, very few people on the ground have been seriously or fatally injured as a result of such accidents. Safety, though, is a relative concept. More can almost always be done to enhance safety. The important questions to be answered are: what is an acceptable level of safety; and what is the cost of attaining that level? Central to the assessment of these issues is the concept of risk. This topic is explored in a major section of this chapter.

Beyond the fundamental concept of risk, the specific issue addressed in this chapter is what restrictions should be placed on development of land uses near airports in response to the potential occurrence of aircraft accidents. It is not sufficient to rely solely upon Federal Aviation Administration guidance for this purpose. The focus of FAA standards is on the safe operation of aircraft, not on land use planning (the federal government has no direct authority over local land uses in any case). Also, it is misguided to argue that restrictions beyond those defined by the FAA are unnecessary given the historically infrequent occurrence of accidents resulting in serious conse-

This chapter expands upon the safety and airspace protection concepts outlined in Chapter 3. It analyzes the accident data presented in Chapter 8 and assesses how this data and other factors can be applied to the development of safety compatibility policies for inclusion in compatibility plans prepared by airport land use commissions. Major sections address:

- The nature of airport land use safety compatibility concerns;
- The foundations of safety compatibility policies;
- Fundamental risk concepts;
- Geographic patterns of aircraft accidents;
- Development of safety compatibility policies for individual airports; and
- Airspace obstructions and other hazards to flight.

quences to people on the ground. To a significant extent, the good record with regard to harm that has come to people and property near airports can be attributed to the existence of compatible land uses near airports. As airport environs become more intensively urbanized, the likelihood of more severe accident consequences can only increase. Thus, if the utility of airports and the safety of the general public are both to be protected, decision makers will need to be more aware of and more responsive to safety-related compatibility concerns.

The discussion and guidance presented in this chapter is concerned with aircraft accidents, not deliberate acts.

The final sections of the chapter present guidelines which airport land use commissions, together with the counties and cities which have jurisdiction over airport area land uses, can use as the basis for establishing safety compatibility policies for areas around airports. No pretense is made that the suggested guidelines represent an ideal or absolute level of safety or land use compatibility. Rather, they are intended to represent a multi-faceted balance: a balance between the need for protection of airports and the public and the necessity for, or inevitability of, some amount of development near most airports; and also a balance between the benefits which airports provide and the risks which they present. In this regard, an assessment in the 1952 *Report of the President's Airport Commission* (the Doolittle Commission)—a document which provided the foundation for addressing airport land use safety compatibility—says it well and remains valid today:

> "Absolute safety for the individual is an ideal which has ever been sought but never attained. Because man does not have full control over his environment, the very function of living has inherent hazards which become more pronounced as the scheme of living grows more complex. Thus, since absolute safety is a theoretical concept, one can speak only of relative risk."

Safety Concerns

Safety is a factor in the interaction between airports and nearby land uses in three distinct ways:

- Protecting people and property on the ground;
- Minimizing injury to aircraft occupants; and
- Preventing creation of hazards to flight.

Each of these concerns needs to be addressed in airport land use compatibility plans. The nature of each concern can be summarized as noted here. More detailed evaluation of each concern is the objective of the remainder of this chapter.

Protecting People and Property on the Ground

Protecting people and property on the ground from the potential consequences of near-airport aircraft accidents is a fundamental land use compatibility planning objective. To accomplish this, some form of restrictions on land use are essential. Land use characteristics are the most important

factors to consider in developing safety compatibility criteria. The potential severity of an off-airport aircraft accident is highly dependent upon the nature of the land use at the accident site. For the purposes of evaluating the relative risks presented by different land uses, three characteristics are most important:

Even when safety compatibility criteria are formatted in terms of a detailed list of land uses, usage intensity is generally the basic factor upon which the acceptability or unacceptability of each use is judged.

Even when safety compatibility criteria are formatted in terms of a detailed list of land uses, usage intensity is generally the basic factor upon which the acceptability or unacceptability of each use is judged.

- **Intensity of Use**—The most direct means of limiting the potential consequences of an off-airport accident is to limit the intensity of use. Intensity of use is measured in terms of the number of people which the development can attract per acre. This metric serves as a common denominator among various types of nonresidential uses. Except for certain especially risk-sensitive uses, as noted below, the degree of safety compatibility is usually considered the same for any two land uses having similar usage intensities.

- **Residential versus Nonresidential Function**—Residential land uses are typically measured in dwelling units per acre rather than people per acre. This is principally a practical measure to simplify implementation. However, residential uses are also normally afforded a comparatively higher degree of protection than nonresidential ones. That is, for a given location, higher occupancy levels are permitted for nonresidential uses than for residential uses.

- **Sensitive Uses**—Certain other types of land uses are also commonly regarded as requiring special protection from hazards such as potential aircraft accidents. These uses fall into two categories:

  - *Low Effective Mobility Occupancies:* Society normally seeks a high degree of protection for certain groups of people, especially children and the infirm. A common element among these groups is inability—either because of inexperience or physical limitations—to move out of harm's way. Among the types of land uses which are regarded as particularly risk sensitive are elementary and secondary schools, day care centers, hospitals, and nursing homes.

  - *Hazardous Materials:* Functions, such as aboveground storage of large quantities of flammable materials or other hazardous substances which could substantially contribute to the severity of an aircraft accident if they were to be involved in one.

A limit of no more than 6,000 gallons is suggested. Tanks larger than this size must meet more stringent requirements under the Uniform Fire Code as well.

Minimizing Injury to Aircraft Occupants

In accidents involving an aircraft that is out of control as it descends, the character of the land uses below are not likely to have a significant effect on the survivability of the crash. However, as noted in Chapter 8, some aircraft mishaps involve situations in which the aircraft is descending, often without power, but otherwise under control. If the aircraft has sufficient alti-

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tude, the pilot has some choice as to where to attempt an emergency landing. Under these circumstances, the pilot of a disabled aircraft will, if possible, direct the aircraft toward some form of open land when an off-airport emergency landing is inevitable.

This propensity forms the premise behind the primary form of land use control intended to minimize the severity of injury to aircraft occupants in the event of an off-airport emergency landing. Specifically, some amount of useful open land should be preserved in the vicinity of airports. This concept is largely limited to airports that serve small aircraft.

Preventing Creation of Hazards to Flight

Unlike the preceding land use characteristics which can only affect the consequences of an aircraft accident (for better or worse), hazards to flight can be the cause of an accident. Hazards to flight fall into three basic categories:

- Obstructions to the airspace required for flight to, from, and around an airport;
- Wildlife hazards; and
- Other forms of interference with safe flight, navigation, or communication.

Safety Policy Foundations

In order for ALUCs and local land use jurisdictions to address the preceding compatibility concerns, an assessment of safety standards and guidelines set by federal and state agencies is essential. Unlike the case with noise, though, few federal and state laws, regulations, or policies address the issue of safety-related land use compatibility around airports. Only the guidelines prepared by the Department of Defense for military air bases are comprehensive in their approach. This section summarizes significant criteria which federal and state agencies have developed.

Federal Aviation Administration

Property acquisition for approach protection purposes is eligible for FAA grant funding.

Land use safety compatibility guidance from the Federal Aviation Administration (FAA) is limited to the immediate vicinity of the runway, the runway protection zones at each end of the runway, and the protection of navigable airspace. The lack of FAA land use compatibility criteria for other portions of the airport environment is often cited by land use development proponents as an argument that further controls on land use are unnecessary. What must be remembered, however, is that the FAA criteria apply only to property controlled by the airport proprietor. The FAA has no authority over off-airport land uses—its role is with regard to the safety of aircraft operations. The FAA's only leverage for promoting compatible land use planning is through the grant assurances which airport proprietors must sign in order to obtain federal funding for airport improvements. State and local agencies are free to set more stringent land use compatibility policies as they see fit.

Runway Vicinity

The emphasis in FAA safety criteria is upon the runway surface and the areas immediately adjoining it. Standards are established which specify ground surface gradients for areas adjacent to runways and the acceptable location and height of aeronautical equipment placed nearby. These areas normally are encompassed within airport boundaries.

These standards are set forth in an FAA Advisory Circular entitled *Airport Design* (AC 150/5300-13).

Runway Protection Zones

Runway protection zones (RPZs) are trapezoidal-shaped areas located at ground level beyond each end of a runway. The dimensions of RPZs vary depending upon:

- The type of landing approach available at the airport (visual, non-precision, or precision); and
- Characteristics of the critical aircraft operating at the airport (weight and approach speed).

Runway protection zones (previously called clear zones) date from a recommendation in the 1952 *Report of the President's Airport Commission*. See Chapter 8 for additional information.

Ideally, each runway protection zone should be entirely clear of all objects. The FAA's *Airport Design* advisory circular strongly recommends that airports own this property outright or, when this is impractical, to obtain easements sufficient to control the land use. Acquisition of this property is eligible for FAA grants (except at some small airports which are not part of the national airport system). Even on portions of the RPZs not under airport control, the FAA recommends that churches, schools, hospitals, office buildings, shopping centers, and other places of public assembly, as well as fuel storage facilities, be prohibited. Automobile parking is considered acceptable only on the outer edges of RPZs (outside the extended object free area).

Beyond the runway protection zones, the FAA has no specific safety-related land use guidance other than airspace protection. However, additional property can also potentially be acquired with federal grants if necessary to restrict the use of the land to activities and purposes compatible with normal airport operations. In general, this property must be situated in the approach zones within a distance of 5,000 feet from the runway primary surface. Exposure to high levels of noise can also be the basis for FAA funding of property acquisition.

Airspace Protection

Part 77 of the Federal Aviation Regulations (FAR), *Objects Affecting Navigable Airspace*, establishes standards for determining obstructions to navigable airspace and the effects of such obstructions on the safe and efficient use of that airspace. The regulations require that the FAA be notified of proposed construction or alteration of objects—whether permanent, temporary, or of natural growth—if those objects would be of a height which exceeds the FAR Part 77 criteria. The height limits are defined in terms of imaginary surfaces in the airspace extending about two to three miles around airport runways and approximately 9.5 miles from the ends of runways having a precision instrument approach.

Excerpts from FAR Part 77 are contained in Appendix B.

It is essential to emphasize that FAA aeronautical studies are concerned only with airspace hazards, not with hazards to people and property on the ground. An FAA determination of "no hazard" says nothing about whether proposed construction is compatible with airport activity in terms of safety and noise.

When notified of a proposed construction, the FAA conducts an aeronautical study to determine whether the object would constitute an airspace hazard. Simply because an object would exceed an airport's airspace surfaces established in accordance with FAR Part 77 criteria does not mean that the object would be considered a hazard. Various factors, including the extent to which an object is shielded by nearby taller objects, are taken into account. The FAA may recommend marking and lighting of obstructions.

As described below, the California State Public Utilities Code gives the Division of Aeronautics and local governments authority to prevent hazards to air navigation.

The FAA has no authority to remove or to prevent construction or growth of objects deemed to be obstructions. Local governments having jurisdiction over land use are typically responsible for establishing height limitation ordinances which prevent new, and enable removal of existing, obstructions to the FAR Part 77 surfaces. Federal action in response to new airspace obstructions is primarily limited to three possibilities:

- For airports with instrument approaches, an obstruction could necessitate modification to one or more of the approach procedures (particularly greater visibility and/or cloud ceiling minimums) or even require elimination of an approach procedure.
- Airfield changes such as displacement of a landing threshold could be required (especially at airports certificated for commercial air carrier service).
- The owner of an airport could be found in noncompliance with the conditions agreed to upon receipt of airport development or property acquisition grant funds and could become ineligible for future grants (or, in extreme cases, be required to repay part of a previous grant).

Also, under state laws, an airport's permit to operate could be restricted, suspended, or revoked because of objects deemed by the FAA to be hazards to air navigation.

Additional guidelines regarding protection of airport airspace are set forth in other FAA documents. In general, these criteria specify that no use of land or water anywhere within the boundaries encompassed by FAR Part 77 should be allowed if it could endanger or interfere with the landing, take off, or maneuvering of an aircraft at an airport (FAA–1987). Specific characteristics to be avoided include:

- Creation of electrical interference with navigational signals or radio communication between the airport and aircraft;
- Lighting which is difficult to distinguish from airport lighting;
- Glare in the eyes of pilots using the airport;
- Smoke or other impairments to visibility in the airport vicinity; and
- Uses which attract birds and create bird strike hazards.

Bird strike and other forms of wildlife hazard have become a major concern internationally. In the United States and Canada, reduction and management of wildlife hazards are of particular concern. With regard to bird strike hazards, the FAA specifically considers waste disposal sites (sanitary landfills) to be incompatible land uses if located within 10,000 feet of a runway used by turbine-powered aircraft or 5,000 feet of other runways. Any waste disposal site located within five statute miles of an airport is also deemed incompatible if it results in a hazardous movement of birds across a runway or aircraft approach and departure paths. Caution should be exercised with regard to certain other land uses—including golf courses and some agricultural

crops—in these locations to ensure that wildlife hazards do not result (FAA–1997). Additionally, Federal statutes (49 U.S.C. §44718(d)) now prohibit new "municipal solid waste landfills" within six miles of airports that (1) receive FAA grants and (2) primarily serve general aviation aircraft and scheduled air carrier operations using aircraft with less than 60 passenger seats. A landfill can only be built within six miles of this class of airports if the FAA concludes that it would have no adverse effect on aviation safety (FAA–2000b).

U.S. Department of Defense

Safety compatibility criteria for military air bases are set forth through the Air Installations Compatible Use Zones (AICUZ) program (DOD–1977). The objective of this program is to encourage compatible uses of public and private lands in the vicinity of military airfields through the local communities' comprehensive planning process.

With respect to safety, AICUZ standards establish three accident potential zones (APZs) beyond each end of a military airfield runway. The innermost zone—the clear zone—is either trapezoidal in shape (at Navy bases) or rectangular (at Air Force bases). Two additional zones—designated APZ I and APZ II—lie beyond the clear zone. The alignment of these zones may be altered to follow the primary flight tracks. The clear zone length is typically 3,000 feet. Other dimensions vary depending upon the type of aircraft and/or number of aircraft operations on the runway. For most military runways, though, the APZs are 3,000 feet wide and have lengths of 5,000 feet for APZ I and 7,000 feet for APZ II, for a total of 15,000 feet from the runway end.

As noted in Chapter 8, these dimensions were developed based upon a study of where military aircraft accidents have occurred in the past.

Within each zone, the compatibility or incompatibility of possible land uses is specified. For example, residential uses are considered incompatible in the clear zone and APZ I and compatible only at low densities in APZ II. Retail land uses are unacceptable in the clear zone and may or may not be compatible in APZ I and II depending upon on the intensity of use.

State of California

Statutes

As is true at the federal level, California state laws—and regulations as well—provide few specifics with respect to airport land use safety compatibility. The guidance which is available is found in two primary locations:

Note that other parts of state law—the Government Code and the Public Resources Code, in particular—establish various requirements for compatibility planning and the review of development near airports, but do not set specific compatibility criteria.

- **State Aeronautics Act**—The Aeronautics Act (Public Utilities Code, Section 21001 et seq.) provides for the right of flight over private property, unless conducted in a dangerous manner or at altitudes below those prescribed by federal authority (Section 21403(a)). No use shall be made of the airspace above a property which would interfere with the right of flight, including established approaches to a runway (Section 21402). The act also gives the State Department of Transportation and local governments

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the authority to protect the airspace defined by FAR Part 77 criteria. The act prohibits any person from constructing any structure or permitting any natural growth of a height which would constitute a hazard to air navigation as defined in FAR Part 77 unless the department issues a permit (Public Utilities Code, Section 21659). The permit is not required if the FAA has determined that the structure or growth does not constitute a hazard to air navigation or would not create an unsafe condition for air navigation. Typically this has been interpreted to mean that no penetrations of FAR Part 77 imaginary surfaces is permitted without a finding by the FAA that the object would not constitute a hazard to air navigation.

- **State Education Code**—The State Education Code (Section 17215) requires that, before acquiring title to property for a new school site situated within two miles of an airport runway, a school district must notify the Department of Education. The Department of Education then notifies the Department of Transportation which is required to investigate the site and prepare a written report. If the Department of Transportation report does not favor acquisition of the site for a school, no state or local funds can be used for site acquisition or building construction on that site.

  Another section of the Education Code (Section 81033) establishes similar requirements for community college sites.

Department of Transportation Guidelines

DEPT. OF TRANSPORTATION GUIDANCE
See the Summary section for a discussion of how the "be guided by" requirement should be interpreted.

In 1994, a section was added to the Aeronautics Act to require that: "An airport land use commission that formulates, adopts or amends a comprehensive airport land use plan shall be guided by ... the Airport Land Use Planning Handbook published by the Division of Aeronautics of the Department of Transportation" (Public Utilities Code, Section 21674.7).

The addition of this statute changed the role of the *Handbook* from a useful reference document to one that must be used as guidance in the development of ALUC policies. This is particularly important in the development of safety compatibility policies, because very little guidance is otherwise available for civilian airports.

Risk Concepts

Maintaining a high degree of safety as lands near airports are developed is clearly an important planning objective. Frequently, planners face issues that have a potential for compromising safety and look for guidance on how best to proceed. Established federal and state regulations are among the resources often examined. However, from the preceding review, the narrow focus of official federal and state airport land use safety compatibility policies is apparent. Particularly lacking is guidance regarding protection of people and property on the ground in the event of aircraft accidents in the vicinity of airports. To adequately address this concern, ALUCs and local land use jurisdictions need to go beyond the basic policy foundations.

This task is not simple. While the basic concerns are clear, the extent to which the use of land around airports should be restricted in response to these concerns is not as evident. Defining appropriate safety compatibility policies based upon the available aircraft accident data thus represents a major challenge. To attempt this task, requires an understanding of the concepts of *risk*.

Experts in the field of risk have done extensive amounts of research on the topic in general and on certain types of risks in particular. However, very little of this research is specifically concerned with the risks to people and property on the ground in the environs of airports. Even so, there is much of relevance to airport land use compatibility issues that can be gleaned from these broader analyses. Toward that end, the first portion of this section examines risk concepts as they concern hazards in general; the latter portion then focuses on how these concepts can specifically be applied to airport land use compatibility planning.

In simple terms, risk can be defined as "the chance of injury, damage, or loss." More technically, risk is "the potential for realization of unwanted, adverse consequences to human life, health, property, or the environment" (Society for Risk Analysis). In mathematical terms, risk equals the probability of occurrence of an unwanted event times the adverse consequences. Risk can be considered as the inverse of safety; the latter being defined as "relative protection from adverse consequences."

The discussion here focuses on risks which have two common characteristics. First, the associated activities are physical in nature (as opposed to being strictly financial, for example). Secondly, the adverse consequences of concern are measured in terms of a specific event (rather than the incremental effects of prolonged exposure). These both are characteristics common to aircraft accident risks.

Risk Assessment

The assessment of risks and determination of appropriate actions to be taken in response to those risks is a complex and often imprecise process. Some elements of risk can be quantitatively measured and delineated. Risk assessment done in this way is often referred to as technical risk assessment, probabilistic risk assessment, or quantitative risk assessment. These forms of risk assessment are generally equivalent and are most useful for comparing various alternatives in a decision problem, such as, for example, which of two engineering solutions or land use plans has the lower risk.

Most risks, though, also have equally significant qualitative components. Moreover, subjective judgment plays an especially important role in formulation of responses to risks. These characteristics exist even for risks involving only one individual or a small group of people, but are particularly evident when the effects extend to large segments of a community or to society as a whole. Risk assessment that is done from a qualitative perspective is useful in determining why and how risks differ in ways that are not captured or represented by their quantitative or statistical characteristics. This type of risk assessment also helps with understanding what makes some risks appear acceptable and others unacceptable even though they do not differ appreciably in quantitative terms.

Measurement of Risk

The beginning point for any efforts to develop public policies to address most risks is to measure the extent to which a particular risk exists. Risk

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measurement or analysis is concerned with the question of what might happen.

As noted in the definition above, the two fundamental components of risk measurement are frequency and consequences. *Frequency* measures when or how often an adverse event might occur. The *consequences* component describes what the effects of such an event might be (in terms of fatalities, injuries, property damage, service interruption, etc.).

For most risks involving physical hazards (and certainly those related to airport area land uses), it is useful to consider a third component. Accident frequency can be thought of not just in terms of how often accidents occur, but also in terms of their *distribution*. The distribution component of risk identifies where or for whom there is an exposure to accidents (geographically or to certain segments of the population).

While the frequency and distribution components of risk are measured in quantitative (even if sometimes only relative or rank order) terms, the consequences of accidents can have important qualitative characteristics. Depending upon the perspective taken with respect to the potential consequences of accidents, the overall risk can be measured with respect to three fundamentally different metrics.

- **Accident Risk**—Most basic among these metrics is the accident risk rate (sometimes also referred to as crash or failure risk). This number simply measures the annual number of events predicted to occur within a specified unit of area. The consequences component is held constant—that is, the potential consequences are assumed to be the same regardless of where and how often the accidents might occur. The number of general aviation accidents projected to take place in the U.S. in a year is an example of accident risk. By combining the projected accident rate data with historical data on accident locations, the probability of an accident occurring in a given location can be calculated. With respect to aircraft accidents, the resulting information can be presented in the form of contours defining locations having the same probability of accident occurrence.

- **Individual Risk**—The individual risk rate changes the focus from events to people. Individual risk thus takes into account both the frequency of accidents as measured by the accident risk and the severity or consequences of the accident. Typically, only the most serious consequences to an individual are considered—the risk of death—although sometimes serious injuries are also taken into account. The risk is usually calculated on the basis of a person exposed to the hazard on a constant basis, 24 hours per day, 365 days per year.

- **Societal Risk**—The most broadly based form of risk metric is societal or collective risk. Societal risks are concerned with consequences that are wider than the the discrete effects on individuals. Repercussions of certain events go beyond the immediate casualties and damage to the extent of provoking socio-political response. The need to avoid these types of

accidents or events may thus be greater than statistical measurements would suggest. Indeed, societal risk often takes into account non-quantitative elements and can particularly be influenced by public perceptions.

Regardless of the precision to which a risk can be measured, a factor to be recognized is that even scientific measures of risk are inherently subjective in one respect. Scientists and experts typically measure risk in terms of mortality rates or probability of harm. There are many ways in which this information can be portrayed, however. This choice can affect how the data is judged. For example, in the context of transportation, the chance of someone being killed in an accident can be measured relative to total population (deaths per million population), passenger-miles for the transportation mode, or the number of trips. The way in which the data is numerically presented also makes a difference: 1 death per x people versus y deaths per million people. The point is that there is no right or wrong frame of reference—no universal set of characteristics—for measuring risk.

Risk Perceptions

While measurement of risks provides essential input to the making of public policy, it is not the only consideration. In our society, decisions about how to respond to many risks—particularly ones affecting many people or whole communities—are not the sole purview of experts. Moreover, such decisions are not based simply on technical analyses and data. The public's *perception* of risks plays a major role as well. Perception is a key component in any assessment of societal risk.

To those experts or others who evaluate risk in a strictly quantitative manner, public perceptions may seem to be irrational or even ignorant. While some component of public reaction may be attributable to these human qualities, other more definable factors are also apparent. Studies have shown that risks are usually perceived to be high when factors such as the following are prevalent:

- The general public has limited understanding of how the technology or system operates;
- After a failure in the technology or system, no one, including experts in the field, seems to know and understand the cause (as opposed to events for which the cause is clear);
- The possible consequences of the hazard evoke feelings of dread, especially concerns about death;
- The possible consequences seem unbounded (in magnitude or persistence over time) or are believed to be potentially catastrophic;
- The activity is not under one's own control (the risks are not affected by one's own skills);
- The risk exposure is not on a voluntary basis (the exposure cannot readily be reduced by changes in one's lifestyle);
- The hazard is unnatural (not an act of nature);
- The potential personal or societal benefits to be gained from the activity involved appear to be minimal or nonexistent;

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- The distribution of risks and benefits among groups or geographically is inequitable;
- The groups at risk include children, elderly, the infirm, or others regarded as having comparatively little control over their own lives; and/or
- Highly negative imagery about the technology or system is widespread in the media (especially pictures on television and in newspapers).

To a significant extent, the manner in which people judge the importance of these factors depends upon our attitudes toward the underlying technology or system. Our attitudes, in turn, have their basis in social values. These judgments are inherently subjective—there are no right or wrong responses. Thus, at least from the perspective of social science, risk is not an objective concept. Danger is real, but there is no such thing as real risk—risk is socially constructed.

Because of these subjective elements, risk perceptions are frequently not consistent with statistical expectations. Risks are often misjudged, sometimes overestimated and sometimes underestimated. Moreover, judgments about the facts associated with risks may be held with unfounded confidence. As a consequence, technical risk analyses and statistics prepared by experts often do little to change people's attitudes and perceptions. Even news that studies of a potential risk are being conducted can add to public concerns. The rapidity with which information—both accurate and inaccurate—is transmitted today further adds to the challenge of placing risks in a proper perspective within society as a whole.

Another factor which affects how a risk is perceived is the scale on which the risk is measured. Experts typically measure risk in terms of fatalities. To most people, though, riskiness means more than the number of deaths per year. The manner in which the presence of the risk affects one's daily life also influences how the risk is viewed.

Even when annual fatalities is the accepted risk measure, statistically equivalent risks may be perceived differently. For example, a technology or system on which one accident with 100 fatalities has occurred is likely to be judged more risky than a system which has experienced 100 accidents having one fatality each. In effect, there is a penalty function which gives added weight to events with large consequences. On the other hand, our familiarity with particular technologies or systems can also affect how their associated risks are perceived. The apparent seriousness of an unfortunate event is determined in part by what the event signals or portends—what its potential social impact may be. An accident on an unfamiliar system, even if small in size, may be viewed as a harbinger of more catastrophic events and thus deemed to be worse than a large accident on a familiar system.

A final, not often acknowledged, element of risk perception is hindsight. Knowing that something has happened increases its perceived inevitability. What is more, not only do such occurrences seem in retrospect to have been inevitable, the judgment often is that they should have been antici-

pated in advance. "On the other hand, perhaps the handwriting on the wall was written in ink visible in hindsight alone" (Fischhoff–1975).

As one author summarized the topic: "...there is wisdom as well as error in public attitudes and perceptions. Lay people sometimes lack certain information about hazards. However, their basic conceptualization of risk is much richer than that of the experts and reflects legitimate concerns that are typically omitted from expert risk assessments" (Slovic–1987).

Risk Comparisons

Another approach to risk assessment is to compare a new or uncertain risk with risks which are better known and understood. Both the general public and risk experts engage in making these comparisons. Although such comparisons must be made with caution, they can be informative.

One situation in which risk comparisons can be useful is with respect to infrequently occurring events. For frequent events, risks can be measured with a great deal of precision. However, the probability of events which take place infrequently—even though they may be of high consequence—is very difficult to predict with any high degree of statistical accuracy. For many technologies, the very success of hazard reduction efforts has led to relatively few events from which to calculate the level of risk.

In general, observed data cannot lead to confident estimates of extremely rare events. The probability of events with 50-to-100-year intervals can be estimated with a reasonable degree of confidence, but not those with 10,000-year intervals. In such situations, an alternative approach is to measure risk levels in a relative rather than probabilistic manner. Experts in a particular technology often can identify the locations or circumstances which present higher-than-usual risks, even if they cannot estimate the probability of an event.

The danger of risk comparisons is that differences among risks can be oversimplified if both the quantitative and qualitative attributes are not considered. The general public may overlook important measurable factors. On the other hand, experts may gauge the acceptability of risk solely in terms of the probability of fatalities or other loss, but ignore the *context* within which the risk occurs. Context helps us to gain perspective on the size and scope of a risk and to determine what response may be appropriate.

It is because of the difference in context that comparisons between the chance of a person on the ground being injured or killed as a result of an aircraft accident and the chance of a similar result from being struck by lightening are not valid. Hazards from technological and natural events are not perceived the same.

Responding to Risks

Ultimately, the decisions we—as individuals or as a society—make in response to hazards come down to a question of our tolerance for or acceptance of the risks which are known or believed to be involved. This is not a question which can be answered in an absolute sense, however. Society's allocation of resources must be taken into account. It is always possible to reduce risk, but the cost of doing so increases as the risk becomes smaller.

One approach risk experts have taken to this question is to divide the risk spectrum into three regions separated by two key boundary lines (Figure 9A):

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- The upper boundary line is the threshold of intolerable risk. Risks exceeding this threshold must be reduced below the line regardless of cost. From an individual perspective, these are risks which are not tolerable regardless of the amount of money offered in compensation.
- The lower boundary line is the threshold of acceptable risk. Risks below this level merge into the background risks of life and require no action. We generally do not concern ourselves with these risks as we go about our daily lives.

The three risk levels thus might be described as:

- Intolerable risks;
- Significant but tolerable risks; and
- Acceptable risks.

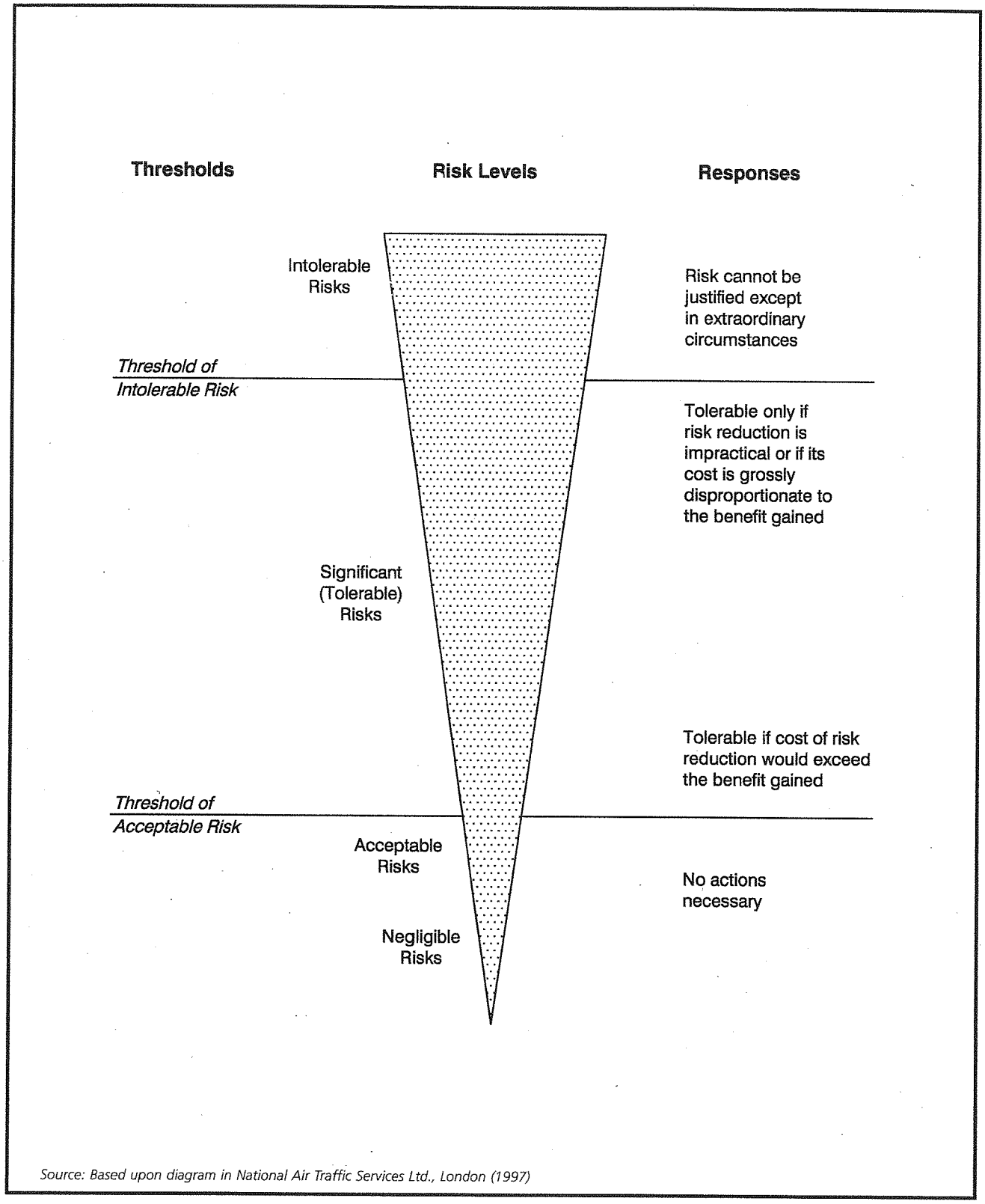
Given this categorization, the next question which might be asked is where any specific risk falls within the overall spectrum.

Judging Risk Acceptability

As indicated earlier, accident risks can be assessed as a combination of the anticipated *frequency* of occurrence at any given location and the potential magnitude of adverse *consequences*. One qualitative method of judging risk acceptability thus is to divide the full range of frequencies and consequences into discrete increments and then evaluate the implications of each possible combination of the two components. The result will be a matrix such as the one shown below. The matrix illustrates the conceptual relationship between accident frequency, potential consequences, and judgments as to the overall risk acceptability. Frequency is calculated in terms of the number of events within a specific time period and location. Consequences are typically defined in terms of injuries, particularly fatalities and serious (life-threatening) injuries. Property damage can also be included, however.

Conceptual Relationship of Risk Components

		Potential Consequences				
		Negligible	*Minor*	*Major*	*Severe*	*Disastrous*
Anticipated Frequency of Occurrence	*Frequent*					
	Occasional					
	Uncommon					
	Rare					
	Extraordinary					
Legend		Acceptable Risk		Significant Risk		Intolerable Risk



Source: Based upon diagram in National Air Traffic Services Ltd., London (1997)

FIGURE 9A

Risk Acceptability Framework

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This matrix suggests a variety of possible risk responses. For example:

- Risks which have negligible consequences do not warrant specific action regardless of how frequently the events occur. Even minor consequences do not make the risk significant unless the frequency is such as to be almost predictable.
- Activities with potentially major adverse consequences generally necessitate investigation into possible risk reduction measures unless the events rarely occur.
- A combination of relatively frequent occurrence and potentially high consequences means that action to reduce the risks to a tolerable level must be taken.
- While potentially disastrous consequences are always significant and the risk reduction measures need to be evaluated, action still may not be warranted when the events are rare or extraordinary.

Several additional points regarding this matrix are worth noting. First is that it pertains only to risks for which exposure is *involuntary*. People generally accept higher risks when they engage in an activity voluntarily and have a high degree of self control over its outcome. Greater risks also are tolerated when more *benefit* is to be gained from the activity. Thus, the public tends to accept higher risks from voluntary activities (such as driving a car) than from equally beneficial involuntary risks (food preservatives, for example). Another factor in judgment of risk acceptability is public perception. As a result, for certain risks, adjustments to the matrix may be necessary to reflect the influences noted earlier as having an effect on risk perception.

One further point is that both individual and collective risks are relevant to the assessment of acceptability. For some activities or circumstances, individual risk may be low either because accidents are rare or because the likelihood of severe consequences (death or serious injury) is minimal even if more minor mishaps are comparatively common. Nevertheless, even when measurable individual risk is low, governmental regulations to prevent some harm may be warranted simply because a large number of people are exposed.

Lastly, no attempt to quantify either the frequency or consequences components of the matrix has been made here. Such a step may be possible although the ranges would vary depending upon the type of risk involved. Again, the only intent of the matrix is to illustrate the conceptual relationships among risk components and risk acceptability.

Of interest, though, is that—despite the variability in how frequency and consequences would need to be quantified depending upon the hazard involved—the combination of the two components have a quantifiably consistent relationship to acceptability regardless of the type of risk. That is, the measured level of risk which defines the boundaries between intolerable, significant, and acceptable risks has been found to remain relatively constant across a wide range of hazards. To be specific:

- The upper limit of tolerability for involuntary risks has been concluded to be on the order of one death per 10,000 people, or 10^{-4} chance of death to an individual, per year. Risks exceeding this level essentially mandate government intervention.
- Society also seems to have achieved a general consensus that governmental action to protect public health and safety is usually warranted if a hazard results in an annual death rate of more than 1:100,000 (10^{-5}).
- Risks as low as 1:1,000,000 (10^{-6}) per year are also commonly of sufficient concern to justify further investigation into possible actions.
- Lower levels of risk generally do not merit an explicit response unless the risk presents broader societal implications or is widely perceived in a manner which heightens its significance.

To emphasize the point, these numbers refer to risks to which people are exposed on an involuntary basis. As indicated above, people will accept a much greater risk when the exposure is on a voluntary basis. Indeed, risk researchers have concluded that acceptance of voluntary risks is roughly 1,000 times greater than for equally beneficial involuntary risks (Fischhoff–1979).

Weighing Responses to Risks

Risks which fall into the middle (significant) range—ones which are tolerable, but not particularly acceptable—represent the greatest challenge for determining appropriate responses. Intolerable risks must be dealt with in all cases and acceptable risks require no action. The mid-level risks, while significant, may or may not warrant a response depending upon the circumstances. In general, the objective in dealing with these risks is to make them as low as reasonably practical.

The 1952 *Report of the President's Airport Commission* comments on this topic that: "...'calculated risk' is an American concept which gives mobility to the whole social structure. The phrase simply means a willingness to embark deliberately on a course of action which offers prospective rewards outweighing its estimated dangers."

Various approaches have been devised as means of evaluating actions to be taken in response to the mid-range risks. Perhaps most common are cost-benefit analyses. The difficulty with cost-benefit analyses, though, is that they necessitate having data which is both meaningful and can be quantified. This often requires judgments—determining the value of human life, for example.

A further consideration is that a safety measure that seems appropriate on a cost-benefit basis may not be reasonable in a cost-effectiveness sense. That is, even if the benefits outweigh the costs, other measures may be available which could achieve greater benefits for the same cost or the same benefits for less cost. The range of possible safety measures thus generally also needs to be evaluated on a cost-effectiveness scale. The objective of cost-effectiveness analyses is to help set priorities among different risk reduction measures so as to achieve maximum safety for the amount spent. Cost-effectiveness analyses also can help to sort out the interactions among hazards. A risk reduction measure which may not manifest the highest benefit-cost ratio with respect to one particular hazard, may nevertheless be the most overall cost-effective measure because it can reduce multiple risks.

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Another factor to be considered in cost-benefit or cost-effectiveness analyses of risk reduction measures is who bears the costs and who attains the benefits. For most risks which affect a large number of people, costs and benefits are seldom distributed equally. Governments, particularly the federal government, are usually better able to bear the costs of risk reduction measures than are private individuals or businesses, but even governments must balance the investment against the benefits. Economic feasibility has further implications where the costs are to be borne privately. When government-imposed measures are not affordable, the rules may be circumvented and enforcement can then become a problem.

Determining appropriate responses to risks associated with events which are extraordinarily rare but potentially catastrophic presents a particularly difficult test. An example of this type of hazard is a volcanic eruption. One study of this risk pondered whether anything at all should be done to protect against such an event given its extreme rarity (William Spangle and Associates–1987). On the other hand, the report notes that "the potential for a major catastrophe which could be averted begs for some kind of public response." As for where to strike the balance between acceptable risk and affordable protection, the report concludes:

> "Do what you can, politically and fiscally, to reduce the exposure and provide for effective emergency response and that becomes, by definition, acceptable risk. An official who proposes to go farther than his constituents want will find out quickly what the limits are."

Lastly, it is important to recognize that, whether accurate or not, public perceptions about risks play an influential role in determining the priorities of legislative and regulatory bodies. These entities, in turn, must exercise their own judgments about both the quantified risk data and the public perceptions of the risks. The amounts spent to reduce various types of risk can thus vary greatly and with little apparent rationality when viewed in light of the measured risks. For example, U.S. society has spent some 75 times as much to prevent each death due to environmental toxin exposure as it has to prevent each death from transportation accidents (Tengs–1994).

One risk expert sums up this tendency toward inconsistency by noting that good analysis may be insightful, but need not be conclusive. "Uncertainty about facts and values in a disorderly social world means the various decision making approaches must be viewed as tools rather than ends in themselves." Thus, perhaps "the best we can hope for is some intelligent muddling through" (Fischhoff–1979).

Putting Airport Land Use Risks into Perspective

From a risk reduction perspective, a fundamental objective of airport land use compatibility planning is to minimize the consequences of aircraft accidents when they happen.

Assessing and responding to the risks which aircraft accidents pose for land uses around airports is a difficult process. Compared to aircraft noise, there is little data from which to work—risks cannot simply be measured with a "risk level" meter. Even if better data were available, the problem would remain as to how to determine appropriate responses. Again, there is rela-

tively little with which to compare. A variety of studies address the topic of accident-related risks. Most of these studies focus on evaluating actions which can be taken to reduce the frequency with which the accidents occur. With land use compatibility planning around airports, however, reducing the frequency of accidents is not the objective—except for airspace obstructions, land uses have little effect on whether aircraft accidents occur. Rather, the purpose is to minimize the consequences of accidents when they happen.

Measuring the Risk

Conceptually, calculation of the risks associated with potential aircraft accidents near airports is easy. The risk consists of a combination of the three earlier described components: frequency, consequences, and distribution. The difficulty, though, lies in the fact that each of these components is complex to measure particularly with regard to any single airport. Errors and inaccuracies can easily be introduced into the equation. The following are some insights into factors which affect measurement of each of these components.

- **Frequency of Occurrence**—While the historical number of aircraft accidents nationwide has varied to some extent from year to year, future trends can nevertheless be predicted with a fair degree of accuracy. Even with respect to specific classes of aviation (air carrier, general aviation, military) or types of aircraft (business jets, helicopters, etc.), the frequency of accident occurrence is fairly constant and predictable. The difficulty with prediction arises when the focus is on a single airport rather than nationwide data. Even for busy airports, the frequency of occurrence may be once per some multiple number of years. As discussed earlier, predictions become less certain as the number of events becomes less frequent. A further complication with measuring frequency of occurrence lies in defining the types of events that are of interest. Clearly, accidents are the most significant events for airport land use planning purposes, but lesser mishaps are also relevant. Even though aircraft sometimes successfully land off airport—and thus the event is not treated as an accident—the potential exists that any such occurrence could have more serious consequences.

- **Potential Consequences**—The consequences of an aircraft accident on land uses near an airport can basically be described in terms of the number of people killed or injured and the size and value of the property damaged. However, as described in Chapter 8, the consequences of any particular accident depends upon numerous variables involving the aircraft characteristics, the manner of its descent, and the nature of the terrain and land uses at the site. Because of the wide range of each of these variables, the outcome is highly uncertain. Therefore, even though the vast majority of near-airport aircraft accidents do not result in serious land use consequences, the emphasis in any analysis needs to be on the potential consequences—that is, on what could happen. Moreover, in terms of airport land use compatibility planning, the issue is what could happen if incompatible development is allowed to occur.

An important point to realize with respect to near-airport aircraft accidents is that the consequences have historically most often been minimal because of the extent of undeveloped or low-intensity uses near many airports. Allowing more intensive nearby development can only increase the frequency with which more severe consequences occur.

LETTER 45 (continued)

- **Spatial Distribution**—Although not huge by many standards, the aircraft accident data described in Chapter 8 is sufficient to enable the spatial distribution of accidents to be well defined for each category of airport (air carrier, general aviation, and military). This distribution is broadly applicable to most airports within each category. Nevertheless, to more accurately predict where future accidents are most likely to occur at a particular airport, the physical characteristics and usage patterns of the airport need to be considered. The risks will generally be most concentrated along the flight routes which aircraft use most frequently.

To summarize measurable airport land use risks in the context of the preceding discussion of risk concepts, near-airport aircraft accidents are events which occur infrequently, but have potentially high consequences. Moreover, despite the relative rarity of the events, the spatial distribution of aircraft accidents near airports can be delineated quite well as indicated by the data presented in Chapter 8 and the potential consequences can be directly related to the characteristics of land use in the areas of concern.

Risk Perceptions and Comparisons

Proponents of land use development near airports sometimes attempt to quantitatively assess the risks of an aircraft accident and then dismiss the risk on the basis of comparison with other types of risks. Caution should be exercised in the preparation and review of such analyses.

One factor to be recognized is that, while the spatial distribution of aircraft accidents is quite predictable close to the ends of runways, it is less so at greater distances. This is particularly true for general aviation airports because their aircraft flight tracks are comparatively more spread out than at major air carrier airports. Analyses thus need to be done with respect to relatively broad-scale areas. Otherwise, by defining a sufficiently small site of interest, the accident probability can be calculated as near zero (the probability of an accident occurring somewhere in the airport vicinity is much greater than the probability of an accident occurring on a particular one-acre site).

Several studies have sought to take the step of broadly quantifying the individual risk which aircraft accidents represent for people on the ground. The results from two of these studies (NATS–1997; Shutt Moen Associates–1999) are useful in putting airport land use risks into a context with other types of risks.

- The level of individual risk for a given location near an airport is dependent to a significant extent upon the number of aircraft operations and to a lesser degree upon the type of aircraft. The greater potential consequences of a large air carrier aircraft accident compared to that of a small general aviation aircraft is balanced by the fact that the larger aircraft have fewer accidents per a given number of operations.
- Not surprisingly, the data shows the highest level of risk occurs immediately beyond the runway ends. These risks are on the order of 1:10,000

(10^{-4}) per year and are typically contained within the limits of the an airport's runway protection zones (RPZs).

- The extent of risks at the 1:100,000 (10^{-5}) level is more dependent upon the volume of aircraft operations on a runway, but generally is within an area immediately surrounding the RPZs.
- The 1:1,000,000 (10^{-6}) risk level, although also dependent upon aircraft operations numbers, is much more extensive. Even for a moderately busy general aviation airport, risks of this magnitude can extend two miles from the runway. For major air carrier airports, the distance is greater, but the risk is more concentrated along the extended runway centerline than is the case at general aviation airports. The risk tends to be more dispersed for general aviation airports because aircraft follow more varied flight tracks than do larger aircraft.
- Nationwide, the annual risk of an aircraft accident causing fatal injury to an individual on the ground, but not on an airport, was found to be 1:1,700,000 (6×10^{-8}) for the 1975-85 period (Goldstein–1992).

Another consideration with regard to comparisons between airport land use and other risks is that subjective characteristics must be similar. In the context of the previously mentioned factors which influence public perceptions, the risks of off-airport aircraft accidents can be characterized as:

- Not voluntary except to the extent that people choose to live near an airport;
- Not controllable as a function of the individual's skills;
- Generally not well understood;
- Including consequences which are unpredictable;
- Not an act of nature;
- Giving no advance warning of an impending event; and
- Usually not balanced by potential personal benefits of the activity.

Because of these factors, comparisons with the chance of fatal injury as an occupant in an automobile accident or from being stuck by lightening, for example, are not directly relevant to the issue of airport land use compatibility planning.

Responding to the Risk

Regardless of the method used to assess the risks, a decision still must be made as to what the public-policy response should be. The basic question to be asked is *how much risk is acceptable?* As discussed earlier in this chapter, acceptability can be evaluated as a function of the frequency and consequences of undesirable events. The chart on page 9-14 is helpful in showing the conceptual relationship between these two components. When applying this chart to the defining of safety compatibility criteria, though, two factors should be kept in mind:

- To be of value to airport land use compatibility planning, the frequency scale needs to be considered primarily in terms of the relative concen-

LETTER 45 (continued)

tration of aircraft accidents near airport runways. If the scale is set relative to the wide range of physical risks, then aviation-related risks to land uses near airports would probably all fall in the rare category.

- For most airports, the risks to nearby land uses are dominated by the consequences side of the risk equation. Even a small airplane could cause major to severe harm if it were to strike an exposed, densely populated site. Only in essentially unoccupied locations such as range lands or wilderness areas can the potential consequences to people on the ground be considered negligible or minor.

As also indicated in the earlier discussion of risk concepts, the acceptability of a risk is not the only consideration in the establishment of public policy in response to that risk. An additional question to be weighed is *how much protection can society afford to provide?* Or, to put the issue another way, *how safe is safe enough?*

To answer these questions, the benefit-cost ratio of the risk reduction measures must be taken into account. When an airport is situated in a rural area, well away from development pressures, the cost—to the landowner, the community, and the airport—for a high degree of protection may be low. Important land use development can usually be redirected toward areas where the prospects of an aircraft accident are minimal. At the other end of the spectrum, the need for developable land around urban area airports typically is such that avoidance of only very risky forms of development—those in the most accident-prone locations or ones which greatly increase the potential severity—may be affordable. It is for this reason that some ALUCs allow infill development to occur in established urban areas even though the development would typically not conform to compatibility criteria.

Also an element of any cost-benefit evaluation of acceptable land uses near airports is that the outcome is different for existing development than it is for proposed new construction. While the benefits of having compatible land uses are the same whether development already exists or not, the cost of eliminating incompatible uses is usually much greater than the cost of avoiding it in the first place. Safety compatibility policies developed for use in Great Britain acknowledge this distinction (NATS–1997). Specifically, the British policy is:

- To eliminate existing incompatible development, if any, within areas where the individual risk exceeds 1:10,000 (10^{-4}).
- Except for low-intensity nonresidential uses, new development should be avoided in locations where the risk exceeds 1:100,000 (10^{-5}). However, existing development—other than highly risk-sensitive uses such as schools, hospitals, and places of assembly—can remain.
- In locations where the risk level is less than 1:100,000 (10^{-5}), the only necessary restrictions on new development are to avoid schools, hospitals, and places of assembly.

THE GEOGRAPHY OF RISK: IDENTIFYING ACCIDENT LOCATION PATTERNS

A primary element in establishment of safety compatibility policies is knowing where aircraft accidents pose risks to land uses near airports. Of course, the fact that accidents have historically occurred in certain locations is no guarantee that they will happen in precisely those places in the future, especially at any one airport. Nevertheless, it is reasonable to predict that the broad areas within which significant numbers of accidents have taken place in the past will be where most accidents will also occur in the future.

A glance at the aircraft accident distribution patterns presented in Chapter 8 gives a good indication of where accidents are most likely to occur in relationship to a runway. In the form presented, however, the accident patterns are not easily usable for defining appropriate land use safety compatibility criteria. Doing so would be equivalent to attempting to set noise compatibility policies by using noise data for a series of discrete geographic points. An essential first step thus is to aggregate the accident location data into a more functional format. This process is described below.

Accident Distribution Contours

One approach to identifying accident location patterns is to group the accident data points according to their relative degrees of geographic concentration. A particularly illustrative perspective on the distribution of accidents near runways is the three-dimensional view shown in Figure 9B. The vertical dimension to the graph represents the number of accident sites within each of the cells in the grid (the grid spacing used was 300 feet by 300 feet). The approach end of the runway is at the center of the graph and the runway extends up and to the right from there. Clearly evident is the concentration of accident sites—primarily arrivals—near the runway's approach end. The second hump lies along the runway and its extended centerline and is mostly comprised of departure accidents. (Note that this chart is derived from the accident database contained in the 1993 *Handbook*. Although smaller in size than the current database, the locational distribution of accident sites is similar to that of the present, expanded database.)

While informative in a visual sense, the three-dimensional chart is not very useful for analytical purposes. More valuable is to depict the data in the form of a set of accident distribution contours.

Figures 9C through 9J portray contours for various subsets of the general aviation aircraft accident location data from Chapter 8. (No comparable analyses of air carrier and military aircraft accidents have been conducted.) Any number of contours can be defined. In this case, the contours divide the accident data sets into five equal groups of 20% each. The contours encompass the most highly concentrated 20%, 40%, 60%, and 80% of the data points. The remaining 20% occur beyond the outermost contour, including some points beyond the limits of the diagrams. The contours are irregular in shape. No attempt has been made to create geometric shapes.

The accident distribution contours depict where an aircraft accident is most likely to happen when one occurs. Because these contours do not take into account either the accident frequency over time or the consequences of the accidents, they technically are not risk contours.

LETTER 45 (continued)

(Various computer programs potentially can be used to create contours from scattered, individual *x/y* data points such as those represented by the accident location data. The results may vary depending upon the type of program used and the assumptions applied to measuring the degree to which a group of points is concentrated. The contours shown here were developed using geographic information system software to count the number of other points within a certain radius of each specific point, then ranking the results.)

All Runway Lengths

Figure 9B depicts the accident distribution contours for all general aviation arrival accidents in the database; Figure 9C shows the contours for departure accidents. In both instances, all runway lengths are represented. Several geometric patterns are evident from a look at the two graphs:

➤ **Arrival Accident Patterns**

(The zero/zero point on the axes is the landing end of the runway.)

- Arrival accident sites tend to be located close to the extended runway centerline.
- Some 40% fall within a narrow strip, approximately 500 feet wide and extending some 2,000 feet from the runway end.
- Over 80% of the arrival accident sites are concentrated within just 2,000 feet laterally from the extended runway centerline, but extending outward to approximately 11,000 feet (about 2.0 miles) of the runway end.

➤ **Departure Accident Patterns**

(The zero/zero point on the axes is the takeoff end of the runway.)

- Departure accident sites also tend to be clustered near the runway end, but are not as concentrated close to the runway centerline as are the arrival accident sites.
- The most tightly bunched 40% of the points lie within an area 1,500 feet wide, extending approximately 2,000 feet beyond the runway end, but also adjacent to the edges of the runway.
- The 80% contour extends some 6,000 feet beyond the runway end plus along the sides of the runway and spreads laterally approximately 2,000 feet from the runway centerline.
- Two factors account for the substantial number of departure accident sites lateral to the runway. (1) As defined for the purposes of the database, departing aircraft which crash while attempting to return to the runway are counted as departure accidents unless the aircraft became established in the traffic pattern or on final approach. (2) On long runways, aircraft may begin to turn before reaching the far end of the runway.

Another variable for which an accident location pattern diagram is included in Appendix F is for single-sided traffic patterns. Intuitively, the distribution of accidents at airports with a pattern on only one side can be expected to differ from that at airports with dual traffic patterns. However, as discussed in Chapter 8, the information in the database is insufficient to adequately assess the differences.

Variations by Runway Length

From the data and discussions in Chapter 8, it is evident that the patterns of general aviation aircraft accident locations near runways differ substantially depending upon characteristics of the runway and aircraft involved in

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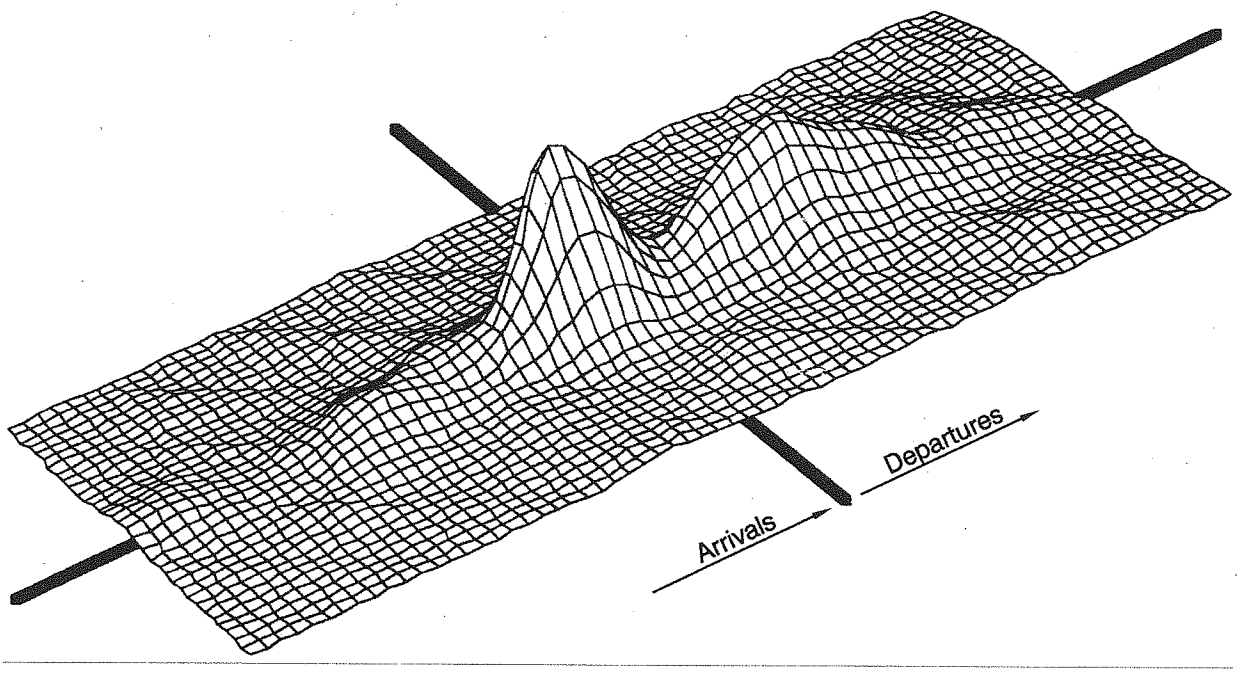

Source: University of California, Berkeley, Institute of Transportation Studies (1993)

FIGURE 9B

Three-Dimensional Plot of Accident Distribution Pattern

General Aviation Aircraft Accident Database

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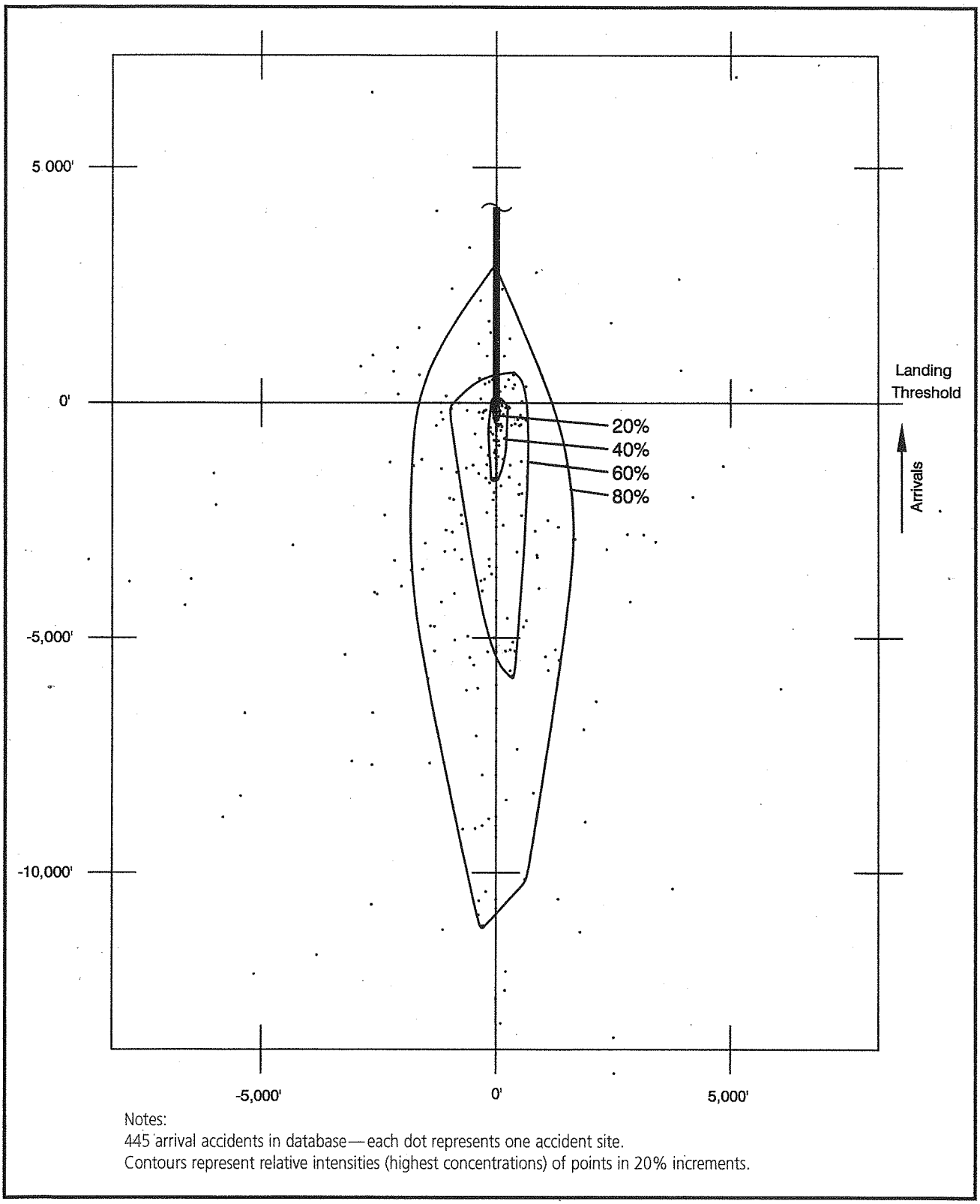
LETTER 45 (continued)

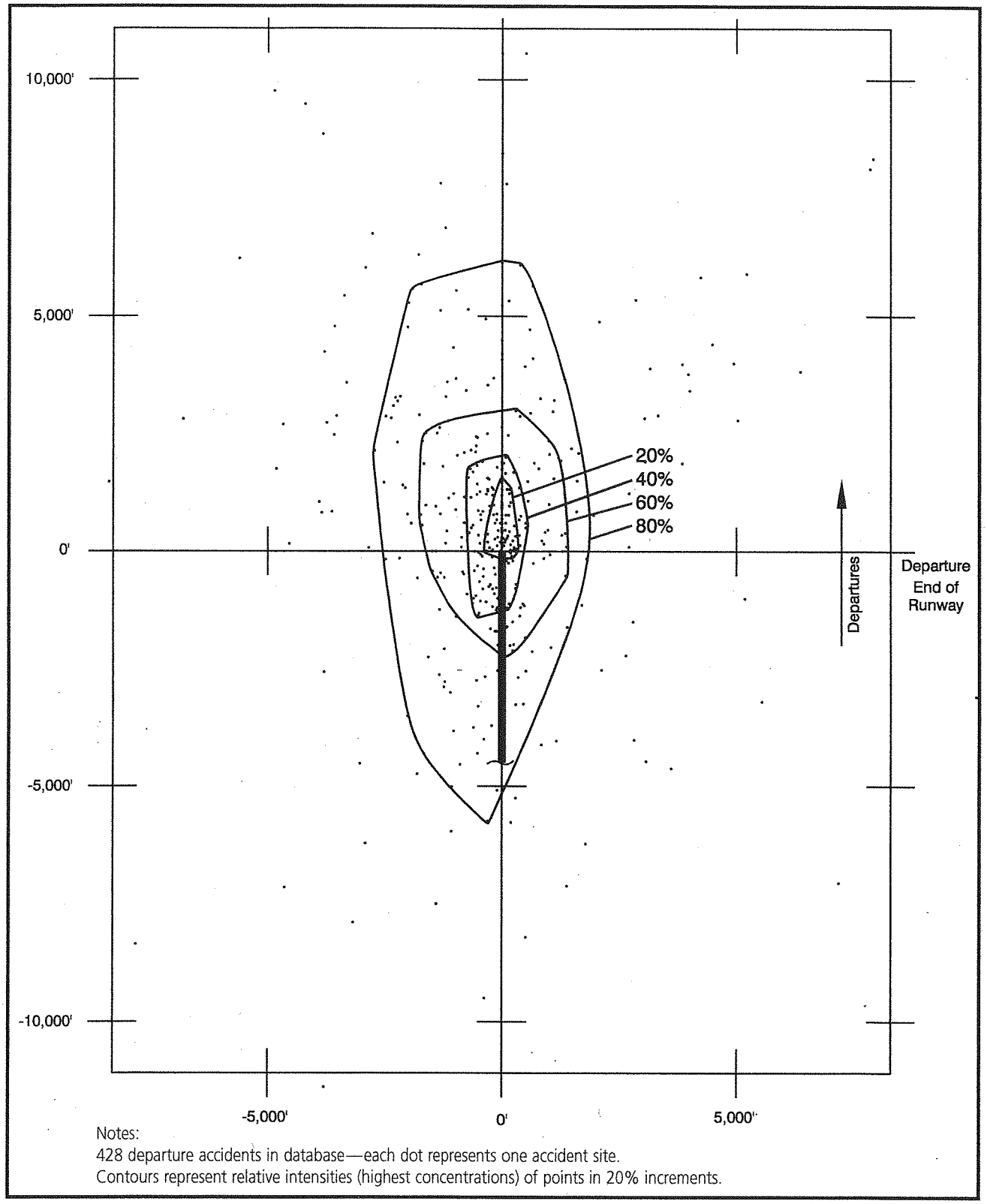


Notes:
445 arrival accidents in database—each dot represents one accident site.
Contours represent relative intensities (highest concentrations) of points in 20% increments.

FIGURE 9C

General Aviation Accident Distribution Contours

All Arrivals



Notes:
428 departure accidents in database—each dot represents one accident site.
Contours represent relative intensities (highest concentrations) of points in 20% increments.

FIGURE 9D

General Aviation Accident Distribution Contours

All Departures

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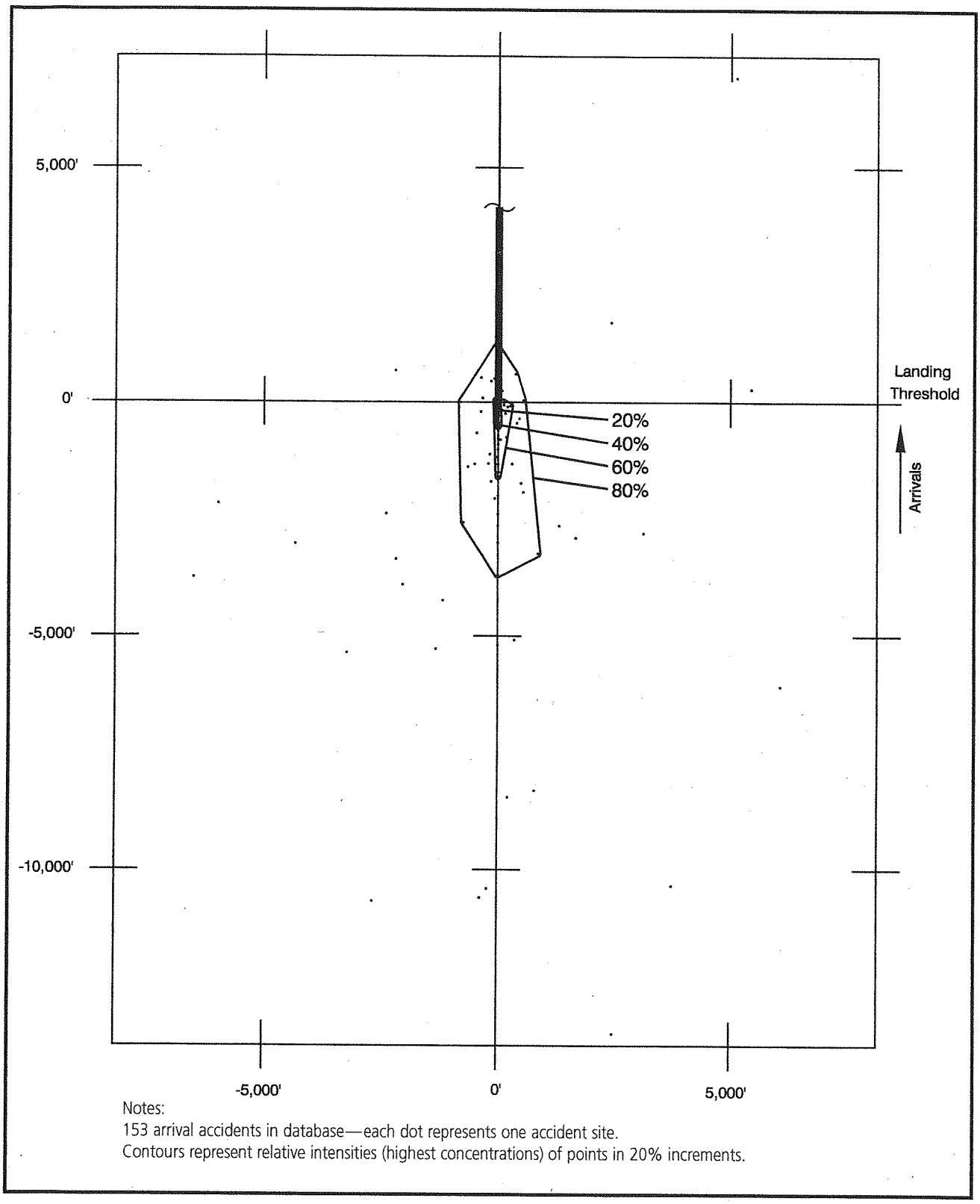
LETTER 45 (continued)



Notes:
153 arrival accidents in database—each dot represents one accident site.
Contours represent relative intensities (highest concentrations) of points in 20% increments.

FIGURE 9E

General Aviation Accident Distribution Contours

Arrival Accidents on Runways of Less than 4,000 Feet

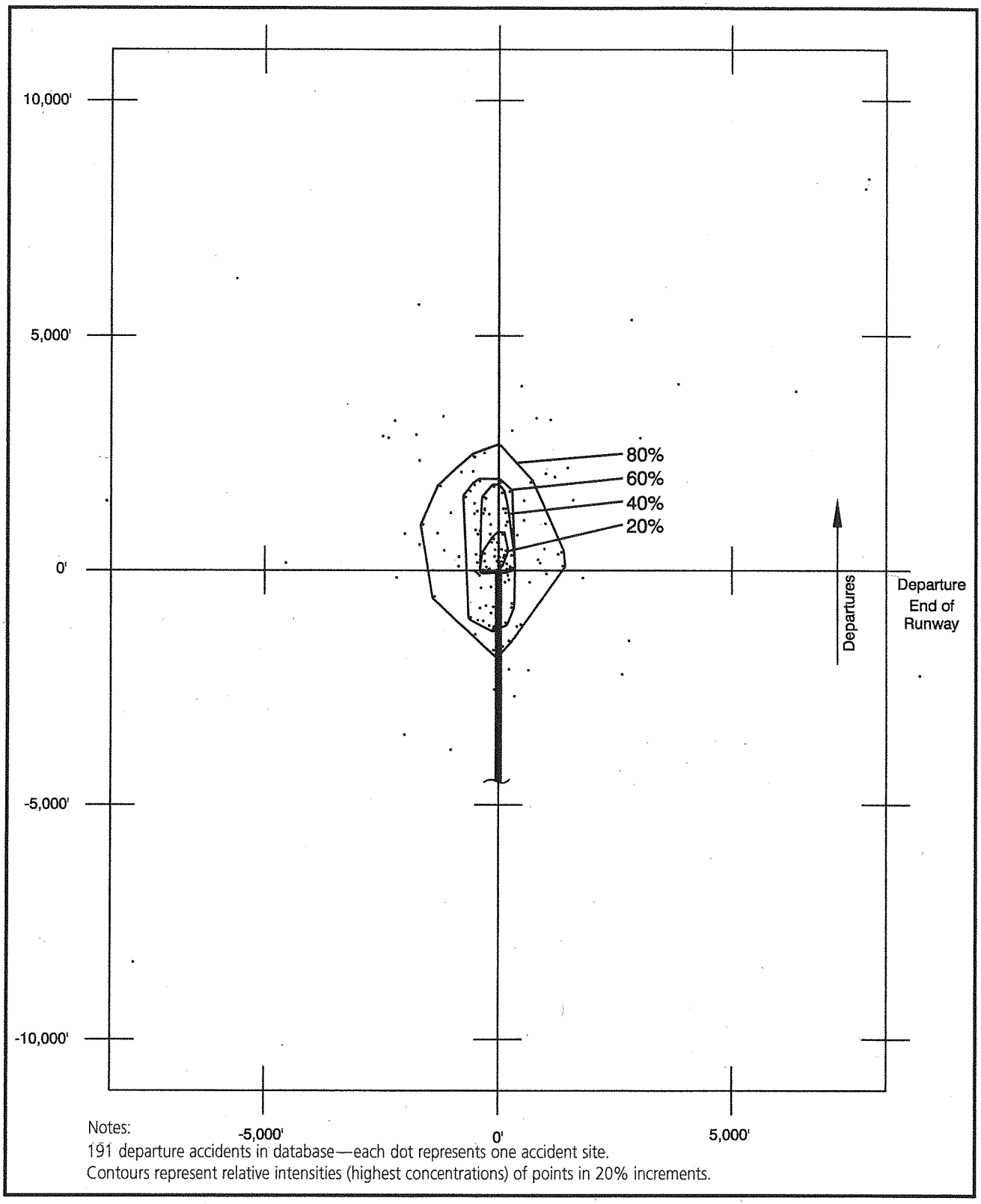
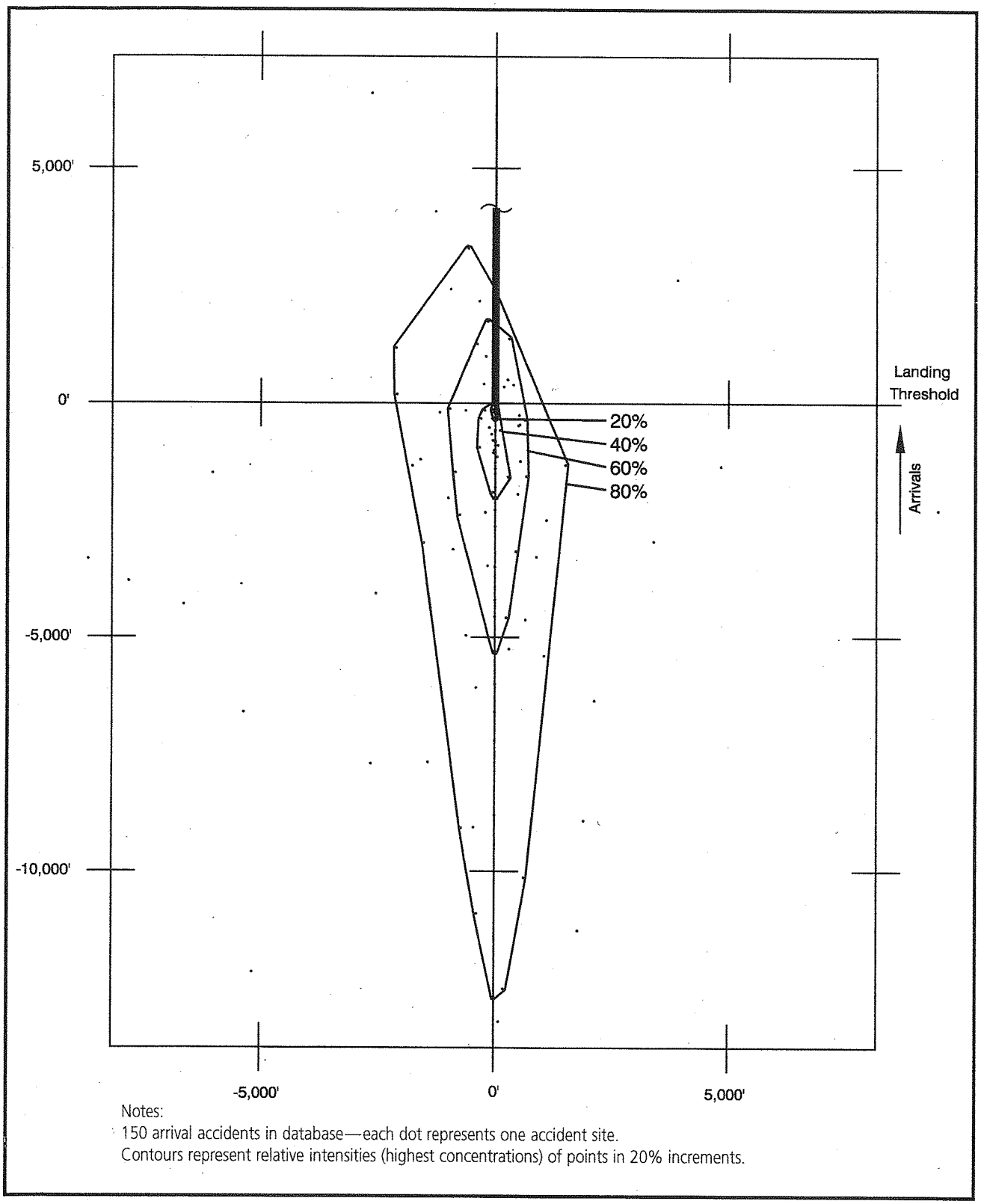


FIGURE 9F

General Aviation Accident Distribution Contours

Departure Accidents on Runways of Less than 4,000 Feet

LETTER 45 (continued)



Notes:
150 arrival accidents in database—each dot represents one accident site.
Contours represent relative intensities (highest concentrations) of points in 20% increments.

FIGURE 9G

General Aviation Accident Distribution Contours

Arrival Accidents on Runways of 4,000 to 5,999 Feet

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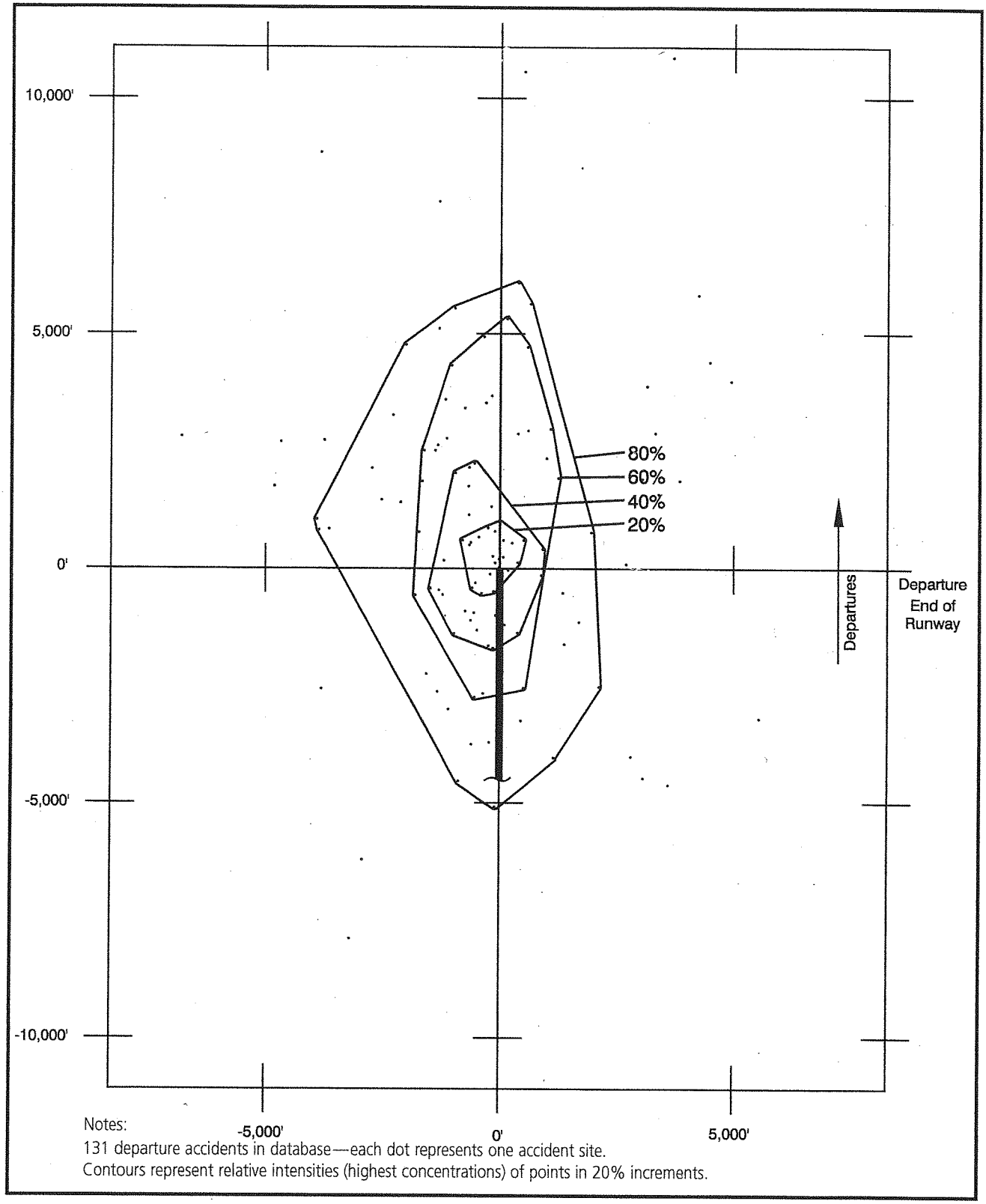
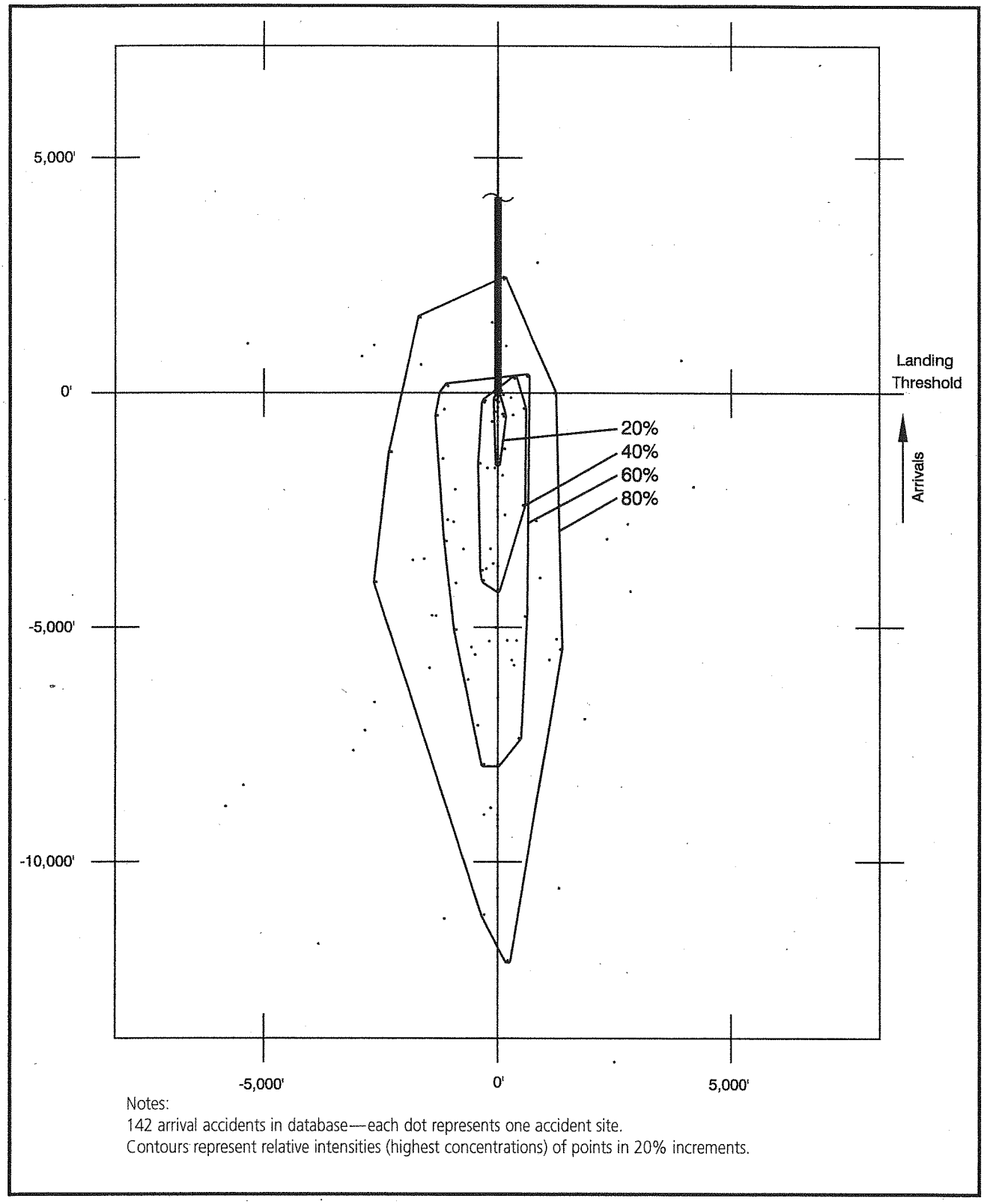


FIGURE 9H

General Aviation Accident Distribution Contours

Departure Accidents on Runways of 4,000 to 5,999 Feet

LETTER 45 (continued)



Notes:
142 arrival accidents in database—each dot represents one accident site.
Contours represent relative intensities (highest concentrations) of points in 20% increments.

FIGURE 9I

General Aviation Accident Distribution Contours

Arrival Accidents on Runways of 6,000 Feet or More

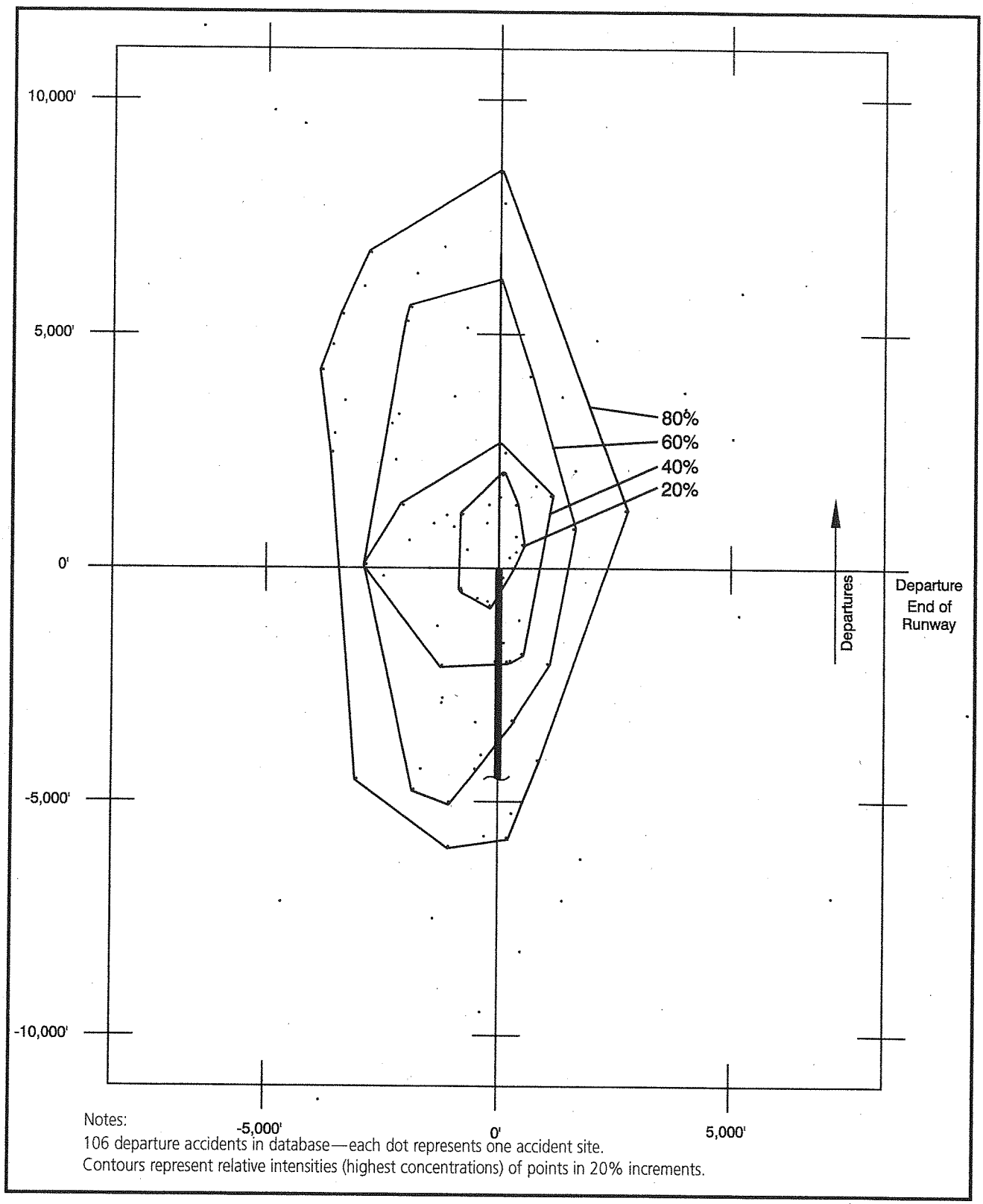


FIGURE 9J

General Aviation Accident Distribution Contours

Departure Accidents on Runways of 6,000 Feet or More

each instance. Particularly notable in this regard are the differences based on runway length. To portray these differences, the database was divided into three groups according to the length of the runway associated with the accident and accident distribution contours like those described above were developed.

- Runway lengths of less than 4,000 feet: Figures 9E (arrivals) and 9F departures).
- Runway lengths of 4,000 to 5,999 feet: Figures 9G (arrivals) and 9H (departures).
- Runway lengths of 6,000 feet or more: Figures 9I (arrivals) and 9J (departures).

Note that some of the contours, particularly the outer ones, are quite lopsided in shape. This irregularity can at least partially be attributed to the limited numbers of data points in these subsets (only 100 to 150 in most cases). Remaining unknown is whether an extensive expansion of the database would result in more uniformly shaped contours. It could well be that there is truly a geographic bias in the distribution of accident sites reflecting, for example, the left-hand traffic pattern of most runways. Given this uncertainty, no attempt is made here to produce more refined contours.

Because of the data limitations, the accident distribution contours presented here are considered to be more useful in support of regular, geometrically shaped, safety zones than as safety zones themselves. Also, the contours are purely statistical and do not reflect where aircraft fly at a specific airport.

Regular Geometric Zones

While accident distribution contours as described in the preceding section are helpful as means of portraying the geographic pattern of aircraft accident risks near an airport, they are not very satisfactory as the basis for defining safety compatibility policies. Their irregular shape is one drawback—although, in that respect, they are no different from noise contours. More important is the lack of precision which results from the modest size of the database, especially as associated with the contours for the individual runway-length groups.

Historically, regular geometric shapes have been used to define safety zones around airports. The 1952 *Report of the President's Airport Commission* first used accident location data to define the size and shape of clear zones (now called runway protection zones) intended to be created at the end of each runway. Airport land use commissions also have mostly used regular geometric shapes when adopting airport safety compatibility zones. Many times, the geometric airspace surfaces defined by Federal Aviation Regulations, Part 77, have been used at least as a starting point for establishment of safety zones.

Runway protection zones (RPZs) and FAR Part 77 surfaces, however, both have shortcomings for the purposes of land use safety compatibility objectives. Runway protection zones encompass only the most highly concen-

trated areas of accident locations near runways. As the data in Chapter 8 clearly indicates, a significant percentage of near-airport aircraft accidents occur in locations beyond the runway protection zones. Part 77 surfaces cover a much greater geographic area, but they were established for the purposes of airspace protection, not safety compatibility. Part 77 surfaces, especially the transitional surfaces, have rather minimal correlation to where aircraft accidents occur around airports.

A detailed analysis of aircraft accident location patterns provides the best basis for determining optimum safety zone shapes and sizes. An ideal set of safety zones should have four characteristics:

- The zones should have easily definable geometric shapes;
- The number of zones should be limited to a realistic number (five or six should be adequate in most cases);
- The set of zones should have a distinct progression in the degree of risk represented (that is, the distribution of accidents within each zone should be relatively uniform, but more or less concentrated than adjacent zones); and
- Each zone should be as compact as possible (the percentage of accident points per acre, its capture rate, should be maximized).

An analysis of this type was conducted for general aviation aircraft accidents as part of the 1993 edition of this *Handbook*. A summary is presented in Appendix G of the present edition. The analysis is supportive of the concept, widely used by airport land use commissions, to establish several safety compatibility zones for areas beyond the runway ends with each increasingly larger zone having fewer land use restrictions. The information presented, though, leaves open the question of how best to apply the accident data to delineation of the safety zones at individual airports. Specifically still missing from this process are two things:

- The need to use the data to develop an overall set of safety zones covering the entire geographic area within which safety is a concern. This process involves deciding the optimum shape and size of the most critical safety zone, then determining the shapes and sizes of successive zones in incremental fashion.
- The need to refine these generic results to fit the conditions present at individual airports.

Application to Individual Airports

Ideally, to minimize the risk which aircraft accidents pose to people and property on the ground near airports, no development would be allowed in the airport vicinity. For most airports, however, this is clearly not a practical approach to land use compatibility planning. The question thus becomes one of deciding which land uses are acceptable and which are unacceptable in various portions of airport environs. The resulting policies are normally portrayed in the form of a set of safety zones and compatibility criteria applicable within each zone.

DEPT. OF TRANSPORTATION GUIDANCE

While the material presented here is intended to represent Department of Transportation guidance, it is not the intent or expectation that the methodologies or examples constitute the only acceptable approaches to the issue of airport land use safety compatibility. In

LETTER 45 (continued)

development of policies for a specific airport, careful attention must be made to the characteristics of that airport's design and use. Characteristics of the airport environs are potentially factors as well. The safety zones and/or compatibility criteria appropriate at one airport may be inappropriate at a different airport. This process is no different from that necessary in calculation of noise contours and establishment of noise compatibility policies.

DEPT. OF TRANSPORTATION GUIDANCE

Development of safety compatibility zones must be done in unison with the definition of criteria applicable within those zones. For both of these components, the particular physical and operational characteristics of the individual airport must be considered. The guidance presented in this chapter serves as a starting point for this process.

Unlike the case with noise, there is no uniform, widely accepted methodology for measurement of near-airport aircraft accident risks, let alone a process for creation of safety compatibility policies. There is, however, a substantial amount of data—much of it summarized in Chapter 8—upon which to base the process. The following discussion draws heavily upon analyses done for the 1993 edition of this *Handbook*, additional studies conducted in conjunction with preparation of this update, and the experience gained by airport land use commissions in development of safety compatibility policies over the years.

A point to emphasize is that delineation of safety compatibility zones and definition of criteria applicable within those zones are closely intertwined. The process is usually an iterative one: initial zones and criteria are drafted and then each is fine tuned as necessary in recognition of the peculiarities of the specific airport and its environs. (This process is particularly applicable when compatibility zones and criteria are formulated to take into account a combination of noise and safety compatibility concerns.)

General Approach

The three components of physical risks which were outlined earlier provide the conceptual basis for setting safety compatibility policies. Each of these components needs to be considered either in the delineation of safety compatibility zones or in the definition of the criteria applicable within the zones.

- The spatial distribution component clearly can only be reflected by means of the shape and size of safety compatibility zones.
- Potential consequences are addressed through the compatibility criteria—the limitations on usage intensity and other land use characteristics which affect the potential severity of an accident.
- The frequency component can be accounted for either way—through adjustment of zone sizes or the criteria applicable within each zone.

Frequency is primarily a factor at airports (or on runways) with very low activity. For most airports, the potential consequences component dominates the overall risk equation.

The choice of safety criteria appropriate for a particular zone is largely a function of risk acceptability. Land uses which, for a given proximity to the airport, are judged to represent intolerable risks usually must be prohibited. Where the risks of a particular land use are considered significant but tolerable, establishment of restrictions may reduce the risk to an acceptable level. Uses which are intrinsically acceptable, generally require no limitations.

Finally, to reiterate the point, it is the potentially severe consequences of aircraft accidents which are the driving concern in setting safety compatibility policies. As reflected in the matrix on page 9-14, only where the likelihood of an accident occurrence is so infrequent as to be considered extraordinary does the acceptability of potentially severe consequences reach a level that usually does not warrant some type of compatibility action.

Basic Safety Compatibility Zones

A total of seven examples of different safety zone configurations are delineated in a series of diagrams shown in the figures on the following pages.

Figure 9K includes safety zone examples for five different types of general aviation runways. Figure 9L presents examples for runways at a large air carrier and military airports. The diagrams divide the airport vicinity into as many as six safety zones in addition to the immediate runway environs (defined by the FAR Part 77 primary surface):

- *Zone 1:* Runway protection zone;
- *Zone 2:* Inner approach/departure zone;
- *Zone 3:* Inner turning zone;
- *Zone 4:* Outer approach/departure zone;
- *Zone 5:* Sideline zone; and
- *Zone 6:* Traffic pattern zone.

The intent of the set of zones depicted for each scenario is that risk levels be relatively uniform across each zone, but distinct from the other zones. The shapes and sizes of the zones are largely based upon the accident data and analyses presented in this and the preceding chapter. The flight paths which aircraft typically follow when approaching and departing a runway—particularly at less than traffic pattern altitude—are also considered, however. Other specific assumptions associated with each diagram are noted.

Even this expanded set of safety zone examples addresses only a few of the many variables which affect accident distribution patterns and attendant risks to land uses near airports. Many variables are too dependent upon the configuration and usage of a particular airport to be broadly generalized. Table 9A lists key airport operational variables which warrant consideration during the development of safety compatibility zones for an individual airport. These factors may necessitate adjustments to the shapes and sizes of the zones.

Several other factors deserve consideration when defining safety zones. These factors involve characteristics of the airport environs.

- **Airport Area Topography**—Characteristics of the terrain in the vicinity of an airport may sometimes need to be considered when setting safety compatibility zone boundaries. The presence of high terrain, the edge of a precipice, or other such features may influence the location of aircraft traffic patterns. Extension of safety zones may be justified in places where high terrain results in aircraft flying at a relatively low altitude above the ground. Also, some locations might have reduced levels of risk because they are effectively shielded by nearby higher terrain.

- **Existing Urban Development**—In most instances, modification of safety compatibility zone boundaries will be based upon aeronautical factors such as those described Table 9A. At airports in urban settings, adjustments reflecting patterns of existing urban development may also be desirable. Most such adjustments are best made with respect to the compatibility criteria rather than the shapes and sizes of the compatibility zones, but both may be appropriate in some situations.

- **Locate Boundaries Based on Geographic Features**—Another manner in which safety zone shapes and sizes might be adjusted in response to

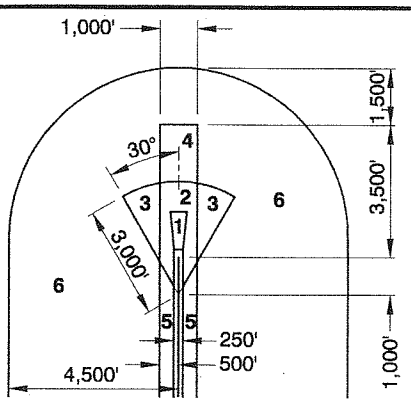
DEPT. OF TRANSPORTATION GUIDANCE

When applying these basic safety zones to a particular airport, it is important to recognize that not every runway will fit neatly into one of the categories shown. In many cases, a combination of the shapes and sizes from different diagrams may be appropriate. Also, it may be appropriate to establish different safety zone geometry at opposite ends of a runway. Other factors, such as those listed in the next section, will often need to be taken into account and the safety zone geometry adjusted accordingly. Finally, the criteria applicable within each zone, as discussed later in this chapter, must be considered when setting the boundaries of safety compatibility zones.

Also, note that, when ALUCs use the composite compatibility criteria and map format described in Chapter 3, the addition of noise as a factor is likely to result in compatibility zones which differ from the safety zone examples described here.

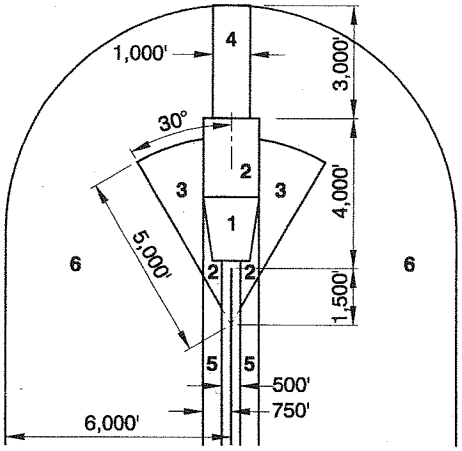
DEPT. OF TRANSPORTATION GUIDANCE

The principal reason for adjusting safety compatibility zone geometry in response to existing land uses is to minimize the extent to which development which is only marginally incompatible is classified as nonconforming. (Especially for residential areas, the consequence can be the unnecessary creation of considerable vocal opposition to the compatibility plan.) Such adjustments may be reasonable in locations where safety concerns are moderate to low. However, care must be taken in making adjustments in critical locations close to the runway ends—it is better for existing development to be deemed nonconforming if it is indeed incompatible with airport activity.



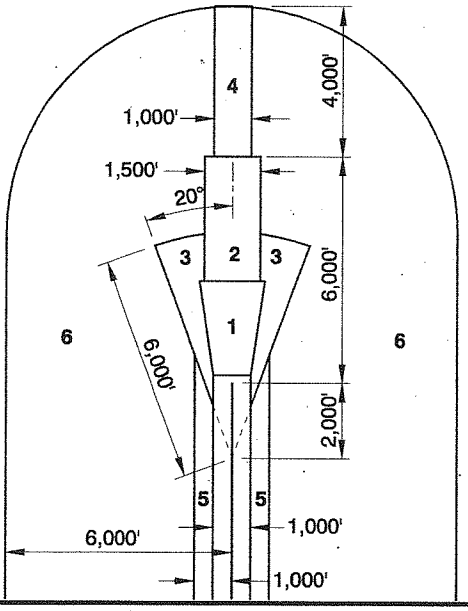
Example 1:
Short General Aviation Runway

Assumptions:
- Length less than 4,000 feet
- Approach visibility minimums ≥ 1 mile or visual approach only
- Zone 1 = 250' x 450' x 1,000'



Example 2:
Medium General Aviation Runway

Assumptions:
- Length 4,000 to 5,999 feet
- Approach visibility minimums ≥ 3/4 mile and < 1 mile
- Zone 1 = 1,000' x 1,510' x 1,700'



Example 3:
Long General Aviation Runway

Assumptions:
- Length 6,000 feet or more
- Approach visibility minimums < 3/4 mile
- Zone 1 = 1,000' x 1,750' x 2,500'

FIGURE 9K

Safety Compatibility Zone Examples

General Aviation Runways

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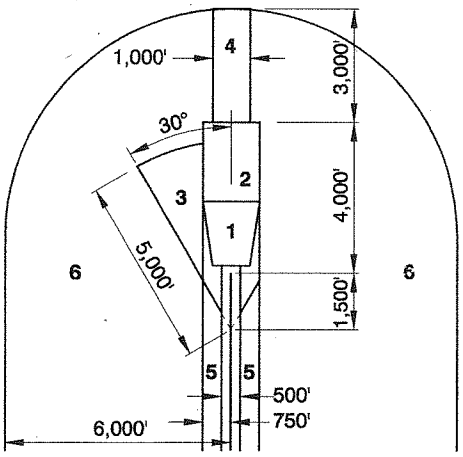
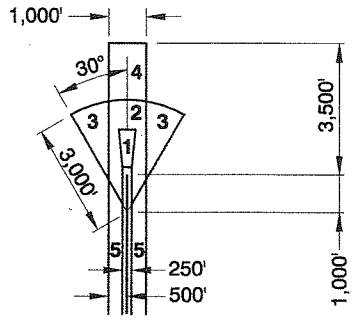


Example 4:
General Aviation Runway with Single-Sided Traffic Pattern

Assumptions:
- No traffic pattern on right
- Length 4,000 to 5,999 feet
- Approach visibility minimums ≥ 3/4 mile and < 1 mile
- Zone 1 = 1,000' x 1,510' x 1,700'



Example 5:
Low-Activity General Aviation Runway

Assumptions:
- Less than 2,000 takeoffs and landings per year at individual runway end.
- Length less than 4,000 feet
- Approach visibility minimums ≥ 1 mile or visual approach only
- Zone 1 = 250' x 450' x 1,000'

Legend

1. Runway Protection Zone
2. Inner Approach/Departure Zone
3. Inner Turning Zone
4. Outer Approach/Departure Zone
5. Sideline Zone
6. Traffic Pattern Zone

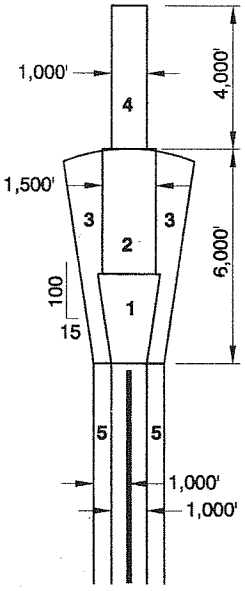
Notes:

- RPZ (Zone 1) size in each example is as indicated by FAA criteria for the approach type assumed. Adjustment may be necessary if the approach type differs.
- See Table 9A for factors to consider regarding other possible adjustments to these zones to reflect characteristics of a specific airport runway.
- See Tables 9B and 9C for guidance on compatibility criteria applicable with each zone.

These examples are intended to provide general guidance for establishment of airport safety compatibility zones. They do not represent California Department of Transportation standards or policy.

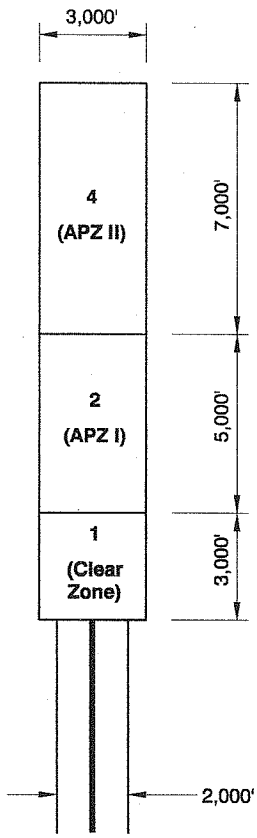
FIGURE 9K *CONTINUED*

LETTER 45 (continued)



Large Air Carrier Runway

Assumptions:
- Minimal light-aircraft general aviation activity
- Predominately straight-in and straight-out flight routes
- Approach visibility minimums < 3/4 mile
- Zone 1 = 1,000' x 1,750' x 2,500'



Military Runway for Large Aircraft

Assumptions:
- Military airport
- Predominately straight-in and straight-out flight routes (must modify for turning routes and traffic pattern activity)

Legend

1. Runway Protection Zone (Clear Zone)
2. Inner Approach/Departure Zone (Accident Potential Zone I)
3. Inner Turning Zone
4. Outer Approach/Departure Zone (Accident Potential Zone II)
5. Sideline Zone

Notes:

- RPZ (Zone 1) size in the large air carrier runway example is as indicated by FAA criteria for the approach type assumed. Adjustment may be necessary if the approach type differs.
- See Table 9A for factors to consider regarding other possible adjustments to these zones to reflect characteristics of a specific airport runway.
- See Tables 9B and 9C for guidance on compatibility criteria applicable with each zone.

These examples are intended to provide general guidance for establishment of airport safety compatibility zones. They do not represent California Department of Transportation standards or policy.

FIGURE 9L

Safety Compatibility Zone Examples

Large Air Carrier and Military Runways

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The generic sets of compatibility zones shown in Figures 9K and 9L may need to be adjusted to take into account various operational characteristics of a particular airport runway. Among these characteristics are the following:

- **Instrument Approach Procedures**—At least within the final two to three miles which are of greatest interest to land use compatibility planning, the flight paths associated with precision instrument approach procedures are highly standardized from airport to airport. Other types of instrument approach procedures are less uniform, however. If such procedures are available at an airport, ALUCs should identify the flight paths associated with them and the extent to which they are used. Procedures which are regularly used should be taken into account in the configuration of safety zones (and in setting height limits for airspace protection). Types of procedures which may warrant special consideration include:
  - *Circling Approaches:* Most instrument approach procedures allow aircraft to circle to land at a different runway rather than continue straight-in to a landing on the runway for which the approach is primarily designed. When airports which have straight-in approaches to multiple runway ends, circling approaches are seldom necessary. However, when only one straight-in approach procedure is available and the wind direction precludes landings on that runway, aircraft may be forced to circle to land on at another runway end. Pilots must maintain sight of the runway while circling, thus turns are typically tight. Also, the minimum circling altitude is often less than the traffic pattern altitude. At airports where circling approaches are common, giving consideration to the associated risks when setting safety zone boundaries is appropriate.
  - *Nonprecision Approaches at Low Altitudes:* Nonprecision instrument approach procedures often involve aircraft descending to a lower altitude farther from the runway than occurs on either precision instrument or visual approaches. An altitude of 300 to 400 feet as much as two to three miles from the runway is not unusual. The safety (and noise) implications of such procedures need to be addressed at airports where they are in common use. (A need for corresponding restrictions on the heights of objects also exists along these routes.)
  - *Nonprecision Approaches not Aligned with the Runway:* Some types of nonprecision approaches bring aircraft toward the runway along a path that is not aligned with the runway. In many cases, these procedures merely enable the aircraft to reach the airport vicinity at which point they then proceed to land under visual conditions. In other instances, however, transition to the runway alignment occurs close to the runway and at a low altitude.
- **Other Special Flight Procedures or Limitations**—Single-sided traffic patterns represent only one type of special flight procedures or limitations which may be established at some airports. Factors such as nearby airports, high terrain, or noise-sensitive land uses may affect the size of the airport traffic pattern or otherwise dictate where and at what altitude aircraft fly when using the airport. These procedures may need to be taken into account in the design of safety compatibility zones.
- **Runway Use by Special-Purpose Aircraft**—In addition to special flight procedures which most or all aircraft may use at some airports, certain special-purpose types of aircraft often have their own particular flight procedures. Most common among these aircraft are fire attack, agricultural, and military airplanes. Helicopters also typically have their own special flight routes. The existence of these procedures needs to be investigated and, where warranted by the levels of usage, may need to be considered in the shaping of safety zones.
- **Small Aircraft Using Long Runways**—When small airplanes take off from long runways (especially runways in excess of 8,000 feet length), it is common practice for them to turn toward their intended direction of flight before passing over the far end of the runway. When mishaps occur, the resulting pattern of accident sites will likely be more dispersed around the runway end than is the case with shorter runways. With short runways, accident sites tend to be more tightly clustered around the runway end and along the extended runway centerline because aircraft are still following the runway heading as they begin their climb.
- **Runways Used Predominantly in One Direction**—Most runways are used sometimes in one direction and, at other times, in the opposite direction depending upon the direction of the wind. Even when used predominantly in one direction, a busy runway may experience a significant number of operations in the opposite direction (for example, a runway with 100,000 total annual operations, 90% of which are in one direction, will still have 10,000 annual operations in the opposite direction). Thus, in most situations, the generic safety zones—which take into account both takeoffs and landings at a runway end—are applicable. However, when the number of either takeoffs or landings at a runway end is less than approximately 2,000 per year, then adjustment of the safety compatibility zones to reflect those circumstances may be warranted.
- **Displaced Landing Thresholds**—A displaced threshold moves the landing location of aircraft down the runway from where they would land in the absence of the displacement. The distribution pattern of landing accident sites as shown in Appendix F would thus shift a corresponding amount. The pattern of accident locations for aircraft taking off toward that end of the runway does not necessarily shift, however. Whether the runway length behind the displaced threshold is usable for takeoffs toward that end of the runway is a key factor in this regard. The appropriateness of making adjustments to safety zone locations in response to the existence of a displaced threshold needs to be examined on a case-by-case basis. The numbers of landings at and takeoffs toward the runway end in question should be considered in making this determination.

TABLE 9A

Safety Zone Adjustment Factors

Airport Operational Variables

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LETTER 45 (continued)

existing urban development is to have the zone boundaries follow established geographic features. As discussed in Chapter 3, such features might include, roads, water courses, parcel lines, etc. Such adjustments should be made in a manner which provides a level of safety equivalent to that afforded by the applicable generic safety compatibility zones. Adjustments of this type can greatly simplify implementation of a compatibility plan without compromising the rationale used to establish the zone boundaries.

Basic Safety Compatibility Criteria

By emphasizing adjustments to the shape and size of safety zones as necessary to reflect the geographic pattern of aircraft accident risks, the compatibility criteria applicable to each zone can be held relatively constant among most airports. Table 9B provides a qualitative description of the land use characteristics considered acceptable or unacceptable within each of the six basic safety zones. Also indicated are the general risk factors prevalent in each zone.

The types of variables not fully accounted for in the safety zones, though, are ones involving existing land use characteristics of the airport environs. As previously discussed, more intensive development is often considered acceptable within urban areas because the costs of avoiding that development are greater than in rural areas. Table 9C presents a set of specific safety compatibility criteria guidelines formulated with this factor in mind. A distinction is made between current settings which are heavily urbanized versus ones in suburban or rural areas where much of the land remains undeveloped. Note that this urban versus rural distinction is not limited just to differences between one airport and another, it may also be true between various portions of individual airport's environs. Consequently, it may be reasonable for compatibility criteria to allow comparatively intensive development and/or infill development in one part of an airport vicinity, but not in another.

Guidelines for General Aviation Runways

Figure 9K depicts basic guidelines for general aviation runway safety compatibility zones. Five variations are shown:

- General aviation runway with length of less than 4,000 feet and visibility minimums of 1 mile or visual approaches only;
- General aviation runway with length of 4,000 to 5,999 feet and instrument approach visibility minimums below 1 mile, but not lower than ¾ mile;
- General aviation runway with length of 6,000 feet or more and a instrument approach visibility minimums below ¾ mile;
- General aviation runway with traffic pattern on one side only; and
- General aviation runway with very-low activity levels (less than 2,000 takeoffs and landings projected per year at the runway end under consideration).

Data from the expanded general aviation aircraft accident database has been taken into account in creation of these suggested zones as has the experience of ALUCs in use of the zones shown in the 1993 edition of this *Handbook*.

Runway Length and Approach Visibility Variables

The primary variable among the general aviation runway safety zone examples shown in Figure 9K is the runway length. Additionally, though, different assumptions are made as to the approach visibility minimums for each runway length grouping. For the purposes of illustration, longer runways are assumed to have better instrument approaches. Adjustments to the safety zones may be appropriate for runway ends having approaches which do not match the assumptions noted.

The three examples which focus on runway length as the primary variable are similar, but not identical, to the comparable examples included in the 1993 *Handbook*. A discussion of the differences is included in Appendix G.

Table 9D provides supporting data for three of the general aviation airport safety compatibility zone examples, one in each runway length group. For each of the suggested zones, the table indicates the acreage of the zone and the percentage of arrival, departure, and total accidents which are encompassed within that zone. The capture rates—percentage of accidents divided by acreage—is listed as well.

Single-Sided Traffic Pattern

The single-sided traffic pattern example eliminates the turning zone on the nonpattern side of the runway. This configuration is based upon the assumption that aircraft are less likely to crash in locations over which they normally do not fly. (Insufficient information is available in the general aviation accident database to better assess this operational configuration.) It is recognized, however, that the potential exists for aircraft to deviate to the nonpattern side on either takeoff or landing, especially under emergency conditions. Some amount of buffer is thus important to maintain. Note that the example shown is for a runway in the 4,000-to-5,999-foot length category. Similar safety zone configurations can be devised for other runway lengths.

Low-Activity Runways

The other operational variable which calls for adjustment of the compatibility zones is for runways where activity levels are currently very low and are forecast to remain that way indefinitely. Clearly, the likelihood of an aircraft accident happening is reduced when operational volumes remain low. As suggested previously, this reduced risk could be reflected in compatibility policies either by adjusting the safety zones or by modifying the compatibility criteria. The low-activity runway diagram in Figure 9K works on the basis that adjustment of zone sizes is preferable. Safety compatibility criteria are a reflection of the potential consequences of an accident and that potential does not change even if the activity is low. Furthermore, safety zone shapes and sizes can more readily be adjusted for a single low-activity runway at an otherwise busy airport. Modifying the compatibility criteria would require having different criteria for different runways.

LETTER 45 (continued)

Zone 1: Runway Protection Zone

Risk Factors / Runway Proximity

- Very high risk
- Runway protection zone as defined by FAA criteria
- For military airports, clear zones as defined by AICUZ criteria

Basic Compatibility Qualities

- Airport ownership of property encouraged
- Prohibit all new structures
- Prohibit residential land uses
- Avoid nonresidential uses except if very low intensity in character and confined to the sides and outer end of the area

Zone 2: Inner Approach/Departure Zone

Risk Factors / Runway Proximity

- Substantial risk: RPZs together with inner safety zones encompass 30% to 50% of near-airport aircraft accident sites (air carrier and general aviation)
- Zone extends beyond and, if RPZ is narrow, along sides of RPZ
- Encompasses areas overflown at low altitudes — typically only 200 to 400 feet above runway elevation

Basic Compatibility Qualities

- Prohibit residential uses except on large, agricultural parcels
- Limit nonresidential uses to activities which attract few people (uses such as shopping centers, most eating establishments, theaters, meeting halls, multi-story office buildings, and labor-intensive manufacturing plants unacceptable)
- Prohibit children's schools, day care centers, hospitals, nursing homes
- Prohibit hazardous uses (e.g. aboveground bulk fuel storage)

Zone 3: Inner Turning Zone

Risk Factors / Runway Proximity

- Zone primarily applicable to general aviation airports
- Encompasses locations where aircraft are typically turning from the base to final approach legs of the standard traffic pattern and are descending from traffic pattern altitude
- Zone also includes the area where departing aircraft normally complete the transition from takeoff power and flap settings to a climb mode and have begun to turn to their en route heading

Basic Compatibility Qualities

- Limit residential uses to very low densities (if not deemed unacceptable because of noise)
- Avoid nonresidential uses having moderate or higher usage intensities (e.g., major shopping centers, fast food restaurants, theaters, meeting halls, buildings with more than three aboveground habitable floors are generally unacceptable)
- Prohibit children's schools, large day care centers, hospitals, nursing homes
- Avoid hazardous uses (e.g. aboveground bulk fuel storage)

TABLE 9B

Basic Safety Compatibility Qualities

Zone 4: Outer Approach/Departure Zone

Risk Factors / Runway Proximity

- Situated along extended runway centerline beyond Zone 3
- Approaching aircraft usually at less than traffic pattern altitude
- Particularly applicable for busy general aviation runways (because of elongated traffic pattern), runways with straight-in instrument approach procedures, and other runways where straight-in or straight-out flight paths are common
- Zone can be reduced in size or eliminated for runways with very-low activity levels

Basic Compatibility Qualities

- In undeveloped areas, limit residential uses to very low densities (if not deemed unacceptable because of noise); if alternative uses are impractical, allow higher densities as infill in urban areas
- Limit nonresidential uses as in Zone 3
- Prohibit children's schools, large day care centers, hospitals, nursing homes

Zone 5: Sideline Zone

Risk Factors / Runway Proximity

- Encompasses close-in area lateral to runways
- Area not normally overflown; primary risk is with aircraft (especially twins) losing directional control on takeoff
- Area is on airport property at most airports

Basic Compatibility Qualities

- Avoid residential uses unless airport related (noise usually also a factor)
- Allow all common aviation-related activities provided that height-limit criteria are met
- Limit other nonresidential uses similarly to Zone 3, but with slightly higher usage intensities
- Prohibit children's schools, large day care centers, hospitals, nursing homes

Zone 6: Traffic Pattern Zone

Risk Factors / Runway Proximity

- Generally low likelihood of accident occurrence at most airports; risk concern primarily is with uses for which potential consequences are severe
- Zone includes all other portions of regular traffic patterns and pattern entry routes

Basic Compatibility Qualities

- Allow residential uses
- Allow most nonresidential uses; prohibit outdoor stadiums and similar uses with very high intensities
- Avoid children's schools, large day care centers, hospitals, nursing homes

Definitions

As used in this table, the follow meanings are intended:

- *Allow:* Use is acceptable
- *Limit:* Use is acceptable only if density/intensity restrictions are met
- *Avoid:* Use generally should not be permitted unless no feasible alternative is available
- *Prohibit:* Use should not be permitted under any circumstances
- *Children's Schools:* Through grade 12
- *Large Day Care Centers:* Commercial facilities as defined in accordance with state law; for the purposes here, family day care homes and noncommercial facilities ancillary to a place of business are generally allowed.
- *Aboveground Bulk Storage of Fuel:* Tank size greater than 6,000 gallons (this suggested criterion is based on Uniform Fire Code criteria which are more stringent for larger tank sizes)

TABLE 9B *CONTINUED*

LETTER 45 (continued)

Obvious questions posed by the idea of modifying safety zones for low-activity runways are:

- How low must the activity level continue to be for the runway to be considered low activity?
- How much can the safety zones be adjusted in response to the low activity?

In each case, the answer is a relative one. The assumption employed in the example here is that the runway end under consideration has fewer than 2,000 total takeoffs and landings projected annually (roughly 6 operations per day). Less modification is justified when the activity is higher. Beyond about 10,000 annual operations, the basic safety zone configuration should be applied.

The other factor is that locations close to the runway remain critical even when the activity is low. FAA criteria for runway protection zones, for example, do not depend upon aircraft operations volumes, only the types of approach the runway has and the type of aircraft it accommodates. Thus, depending upon where the common flight tracks are located, it is the outer safety zone and/or the turning zone which can most reasonably be modified. In defining safety zones for low-activity runways, special consideration also needs to be given to the mix of aircraft and the existence of any common but unusual flight tracks. Runways used primarily by agricultural aircraft are a prime example of such situations. Safety zones for low-activity runways which are sometimes used by large aircraft also need to be carefully evaluated.

Guidelines for Large Air Carrier Runways

There are numerous factors that distinguish the risks associated with runways predominantly used by air carrier aircraft from those of runways that have a significant number of general aviation operations.

- Nearly all aircraft are flown by professional pilots;
- Nearly all pilots are instrument rated;
- Pilots are more experienced and fly more frequently;
- Typically, there are at least two pilots in the cockpit;
- Many flights are conducted under the more restrictive requirements of FAR Part 121, 135, etc.;
- The majority of flights are conducted under instrument flight plans, even when weather does not require it;
- The vast majority of aircraft have multiple engines and can remain airborne following the loss of one engine;
- Aircraft maintenance programs are monitored by the FAA;
- Aircraft are much newer on average than small aircraft in the general aviation fleet; and
- Essentially all of these airports have electronic landing aids.

All of these factors support the very low frequency of commercial aviation accidents. At air carrier airports, noise tends to be such a dominant consideration that safety is seldom discussed. However, the consequences of an

MAXIMUM RESIDENTIAL DENSITY

Current Setting	(1) Runway Protection Zone	(2) Inner Approach/ Departure Zone	(3) Inner Turning Zone	(4) Outer Approach/ Departure Zone	(5) Sideline Zone	(6) Traffic Pattern Zone
		Safety Compatibility Zones[a]				
Average number of dwelling units per gross acre						
Rural Farmland / Open Space (Minimal Development)	0	Maintain current zoning if less than density criteria for rural / suburban setting				No limit
Rural / Suburban (Mostly to Partially Undeveloped)	0	1 d.u. per 10 – 20 ac.	1 d.u. per 2 – 5 ac.	1 d.u. per 2 – 5 ac.	1 d.u. per 1 – 2 ac.	No limit
Urban (Heavily Developed)	0	0	Allow infill at up to average of surrounding residential area[b]			No limit

[a] Clustering to preserve open land encouraged in all zones.
[b] See Chapter 3 for discussion of infill development criteria; infill is appropriate only if nonresidential uses are not feasible.

MAXIMUM NONRESIDENTIAL INTENSITY

Current Setting	(1) Runway Protection Zone	(2) Inner Approach/ Departure Zone	(3) Inner Turning Zone	(4) Outer Approach/ Departure Zone	(5) Sideline Zone	(6) Traffic Pattern Zone
		Safety Compatibility Zones				
Average number of people per gross acre[a]						
Rural Farmland / Open Space (Minimal Development)	0[b]	10 – 25	60 – 80	60 – 80	80 – 100	150
Rural / Suburban (Mostly to Partially Undeveloped)	0[b]	25 – 40	60 – 80	60 – 80	80 – 100	150
Urban (Heavily Developed)	0[b]	40 – 60	80 – 100	80 – 100	100 – 150	No limit[c]
Multipliers for above numbers[d]						
Maximum Number of People per Single Acre	x 1.0	x 2.0	x 2.0	x 3.0	x 2.0	x 3.0
Bonus for Special Risk-Reduction Bldg. Design	x 1.0	x 1.5	x 2.0	x 2.0	x 2.0	x 2.0

[a] Also see Table 9B for guidelines regarding uses which should be prohibited regardless of usage intensity
[b] Exceptions can be permitted for agricultural activities, roads, and automobile parking provided that FAA criteria are satisfied.
[c] Large stadiums and similar uses should be prohibited.
[d] Multipliers are cumulative (e.g., maximum intensity per single acre in inner safety zone is 2.0 times the average intensity for the site, but with risk-reduction building design is 2.0 x 1.5 = 3.0 times the average intensity).

TABLE 9C

Safety Compatibility Criteria Guidelines

Land Use Densities and Intensities

PAGE C&R-483

LETTER 45 (continued)

off-airport air carrier accident are potentially devastating. For land use compatibility planning, defining realistic safety criteria is complicated by the fact that many busy air carrier airports were established decades ago and are now surrounded by urban development.

The accident database relied upon in defining safety zone guidelines for general aviation airports contains data only on general aviation aircraft accidents. Equivalent data for air carrier accidents is comparatively scant. Using data from a 1990 FAA study, Figure 8D in Chapter 8 shows the location pattern for some three dozen near-airport commercial aircraft accidents. A British study also cited in Chapter 8 (Figure 8C) includes additional data, but it is not formatted in a manner showing the overall scatter pattern (data along and lateral to the extended runway centerline are separately summarized).

Both studies portray similar results. The highest concentration of accidents sites are within approximately 1,500 feet of the runway end, but significant numbers occur within an area extending about two miles beyond the runway end. Most of the sites are directly along the runway centerline and the majority of the remainder are within 1,000 feet of the centerline.

This data provides the basis for the safety zones for large air carrier runways depicted in Figure 9L. These zones assume minimal activity by light general aviation aircraft. Also assumed in the example shown is that the runway length is 8,000 feet or more and that essentially all flights are flown straight in and out along the extended runway centerline. To the extent that any of these assumptions do not strictly apply to a specific airport, then modification of the indicated zones should be considered.

As for the criteria applicable within these zones, the presence of large aircraft might argue for greater stringency. That is, the potential consequences of an airline aircraft accident are much greater than they are for small, general aviation aircraft, thus land uses should be more restricted. However, this risk factor is largely offset by the significantly lower frequency of accidents by airline aircraft. Also, the most at-risk locations can be protected by making the most restricted zones relatively large as shown in Figure 9L. Given these factors, the safety compatibility guidelines listed in Tables 9B and 9C can reasonably be applied to large air carrier runways.

Guidelines for Military Runways

Preparation of compatibility plans for military airfields is optional under the State Aeronautics Act (Public Utilities Code, Section 21675(b)).

Guidelines set forth by the U.S. Department of Defense as part of its *Air Installation Compatible Use Zone* (AICUZ) program are the appropriate starting point for ALUC safety compatibility policies for military airport runways. The federal government has prepared individual AICUZ plans for all major military airports.

The AICUZ-recommended accident potential zones (APZs) are illustrated in Figure 9L. The depicted zones assume that flight tracks are straight-in and straight-out. Where different or additional tracks are used on a regular basis, as is often the case, the APZs should be modified or expanded. Considera-

Safety Zone		*Example 1:* Runway Length Less than 4,000 Feet			*Example 2:* Runway Length 4,000 to 5,999 Feet			*Example 3:* Runway Length 6,000 Feet or More		
		% of Points	Acres	%/Acre	% of Points	Acres	%/Acre	% of Points	Acres	%/Acre
Arrival Accident Sites										
	Primary Surface	29%	–	–	2%	–	–	11%	–	–
Zone 1:	Runway Protection Zone	27%	8	3.35	26%	49	0.53	25%	79	0.32
Zone 2:	Inner Approach/Departure Zone	15%	44	0.34	9%	101	0.09	12%	114	0.11
Zone 3:	Inner Turning Zone	2%	50	0.04	5%	151	0.04	6%	131	0.05
Zone 4:	Outer Approach/Departure Zone	3%	35	0.07	5%	69	0.08	8%	92	0.09
Zone 5:	Sideline Zone	1%	–	–	3%	–	–	1%	–	–
Zone 6:	Traffic Pattern Zone	10%	–	–	11%	–	–	21%	–	–
Total:	*Zones 1-6 + Primary Surface*	*87%*	–	–	*79%*	–	–	*85%*	–	–
Departure Accident Sites										
	Primary Surface	9%	–	–	9%	–	–	16%	–	–
Zone 1:	Runway Protection Zone	17%	8	2.09	14%	49	0.28	13%	79	0.17
Zone 2:	Inner Approach/Departure Zone	28%	44	0.63	11%	101	0.11	3%	114	0.02
Zone 3:	Inner Turning Zone	5%	50	0.10	9%	151	0.06	8%	131	0.06
Zone 4:	Outer Approach/Departure Zone	2%	35	0.06	4%	69	0.06	3%	92	0.03
Zone 5:	Sideline Zone	8%	–	–	8%	–	–	5%	–	–
Zone 6:	Traffic Pattern Zone	24%	–	–	37%	–	–	39%	–	–
Total:	*Zones 1-6 + Primary Surface*	*94%*	–	–	*91%*	–	–	*86%*	–	–
All Accident Sites										
	Primary Surface	18%	–	–	15%	–	–	13%	–	–
Zone 1:	Runway Protection Zone	21%	8	2.65	21%	49	0.40	20%	79	0.26
Zone 2:	Inner Approach/Departure Zone	22%	44	0.50	10%	101	0.10	8%	114	0.07
Zone 3:	Inner Turning Zone	4%	50	0.08	7%	151	0.05	7%	131	0.05
Zone 4:	Outer Approach/Departure Zone	2%	35	0.07	5%	69	0.07	6%	92	0.07
Zone 5:	Sideline Zone	5%	–	–	5%	–	–	3%	–	–
Zone 6:	Traffic Pattern Zone	18%	–	–	23%	–	–	29%	–	–
Total:	*Zones 1-6 + Primary Surface*	*91%*	–	–	*85%*	–	–	*85%*	–	–

Notes:

- Totals may not equal the sum of the numbers above because of mathematical rounding.
- See Figure 9K for the shapes and dimensions of each zone.
- Accident site locations as indicated in expanded general aviation aircraft accident database.

TABLE 9D

Analysis of Safety Zone Examples

General Aviation Runways

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tion may also need to be given to providing safety zones lateral to the runway if these areas are not fully contained within the boundaries of the military facility.

The safety compatibility criteria suggested in AICUZ guidelines tend to represent *minimum standards* (more so with respect to noise than safety). Also, the criteria are formatted using a detailed listing of land uses types. ALUCs may choose to use the AICUZ guidelines directly. Alternatively, the safety compatibility guidelines indicated in Tables 9B and 9C may be appropriate, particularly where the ALUC utilizes this format for safety compatibility criteria at other airports within its jurisdiction. In either case, the specific criteria should be reviewed and revised as necessary to fit the operational characteristics of the specific airfield and the land use characteristics of the surrounding area.

Guidelines for Heliports

The guidelines suggested here are applicable to helicopter touchdown and lift-off pads on public-use airports. Additionally, as discussed in Chapter 3, ALUCs have the authority to create compatibility plans for public-use and special-use heliports.

Unlike for airports, very little information is available upon which to base safety compatibility guidelines for heliports. No useful compilation of data on the location of helicopter accidents in the proximity of heliports is known to exist. The only significant policy guidance is contained in the FAA *Heliport Design* Advisory Circular (AC 150/5390-2A), last updated in 1994. The primary concerns of that document are with respect to the design of the touchdown and liftoff pad itself and requirements for obstruction-free approach/departure paths.

As used here, the term *helipad* is considered to relate to *heliport* in the same way that *runway* relates to *airport*. For facilities such as at a hospital, the two terms are basically synonymous.

The one additional FAA safety-related guideline—described as applicable only to public-use facilities—is for creation of helipad protection zones. These zones, equivalent to runway protection zones at airports, extend 280 feet from the edge of the final approach and takeoff area (the latter area, or FATO, is generally larger than the physical pad itself). As with runway protection zones, the helipad protection zone should be clear of incompatible objects and any land uses involving a congregation of people.

Establishment of helipad protection zones is a desirable safety-compatibility objective for all heliports. There are practical limitations to doing so, however. One is that, even when approach/departure routes are formally defined and approved, the highly maneuverable capabilities of helicopters means that their actual routes may differ. The other is that, expect for facilities on an airport, the helipad protection zone is likely to extend onto adjacent property.

Consistent with FAA guidance, the recommendation here is that new heliports be designed so as to place as much of the approach/departure path as possible either on heliport property or along adjacent roads or other publicly controlled lands. As much as practical, buildings (particularly ones higher than the helipad itself) and congregations of people should be avoided within helipad protection zones. Once a heliport is established, the facility owner, local land use jurisdictions, and ALUCs should take whatever actions that are in their respective authorities to preserve compatible uses

in the helipad protection zones and, even more critically, to prevent obstructions to the approach/departure surfaces.

Measuring Usage Intensities

The usage intensity or people-per-acre metric used for setting safety compatibility criteria in most compatibility plans (even plans which contain detailed lists of land use types generally have footnotes indicating intensity restrictions for various uses) is not common in other forms of land use planning. The discussion here provides guidance on how usage intensity can be interpreted and measured.

Determining Usage Intensities for Specific Land Uses

The adjacent tabulation lists average usage intensities for several types of nonresidential land uses often found or proposed in the vicinity of airports. Different methods are available by which ALUCs and local land use jurisdictions can estimate the usage intensity of other proposed uses. Each method has its advantages and disadvantages and none is clearly best in all situations. The most common methods are based on:

- Parking requirements as indicated in local parking ordinances;
- Maximum occupancy levels set in accordance with the California Building Code; and
- Surveys of similar uses.

Typical Usage Intensities (People Per Acre)

Light-industrial uses	35–50
Two-story motel	35–50
Shopping center (single story)	75–125
Single-story office structure	50–100
Sit-down restaurant	100
Fast food restaurant	150

Appendix C contains a brief assessment of each of these methods and examples of how usage intensities can be calculated.

Gross versus Net Acreage

Usage intensities can be calculated in terms of the entire site or zone, regardless of streets or parcel lines (its *gross acreage*) or the area of a given parcel (the *net acreage*). Because safety area land use restrictions are applied, at least initially, at a general plan or large development level rather than with respect to small, individual parcels, gross acreage measurements should normally be used for the purposes of safety compatibility criteria. The guidelines indicated in Table 9C are set on the basis of gross acreage averaged over an entire compatibility zone or development site. If net is substituted, the per-acre numeric limitations should be increased (typically 15% to 20%) to account for the acreage devoted streets, etc.

Nonresidential land use intensities (people per acre), as well as residential densities (dwelling units per acre), should both generally be calculated on the basis of gross acreage.

Except in the case of major thoroughfares running through runway protection zones and inner safety zones, the number of people in vehicles can generally be ignored in usage intensity calculations. Roads where traffic is frequently stopped in locations immediately beyond runway ends deserve attention. However, unless the road is newly planned, ALUCs are unlikely to have the opportunity to review these conditions.

Average versus Peak Usage Intensities

Limitations on the numbers of people per acre sometimes are stated as a never-to-exceed maximum and sometimes as an average measured over an

The intensity guidelines indicated in Table 9C are based upon the maximum number of people on the site at any time. If different measures are used, the numbers may need to be adjusted accordingly.

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indicated period (typically 2, 8, or even 24 hours). A combination of the two also is possible (e.g., an average of *x* people per acre over an 8-hour period, not to exceed *2x* at any time).

It is recommended that restrictions be stated as a never-to-exceed maximum and the level be set accordingly. This is the same approach as that taken by fire codes for buildings. An averaging approach assumes that an accident will not occur when a higher-than-average number of people is present.

Clustering Versus Spreading of Development

Rarely is the usage intensity of a development spread equally throughout the site. Buildings, for example, normally will have more occupants than the adjacent parking lots. Also, for large developments, most of the buildings and other facilities are sometimes concentrated in one portion of the site, leaving other areas as open space because of terrain, environmental, or other considerations. The latter practice is often referred to as *clustering*. The issues for ALUCs are whether to place limits on clustering or to encourage the practice. Some of the tradeoffs between clustered and spread-out development are as follows.

- **Clustered Development**—The premise behind the concept of clustering is that, in a significant percentage of off-airport mishaps, the aircraft are under some degree of control when forced to land. (The reference here to mishaps is intentional—if a forced landing succeeds with no serious injuries or major damage to the aircraft, it would be categorized as an incident and thus not appear in accident records.) If the area remaining undeveloped is relatively level and free of large obstacles, clustering potentially allows a greater amount of open land toward which a pilot can aim. In addition to reducing the risks for people on the ground, open land provides benefits for aircraft occupants, as addressed later in this chapter. The disadvantage of clustering is that it allows an increased number of people to be in the potential impact area of an uncontrolled crash.
- **Spread-Out Development**—By comparison, a uniform spreading of development may provide fewer emergency landing spots and increase the chance of someone on the ground being injured. On the plus side, a uniform distribution of development limits the maximum number of people who could possibly be in an impact area.

The nonresidential intensity criteria listed in Table 9C indicate maximums both averaged over an entire site and for any single acre.

A compromise between these two strategies represents the optimum approach in most cases. This approach entails limiting the maximum occupancy level of a small area, but otherwise clustering development so as to provide the greatest amount of large open areas. For a small area (one acre is a good guideline), a limitation of two or three times the overall criterion is typical with the lower number applying in safety zones closest to the runway ends.

Uses in Structures versus Ones Not in Structures

Some compatibility plans make a distinction between the acceptable number of people per acre in land uses where people are *outdoors* versus those where the people are *in a building* or other enclosed area.

- **Outdoor Uses**—One theory is that people outdoors have more of a chance to see a plane coming as well as more directions in which they can move to vacate the impact area. A greater concentration of people thus is sometimes considered acceptable for such land uses. An important exception, however, is for open stadiums and other similar uses where a large number of people are confined in a small area with limited exits. Such facilities can represent equal or higher risks than similar uses in buildings.

- **Uses in Buildings**—Buildings provide substantial protection from the crash of a small airplane, particularly when the aircraft is still under control as it descends. If a fire subsequently ensues—historically, a relatively infrequent occurrence—it is unlikely to engulf the entire building instantly.

Taking both of these factors into account, the suggested strategy is to set the acceptable number of people in a given area equal for uses either outdoors or in structures. Additionally, restrictions on stadiums and other open facilities occupied by large numbers of people are appropriate.

Risk Reduction Though Building Design

Although avoidance of intensive uses is always preferable, a concept which may be acceptable in some situations is risk-reduction special building design. This concept should be limited to airports which are situated in highly urbanized locations and are used predominantly by small aircraft. In these circumstances, consideration might be given to allowing higher numbers of people (no more than 1.5 to 2.0 times the basic intensity) in buildings which incorporate special risk-reduction construction features such as:

- Concrete walls;
- Limited number and size of windows;
- Upgraded roof strength;
- No skylights;
- Enhanced fire sprinkler system;
- Single-story height; and/or
- Increased number of emergency exits.

Additional Safety Compatibility Concerns

The preceding discussion primarily addresses risks which aircraft accidents pose for people and property on the ground. The responses to these risks are all concerned with limiting the consequences of accidents when they take place near airports. As indicated in the summary at the beginning of this chapter, a separate set of safety compatibility concerns involve land use characteristics which can cause an aircraft accident or contribute to its consequences for people on board the aircraft. The following sections address two such concerns: minimizing injury to aircraft occupants; and hazards to flight.

Minimizing Injury to Aircraft Occupants

As noted at the beginning of this chapter, many aircraft accidents as well as lesser incidents involve aircraft which are under control as they descend and the pilots have some discretion as to where to attempt an emergency landing. Especially for small aircraft, the chances of the aircraft occupants

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Although terrain is a critical factor in the survivability of emergency landings, it is not a factor over which ALUCs have any influence. At airports in mountainous or densely forested locations, little open land useful for an emergency landing may exist even if no development is present. For such airports, policies to preserve open land may be pointless. The discussion here is thus directed at airports in flat or moderately hilly terrain.

avoiding serious or fatal injury in such situations is significantly affected by the terrain and land use features at the landing site. Preserving some amount of near-airport open land capable of enabling a survivable emergency landing is therefore a desirable safety compatibility objective.

Characteristics of Open Land

Ideal emergency landing sites are ones which are long, level, and free of obstacles, much like a runway. Certainly, the closer that open land areas around airports can fit these criteria the better. For small aircraft, however, successful (meaning survivable irrespective of the damage to the aircraft) emergency landings can be accomplished in much less space. Data from the general aviation aircraft accident database indicates that the median swath length for accidents in which the aircraft was under at least some control is less than 150 feet (see Table 8D).

As a general guideline, open land sites should be at least 300 feet long by 75 feet wide (about 0.5 acre or the size of a football field) to be considered useful. Such sites should be relatively level and free of objects such as structures, overhead lines, and large trees and poles that can send the plane out of control at the last moment. Parking lots, while not ideal, also can be considered as acceptable open lands in urbanized settings.

Guidelines for Extent of Open Land Near Airports

Determining the desirable number of open land sites or the percentage of open land in an airport vicinity is a complex proposition. To assist in this decision, the following three observations are offered:

- The accident location patterns illustrated in Chapter 8 and the data presented in Table 8C reveal that accidents in which aircraft are under control are bunched relatively close to the runway ends—mostly within about 3,000 feet—both for arrivals and departures.
- The number of takeoff accident sites located a short distance laterally from the departure (climb-out) end of the runway may indicate that pilots have either headed for an open spot in that location or have attempted to turn around and land on the runway from the opposite direction, but not quite succeeded.
- A pilot's discretion in selecting an emergency landing site is reduced when the aircraft is at low altitude. Particularly at low altitude, the chance of a pilot seeing and successfully landing in a small open area is increased if there are more such spots from which to choose. At traffic pattern altitude (800 to 1,000 feet above the runway), a small airplane should, in the event of engine failure, normally be able to reach the runway from anywhere within the pattern. On takeoff, a small plane generally must have reached an altitude of at least 400 to 500 feet above the runway for a return to the runway to be possible following engine failure.

Each of these observations speaks to the need for preserving more and preferably larger open areas in locations near runways than in other portions

of airport environs. On this basis, the following guidelines are suggested.

- **Runway Protection Zones**—Maintain all undeveloped land clear of objects in accordance with FAA standards.
- **Inner Approach/Departure Zones**—Seek to preserve 25% to 30% of the overall zone as usable open land. Particular emphasis should be given to preserving as much open land as possible in locations close to the extended runway centerline.
- **Inner Turning Zone**—At least 15% to 20% of the zone should remain as open land.
- **Outer Approach/Departure Zones**—Maintain approximately 15% to 20% open land within the overall zone, again with emphasis on areas along the extended runway centerline.
- **Sideline Zone**—Adjacent to the runway ends and runway protection zones, 25% to 30% usable open land is a desirable objective.
- **Traffic Pattern Zone**—Elsewhere within the airport environment, approximately 10% usable open land or an open area approximately every ¼ to ½ mile should be provided.

Open land areas need to meet minimum size criteria to be of value. Therefore, the above guidelines are only practical when applied with respect to land use patterns proposed in general plans, specific plans, or large developments (generally 20 acres or more), not to individual smaller parcels. Both public and private lands should be counted. If the indicated amount of open land can be provided totally on public property, individual private parcels may not need to have any.

One final factor to consider is the pattern of the existing land uses in the airport vicinity. In rural, agricultural areas, requirements for preserving open land can usually be met with little restriction on the prevailing land use form. However, in urban locations, if open land is defined to mean *no development* of private property, the potential for inverse condemnation must be recognized. To avoid this prospect, the property must be allowed to have an economically viable use. In urban areas, open land is generally only a viable land use designation if the property is in public ownership or its natural environmental constraints make development infeasible or inappropriate. If no development is the desired end, the airport proprietor may need to acquire the property or at least the development rights.

See the discussion of inverse condemnation in Chapter 3.

Hazards to Flight

Unlike the preceding land use characteristics which can only affect the *severity* of an aircraft accident (for better or worse), hazards to flight can be the *cause* of an accident. Hazards to flight fall into three basic categories:

- Obstructions to the airspace required for flight to, from, and around an airport;
- Wildlife hazards, particularly bird strikes; and

See the Safety Policy Foundations section earlier in this chapter for a summary of established federal regulations regarding these types of hazards.

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- Other forms of interference with safe flight, navigation, or communication.

Airspace Obstructions

Figure 9M depicts an example of Part 77 surfaces for an airport with a precision instrument approach runway.

Limiting the heights of structures to the heights indicated by the Part 77 surfaces provides an ample margin of safety for normal aircraft operations. The guidance provided by Part 77 is not absolute, however. Deviation from the Part 77 standards does not necessarily mean that a safety hazard exists, only that offending objects must be evaluated by the Federal Aviation Administration and that mitigative actions such as marking or lighting be taken if appropriate.

The airspace surfaces defined by TERPS are typically complex and not easily mapped. Nevertheless, compatibility plans would benefit by including this information if possible. At a minimum, the plans should note the general locations where TERPS surfaces may be critical. ALUCs should request FAA analysis of tall objects proposed for construction in these areas.

In some locations, such as adjacent to a runway, objects exceeding the Part 77 height limits may not be regarded as a hazard. On the other hand, tall objects in the approach corridors—especially along instrument approach routes—may pose risks even though they do not penetrate the defined Part 77 surfaces. Such objects also can adversely affect the minimum instrument approach altitudes allowed in accordance with the U.S. Standard for Terminal Instrument Procedures (TERPS). TERPS is particularly likely to be more restrictive than Part 77 when:

- The approach is not aligned with a runway;
- The procedure includes a circle-to-land option with low minimums;
- The missed approach segment has a low minimum altitude and requires a turning movement; and/or
- High terrain is present beneath portions of the approach procedure which lie beyond the limits of the Part 77 surfaces.

Wildlife Hazards

Both the Federal Aviation Administration (contact the Airport Safety & Certification Branch, AAS-317, at the FAA's Washington Headquarters) and the U.S. Department of Agriculture's Wildlife Service (an office is located in Sacramento) have staff who specialize in managing wildlife hazards at airports. State and local resource agencies may also be able to contribute expertise in managing specific species. The principal concern of ALUCs, though, is with regard to proposed land uses which can increase attraction of birds and other wildlife hazardous to aircraft operations.

Birds are the most common wildlife hazard near airports. Both migratory and nonmigratory species may be of concern. Although the risk of bird strikes is most serious along the corridors required for takeoffs and landings, the concern extends to elsewhere in the airport vicinity. Any land uses which can attract birds should be avoided, but those which are artificial attractors are particularly inappropriate because they generally need not be located near airports. Sanitary landfills are a primary example of the latter type of activity. The FAA recommends that such uses be kept at least 10,000 feet from any runway used by turbine-powered aircraft.

Other land uses that may become artificial attractors include:

- Golf courses with water hazards;
- Drainage detention and retention basins;
- Wetlands created as mitigation measures;
- Landscaping, particularly water features;
- Wildlife refuges; and
- Agriculture, especially cereal grains.

Wildlife other than birds can be also be a concern, depending upon an airport's geographic setting and surrounding land uses. Deer are the most

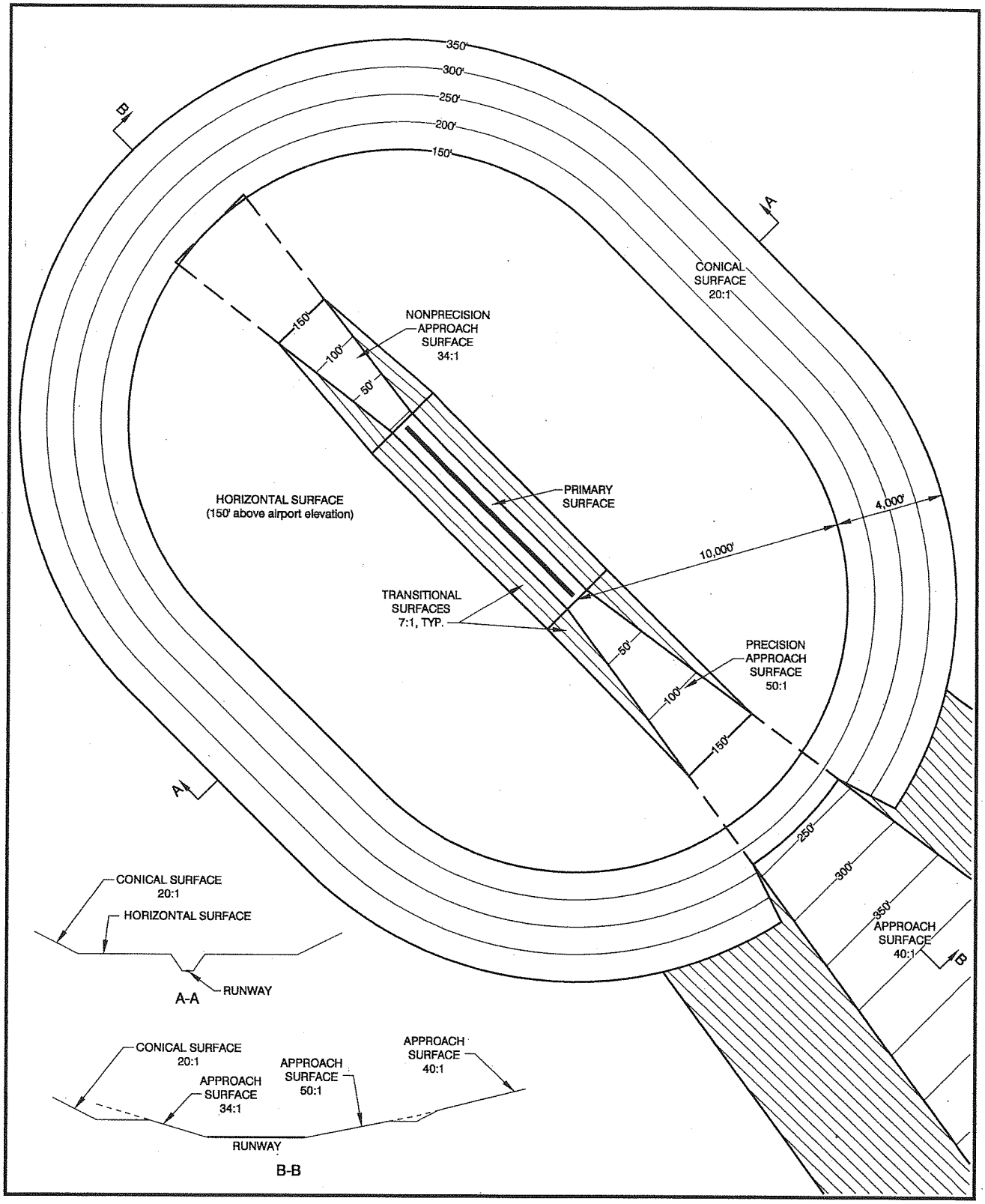

FIGURE 9M

Example of Airspace Protection Surfaces

FAR Part 77

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common problem. However, coyotes and other species may also become hazards.

Other Flight Hazards

In addition to the physical hazards to flight posed by tall objects and wildlife, other land use characteristics can present visual or electronic hazards.

- **Visual Hazards**—Visual hazards include distracting lights (particularly lights which can be confused with airfield lights), glare, and sources of smoke.
- **Electronic Hazards**—Electronic hazards include any uses which interfere with aircraft instruments or radio communication.

Questions have arisen from some airports and ALUCs as to whether temporary searchlights such as those used for advertising constitute a hazard to flight. The FAA does not regulate the siting or operation of searchlights and is aware of no significant problems associated with them.

There are no specific FAA standards for visual and electronic hazards. Potential hazards are evaluated on a case-by-case basis. This often occurs only after a problem has arisen. However, ALUCs can request an FAA evaluation of proposed development when certain features appear to be potentially hazardous. Also, ALUC policies should require that outdoor lights are shielded so that they do not aim above the horizon. Additionally, for projects near the airport, outdoor lighting should be flight checked at night to ensure that they do not blind pilots during landings and takeoffs.

Exhibit 8

LETTER 45 (continued)

The California Environmental Quality Act
Addressing Global Warming Impacts at the Local Agency Level

Under the California Environmental Quality Act (CEQA), local agencies have a very important role to play in California's fight against global warming – one of the most serious environmental effects facing the State today. Where local agencies undertake projects directly, they can and should design sustainable projects from the start, incorporating global warming related considerations into their projects at the earliest stages. Further, local agencies can encourage well-designed, sustainable private projects by analyzing and disclosing to the public the environmental benefits of such projects in any required environmental documents. And where projects as proposed will have significant global warming related effects, local agencies can require feasible changes or alternatives, and impose enforceable, verifiable, feasible mitigation to substantially lessen those effects. By the sum of their decisions, local agencies will help to move the State away from "business as usual" and toward a low-carbon future.

This document provides information that may be helpful to local agencies in carrying out their duties under CEQA as they relate to global warming. Included in this document are various measures that may reduce the global warming related impacts of a project. As appropriate, the measures can be included as design features of a project, required as changes to the project, or imposed as mitigation (whether undertaken directly by the project proponent or funded by mitigation fees). The measures set forth in this package are examples; the list is not intended to be exhaustive. Moreover, the measures cited may not be appropriate for every project. The decision of whether to approve a project – as proposed or with required changes or mitigation – is for the local agency, exercising its informed judgment in compliance with the law and balancing a variety of public objectives.

The first section of this document lists examples of measures that could be applied to a diverse range of projects where the lead agency determines that the project under consideration will have significant global warming related effects. In general, a given measure should not be considered in isolation, but as part of a larger set of measures that, working together, will reduce greenhouse gas emissions and the effects of global warming.

The second section of this document lists examples of potential greenhouse gas reduction measures in the general plan context. This section is included both to suggest how the measures set forth in the first section could be incorporated into a general plan, as well as to identify measures that are general plan specific. The measures in the second section may also be appropriate for inclusion in larger scale plans, including regional plans (*e.g.*, blueprint plans) and in specific plans. Including these types of measures at the larger planning level, as appropriate, will help to ensure more sustainable project-specific development.

The third section provides links to sources of information on global warming impacts and emission reduction measures. The list is not complete, but may be a helpful start for local agencies seeking more information to carry out their CEQA obligations as they relate to global warming.

The endnotes set forth just some of the many examples of exemplary emission reduction measures already being implemented by local governments and agencies, utilities, private industry, and others. As these examples evidence, California at every level of government is taking up the challenge, devising new and innovative solutions, and leading the charge in the fight against global warming.

(1) Generally Applicable Measures

Energy Efficiency[1]

- Design buildings to be energy efficient.[2]
- Install efficient lighting and lighting control systems. Site and design building to take advantage of daylight.
- Use trees, landscaping and sun screens on west and south exterior building walls to reduce energy use.
- Install light colored "cool" roofs and cool pavements.[3]
- Provide information on energy management services for large energy users.[4]
- Install energy efficient heating and cooling systems, appliances and equipment, and control systems.[5]
- Install light emitting diodes (LEDs) for traffic, street and other outdoor lighting.[6]
- Limit the hours of operation of outdoor lighting.
- Use solar heating, automatic covers, and efficient pumps and motors for pools and spas.[7]
- Provide education on energy efficiency.[8]

Renewable Energy

- Install solar, wind, and geothermal power systems and solar hot water heaters. Educate consumers about existing incentives.[9]
- Install solar panels on carports and over parking areas.[10]
- Use on-site generated biogas, including methane, in appropriate applications.***
- Use combined heat and power in appropriate applications.[11]

Water Conservation and Efficiency[12]

- Create water-efficient landscapes.[13]
- Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls.
- Use reclaimed water for landscape irrigation in new developments and on public property. Install the infrastructure to deliver and use reclaimed water.
- Design buildings to be water-efficient. Install water-efficient fixtures and appliances.
- Use graywater. (Graywater is untreated household waste water from bathtubs, showers, bathroom wash basins, and water from clothes washing machines.) For example, install dual plumbing in all new development allowing graywater to be used for landscape irrigation.[14]
- Restrict watering methods (*e.g.*, prohibit systems that apply water to non-vegetated surfaces) and control runoff.
- Restrict the use of water for cleaning outdoor surfaces and vehicles.

- Implement low-impact development practices that maintain the existing hydrologic character of the site to manage storm water and protect the environment. (Retaining storm water runoff on-site can drastically reduce the need for energy-intensive imported water at the site.)[15]
- Devise a comprehensive water conservation strategy appropriate for the project and location. The strategy may include many of the specific items listed above, plus other innovative measures that are appropriate to the specific project.
- Provide education about water conservation and available programs and incentives.[16]

Solid Waste Measures

- Reuse and recycle construction and demolition waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).
- Provide interior and exterior storage areas for recyclables and green waste and adequate recycling containers located in public areas.
- Recover by-product methane to generate electricity.[17]
- Provide education and publicity about reducing waste and available recycling services.[18]

Land Use Measures

- Include mixed-use, infill, and higher density in development projects to support the reduction of vehicle trips, promote alternatives to individual vehicle travel, and promote efficient delivery of services and goods.[19]
- Educate the public about the benefits of well-designed, higher density development.[20]
- Incorporate public transit into project design.
- Preserve and create open space and parks. Preserve existing trees, and plant replacement trees at a set ratio.
- Develop "brownfields" and other underused or defunct properties near existing public transportation and jobs.
- Include pedestrian and bicycle-only streets and plazas within developments. Create travel routes that ensure that destinations may be reached conveniently by public transportation, bicycling or walking.[21]

Transportation and Motor Vehicles

- Limit idling time for commercial vehicles, including delivery and construction vehicles.
- Use low or zero-emission vehicles, including construction vehicles.
- Promote ride sharing programs *e.g.*, by designating a certain percentage of parking spaces for ride sharing vehicles, designating adequate passenger loading and unloading and waiting areas for ride sharing vehicles, and providing a web site or message board for coordinating rides.
- Create car sharing programs. Accommodations for such programs include providing parking spaces for the car share vehicles at convenient locations accessible by public transportation.[22]
- Create local "light vehicle" networks, such as neighborhood electric vehicle (NEV) systems.[23]

- Provide the necessary facilities and infrastructure to encourage the use of low or zero-emission vehicles (*e.g.*, electric vehicle charging facilities and conveniently located alternative fueling stations).
- Increase the cost of driving and parking private vehicles by, *e.g.*, imposing tolls and parking fees.
- Institute a low-carbon fuel vehicle incentive program.[24]
- Build or fund a transportation center where various public transportation modes intersect.
- Provide shuttle service to public transit.
- Provide public transit incentives such as free or low-cost monthly transit passes.
- Promote "least polluting" ways to connect people and goods to their destinations.[25]
- Incorporate bicycle lanes and routes into street systems, new subdivisions, and large developments.
- Incorporate bicycle-friendly intersections into street design.
- For commercial projects, provide adequate bicycle parking near building entrances to promote cyclist safety, security, and convenience. For large employers, provide facilities that encourage bicycle commuting, including, *e.g.*, locked bicycle storage or covered or indoor bicycle parking.
- Create bicycle lanes and walking paths directed to the location of schools, parks and other destination points.[26]
- Work with the school district to restore or expand school bus services.
- Institute a telecommute and/or flexible work hours program.[27] Provide information, training, and incentives to encourage participation. Provide incentives for equipment purchases to allow high-quality teleconferences.
- Provide information on all options for individuals and businesses to reduce transportation-related emissions. Provide education and information about public transportation.

Off-Site Mitigation

If, after analyzing and requiring all reasonable and feasible on-site mitigation measures for avoiding or reducing greenhouse gas-related impacts, the lead agency determines that additional mitigation is required, the agency may consider additional off-site mitigation. The project proponent could, for example, fund off-site mitigation projects (*e.g.*, alternative energy projects, or energy or water audits for existing projects) that will reduce carbon emissions, conduct an audit of its other existing operations and agree to retrofit, or purchase carbon "credits" from another entity that will undertake mitigation.

The topic of offsets can be complicated, and a full discussion is outside the scope of this summary document. Issues that the lead agency should consider include:

- The location of the off-site mitigation. (If the off-site mitigation is far from the project, any additional, non-climate related benefits of the mitigation will be lost to the local community.)
- Whether the emissions reductions from off-site mitigation can be quantified and verified.
- Whether the mitigation ratio should be greater than 1:1 to reflect any uncertainty about the effectiveness of the offset.

(2) General Plan Measures[28]

Global warming measures may be reflected in a general plan as goals, policies, or programs; in land use designations; or as additional mitigation measures identified during the CEQA review process. Many of the measures listed above may be appropriate for inclusion in a general plan. In addition, a non-exhaustive list of measures specific to the general plan context follows. The examples are listed under required general plan elements. A given example may, however, be appropriate for inclusion in more than one element, or in a different element than listed. Global warming measures may, alternatively, be included in an optional Climate Change or Energy element.

Conservation Element[29]

- Climate Action Plan or Policy: Include a comprehensive climate change action plan that includes: a baseline inventory of greenhouse gas emissions from all sources; greenhouse gas emissions reduction targets and deadlines; and enforceable greenhouse gas emissions reduction measures.[30] (Note: If the Climate Action Plan complies with the requirements of Section 15064(h)(3) of the CEQA Guidelines, it may allow for the streamlining of individual projects that comply with the plan's requirements.)
- Climate Action Plan Implementation Program: Include mechanisms to ensure regular review of progress toward the emission reduction targets established by the Climate Action Plan, report progress to the public and responsible officials, and revise the plan as appropriate, using principles of adaptive management. Allocate funding to implement the plan. Fund staff to oversee implementation of the plan.
- Strengthen local building codes for new construction and renovation to require a higher level of energy efficiency.[31]
- Require that all new government buildings, and all major renovations and additions, meet identified green building standards.[32]
- Ensure availability of funds to support enforcement of code and permitting requirements.
- Adopt a "Green Building Program" to require or encourage green building practices and materials.[33] The program could be implemented through, *e.g.*, a set of green building ordinances.
- Require orientation of buildings to maximize passive solar heating during cool seasons, avoid solar heat gain during hot periods, enhance natural ventilation, and promote effective use of daylight. Building orientation, wiring, and plumbing should optimize and facilitate opportunities for on-site solar generation and heating.
- Provide permitting-related and other incentives for energy efficient building projects, *e.g.*, by giving green projects priority in plan review, processing and field inspection services.[34]
- Conduct energy efficiency audits of existing buildings by checking, repairing, and readjusting heating, ventilation, air conditioning, lighting, water heating equipment, insulation and weatherization.[35] Offer financial incentives for adoption of identified efficiency measures.[36]
- Partner with community services agencies to fund energy efficiency projects, including heating, ventilation, air conditioning, lighting, water heating equipment, insulation and weatherization, for low income residents.
- Target local funds, including redevelopment and Community Development Block Grant

resources, to assist affordable housing developers in incorporating energy efficient designs and features.

- Provide innovative, low-interest financing for energy efficiency and alternative energy projects. For example, allow property owners to pay for energy efficiency improvements and solar system installation through long-term assessments on individual property tax bills.[37]
- Fund incentives to encourage the use of energy efficient vehicles, equipment and lighting.[38] Provide financial incentives for adoption of identified efficiency measures.
- Require environmentally responsible government purchasing.[39] Require or give preference to products that reduce or eliminate indirect greenhouse gas emissions, *e.g.*, by giving preference to recycled products over those made from virgin materials.[40]
- Require that government contractors take action to minimize greenhouse gas emissions, *e.g.*, by using low or zero-emission vehicles and equipment.
- Adopt a "heat island" mitigation plan that requires cool roofs, cool pavements, and strategically placed shade trees.[41] (Darker colored roofs, pavement, and lack of trees may cause temperatures in urban environments to increase by as much as 6-8 degrees Fahrenheit as compared to surrounding areas.[42]) Adopt a program of building permit enforcement for re-roofing to ensure compliance with existing state building requirements for cool roofs on non-residential buildings.
- Adopt a comprehensive water conservation strategy. The strategy may include, but not be limited to, imposing restrictions on the time of watering, requiring water-efficient irrigation equipment, and requiring new construction to offset demand so that there is no net increase in water use.[43] Include enforcement strategies, such as citations for wasting water.[44]
- Adopt water conservation pricing, *e.g.*, tiered rate structures, to encourage efficient water use.[45]
- Adopt fees structures that reflect higher costs of services for outlying areas.[46]
- Adopt water-efficient landscape ordinances.[47]
- Strengthen local building codes for new construction and implement a program to renovate existing buildings to require a higher level of water efficiency.
- Adopt ordinances requiring energy and water efficiency upgrades as a condition of issuing permits for renovations or additions, and on the sale of residences and buildings.[48]
- Provide individualized water audits to identify conservation opportunities.[49] Provide financial incentives for adopting identified efficiency measures.
- Provide water audits for large landscape accounts. Provide financial incentives for efficient irrigation controls and other efficiency measures.
- Require water efficiency training and certification for irrigation designers and installers, and property managers.[50]
- Implement or expand city or county-wide recycling and composting programs for residents and businesses. Require commercial and industrial recycling.
- Extend the types of recycling services offered (*e.g.*, to include food and green waste recycling).
- Establish methane recovery in local landfills and wastewater treatment plants to generate

electricity.[51]

- Implement Community Choice Aggregation (CCA) for renewable electricity generation. (CCA allows cities and counties, or groups of them, to aggregate the electric loads of customers within their jurisdictions for purposes of procuring electrical services. CCA allows the community to choose what resources will serve their loads and can significantly increase renewable energy.)[52]
- Preserve existing conservation areas (*e.g.*, forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, and groundwater recharge areas) that provide carbon sequestration benefits.
- Establish a mitigation program for development of conservation areas. Impose mitigation fees on development of such lands and use funds generated to protect existing, or create replacement, conservation areas.
- Provide public education and information about options for reducing greenhouse gas emissions through responsible purchasing, conservation, and recycling.

Land Use Element[53]

- Adopt land use designations to carry out policies designed to reduce greenhouse gas emissions, *e.g.*, policies to minimize or reduce vehicle miles traveled, expand development near existing public transportation corridors, encourage alternative modes of transportation, and increase infill, mixed use, and higher density development.
- Identify and facilitate the development of land uses not already present in local districts – such as supermarkets, parks and recreation fields, and schools in neighborhoods; or residential uses in business districts – to reduce vehicle miles traveled and allow bicycling and walking to these destinations.
- Create neighborhood commercial districts.
- Require bike lanes and bicycle/pedestrian paths.
- Prohibit projects that impede bicycle and walking access, *e.g.*, large parking areas that cannot be crossed by non-motorized vehicles, and new residential communities that block through access on existing or potential bicycle and pedestrian routes.
- Site schools to increase the potential for students to walk and bike to school.[54]
- Enact policies to limit or discourage low density development that segregates employment, services, and residential areas.[55]
- Where there are growth boundaries, adopt policies providing certainty for infill development.[56]
- Require best management practices in agriculture and animal operations to reduce emissions, conserve energy and water, and utilize alternative energy sources, including biogas, wind and solar.

Circulation Element[57]

- In conjunction with measures that encourage public transit, ride sharing, bicycling and walking, implement circulation improvements that reduce vehicle idling. For example, coordinate controlled intersections so that traffic passes more efficiently through congested areas.[58]
- Create an interconnected transportation system that allows a shift in travel from private passenger vehicles to alternative modes, including public transit, ride sharing, car sharing, bicycling and walking. Before funding transportation improvements that increase vehicle miles traveled, consider alternatives such as increasing public transit or improving bicycle or pedestrian travel routes.
- Give funding preference to investment in public transit over investment in infrastructure for private automobile traffic.[59]
- Include safe and convenient bicycle and pedestrian access in all transportation improvement projects.
- Ensure that non-motorized transportation systems are complete, connected and not interrupted by impassable barriers, such as freeways.[60]
- Require amenities for non-motorized transportation, such as secure and convenient bicycle parking.[61]
- Provide adequate and affordable public transportation choices including expanded bus routes and service and other transit choices such as shuttles, light rail, and rail where feasible.
- Assess transportation impact fees on new development in order to maintain and increase public transit service.[62]
- Provide public transit incentives, including free and reduced fare areas.[63]
- Adopt a comprehensive parking policy that discourages private vehicle use and encourages the use of alternative transportation.[64] For example, reduce parking for private vehicles while increasing options for alternative transportation; eliminate minimum parking requirements for new buildings; "unbundle" parking (require that parking is paid for separately and is not included in rent for residential or commercial space); and set appropriate pricing for parking.
- Develop school transit plans to substantially reduce automobile trips to, and congestion surrounding, schools. (According to some estimates, parents driving their children to school account for 20-25% of the morning commute.) Plans may address, *e.g.*, necessary infrastructure improvements and potential funding sources; replacing older diesel buses with low or zero-emission vehicles; mitigation fees to expand school bus service; and Safe Routes to School programs[65] and other formal efforts to increase walking and biking by students.
- Create financing programs for the purchase or lease of vehicles used in employer ride sharing programs.
- Enter into partnerships to create and expand polluting vehicle buy-back programs to include vehicles with high greenhouse gas emissions.
- Provide public education and information about options for reducing motor vehicle-related greenhouse gas emissions. Include information on trip reduction; trip linking; public transit;

biking and walking; vehicle performance and efficiency (*e.g.*, keeping tires inflated); low or zero-emission vehicles; and car and ride sharing.

Housing Element[66]

- Improve the jobs-housing balance and promote a range of affordable housing choices near jobs, services and transit.
- Concentrate mixed use, and medium to higher density residential development in areas near jobs, transit routes, schools, shopping areas and recreation.
- Increase density in single family residential areas located near transit routes or commercial areas. For example, promote duplexes in residential areas and increased height limits of multi-unit buildings on main arterial streets, under specified conditions.
- Encourage transit-oriented developments.[67]
- Impose minimum residential densities in areas designated for transit-oriented, mixed use development to ensure higher density in these areas.
- Designate mixed use areas where housing is one of the required uses.
- In areas designated for mixed use, adopt incentives for the concurrent development of different land uses (*e.g.*, retail with residential).
- Promote infill, mixed use, and higher density development by, for example, reducing developer fees;[68] providing fast-track permit processing; reducing processing fees; funding infrastructure loans; and giving preference for infrastructure improvements in these areas.

Open Space Element[69]

- Preserve forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, groundwater recharge areas and other open space that provide carbon sequestration benefits.
- Establish a mitigation program for development of those types of open space that provide carbon sequestration benefits. Require like-kind replacement for, or impose mitigation fees on development of such lands. Use funds generated to protect existing, or create replacement, open space.
- Allow alternative energy projects in areas zoned for open space where consistent with other uses and values.
- Protect existing trees and encourage the planting of new trees. Adopt a tree protection and replacement ordinance, *e.g.*, requiring that trees larger than a specified diameter that are removed to accommodate development must be replaced at a set ratio.
- Connect parks and publicly accessible open space through shared pedestrian/bike paths and trails to encourage walking and bicycling.

Safety Element[70]

- Address expected effects of climate change that may impact public safety, including increased risk of wildfires, flooding and sea level rise, salt water intrusion; and health effects of increased heat and ozone, through appropriate policies and programs.
- Adopt programs for the purchase, transfer or extinguishment of development rights in high risk areas.
- Monitor the impacts of climate change. Use adaptive management to develop new strategies, and modify existing strategies, to respond to the impacts of climate change.

Energy Element

Many of the goals, policies, or programs set forth above may be contained in an optional energy element. The resources set forth below may be useful to local agencies in developing an energy element or an energy conservation plan.

- The California Public Utilities Commission issued a report entitled California Long Term Energy Efficiency Strategic Plan in September 2008. The report serves as a road map for achieving maximum energy savings across all major groups and sectors in California. Section 12 of the report focuses on the role of local governments as leaders in using energy efficiency to reduce energy use and greenhouse gas emissions. The section includes numerous specific suggestions for local government policies designed to reduce energy use. The report is available at http://www.californiaenergyefficiency.com/index.shtml.
- The Local Government Commission produced a detailed report in 2002 entitled General Plan Policy Options for Energy Efficiency in New and Existing Development. The document sets forth energy saving policies suitable for inclusion in general plans. Policies range from exceeding State minimum building efficiency standards, to retrofitting buildings to reduce energy consumption, to implementing energy conservation strategies for roofs, pavement and landscaping. The report also contains suggested general plan language. The report is available here: http://www.redwoodenergy.org/uploads/Energy_Element_Report.pdf.
- The California Energy Commission summarizes the energy-related efforts of Humboldt County, City of Pleasanton, City of Pasadena, City and County of San Francisco, the Los Angeles area, City of Chula Vista, the San Diego region, City of San Diego, City and County of San Luis Obispo, and City of Santa Monica, in the 2006 Integrated Energy Policy Report at pp. 82-87, available here: http://www.energy.ca.gov/2006publications/CEC-100-2006-001/CEC-100-2006-001-CMF.PDF.
- In 2006, the Association of Monterey Bay Area Governments published a regional energy plan, available here: http://www.ambag.org/programs/EnergyWatch/regional_plan.html. Part 1 describes the plan's goals and course of action. Part 2 describes actions that local agencies already have taken and identifies the most cost-effective measures in each sector. The appendices list existing energy programs that may provide support and funding for energy efficiency projects, suggest language for energy-related provisions to be included in general plans, and list and give brief explanations of more than one hundred energy-saving measures.
- The California Local Energy Efficiency Program (CALeep) has available on its website, http://www.caleep.com/default.htm, various resources and documents, including an energy

"Workbook." The Workbook lays out a process for instituting local energy efficiency programs based in part on information developed in six California pilot projects (Inland Empire Utilities Agency, City of Oakland, San Joaquin Valley, Sonoma County, South Bay Cities Council of Governments, and Ventura County Regional Energy Alliance). The Workbook is designed to be used by local officials to initiate, plan, organize, implement, and assess energy efficiency activities at the local and regional level.

(3) **Resources About Global Warming and Local Action**

The following web sites and organizations provide general information about mitigating global warming impacts at the local level. These sites represent only a small fraction of the available resources. Local agencies are encouraged to conduct their own research in order to obtain the most current and relevant materials.

- The U.S. Conference of Mayors' Climate Protection Agreement contains valuable information for the many local agencies that are joining the fight against global warming. The Agreement is available here: http://www.coolcities.us/resources/bestPracticeGuides/USM_ClimateActionHB.pdf. Over one hundred and twenty California cities have joined the "Cool Cities" campaign, which means they have signed the U.S. Mayor's Climate Protection Agreement and are taking concrete steps toward addressing global warming. These steps include preparing a city-wide greenhouse gas emissions inventory and creating and implementing a local Climate Action Plan. Additional resources, including various cities' Climate Action Plans, are located at the Cool Cities website: http://www.coolcities.us/resources.php.

- In July 2007, Alameda County became one of twelve charter members of the "Cool Counties" initiative. Participating counties sign a Climate Stabilization Declaration, which is available at the website for King County (Washington State): http://www.metrokc.gov/exec/news/2007/0716dec.aspx. Participating counties agree to work with local, state, and federal governments and other leaders to reduce county geographical greenhouse gas emissions to 80% below current levels by 2050 by developing a greenhouse gas emissions inventory and regional reduction plan. Current member counties are recruiting new members and are committed to sharing information. Cool Counties contact information is available at: http://www.kingcounty.gov/exec/coolcounties.

- Local Governments for Sustainability, a program of International Cities for Local Environmental Initiatives (ICLEI), has initiated a campaign called Cities for Climate Protection (CCP). The membership program is designed to empower local governments worldwide to take action on climate change. Many California cities have joined ICLEI. More information is available at the organization's website: http://www.iclei.org/.

- The Institute for Local Government (ILG), an affiliate of the California State Association of Counties and the League of California Cities, has instituted a program called the California Climate Action Network (CaliforniaCAN!). The program provides information about the latest climate action resources and case studies. More information is available at the CaliforniaCAN! website: http://www.cacities.org/index.jsp?displaytype=&section=climate&zone=ilsg.

  ILG's detailed list of climate change "best practices" for local agencies is available at http://www.cacities.org/index.jsp?displaytype=&section=climate&zone=ilsg&sub_sec=climate_local.

ILG maintains a list of local agencies that have adopted Climate Action Plans. The list is available here: http://www.cacities.org/index.jsp?zone=ilsg&previewStory=27035. According to ILG, the list includes Marin County and the cities of Arcata, Berkeley, Los Angeles, Palo Alto, San Diego, and San Francisco. Many additional local governments are in the process of conducting greenhouse gas inventories.

- The non-profit group Natural Capitalism Solutions (NCS) has developed an on-line Climate Protection Manual for Cities. NCS states that its mission is "to educate senior decision-makers in business, government and civil society about the principles of sustainability." The manual is available at http://www.climatemanual.org/Cities/index.htm.

- The Local Government Commission provides many planning-related resources for local agencies at its website: http://www.lgc.org/.

  In cooperation with U.S. EPA, LGC has produced a booklet discussing the benefits of density and providing case studies of well-designed, higher density projects throughout the nation. Creating Great Neighborhoods: Density in Your Community (2003) is available here: http://www.lgc.org/freepub/PDF/Land_Use/reports/density_manual.pdf.

- The Pew Center on Global Climate Change was established in 1998 as a non-profit, non-partisan and independent organization. The Center's mission is to provide credible information, straight answers, and innovative solutions in the effort to address global climate change. See http://www.pewclimate.org. The Pew Center has published a series of reports called Climate Change 101. These reports provide a reliable and understandable introduction to climate change. They cover climate science and impacts, technological solutions, business solutions, international action, recent action in the U.S. states, and action taken by local governments. The Climate Change 101 reports are available at http://www.pewclimate.org/global-warming-basics/climate_change_101.

- The Climate Group, www.theclimategroup.org, is a non-profit organization founded by a group of companies, governments and activists to "accelerate international action on global warming with a new, strong focus on practical solutions." Its website contains a searchable database of about fifty case studies of actions that private companies, local and state governments, and the United Kingdom, have taken to reduce GHG emissions. Case studies include examples from California. The database, which can be searched by topic, is available at http://theclimategroup.org/index.php/reducing_emissions/case_studies.

- The Bay Area Climate Solutions Database features over 130 climate-related projects, programs and policies in the San Francisco Bay Area that are being undertaken by businesses, public agencies, non-government organizations, and concerned individuals. The database is available at http://www.bayareaclimate.org/services.html.

- U.S. EPA maintains a list of examples of codes that support "smart growth" development, available here: http://www.epa.gov/piedpage/codeexamples.htm. Examples include transit-oriented development in Pleasant Hill and Palo Alto, rowhouse design guidelines from Mountain View, and street design standards from San Diego.

- In November 2007, U.S. EPA issued a report entitled "Measuring the Air Quality and Transportation Impacts of Infill Development." This report summarizes three regional infill development scenarios in Denver, Colorado; Boston, Massachusetts; and Charlotte, North

Carolina. The analysis shows how standard transportation forecasting models currently used by metropolitan planning organizations can be modified to capture at least some of the transportation and air quality benefits of brownfield and infill development. In all scenarios, more compact and transit oriented development was projected to substantially reduce vehicle miles traveled. As the agency found, "The results of this analysis suggest that strong support for infill development can be one of the most effective transportation and emission-reduction investments a region can pursue." The report is available at http://www.epa.gov/smartgrowth/impacts_infill.htm.

- The Urban Land Institute (ULI) is a nonprofit research and education organization providing leadership in responsible land use and sustainability. In 2007, ULI produced a report entitled, "Growing Cooler: The Evidence on Urban Development and Climate Change," which reviews existing research on the relationship between urban development, travel, and greenhouse gases emitted by motor vehicles. It further discusses the emissions reductions that can be expected from compact development and how to make compact development happen. "Growing Cooler" is available at http://www.smartgrowthamerica.org/gcindex.html.

- The California Department of Housing and Community Development, http://www.hcd.ca.gov/, has many useful resources on its website related to housing policy and housing elements and specific recommendations for creating higher density and affordable communities. See http://www.hcd.ca.gov/hpd/hrc/plan/he/.

- The California Transportation Commission (CTC) recently made recommendations for changes to regional transportation guidelines to address climate change issues. Among other things, the CTC recommends various policies, strategies and performance standards that a regional transportation agency should consider including in a greenhouse reduction plan. These or analogous measures could be included in other types of planning documents or local climate action plans. The recommendation document, and Attachment A, entitled Smart Growth/Land Use Regional Transportation Plan Guidelines Amendments, are located at http://www.dot.ca.gov/hq/transprog/ctcbooks/2008/0108/12_4.4.pdf.

- The California Energy Commission's Research Development and Demonstration (RD&D) Division supports energy research, development and demonstration projects designed to bring environmentally safe, affordable and reliable energy services and products to the marketplace. On its website, http://www.energy.ca.gov/research/reports_pubs.html, RD&D makes available a number of reports and papers related to energy efficiency, alternative energy, and climate change.

- The Governor's Office of Planning and Research (OPR) provides valuable resources for lead agencies related to CEQA and global warming at http://opr.ca.gov/index.php?a=ceqa/index.html. Among the materials available are a list of environmental documents addressing climate change and greenhouse gas emissions and a list of local plans and policies addressing climate change. In addition, OPRs' The California Planners' Book of Lists 2008, which includes the results of surveys of local agencies on matters related to global warming, is available at http://www.opr.ca.gov/index.php?a=planning/publications.html#pubs-C.

- The California Air Pollution Control Officers Association has prepared a white paper entitled "CEQA and Climate Change" (January 2008). The document includes a list of mitigation measures and information about their relative efficacy and cost. The document is available at

http://www.capcoa.org/ceqa/?docID=ceqa.

- The Attorney General's global warming website includes a section on CEQA. See http://ag.ca.gov/globalwarming/ceqa.php. The site includes all of the Attorney General's public comment letters that address CEQA and global warming.

(4) Endnotes

1. Energy efficiency leads the mitigation list because it promises significant greenhouse gas reductions through measures that are cost-effective for the individual residential and commercial energy consumer.

2. Leadership in Energy and Environmental Design (LEED) administers a Green Building Ratings program that provides benchmarks for the design, construction, and operation of high-performance green buildings. More information about the LEED ratings system is available at http://www.usgbc.org/DisplayPage.aspx?CategoryID=19. Build it Green is a non-profit, membership organization that promotes green building practices in California. The organization offers a point-based, green building rating system for various types of projects. See http://www.builditgreen.org/guidelines-rating-systems. Lawrence Berkeley National Laboratories' Building Technologies Department is working to develop coherent and innovative building construction and design techniques. Information and publications on energy efficient buildings are available at the Department's website at http://btech.lbl.gov. The California Department of Housing and Community Development has created an extensive Green Building & Sustainability Resources handbook with links to green building resources, available at http://www.hcd.ca.gov/hpd/green_build.pdf.

3. For more information, see Lawrence Berkeley National Laboratories, Heat Island Group at http://eetd.lbl.gov/HeatIsland/.

4. See California Energy Commission, "How to Hire an Energy Services Company" (2000) at http://www.energy.ca.gov/reports/efficiency_handbooks/400-00-001D.PDF.

5. Energy Star is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy that certifies energy efficient products and provides guidelines for energy efficient practices for homes and businesses. More information about Energy Star-certified products is available at http://www.energystar.gov/. The Electronic Product Environmental Assessment Tool (EPEAT) is a system that ranks computer products based on their conformance to a set of environmental criteria, including energy efficiency. More information about EPEAT is available at http://www.epeat.net/AboutEPEAT.aspx.

6. LED lighting is substantially more energy efficient than conventional lighting and can save money. See http://www.energy.ca.gov/efficiency/partnership/case_studies/TechAsstCity.pdf (noting that installing LED traffic signals saved the City of Westlake about $34,000 per year). As of 2005, only about a quarter of California's cities and counties were using 100% LEDs in traffic signals. See California Energy Commission (CEC), Light Emitting Diode Traffic Signal Survey (2005) at p. 15, available at http://www.energy.ca.gov/2005publications/CEC-400-2005-003/CEC-400-2005-003.PDF. The CEC's Energy Partnership Program can help local governments take advantage of energy saving technology, including, but not limited to, LED traffic signals. See http://www.energy.ca.gov/efficiency/partnership/.

7. See Palm Desert Energy Partnership at http://www.sce.com/rebatesandsavings/palmdesert. The City, in partnership with Southern California Edison, provides incentives and rebates for efficient equipment.

See Southern California Edison, Pool Pump and Motor Replacement Rebate Program at http://www.sce.com/RebatesandSavings/Residential/pool/pump-motor.

8. Many cities and counties provide energy efficiency education. See, for example, the City of Stockton's Energy Efficiency website at http://www.stocktongov.com/energysaving/index.cfm. See also "Green County San Bernardino," http://www.greencountysb.com/ at pp. 4-6. Private projects may also provide education. For example, a homeowners' association could provide information and energy audits to its members on a regular basis.

9. See http://www.gosolarcalifornia.ca.gov/documents/CEC-300-2007-008-CMF.PDF. At the direction of Governor Schwarzenegger, the California Public Utilities Commission (CPUC) approved the California Solar Initiative on January 12, 2006. The initiative creates a $3.3 billion, ten-year program to install solar panels on one million roofs in the State. See http://www.gosolarcalifornia.ca.gov/nshp/index.html.

10. For example, Alameda County has installed two solar tracking carports, each generating 250 kilowatts. By 2005, the County had installed eight photovoltaic systems totaling over 2.3 megawatts. The County is able to meet 6 percent of its electricity needs through solar power. See http://www.acgov.org/gsa/Alameda%20County%20-%20Solar%20Case%20Study.pdf.

11. Many commercial, industrial, and campus-type facilities (such as hospitals, universities and prisons) use fuel to produce steam and heat for their own operations and processes. Unless captured, much of this heat is wasted. Combined heat and power (CHP) captures waste heat and re-uses it, *e.g.*, for residential or commercial space heating or to generate electricity. See U.S. EPA, Catalog of CHP Technologies at http://www.epa.gov/chp/documents/catalog_of_%20chp_tech_entire.pdf. The average efficiency of fossil-fueled power plants in the United States is 33 percent. By using waste heat recovery technology, CHP systems typically achieve total system efficiencies of 60 to 80 percent. CHP can also substantially reduce emissions of carbon dioxide. http://www.epa.gov/chp/basic/efficiency.html. Currently, CHP in California has a capacity of over 9 million kilowatts. See list of California CHP facilities at http://www.eea-inc.com/chpdata/States/CA.html.

12. The California Energy Commission has found that the State's water-related energy use – which includes the conveyance, storage, treatment, distribution, wastewater collection, treatment, and discharge – consumes about 19 percent of the State's electricity, 30 percent of its natural gas, and 88 billion gallons of diesel fuel every year. See http://www.energy.ca.gov/2007publications/CEC-999-2007-008/CEC-999-2007-008.PDF. Accordingly, reducing water use and improving water efficiency can help reduce energy use and associated greenhouse gas emissions.

13. The Water Conservation in Landscaping Act of 2006 (AB 1881) requires the Department of Water Resources (DWR), not later than January 1, 2009, to update the Model Water Efficient Landscape Ordinance. The draft of the entire updated Model Water Efficient Landscape Ordinance will be made available to the public. See http://www.owue.water.ca.gov/landscape/ord/updatedOrd.cfm.

14. See Graywater Guide, Department of Water Resources, Office of Water Use Efficiency and Transfers at http://www.owue.water.ca.gov/docs/graywater_guide_book.pdf. See also The Ahwahnee Water Principles, Principle 6, at http://www.lgc.org/ahwahnee/h2o_principles.html. The Ahwahnee Water Principles have been adopted by City of Willits, Town of Windsor, Menlo Park, Morgan Hill, Palo Alto,

Petaluma, Port Hueneme, Richmond, Rohnert Park, Rolling Hills Estates, San Luis Obispo, Santa Paula, Santa Rosa, City of Sunnyvale, City of Ukiah, Ventura, Marin County, Marin Municipal Water District, and Ventura County.

15. See Office of Environmental Health Hazard Assessment and the California Water and Land Use Partnership, Low Impact Development, at http://www.coastal.ca.gov/nps/lid-factsheet.pdf.

16. See, for example, the City of Santa Cruz, Water Conservation Office at http://www.ci.santa-cruz.ca.us/wt/conservation; Santa Clara Valley Water District, Water Conservation at http://www.valleywater.org/conservation/index.shtm; and Metropolitan Water District and the Family of Southern California Water Agencies, Be Water Wise at http://www.bewaterwise.com. Private projects may provide or fund similar education.

17. See Public Interest Energy Research Program, Dairy Power Production Program, Dairy Methane Digester System, 90-Day Evaluation Report, Eden Vale Dairy (Dec. 2006) at http://www.energy.ca.gov/2006publications/CEC-500-2006-083/CEC-500-2006-083.PDF. See also discussion in the general plan section, below, relating to wastewater treatment plants and landfills.

18. Many cities and counties provide information on waste reduction and recycling. See, for example, the Butte County Guide to Recycling at http://www.recyclebutte.net. The California Integrated Waste Management Board's website contains numerous publications on recycling and waste reduction that may be helpful in devising an education project. See http://www.ciwmb.ca.gov/Publications/default.asp?cat=13. Private projects may also provide education directly, or fund education.

19. See U.S. EPA, Our Built and Natural Environments, A Technical Review of the Interactions between Land Use, Transportation, and Environmental Quality (Jan. 2001) at pp. 46-48 http://www.epa.gov/dced/pdf/built.pdf.

20. See California Department of Housing and Community Development, Myths and Facts About Affordable and High Density Housing (2002), available at http://www.hcd.ca.gov/hpd/mythsnfacts.pdf.

21. Palo Alto's Green Ribbon Task Force Report on Climate Protection recommends pedestrian and bicycle-only streets under its proposed actions. See http://www.city.palo-alto.ca.us/civica/filebank/blobdload.asp?BlobID=7478.

22. There are a number of car sharing programs operating in California, including City CarShare http://www.citycarshare.org/ and Zip Car http://www.zipcar.com/.

23. The City of Lincoln has a NEV program. See http://www.lincolnev.com/index.html.

24. The County of Los Angeles has instituted an alternative fuel vehicle purchasing program open to County employees, retirees, family members, and contractors and subcontractors. See http://www.lacounty.gov/VPSP.htm.

25. Promoting "least polluting" methods of moving people and goods is part of a larger, integrated "sustainable streets" strategy now being explored at U.C. Davis's Sustainable Transportation Center. Resources and links are available at the Center's website. See http://stc.ucdavis.edu/outreach/ssp.php.

26. See, for example, Marin County's Safe Routes to Schools program at http://www.saferoutestoschools.org ; see also California Center for Physical Activity's California Walk to School website at http://www.cawalktoschool.com.

27. Through a continuing FlexWork Implementation Program, the Traffic Solutions division of the Santa Barbara County Association of Governments (SBCAG) is sponsoring flexwork consulting, training and implementation services to a limited number of Santa Barbara County organizations that want to create or expand flexwork programs for the benefit of their organizations, employees and the community. See http://www.flexworksb.com/read_more_about_the_fSBp.html.

28. For information on the general plan process, see Governor's Office of Planning and Research, General Plan Guidelines (1998), available at http://ceres.ca.gov/planning/genplan/gpg.pdf.

29. The Conservation Element addresses the conservation, development, and use of natural resources including water, forests, soils, rivers, and mineral deposits. Measures proposed for the Conservation Element may alternatively be appropriate for other elements. In practice, there may be substantial overlap in the global warming mitigation measures appropriate for the Conservation and Open Space Elements.

30. See the Attorney General's settlement agreement with the County of San Bernardino, available at http://ag.ca.gov/cms_pdfs/press/2007-08-21_San_Bernardino_settlement_agreement.pdf; Attorney General's settlement agreement with the City of Stockton, available at http://ag.ca.gov/cms_attachments/press/pdfs/n1608_stocktonagreement.pdf . See also Marin County Greenhouse Gas Reduction Plan (Oct. 2006) at http://www.co.marin.ca.us/depts/CD/main/pdf/final_ghg_red_plan.pdf; Marin Countywide Plan (Nov. 6, 2007) at http://www.co.marin.ca.us/depts/CD/main/fm/cwpdocs/CWP_CD2.pdf; Draft Conservation Element, General Plan, City of San Diego at http://www.sandiego.gov/planning/genplan/pdf/generalplan/ce070918.pdf.

31. Public Resources Code Section 25402.1(h)2 and Section 10-106 of the Building Energy Efficiency Standards establish a process that allows local adoption of energy standards that are more stringent than the statewide Standards. More information is available at the California Energy Commission's website. See http://www.energy.ca.gov/title24/2005standards/ordinances_exceeding_2005_building_standards.html; see also California Public Utilities Commission, California Long Term Energy Efficiency Strategic Plan (Sept. 2008) at p. 92, available at http://www.californiaenergyefficiency.com/docs/EEStrategicPlan.pdf.

32. See, *e.g.*, LEED at http://www.usgbc.org/DisplayPage.aspx?CategoryID=19; see also Build it Green at http://www.builditgreen.org/guidelines-rating-systems.

33. During 2007 and 2008, an unprecedented number of communities across the State adopted green building requirements in order to increase energy efficiency and decrease greenhouse gas emissions and other environmental impacts within their jurisdictions. The California Attorney General's office has prepared a document that identifies common features of recent green building ordinances and various approaches that cities and counties have taken. The document is available at http://ag.ca.gov/globalwarming/greenbuilding.php.

34. See, *e.g.*, "Green County San Bernardino," http://www.greencountysb.com/. As part of its program, the County is waiving permit fees for alternative energy systems and efficient heating and air conditioning systems. See http://www.greencountysb.com/ at p. 3. For a representative list of incentives for green building offered in California and throughout the nation, see U.S. Green Building Council, Summary of Government LEED Incentives (updated quarterly) at https://www.usgbc.org/ShowFile.aspx?DocumentID=2021.

35. For example, Riverside Public Utilities offers free comprehensive energy audits to its business customers. See http://www.riversideca.gov/utilities/busi-technicalassistance.asp.

36. Under Southern California Gas Company's Energy Efficiency Program for Commercial/Industrial Large Business Customers, participants are eligible to receive an incentive based on 50% of the equipment cost, or $0.50 per therm saved, whichever is lower, up to a maximum amount of $1,000,000 per customer, per year. Eligible projects require an energy savings of at least 200,000 therms per year. See http://www.socalgas.com/business/rebates.

37. The City of Berkeley is in the process of instituting a "Sustainable Energy Financing District." According to the City, "The financing mechanism is loosely based on existing 'underground utility districts' where the City serves as the financing agent for a neighborhood when they move utility poles and wires underground. In this case, individual property owners would contract directly with qualified private solar installers and contractors for energy efficiency and solar projects on their building. The City provides the funding for the project from a bond or loan fund that it repays through assessments on participating property owners' tax bills for 20 years." See http://www.cityofberkeley.info/Mayor/PR/pressrelease2007-1023.htm.

    The California Energy Commission's Public Interest Energy Research Program estimates that the technical potential for rooftop applications of photovoltaic systems in the State is about 40 gigawatts in 2006, rising to 68 gigawatts in 2016. See Public Interest Energy Research Program, California Rooftop Photovoltaic (PV) Resource Assessment and Growth Potential by County (2007), available at http://www.energy.ca.gov/publications/displayOneReport.php?pubNum=CEC-500-2007-048.

38. As described in its Climate Action Plan, the City of San Francisco uses a combination of incentives and technical assistance to reduce lighting energy use in small businesses such as grocery stores, small retail outlets, and restaurants. The program offers free energy audits and coordinated lighting retrofit installation. In addition, the City offers residents the opportunity to turn in their incandescent lamps for coupons to buy fluorescent units. See San Francisco's Climate Action Plan, available at http://www.sfenvironment.org/downloads/library/climateactionplan.pdf.

39. Among other strategies for reducing its greenhouse gas emissions, Yolo County is considering a purchasing policy that mandates all purchases of electrical equipment meet or exceed the PG&E Energy Star rating. This would require departments to purchase improved efficiency refrigerators, microwaves and related appliances that have greater power efficiencies and less GHG impacts. See http://www.yolocounty.org/Index.aspx?page=878.

40. See, for example, Los Angeles County Green Purchasing Policy, June 2007 at http://www.responsiblepurchasing.org/UserFiles/File/General/Los%20Angeles%20County,%20Green%20Purchasing%20Policy,%20June%202007.pdf. The policy requires County agencies to purchase

products that minimize environmental impacts, including greenhouse gas emissions. See also California Energy Commission, Existing Green Procurement Initiatives, available at http://www.cec.org/files/pdf/ECONOMY/Green-Procurement_Initiatives_en.pdf.

41. Some local agencies have implemented a cool surfaces programs in conjunction with measures to address storm water runoff and water quality. See, for example, The City of Irvine's Sustainable Travelways/Green Streets program at http://www.cityofirvine.org/depts/redevelopment/sustainable_travelways.asp; The City of Los Angeles's Green Streets LA program at http://water.lgc.org/water-workshops/la-workshop/Green_Streets_Daniels.pdf/view; see also The Chicago Green Alley Handbook at http://egov.cityofchicago.org/webportal/COCWebPortal/COC_EDITORIAL/GreenAlleyHandbook_Jan.pdf.

42. See the website for Lawrence Berkeley National Laboratory's Urban Heat Island Group at http://eetd.lbl.gov/HeatIsland/LEARN/ and U.S. EPA's Heat Island website at www.epa.gov/heatisland/. To learn about the effectiveness of various heat island mitigation strategies, see the Mitigation Impact Screening Tool, available at http://www.epa.gov/heatisld/resources/tools.html.

43. For example, the City of Lompoc has a policy to "require new development to offset new water demand with savings from existing water users, as long as savings are available." See http://www.ci.lompoc.ca.us/departments/comdev/pdf07/RESRCMGMT.pdf.

44. The Eastern Municipal Water District imposes fines on all customers, including residential customers, for excessive runoff. See Water Use Efficiency Ordinance 72.23, available at http://www.emwd.org/usewaterwisely.

45. The Irvine Ranch Water District in Southern California, for example, uses a five-tiered rate structure that rewards conservation. The water district has a baseline charge for necessary water use. Water use that exceeds the baseline amount costs incrementally more money. While "low volume" water use costs $.082 per hundred cubic feet (ccf), "wasteful" water use costs $7.84 per ccf. See http://www.irwd.com/AboutIRWD/rates_residential.php. Marin County has included tiered billing rates as part of its general plan program to conserve water. See Marin County Countywide Plan, page 3-204, PFS-2.q, available at http://www.co.marin.ca.us/depts/CD/main/fm/cwpdocs/CWP_CD2.pdf.

46. The Sacramento Regional Sanitation District has adopted a tiered sewer impact fee ordinance that charges less for connections to identified "infill communities" as compared to identified "new communities." See http://www.srcsd.com/pdf/ord-0106.pdf.

47. See the City of Fresno's Watering Regulations and Ordinances at http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/Conservation/WaterRegulation/WateringRegulationsandRestrictions.htm.

48. See, *e.g.*, the City of San Diego's plumbing retrofit ordinance at http://www.sandiego.gov/water/conservation/selling.shtml; City of San Francisco's residential energy conservation ordinance (fact sheet) at http://www.sfgov.org/site/uploadedfiles/dbi/Key_Information/19_ResidEnergyConsBk1107v5.pdf.

49. The City of Roseville offers free water conservation audits through house calls and on-line surveys. See http://www.roseville.ca.us/eu/water_utility/water_conservation/for_home/programs_n_rebates.asp.

50. See Landscape Performance Certification Program, Municipal Water District of Orange County at http://waterprograms.com/wb/30_Landscapers/LC_01.htm.

51. For example, San Diego's Metropolitan Wastewater Department (SDMWD) installed eight digesters at one of its wastewater treatment plants. Digesters use heat and bacteria to break down the organic solids removed from the wastewater to create methane, which can be captured and used for energy. The methane generated by SDMWD's digesters runs two engines that supply enough energy for all of the plant's needs, and the plant sells the extra energy to the local grid. See http://www.sandiego.gov/mwwd/facilities/ptloma.shtml. In addition, the California Air Resources Board approved the Landfill Methane Capture Strategy as an early action measure. http://www.arb.ca.gov/cc/landfills/landfills.htm. Numerous landfills in California, such as the Puenta Hills Landfill in Los Angeles County (http://www.lacsd.org/about/solid_waste_facilities/puente_hills/clean_fuels_program.asp), the Scholl Canyon Landfill in the City of Glendale (http://www.glendalewaterandpower.com/the_environment/renewable_energy_development.aspx), and theYolo Landfill in Yolo County, are using captured methane to generate power and reduce the need for other more carbon-intensive energy sources.

52. On April 30, 2007, the Public Utilities Commission authorized a CCA application by the Kings River Conservation District on behalf of San Joaquin Valley Power Authority (SJVPA). SJVPA's Implementation Plan and general CCA program information are available at www.communitychoice.info. See also http://www.co.marin.ca.us/depts/CD/main/comdev/advance/Sustainability/Energy/cca/CCA.cfm. (County of Marin); and http://sfwater.org/mto_main.cfm/MC_ID/12/MSC_ID/138/MTO_ID/237 (San Francisco Public Utilities Commission). See also Public Interest Energy Research, Community Choice Aggregation (fact sheet) (2007), available at http://www.energy.ca.gov/publications/displayOneReport.php?pubNum=CEC-500-2006-082.

53. The Land Use Element designates the type, intensity, and general distribution of uses of land for housing, business, industry, open-space, education, public buildings and grounds, waste disposal facilities, and other categories of public and private uses.

54. The Center for Physical Activity within the California Department of Public Health supports school siting and joint use policies and practices that encourage kids to walk and bike to school; discourage car trips that cause air pollution and damage the environment; and position schools as neighborhood centers that offer residents recreational, civic, social, and health services easily accessible by walking or biking. The Center offers school siting resources on its website at http://www.caphysicalactivity.org/school_siting.html#resources.

55. Samples of local legislation to reduce sprawl are set forth in the U.S. Conference of Mayors' Climate Action Handbook. See http://www.iclei.org/documents/USA/documents/CCP/Climate_Action_Handbook-0906.pdf.

56. For a list and maps related to urban growth boundaries in California, see Urban Growth Boundaries and Urban Line Limits, Association of Bay Area Governments (2006) at http://www.abag.ca.gov/jointpolicy/Urban%20Growth%20Boundaries%20and%20Urban%20Limit%20Lines.pdf.

57. The Circulation Element works with the Land Use element and identifies the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities.

58. See Orange County Transportation Authority, Signal Synchronization at http://www.octa.net/signals.aspx. Measures such as signal synchronization that improve traffic flow must be paired with other measures that encourage public transit, bicycling and walking so that improved flow does not merely encourage additional use of private vehicles.

59. San Francisco's "Transit First" Policy is listed in its Climate Action Plan, available at http://www.sfenvironment.org/downloads/library/climateactionplan.pdf. The City's policy gives priority to public transit investments and provides public transit street capacity and discourages increases in automobile traffic. This policy has resulted in increased transit service to meet the needs generated by new development.

60. The City of La Mesa has a Sidewalk Master Plan and an associated map that the City uses to prioritize funding. See http://www.ci.la-mesa.ca.us/index.asp?NID=699; see also Toolkit for Improving Walkability in Alameda County, available at http://www.acta2002.com/ped-toolkit/ped_toolkit_print.pdf; and U.S. EPA's list of transit-related "smart growth" publications at http://www.epa.gov/dced/publications.htm#air, including Pedestrian and Transit-Friendly Design: A Primer for Smart Growth (1999), available at www.epa.gov/dced/pdf/ptfd_primer.pdf. Pursuant to the California Complete Streets Act of 2008 (AB 1358, Gov. Code, §§ 65040.2 and 65302), commencing January 1, 2011, upon any substantive revision of the circulation element of the general plan, a city or county will be required to modify the circulation element to plan for a balanced, multimodal transportation network that meets the needs of all users.

61. See the City of Oakland's Bicycle Parking Requirements ordinance, available at www.oaklandpw.com/assetfactory.aspx?did=3337.

62. San Francisco assesses a Downtown Transportation Impact Fee on new office construction and commercial office space renovation within a designated district. The fee is discussed in the City's Climate Action plan, available at http://www.sfenvironment.org/downloads/library/climateactionplan.pdf.

63. For example, Seattle, Washington maintains a public transportation "ride free" zone in its downtown from 6:00 a.m. to 7:00 p.m. daily. See http://transit.metrokc.gov/tops/accessible/paccessible_map.html#fare.

64. See, for example, Reforming Parking Policies to Support Smart Growth, Metropolitan Transportation Commission (June 2007) at http://www.mtc.ca.gov/planning/smart_growth/parking_seminar/Toolbox-Handbook.pdf; see also the City of Ventura's Downtown Parking and Mobility Plan, available at

http://www.cityofventura.net/community_development/resources/mobility_parking_plan.pdf, and its Downtown Parking Management Program, available at http://www.ci.ventura.ca.us/depts/comm_dev/downtownplan/chapters.asp.

65. See Safe Routes to School Toolkit, National Highway Traffic Safety Administration (2002) at www.nhtsa.dot.gov/people/injury/pedbimot/bike/Safe-Routes-2002; see also www.saferoutestoschools.org (Marin County).

66. The Housing Element assesses current and projected housing needs. In addition, it sets policies for providing adequate housing and includes action programs for that purpose.

67. The U.S. Conference of Mayors cites Sacramento's Transit Village Redevelopment as a model of transit-oriented development. More information about this project is available at http://www.cityofsacramento.org/planning/projects/65th-street-village/. The Metropolitan Transportation Commission (MTC) has developed policies and funding programs to foster transit-oriented development. More information is available at MTC's website: http://www.mtc.ca.gov/planning/smart_growth/#tod. The California Department of Transportation maintains a searchable database of 21 transit-oriented developments at http://transitorienteddevelopment.dot.ca.gov/miscellaneous/NewHome.jsp.

68. The City of Berkeley has endorsed the strategy of reducing developer fees or granting property tax credits for mixed-use developments in its Resource Conservation and Global Warming Abatement Plan. City of Berkeley's Resource Conservation and Global Warming Abatement Plan p. 25 at http://www.baaqmd.gov/pln/GlobalWarming/BerkeleyClimateActionPlan.pdf.

69. The Open Space Element details plans and measures for preserving open space for natural resources, the managed production of resources, outdoor recreation, public health and safety, and the identification of agricultural land. As discussed previously in these Endnotes, there may be substantial overlap in the measures appropriate for the Conservation and Open Space Elements.

70. The Safety Element establishes policies and programs to protect the community from risks associated with seismic, geologic, flood, and wildfire hazards.

LETTER 45: Ellison Folk and Jeanette MacMillan, Shute, Mihaly & Weinberger LLP, May 7, 2009

RESPONSE 45-1: Opinion regarding the long-term consequences of Project implementation on the residents of San Rafael and the surrounding region is noted. As shown on the Project site plan (**FEIR Appendix A**), the proposed Project will not result in any direct impacts to marsh habitats along the North Fork of Gallinas Creek (i.e., the Project does not encroach into the marsh or result in any direct modification of the marsh habitats). Thus, there will be no impacts to marsh habitats along Gallinas Creek. Furthermore, there are no wetlands mapped within the portion of the Project site proposed for development. A wetland delineation of the Project site was conducted by WRA (Wetlands Research Associates) on September 7, 2005. The *Jurisdictional Area Delineation* report prepared by WRA was submitted to the U.S. Army Corps of Engineers (USACOE) for verification. The USACOE visited the site on October 26, 2006 and verified a jurisdictional map. DEIR Figure 7-1 (page 7-27) shows that there are several wetland areas north of the proposed Project development area. These areas were not within the area that was confirmed by USACOE. Regardless, these wetlands will not be affected by the proposed Project and, in fact, are protected within the 100+ foot buffers from the proposed Project facilities.

RESPONSE 45-2: Opinion regarding the extent to which the DEIR complies with the minimal standards of adequacy for an Environmental Impact Report under CEQA and the CEQA Guidelines is noted.

RESPONSE 45-3: Opinion that the City must recirculate a revised DEIR is noted. The City has evaluated all comments made on the DEIR, as required under CEQA and the CEQA Guidelines, and has concluded that the requirements of CEQA would be fulfilled by providing responses to all comments and incorporating these comments as a part the Final EIR. CEQA Guidelines Section 15088.5 states that recirculation is required "*when significant new information is added to the EIR after public notice of the availability of the draft EIR for public review under Section 15087 but before certification.*" New information is further described to include "*changes in the project or environmental setting as well as additional data or other information.*" Further, this section goes on to state that "*new information added to an EIR is not "significant" unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect (including a feasible project alternative) that the project proponents have declined to implement.* Information has been added to the EIR, which clarifies or amplifies existing environmental effects that have been evaluated in the DEIR. No significant new information has been added to the EIR that would require the City to re-circulate the document. The changes that have been made to the DEIR and mitigation measures either clarify existing information or amplify analysis provided on an environmental effect that has already been identified in the DEIR. There have been no new mitigation measures required, nor any additional feasible project alternatives identified.

Further, the Applicant has not refused to implement any of the measures identified for the Project.

This response includes the modifications made to the Project Climate Change/GHG impacts discussion in DEIR Chapter 15. Although new information is provided expanding this discussion in MASTER RESPONSE GHG-1, above, the additional analysis clarifies that the newly-adopted thresholds for assessing climate change and GHG are not applicable to the Project, for purposes of CEQA review, given that the NOP was issued in 2007, before adoption of the state standards on June 2, 2010. The discussion in DEIR Chapter 15 has been modified based on the standard for review that was in effect at the time the DEIR was prepared and published. The additional information regarding GHG analysis that has been prepared using the current state standards has been provided to serve a purpose of CEQA to provide the public, decision-makers and Project proponent with all available information regarding environmental effects. Therefore, as noted in the beginning of this FEIR, recirculation of this new information is not required pursuant to CEQA Guidelines Section 150885(e); based on all evidence in the record including the DEIR, DEIR appendices and FEIR response to comments. See MASTER RESPONSE GHG-1, above, for further detailed discussion of this impact.

RESPONSE 45-4: Opinion regarding the "stability" of the Project Description is noted. The DEIR evaluates the changes in the physical environment if the Project site is developed and subsequently used as is currently proposed. It is acknowledged that development of the Project site as proposed would enable the facilities developed to be put to uses that could be different from those currently proposed. It is not uncommon for a large complex to propose a range of uses, in order to provide maximum flexibility of uses within the designated land use or occupancy classification of the complex. This is particularly true in the case of rezoning entitlements, where a broad range of uses must be considered. In this particular case, the mix of uses proposed by the Project Applicant represents some of the heaviest occupancy and traffic-generating recreational uses that could be anticipated for a sports complex, and the DEIR does not need to speculate on all of the possible on-site recreational use variations that could occur. At present, the mix of recreational uses proposed at the Project site is considered to be a realistic and reasonable range of viable uses for the complex, and allows a detailed environmental assessment of impacts to be conducted. If the Project is approved by the City, conditions of the Master Use Permit would be included to identify the range of recreational uses that would be included as a part of the Project, and which would need to be consistent with the uses analyzed by the DEIR. Should those recreational uses be modified substantively in the future, the City would determine whether additional entitlements and environmental review would be necessary before permitting such changes. If developed as proposed, a change in occupancy type or any structural, mechanical or electrical alteration to the building and its areas would trigger prior review and permits by the City. Therefore, it is reasonable for the DEIR to evaluate the Project as proposed, without anticipating any significant deviation from the Project as evaluated by this DEIR.

RESPONSE 45-5: Opinion regarding the "stability" of the Project Description is noted. Opinion regarding the need for the DEIR to evaluate four different scenarios involving the variety of field surfaces (artificial turf or grass and outdoor lighting (with and without) is noted. The impacts of the various options have been adequately identified and discussed in the DEIR. For instance, impacts associated with an all-grass field (if turf grass is not used) are adequately addressed in MASTER RESPONSE HYD-5, above, which addresses Project impacts and mitigation measures that would be applied to the Project and address run-off and water quality impacts with or without use of turf grass. Further, DEIR pages 11-21 through 11-25 sufficiently discuss potential operational water quality impacts associated with application of pesticides and fertilizers to the site. Project impacts as a result of elimination of outdoor lighting is addressed in DEIR page 16-18, which adequately points out that elimination of lighting would eliminate associated light and glare and nighttime noise impacts. Thus, it is evident that the need for recommended mitigation measures to address nighttime noise and outdoor lighting impacts associated with outdoor field use would not be necessary if the outdoor lighting were eliminated from the Project. See RESPONSE 4-19, above, and the No Build/No Project Alternative expanded discussion in FEIR Chapter 2, referred to in MASTER RESPONSE ALT-2, above, which has been provided to augment the alternatives analysis discussion and confirms that measures recommended to address light and noise impacts associated with outdoor lighting would no longer be required if outdoor field lighting is eliminated.

As indicated on DEIR page 3-16, the proposed final landscaping plan for the Project site will be subject to approval by the City Design Review Board (DRB) to evaluate final details, which is typical of all projects reviewed by the City. However, the DEIR relies on the landscape plan submitted by the Project Applicant (DEIR **Figure 3-10** on page 3-37), which includes a sufficient amount of information in order for important environmental impacts to be assessed, such as water and irrigation needs, size of landscape areas, and types of landscaping being proposed. Further, landscape plans always require subsequent review and approval by other departments and agencies such as Marin Municipal Water District (MMWD) and the Department of Public Works (DPW); which have received copies of the plans and provided preliminary evaluation as to whether their respective regulations could be satisfied. In this case, the Project Description has provided sufficient information regarding the Project, including the proposal to use artificial turf with grass as an alternate, to enable the subsequent permitting agencies to determine whether and under what circumstances their requirements could be met, if the Project is pursued (with and without artificial turf). Both MMWD and DPW have included comments, project conditions, and mitigation measures for this Project. See DEIR Chapter 11 discussion regarding Hydrology and Water Quality which discusses the impacts of the Project, based on the Project Description; **MM Hyd-1d** [as amended] and **MM Hyd-1e** requiring a Storm Water Management Plan for the Project and incorporation of grassed swales in Drainage Swales to treat anticipated runoff, based on the Project as described in the DEIR Project Description; and page 14-8 and 14-9 which discuss Storm Drainage Facilities and Water Supply, based on the Project as proposed in the Project

Description. Therefore, the landscape plan including alternate scenarios for outdoor fields was sufficient for purposes of environmental review.

For the purposes of the DEIR, the Project Description assumes that the regulation-size soccer field surfaces outdoors will be all-weather Field Turf synthetic sports field surface, which will be lighted, as the most intense development and use of the site. For example, the absence of outdoor field lighting would limit use of the outdoor recreational facilities to daytime only; thereby eliminating all Project-related impacts associated with nighttime use of those fields, particularly light and noise. The Project Applicant has stated that the use of synthetic turf would require outdoor lighting to enable sufficient use to recoup the costs of installation (see DEIR page 3-13), so evidently synthetic turf would not be used in the absence of outdoor lighting. Either with or without lighting, the use of a natural grass surface on the proposed regulation-size soccer field would preclude the intensive level of use anticipated in DEIR Table 3-1 (page 3-13). In addition to the need for on-going maintenance, natural grass surfaces would could not be used in wet weather, and would need to be "rested" periodically, limiting field availability.

RESPONSE 45-6: If Field Turf is not used at the Project site, remaining available LEED measures would still be pursued in an effort to achieve LEED certification of the proposed facility, including all other measures identified on DEIR page 3-19. The statement on DEIR page 10-15 indicating that no fertilizers or herbicides will be used on the outdoor fields assumes that Field Turf will be used, consistent with the Project Description. The Project is not required to achieve a certain level of LEED certification, but has voluntarily proposed this as a part of the Project. Therefore, the Applicant may pursue any level of LEED certification that is feasible, and according to the components of the Project that may ultimately be approved (e.g., with or without lighted and all-weather field). Additionally, because this is a voluntary proposal included in the Project by the Applicant, the City would typically incorporate this into the Project conditions of approval to ensure that this would be carried forward during Project implementation.

RESPONSE 45-7: The DEIR evaluates the physical changes in the environment which would result from development of the Project site as proposed. It does not evaluate the economic viability of the proposed Project as it relates to the use of synthetic turf and outdoor lighting, although it indicates on DEIR page 3-13 that the Project Applicant has stated that the use of synthetic turf would require outdoor lighting to enable sufficient use to recoup the costs of installation. Opinion regarding the need for the City and the public to be able to review the economic data related to the Project Applicant's decision to propose the use of synthetic turf and outdoor lighting at the Project site is noted.

RESPONSE 45-8: The requested zoning entitlements and land use approvals requested by the Project Applicant to enable development of the Project site as proposed are described on DEIR page 3-54. Opinion regarding the adequacy of these descriptions is noted.

RESPONSE 45-9: See MASTER RESPONSE PD-2, above, regarding the Declaration of Restrictions. No modifications to the Declaration of Restrictions is requested by the Project Applicant or required to enable development of the Project site as proposed.

RESPONSE 45-10: Opinion regarding the adequacy of the DEIR's evaluation of significant impacts and identification of feasible mitigation measures is noted.

RESPONSE 45-11: Comment noted. There is no change being proposed to the standard -WO (Wetland Overlay) Zoning designation that applies to the entire airport site. The Project Applicant is entitled to request review of this Project entitlement under the current General Plan 2020 provisions and policies. The current PD (Planned Development) ordinance adopted for the site does not currently include provisions and a development plan for the proposed use, as required under the PD regulations. Therefore, the PD zoning district must be amended by ordinance to incorporate these additional provisions within the currently adopted PD district designation.

The EIR adequately evaluates the impacts of the proposed use, but the purpose of the EIR is not to evaluate the merits of the proposed Project. The PD ordinance amendment being requested for this specific Project and which is specific to the airport site would provide the necessary zoning standards that implement the General Plan land use designation in order for the recreational facility to proceed. As part of this review, the City shall also review the Project for compliance the –WO overlay district regulations (which apply to the entire airport site), the City General Plan 2020 and the restrictive covenant. The requested recreation use and the accompanying plan for development are considered to be consistent with these regulations. The –WO regulations require that any wetlands on the site shall be identified, and establishes setbacks that must be applied. The Project Applicant is proposing to conform with the –WO overlay district standards; with minimum 55-foot setback from on-site wetland areas and minimum 118-foot setback from the creek proposed as part of the Project, per plan sheet A-1. No change is being proposed to a City wide zoning regulation as part of this Project.

RESPONSE 45-12: Comment noted. The Project Description on DEIR pages 3-11 through 3-13 clearly identifies the additional proposed uses at the airport site, which consist of the recreation facility building and the outdoor fields, along with the proposed site improvements. The existing Master Use Permit is on file with the City documenting all existing development, which is also as described in the DEIR on pages 4-4 through 4-6. Therefore, the DEIR clearly identifies the existing approved uses on the site and the proposed additional uses, as allowed under the General Plan 2020 and the Declaration of Restrictions adopted for the property. The purpose of the DEIR is not to evaluate the merits of the Project, which will be presented to the Planning Commission and City Council for review and consideration along with the DEIR and FEIR (Response to Comments), at which time the entitlement for the entire property shall be considered. A Project approval and any conditions must be consistent with the Project scope as evaluated by the DEIR. In consideration of the

fact that the DEIR is intended to provide information to the public during the environmental review stage, a complete summary of the existing and proposed uses is provided again in this response, as follows:

Existing Uses:

Master Use Permit 99-9 approved by the City Council on March 19, 2001 granted the following entitlements:

- The private airport use is limited to 100-based aircraft.
- The following airport uses or activities are specifically prohibited:
    - flight training
    - the use of the landing strip for practice purposes by flight instructors;
    - helicopters,
    - charter flights,
    - uses or activities of a public or semi-public nature,
    - commercial flight activity or
    - student pilot training, and
    - non-based aircraft performing landings or departures
- Maintenance or servicing of aircraft shall be limited to aircraft based at San Rafael Airport.
- Non-aviation uses limited to those uses approved by the Use Permit. There shall be no increase in the amount of square footage. An Administrative Use Permit shall be required for change in tenancy.
- Two new modular residences exclusively for the airport security guard and caretaker.
- All run-ups shall occur at the east end of the runway, or in a designated run-up area in the vicinity of the intersection of the taxiway or runway.
- The airport runway shall be identified with a symbol [identifying] that the airport is private.

Proposed Additional Use (Amendment):

San Rafael Recreational Facility Use - ZC 05-01 (amendment to PD1764), UP05-08 (amendment to UP99-9), and ED05-15 proposes the following additional airport uses:

- 85,700 square foot indoor facility, including:
    - Two indoor soccer fields (each 180' by 80') and locker rooms; 44,000 sq. ft.
    - Mezzanine level with a viewing area, café with 20 seats (serving food, beverages, beer and wine), meeting room, restrooms, sports shop and administrative offices; 14,400 sq. ft.
    - Dance and gymnastics studios designed to be large enough to house a third full size (200' by 100') indoor field/court/rink in order to provide maximum flexibility of use; 26,000 sq. ft.
- Regulation-size outdoor soccer field, illuminated with an all-weather surface, and a grass warm-up area.

RESPONSE 45-13: See MASTER RESPONSE PD-2, above, regarding the Declaration of Restrictions. No modifications to the Declaration of Restrictions is requested by the Project Applicant or required to enable development of the Project site as proposed. Although the City of San Rafael has jurisdiction over the Project site, the County of Marin was a party by signing the original covenant, and the County of Marin would be a party to any proposed change to the covenant (although no change is currently being requested).

RESPONSE 45-14: Opinion regarding the consistency of the Project with General Plan Policy CON-5 is noted. The General Plan policy specifies: "Diked Baylands. Protect seasonal wetlands and associated upland habitat contained within undeveloped diked baylands" (underline emphasis added). Since the Project site no longer provides the beneficial functions and values that are generally associated with diked baylands, and the site is not located within undeveloped diked baylands, this policy would not apply. Furthermore, there are no wetlands mapped within the portion of the Project site proposed for development. A wetland delineation of the Project site was conducted by WRA (Wetlands Research Associates) on September 7, 2005. The *Jurisdictional Area Delineation* report prepared by WRA was submitted to the U.S. Army Corps of Engineer Corps (USACOE) for verification. The USACOE visited the site on October 26, 2006 and verified a jurisdictional map. DEIR **Figure 7-1** (page 7-27) shows that there are several wetland areas north of the proposed Project development area. These areas were not within the area that was confirmed by USACOE. Regardless, these wetlands will not be affected by the proposed Project and, in fact, are protected within the 100+ foot buffers from the proposed Project facilities. Finally, it should be noted that the General Plan policy specifies "Support and promote acquisition from willing property owners." In this case, the property owner chooses not to provide land for

other purposes outside the proposed Project. Opinion regarding the possibility of restoring wetlands at the Project site is noted. Opinion on the extent to which the delineation of wetlands at the Project site reflects the "powerful ecological potential" of the Project site is noted.

RESPONSE 45-15: The *Baylands Ecosystem Habitat Goals* (Goals Project 1999)[14] is a report of habitat recommendations prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project, not a habitat conservation plan or natural community conservation plan adopted by the City of San Rafael, the County of Marin, or any other government agency with jurisdiction over the Project site. A Habitat Conservation Plan (HCP) is a plan prepared under the Endangered Species Act (ESA), and is a legally binding plan, agreed to by property owners and the U.S. Fish and Wildlife Service (and often other regulatory agencies), to protect a specified areas that are important to further population recovery and protection of threatened or endangered species. Since the Bayland Ecosystem Habitat Goals do not represent an applicable habitat conservation plan or natural community conservation plan, any conflict that the Project might have with those Goals would not be a significant environmental impact using the thresholds of significance identified on DEIR page 4-17.

RESPONSE 45-16: Opinion regarding the DEIR's discussion of the Project consistency with applicable zoning amendments, permit amendments and covenant amendments is noted. Opinion regarding the appropriateness of the Project site for passive recreational activities, but not for the proposed recreational facility, is noted. Opinion regarding the Project's consistency with General Plan Policy CON-5 is noted. Opinion regarding the significance of Project-related land use and planning impacts is noted.

RESPONSE 45-17: As indicated on DEIR page 11-30, development of the Project site as proposed could expose those at the site to flooding as a result of levee failure, a potentially significant impact which could be reduced to a level considered less than significant through implementation of **Mitigation Measure Hyd-2a** [as modified] and **Mitigation Measure Hyd-2b** [as revised] (DEIR pages 11-32 and 11-33). On DEIR page 11-31, it is stated that: "...the Oberkamper levee breach analysis determined that people at the facility during the time of a 100-year storm induced levee breach would have enough time to safely leave before the depth of the water presents a hazard. Based on this analysis, the potential for the Project to expose people to a significant risk of loss, injury or death involving flooding as a result of levee failure is considered to be less than significant."

[14] Goals Project 1999. Baylands Ecosystem Habitat Goals. A report of habitat recommendations prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. First Reprint. U.S. Environmental Protection Agency, San Francisco, Calif./S.F. Bay Regional Water Quality Control Board, Oakland, Calif. June 1999.

RESPONSE 45-18: See MASTER RESPONSE HYD-1, above, which addresses issues related to the selection of the appropriate datum values for the DEIR flooding analysis.

RESPONSE 45-19: Opinion regarding the adequacy of the evidence supporting the flooding analysis presented in the DEIR is noted. See MASTER RESPONSE HYD-2, above, which addresses the existing condition of the levees in the vicinity of the Project site. Opinion regarding the effectiveness of the mitigation measures identified in the DEIR to reduce the risks associated with flooding in the event of a levee breach is noted. See MASTER RESPONSE HYD-2, above, which addresses the Project Applicant's ownership and maintenance responsibilities for the levees and pump station. At present, the pump station and the majority of the levees surrounding the airport site are in private ownership and are maintained by the owner. The Project Applicant will have a large incentive to maintain the drainage system and levees on the airport site considering the potential facility damage if they did not. Also, if the levees fail and/or the pump station does not operate, any resulting damage would be contained on the private property controlled by the Project Applicant, and would not impact adjacent property owners. Opinion regarding the accuracy of the DEIR's statement (page 3-31) that: "...the Oberkamper levee breach analysis determined that people at the facility during the time of a 100-year storm induced levee breach would have enough time to safely leave before the depth of the water presents a hazard. Based on this analysis, the potential for the Project to expose people to a significant risk of loss, injury or death involving flooding as a result of levee failure is considered to be less than significant." is noted.

RESPONSE 45-20: It is acknowledged that there is only one means of access and egress to the Project site, which would be used to provide emergency access and would also serve as the sole evacuation route in the event of on-site flooding. As indicated on DEIR page 13-27, the City Traffic Engineers and the Fire Department have reviewed the site plan for adequacy regarding safety and emergency access and have determined that there are no potentially significant impacts. As indicated on DEIR page 3-31: "...the Oberkamper levee breach analysis determined that people at the facility during the time of a 100-year storm induced levee breach would have enough time to safely leave before the depth of the water presents a hazard." This indicates that the road providing the sole access and egress at the Project site would remain passable long enough to evacuate the site as floodwater rise in such an event. Opinion regarding the need for a formal evacuation plan associated with the proposed development of the Project site is noted.

RESPONSE 45-21: Opinion regarding the adequacy of the DEIR's approach to addressing the anticipated increase in sea level is noted. The DEIR only considered the potential for sea level rise after 2050 to be too speculative. See MASTER RESPONSE HYD-4, above, which addresses this concern, including further discussion of potential impacts of incremental sea level increase on the Project up to 2050 in consideration of current sea level increase estimates of 12 to 18 inches. The DRAFT PAPER "The Impacts of Sea-Level Rise on the California Coast" (attached to LETTER 45 as Exhibit 6) was prepared in March 2009, the

same month that the DEIR was released for public review, and months after Notice of Preparation for the EIR had been circulated, so it was not included within the DEIR discussion of anticipated sea level rise. The draft paper prepared by The Pacific Institute updates a prior 1990 study prepared by the same group, and attempts to identify populations at risk and quantify regional impacts to buildings, infrastructure, wetlands, etc. for a 1 to 1.46-meter sea level rise around San Francisco Bay anticipated in the study to occur over the next century. The study documents a 6-inch sea level rise in the last century (1906 to 2001), with predictions that sea level rise will continue and likely accelerate. The study also points out that increased flood elevations also can relate to increased flooding risks from storm surges and increased erosion potential. This is an existing condition that currently impacts the airport site, site, and remains regardless of whether or not the Project is pursued. The Project does not exacerbate this existing condition, and has been required to be wet-flood-proofed to address FEMA requirements for construction in the flood zone, which addresses the potential impacts to the Project in this regard. Further, it is reasonably expected that the property owner and County of Marin will continue managing the levee by continuing to implement their existing levee monitoring and maintenance programs. Opinion regarding the need to revise DEIR discussion related to an anticipated increase in sea levels noted. As indicated on DEIR page 11-35, if a 0.5-foot rise in the level of San Francisco Bay were to occur by 2050, inundation would not occur on the Project site, and no mitigation measures intended specifically to address anticipated future sea level rise are necessary. Further, inundation would not occur on the Project site if the current sea level rise estimates were applied, based on the existing 9-foot high levee and drainage pump improvements that protect the site remaining in place.

RESPONSE 45-22: Opinion regarding the adequacy of the DEIR's water quality analysis is noted. For development projects in San Rafael, the City provides a standard "Best Management Practices" erosion control plan for inclusion in project plan sets. A detailed Erosion Control Plan (ECP) would normally be developed by a project applicant following project approval, then be reviewed by City Staff and approved by the City prior to the issuance of a grading permit or initiation of any construction activity at the project site. Minimum requirements for such an ECP are identified on DEIR page 11-23, but the City has not formally established a "performance standard" that must be met through implementation of an ECP. Opinion regarding the lack of a specific performance standard linked to **Mitigation Measure Hyd-1a** [as modified] (DEIR page 11-23) is noted. The Erosion Control Plan would include a copy of the City's standard Best Management Practices sheet that is required to be included within project plans, so that contractors are aware of the requirements and held accountable by City inspectors during construction. The anticipated outcomes of including this in the plan sheets are that contractors are aware of the requirements, and inspectors can more readily enforce areas of non-compliance in the field. If done properly, incorporation of an ECP plan has proven to be effective when included with project improvement plans that are reviewed, approved and subject to inspection by the City during all phases of project construction. As noted in MASTER RESPONSE HYD-5, above,

this measure has been modified (as shown in **FEIR Chapter 2**) to provide more clarification of the components that are required for the ECP, as they are mandated by the RWQCB and implemented locally through application and enforcement of County MCSTOPPP requirements and City stormwater and erosion control ordinances and standards (note: the additional clarification is taken directly from standards used by the City to review projects, including the standard best management practices plan sheets provided by the City to applicants for inclusion in plan sheets prior to issuance of permits, which are required to be implemented as part of all development projects).

RESPONSE 45-23: Opinion regarding the need to conduct a follow-up study on the smaller impervious surface area now proposed at the Project site is noted. With a smaller impervious surface area than evaluated earlier, Project-related impacts related to the extent of impervious surface area would be reduced, and development of the Project site as currently proposed would not substantially alter the existing drainage pattern of the site or area nor substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site (DEIR page 11-28).

RESPONSE 45-24: Opinion regarding the adequacy and enforceability of mitigation measures identified in the Biological Resources section of the DEIR is noted.

For **Mitigation Measure Bio-1a** [as modified], all erosion control measures will be in place pursuant to a detailed Storm Water Pollution Prevention Plan (SWPPP) prepared for the Project. The SWPPP is enforceable by both the City of San Rafael and the Regional Water Quality Control Board.

For **Mitigation Measure Bio-5a**, see RESPONSE 68-14, below, which addressed potential Project-related effects on burrowing owls and implementation of mitigation, if necessary.

No **Mitigation Measure Bio-5e** has been identified in the DEIR. For **Mitigation Measure Bio-5d** [as modified; see FEIR Chapter 2] (DEIR page 7-75), the Project Applicant will only be required to implement mitigation measures for burrowing owl if burrowing owls are found occupying burrows on the Project site. As indicated in the text of **Mitigation Measure Bio-5d**, any mitigation and monitoring plan developed for the burrowing owl by the Project biologist shall be subject to CDFG approval.

RESPONSE 45-25: Opinion regarding the extent to which **Mitigation Measure Bio-2e** will protect nocturnal bird activities is noted. **Mitigation Measure Bio-2e: California Clapper Rail and California Black Rail – Event Curfew** on DEIR pages 2-12 and 7-69 has been established to address potential impacts as follows:

> "In order to ensure that Project operational noise does not significantly disrupt normal nocturnal wildlife species activity patterns, outdoor evening events, including soccer games and any other outdoor events that attract large numbers of spectators, shall end by 10:00 p.m. When there are evening soccer events, the 10:00 p.m. end time will

> ensure that noise generated from the recreational facility will not disrupt normal nocturnal wildlife species' activity patterns, allowing nocturnal movements through the project area over the duration of most of the night on the nights of the year affected by events."

As indicated on DEIR page 7-69, implementation of **Mitigation Measure Bio-2a**, **Mitigation Measure Bio-2b**, **Mitigation Measure Bio-2c**, **Mitigation Measure Bio-2d** and **Mitigation Measure Bio-2e**, together, will eliminate potential indirect impacts to California Clapper Rails and California Black Rails, reducing potential impacts to a level regarded as less than significant. The most significant impact at night would be realized from occurrence of games on the outdoor soccer field. The occurrence of users exiting the facility following indoor use has not been established nor is it anticipated to result in a significant noise impact. **Mitigation Measure AES-2** requires minimal exterior lighting after 10:00 PM, which would discourage assembly and gatherings in parking areas at night that could contribute to noise.

RESPONSE 45-26: Opinion regarding the feasibility of **Mitigation Measure BIO-2b** is noted. In response to this comment, the text of **Mitigation Measure Bio-2b: Permanent Conservation Area** on DEIR pages 2-9 – 2-10 and 7-67 has been deleted in its entirety and replaced with the following text (which is revised to simplify the text of the measure, while maintaining the important aspects of the established permanent buffer):

> "The Project Applicant shall designate the 100-foot upland buffer area on the Project site adjacent to the North Fork of Gallinas Creek as a permanent "conservation area" that will be protected through recordation of a declaration of covenants, conditions and restrictions on the property. A deed restriction shall be recorded that specifies the prohibited and the allowed uses of the buffer areas. The allowed uses would include the continued maintenance of the fields and levees, while the prohibited uses would prohibit any future development or land disturbance (outside of that required for routine maintenance and levee repairs) within the 100+-foot creek protection buffer that is designated as a conservation area. The deed restriction will become a condition of Project approval."

The establishment of a Permanent Conservation Area as specified in this mitigation measure would apply not to every marsh habitat along the North Fork of Gallinas Creek, but only to those portions of the Project site along the North Fork of Gallinas Creek, which are controlled by the Project Applicant. Implementation of this mitigation measure, together with **Mitigation Measure Bio-2a**, **Mitigation Measure Bio-2c**, **Mitigation Measure Bio-2d** and **Mitigation Measure Bio-2e**, will eliminate potential indirect impacts to California Clapper Rails and California Black Rails, reducing potential Project-related impacts to a level regarded as less than significant (DEIR page 7-69).

RESPONSE 45-27: Opinion regarding the internal consistency of **Mitigation Measure Bio-4c** is noted. In response to this comment, the text of the second bulleted paragraph under

Mitigation Measure Bio-4c: Nesting Raptors – Pre-Construction Nesting Surveys (DEIR pages 2-14 - 2-15 and pages 7-72 - 7-73) has been modified to read as follows:

> "If a nesting raptor species is identified, a 300-foot radius buffer around any active nest site that is located on or within 300 feet of the Project site shall be fenced with orange construction fencing. If the nest is off the Project site, the Project site shall be fenced where this buffer intersects the project area. This 300-foot buffer may be reduced in size if a qualified raptor biologist determines that the nesting raptors are acclimated to people and disturbance, and/or otherwise would not be adversely affected by construction activities. At a minimum, however, the non-disturbance buffer shall be a radius of 100 feet around the nest site. When construction buffers are reduced from the 300 foot radius, a qualified raptor biologist shall monitor distress levels of the nesting birds until the young fledge from the nest. If at any time the nesting raptors show levels of distress that could cause nest failure or abandonment, the raptor biologist shall have the right to re-implement the full 300-foot buffer. Instances when the buffer could be reduced in size would be if the raptors were well acclimated to disturbance and/or if there were physical barriers between the nest site and the construction project that would reduce disturbance to the nesting raptors."

RESPONSE 45-28: In response to this comment, the next to last bullet on DEIR page 3-54 ("U.S. Army Corps of Engineers") has been deleted. No permit will be required from the Corps for the activities proposed as part of the Project. Page 7-17 of the DEIR states that "the proposed Project will not result in impacts to the Corps' jurisdiction, and consequently, no permit will be required from the Corps for the activities proposed as part of the Project." The Project Applicant states that the SBAA validity period was extended by CDFG, and that it now expires on December 31, 2013.

RESPONSE 45-29: Opinion regarding the best way to protect people from airport hazards is noted. It is acknowledged that development of the Project site as proposed is intended to attract those who would use the proposed recreational facility to an area adjacent to an existing airport runway, creating a potential hazard addressed on pages 10-17 through 10-21 of the DEIR.

RESPONSE 45-30: See MASTER RESPONSE PD-1, above, which addresses the maximum number of persons who would be anticipated at the Project site at any given time, and the single-acre use calculations. **Impact Haz-1a** (DEIR page 10-17) indicates that were the highest estimated concentration of people in a single-acre area to exceed 200 people, this would represent a potentially significant impact. This impact could be reduced to a level considered less than significant through implementation of **Mitigation Measure Haz-1** (DEIR page 10-20). Opinion regarding DEIR evaluation of Project-related aviation hazards and associated mitigation is noted. As indicated in MASTER RESPONSE PD-1, above, the hazards study establishes the various safety zones that need to be analyzed, and adequately identifies the maximum occupancy which is anticipated to occur within the proposed

recreation facility building. Therefore, no change to single-acre use and risk reduction design features would be warranted, because the hazards analysis adequately assumes the highest intensity of use.

RESPONSE 45-31: As indicated on DEIR page 10-11: "According to the *Handbook*, the most direct means of limiting potential consequences of an off-airport accident is to limit the intensity of use." and "Although avoidance of intensive uses is always preferable, a concept which may be acceptable in some situations is special risk-reduction building design." Opinion that the City should reject intensive uses at the airport site is noted. Opinion regarding the appropriateness of development of the proposed Project at the airport site location is noted.

RESPONSE 45-32: Although the operation of aircraft near the Project site generates noise levels of up to 100 dBA (L_{max}), as indicated on DEIR page 12-2, and the short duration of these relatively high noise levels would disrupt speech at recreational activities, but not cause hearing damage to soccer participants or spectators were the Project site to be developed and used as proposed (DEIR page 12-15), the threshold criteria used to evaluate the potential significance of Project-related noise impacts are listed on DEIR pages 12-13 and 12-14, and are linked to exposure of persons to noise levels in excess of established standards, and not directly to potential hearing damage which could result from exposure to relatively high noise levels. While aircraft operations on the adjacent runway could disrupt the ability of coaches to communicate with soccer players at times, this would only be likely to occur between 2 and 11 times per day (DEIR page 12-15), and would not represent a significant environmental impact under the criteria identified on DEIR pages 12-13 and 12-14. Opinion regarding the need to be revised the DEIR to conclude that exposure to aircraft-related noise at the Project site represents a potentially significant impact is noted.

RESPONSE 45-33: See MASTER RESPONSE NOI-2, above, which addresses issues related to intermittent noise.

RESPONSE 45-34: Opinion regarding the adequacy of **Mitigation Measure N-1** is noted. As discussed in MASTER RESPONSE NOI-1, above, **Mitigation Measure N-1** on DEIR pages 12-21 and 12-22 has been modified to eliminate a soundwall as an alternative to restricting the hours of evening operation at the proposed facility. Opinion regarding the need to require closure of the outdoor fields at 9:00 PM in the event that a soundwall is required by the City but fails to reduce Project-related noise levels to meet the Noise ordinance standards is noted. Request to modify the proposed Project site plan to accommodate a soundwall, and to conduct environmental review on such a soundwall, is noted. This impact is addressed by **Mitigation Measure N-1** [as modified], which would ensure ongoing compliance with the City Noise Ordinance is achieved without need for a soundwall as an alternative, thus potential nighttime noise impacts would remain reduced to a less than significant level.

RESPONSE 45-35: **Mitigation Measure N-3** requires that quieter pile-driving procedures be implemented (such as pre-drilling holes), additional pile drivers be used to shorten pile driving duration, and pile driving activities be scheduled to avoid soccer/softball practices and games on the southernmost (closest) fields.

There are two different types of noise generated by pile driving activities: (1) instantaneous maximum noise levels when the pile driver hammer hits the pile (Lmax); and (2) continuous noise generated by operation of the engine or generating, which powers the pile driver. The San Rafael Noise Ordinance specifies a noise limit of "a maximum of 90 dBA at the nearest adjacent property." DEIR Chapter 12 indicates that pile driving noise (estimated at 85 dBA at the soccer fields in McInnis Park) would not exceed the 90-dBA ordinance noise limit for construction activities, a less than significant impact. However, the DEIR applies another significance threshold to further characterize noise impacts: speech interference. Therefore, the noise impact is described as having potentially significant speech interference effects during soccer or softball practices or games and the objective of the mitigation is not to reduce noise levels to below the 90-dBA ordinance limit, but to minimize the speech interference effects through the use of quieter techniques (e.g. reducing the number of noise peaks that occur when the pile driver hammer hits the pile). It is this momentary noise peak that can cause speech interference and which this mitigation addresses. Pre-drilling of holes reduces the number of blows by the pile driving hammer. In addition to quieter techniques, this measure requires the contractor shorten the duration of pile driving activities and schedule these activities to avoid practices and games when the southernmost (closest) fields are used. These measures address speech interference effects and therefore, a quantitative reduction by recommended mitigation is not relevant to reducing this impact to less than significant.

RESPONSE 45-36: On the contrary, the baseline condition used by the City of San Rafael in its traffic modeling is a more conservative approach that accounts for additional traffic on the system generated by projects approved but not occupied and current building vacancies that exist that would add to the existing traffic volume. This assures that the capacity analysis for the existing baseline condition accounts for all expected traffic volume in the near future. The City includes actual traffic counts, versus just using a traffic model which could miss actual impacts. The City approach is much more conservative and is a higher level of analysis. This way the City layers all potential impacts and avoids the potential for under-estimating impacts.

RESPONSE 45-37: Opinion regarding the validity of **Mitigation Measure Traf-1** in the absence of a performance standard for a Traffic Management Plan is noted. **Mitigation Measure Traf-1** has been eliminated, given that the Project Applicant proposes a new 2-lane bridge deck which negated the need for a TMP to address potential queuing that would have occurred if the existing 1-lane bridge were to remain.

RESPONSE 45-38: See MASTER RESPONSE TRA-3, above, which addresses Project-related effects associated with future SMART operations.

RESPONSE 45-39: See MASTER RESPONSE GHG-1, above, which address the evaluation of Project-related effects associated with climate change.

RESPONSE 45-40: See MASTER RESPONSE GHG-1, above, which address the evaluation of Project-related effects associated with climate change.

RESPONSE 45-41: See MASTER RESPONSE HYD-4, above, which addresses anticipated sea level rise and related effects at the Project site.

RESPONSE 45-42: The proposed Project would be considered a sensitive receptor in that it would attract children, who are more sensitive to air pollutants than the general population. The California Air Resources Board (CARB) has issued recommendations regarding the siting of new sensitive land uses major pollution sources. Recommendations are made regarding appropriate distances between sensitive land uses and freeways, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and gasoline dispensing facilities. These types of sources were evaluated from the standpoint of the proximity issue, and the listing reflects ARB's primary areas of jurisdiction – mobile sources and toxic air contaminants. The overwhelming risk associated with these sources is due to particulate matter from diesel engines.

There are currently no CARB guidelines regarding the siting of sensitive receptors near airports. While airports in general (particularly large airports) are known sources of Toxic Air Contaminants (TACs), the major risk from TACs at airports are from diesel particulate (associated with Ground Support Equipment utilized at major airports) and jet engine exhaust. The San Rafael Airport is a local general aviation airport that does not use Ground Support Equipment nor allow jet aircraft operations, so these major sources of airport-related TACs are not present.

Twin-engine planes and turboprop planes that use jet fuel may be based at the site. However, the vast majority of aircraft using the San Rafael Airport are single-engine piston powered planes using aviation gasoline. The criteria pollutants generated by gasoline-powered aircraft are similar to those generated by gasoline powered automobiles on roads and highways. Criteria pollutants generated by piston-powered gasoline engines are: Reaction Organic Gases (ROG), Nitrogen Oxides (NOx), Carbon Monoxide (CO), and Particulate Matter (PM_{10} and $PM_{2.5}$). Aircraft engines are essentially high-performance, high-horsepower versions of gasoline automobile engines, but without the emission controls hardware associated with cars. While emission rates are higher for aircraft compared to autos, the volume of "traffic" on the San Rafael Airport runway is relatively small, averaging 20 take-offs and 20 landing per day. The level or density of criteria pollutant emission along the runway is far less than along a lightly-traveled rural two-lane road, and would pose no hazard to persons using the proposed recreational facility.

There is one temporary source of TACs that is present at the San Rafael Airport. General Aviation (GA) aircraft are associated with lead emissions from the use of one hundred octane low lead (100LL) avgas. The lead is added to the fuel in the form of tetraethyl lead (TEL). Today, 100LL is the most commonly available type of aviation gasoline in the United States.[15]

Leaded gasoline for automobiles was phased out in the early 1990s. The aviation industry was given an exemption for 100LL, but EPA has announced a proposed rulemaking scheduled for 2010 that would phase out 100LL by 2017, eliminating General Aviation aircraft as a source of airborne lead.

Until the phase-out of leaded gasoline for aircraft, users of the proposed facility would be exposed to airborne lead from aircraft. The actual exposure of individuals is expected to be minute. Exposure is a function of several factors including the strength of the emission, the distance between the receptor and the emission, the duration of the exposure (how much time is spent on the site) and the prevailing wind patterns that determine how pollutants are transported and diluted.

The strength of the emission associated with airport operations is quite small. 100LL avgas contains a small fraction of the lead that was contained in automobile gasoline before its use was phased out, and the airport averages only 20 landing and take-offs per day. Only emissions taking place near the ground can affect neighboring properties, so emissions from aircraft in the air make little contribution to exposure.

The soccer warm-up field is the closest component to the runway. Its southern edge is roughly 160 feet from the centerline of the runway. The outdoor soccer field is further, as its southern edge is about 280 feet from the centerline of the runway. The proposed recreation building would be roughly 330 feet from the centerline of the runway.

Another consideration that emissions are not spread evenly over the runway. The greatest emissions density occurs at the start of take-off, when the amount for fuel being consumed is greatest and speed is at a minimum. Emissions from landings are minimal. Under normal operations, aircraft take off to the northeast, so the bulk of the emissions will occur at the southwest end of the runway and not in front of the proposed recreational facility. This means that the actual distance between the bulk of emissions and receptors will be much greater than the distance between a receptor and the runway. When strong west winds are present, take-offs occur from the northeast end of the runway, but during these conditions pollutants will be transported to the east, away from the proposed recreational facility and not will affect air quality within the proposed recreation facility.

[15] USEPA, Lead Emissions from the Use of Leaded Aviation Gasoline in the United States Technical Support Document, EPA420-R-08-020, October 2008

The duration of exposure for any one individual would not be high. Compared to residential exposure or even school time exposure, individual children would occupy the Project site for relatively few hours per year.

For all the above reasons, the Project would not be expected to expose children utilizing the facility to elevated levels of risk from leaded aviation gasoline. With the eventual phasing out of this fuel in the future, risks from leaded aviation gasoline would be reduced to zero.

RESPONSE 45-43: The DEIR did not identify any significant environmental impacts associated with extension of the existing waterline which serves the airport site to serve proposed development at the Project site. As indicated on Project plan sheet C-4 'Grading and Drainage Plan' prepared by Oberkamper and Associates on 12-14-06, sewer and water utility line connections are currently located on the Airport Property. Marin Municipal Water District and Las Gallinas Valley Sanitary Sewer District have reviewed the Project plans and have not identified any new or upgraded utility lines that would be required beyond the Project site boundary to serve the existing site and proposed Project. Under the significance criteria on DEIR pages 14-7, 14-8 and 14-9, development of the Project site as proposed would not require the Marin Municipal Water District to secure additional water supplies or seek expanded entitlements or to expand existing water distribution facilities (since the extension of the existing waterline serving the airport site would be completed at the Project Applicant's expense), would not require the construction of new water treatment facilities or wastewater treatment facilities to meet Project-related needs, and would not exceed the Las Gallinas Valley Sanitary District's ability to adequately meet the anticipated demand for wastewater treatment. Although there would be temporary construction-related effects associated with the installation of the water and sewer lines needed to serve the Project site (e.g., the generation of construction-related air pollutants, possible soil erosion which might adversely affect water quality, and construction-related noise), these potentially significant impacts could be reduced to a level of less than significant through implementation of the construction-related Mitigation Measures identified in the DEIR.

RESPONSE 45-44: See MASTER RESPONSE GI-1, above, which addresses issues associated with Project-related growth-inducement. Aside from the proposed Project, no development is anticipated at the airport site or elsewhere which could be served by water and sewer lines extended to serve the Project.

RESPONSE 45-45: See MASTER RESPONSE AES-2, above, which addresses issues associated with Project-related headlight glare.

RESPONSE 45-46: See MASTER RESPONSE HYD-2, above, which addresses the existing condition of levees in the vicinity of the Project site, including their ability to resist seismic shaking. Opinion regarding the need to include additional impact analysis related to the effects of seismic shaking on the existing levees is noted.

RESPONSE 45-47: Opinion regarding the adequacy of the DEIR's approach to the evaluation of cumulative effects associated with the development of the Project site as proposed is noted.

The list of Cumulative Projects Considered in DEIR **Table 14-1** (DEIR page 14-12) addresses all existing, pending and future anticipated projects (i.e., proposed, under review, under construction and built) located within the City and General Plan 2020 Planning Area at the time of DEIR preparation. These projects are consistent with the General Plan 2020 buildout scenario, and the General Plan 2020 Program EIR analysis. Further, these projects are: i) small in size, consisting of in-fill residential or commercial projects (e.g., installation of ancillary commercial equipment and renovations made to existing residential or commercial structures); ii) occurring on properties in a manner that is consistent with the underlying General Plan 2020 land use designation and policies, and applicable zoning regulations; and iii) on sites that are surrounded by urban development and currently served by existing public services and utilities.

The Cumulative Impact Summary on DEIR page 14-12 through 14-14 refers the reader to topic areas that resulted in incremental effects that were assessed in the DEIR. This included discussion of Project-related incremental effects on Air Quality, Land Use, Population/Housing and Traffic. Furthermore, the DEIR refers to the Climate Change analysis in the DEIR Chapter 15 (which was added to respond to Executive Order S-3-05 and AB 32, regarding global climate change). The categories mentioned in DEIR Chapter 14 either did not result incremental impacts requiring a cumulative impact analysis, or a cumulative impact analysis of impacts has been included in the discussion of the specific environmental impact. For instance, the traffic study has included analysis of the cumulative projects list contained in the DEIR, in addition to the proposed Project, in determining cumulative traffic impacts. DEIR Chapter 13 Traffic includes a discussion of cumulative impacts of the Project along with the existing approved and proposed future projects. Further, DEIR Chapter 6 - Air Quality, includes cumulative impact analysis of the Project's incremental increase in air pollutant emissions, which were not included in the General Plan 2020 Program EIR. Thus, the DEIR has identified and discussed all of the Project's incremental effects, and includes the cumulative impact analysis required for those environmental topic areas resulting in incremental effects in a manner that is consistent with the requirements of the CEQA Guidelines, Section 15130.

The topic areas that were not directly discussed within the DEIR Cumulative Impact Summary section include; Chapter 5 - Aesthetics & Visual Resources, Chapter 7 - Biology, Chapter 8 - Cultural Resources, Chapter 9 - Geotechnical, Chapter 10 - Hazards, Chapter 11 - Hydrology, Chapter 12 - Noise, and the Public Services and Utilities sections of Chapter 14. The reason that these areas did not require further discussion is evident based on the fact that all of the impacts associated with these categories are specific to this particular Project and either generate no incremental increase or the impacts have been mitigated, as necessary, to a less than significant level. The other projects identified in the Cumulative Projects

Considered list DEIR **Table 14-1** clearly would not have incremental impacts that are cumulatively considerable when combined with this Project, based on their relatively small size and location in areas that would fall of the geographic boundary of this Project, for purposes of analyzing cumulative impacts. For instance, other projects anticipated in DEIR **Table 14-1** and General Plan 2020 buildout would not generate incremental cumulative impacts in the following areas:

- Aesthetic or visual impact on the scenic resources and views in the area (i.e., as viewed from the trail along the creek bank).
- Biological impacts in the area are localized to the subject site and mitigated.
- No off-site or cumulatively considerable cultural resources impacts would result.
- Geotechnical impacts are specific to this site and addressed as a part of the Project.
- Site-specific airport hazards particular to the Project are identified and mitigated on-site.
- Hydrological impacts would not incrementally contribute to flooding downstream.
- Water quality impacts would be addressed through enhancement of the existing drainage ditches on-site to improve water quality before it enters Gallinas Creek.
- No other noise generating projects are proposed or anticipated that would affect the area and contribute to anticipated Project-related noise levels (other than SMART train services that have been discussed in the DEIR and evaluated in a separate certified EIR).
- The Project is not growth-inducing and would not exceed the ability of public utility and service providers to serve the Project, either individually or in an incremental manner when considered with other proposed and anticipated future projects.

Thus, all relevant cumulative impacts for this Project have been adequately identified and assessed in the DEIR. While the DEIR has satisfied the CEQA requirement for providing assessment of Cumulative Impacts, staff agrees that this section may be improved by expanding this discussion to incorporate all of the analysis which is contained within the various Chapters of the DEIR, into this section of DEIR Chapter 14. The revised Cumulative Impacts discussion has been provided in **FEIR Chapter 2 – Revisions of the Draft EIR**.

RESPONSE 45-48: Opinion that the DEIR incorrectly states that the Project is consistent with the site's zoning designation, Master Use Permit and Declaration of Restrictions is noted. Opinion that the accuracy of the DEIR evaluation of Project consistency with the site's zoning designation, Master Use Permit and Declaration of Restrictions invalidates the DEIR's cumulative analysis is noted. As discussed in DEIR Chapter 4, the Project has been

determined to be consistent with the General Plan 2020 and Declaration of Restrictions. The amendment to the PD zoning district and Master Use Permit are required to provide development standards to implement a land use that has been identified as allowed under the General Plan airport/recreation land use designation. Therefore, the Project proposes a use that is consistent with the General Plan and would not require a General Plan amendment. The General Plan 2020 Program EIR evaluated impacts of development under the General Plan 2020 buildout scenario. Therefore, there are no incremental land use impacts as a result of this Project and no further analysis of cumulative impacts for this category is required.

RESPONSE 45-49: Request that the entire cumulative impact analysis be revised is noted. As indicated in RESPONSE 45-47 and RESPONSE 45-48, above, the cumulative impact analysis has been conducted by the DEIR as required by CEQA for those environmental categories that have incremental impacts on the environment. See FEIR Chapter 2 for the complete revised Cumulative Impacts discussion that incorporates all pertinent discussion of impacts and the potential for incremental impacts that are contained in the various DEIR chapters into this section.

RESPONSE 45-50: See MASTER RESPONSE GI-1, which addresses issues related to growth inducement associated with development of the Project site as proposed.

RESPONSE 45-51: Opinion that the DEIR's analysis of potential growth-inducing impacts associated with development of the Project site as proposed is inadequate is noted. See MASTER RESPONSE GI-1, above, which addresses issues associated with Project-related growth-inducement. Aside from the proposed Project, no development is anticipated at the airport site or elsewhere which could be served by water and sewer lines extended to serve the Project, and the presence of the active airport and other site constraints limits the possibility of future housing development which could support population growth at the airport site.

RESPONSE 45-52: Opinion regarding the adequacy of the DEIR's evaluation of alternatives to the Project is noted.

RESPONSE 45-53: Although it has not been identified as an alternative in the DEIR, implementation of the Project as proposed including all of the Mitigation Measures identified in the DEIR would reduce potential project-related impacts to a level of less than significant, and would meet the basic objectives of the project.

RESPONSE 45-54: As indicated on DEIR page 16-7, the No Project alternative would involve the development of outdoor sports fields and warm-up areas which would conform to the existing PD District and Master Use Permit. As indicated in RESPONSE 18-1, above, with respect to the Wetland Overlay District, the Land Use table in Section 14.13.030 lists "Recreation facilities, private (indoors and outdoors)" as a conditionally permitted use, outside of wetlands. Given the fact that development under the No Project alternative would not be located in a wetland area, this use may be proposed by an applicant and considered by

the City. Private and public recreational uses (such as those assumed under the No Project alternative) are permitted at the Project site under the Declaration of Restrictions.

RESPONSE 45-55: With reduced development at the Project site under either the No Project alternative or the Reduced Development alternative, any environmental impacts associated with construction activity would be reduced relative to those construction-related Project impacts, although the character of these temporary construction-related impacts (e.g., air pollution, soil erosion and noise) would be similar. While the level of activity at the Project site following development under the No Project alternative or the Reduced Development alternative could be expected to be less than that associated with the proposed Project, the character of the operational environmental impacts associated with these two alternatives would be similar to the operational environmental impacts associated with the Project, and could be reduced to a level of less than significant through effective implementation of the Mitigation Measures identified in the DEIR.

RESPONSE 45-56: See MASTER RESPONSE ALT-1, which addresses issues related to alternative locations for the proposed Project.

RESPONSE 45-57: As discussed in *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553 (*Goleta II*), where a project is consistent with the approved General Plan, no off-site alternative need be analyzed in the EIR. The EIR "is not ordinarily an occasion for the reconsideration or overhaul of fundamental land-use policy." (*Goleta II, supra,* 52 Cal.3d 553 at p. 573). In approving the General Plan 2020, the City of San Rafael has already identified and analyzed suitable alternative sites for particular types of development and has selected a feasible land use plan. "Informed and enlightened regional planning does not demand a project EIR dedicated to defining alternative sites without regard to feasibility. Such ad hoc reconsideration of basic planning policy is not only unnecessary, but would be in contravention of the legislative goal of long-term comprehensive planning." (*Goleta II, supra,* 52 Cal.3d 553 at pp. 572-573). The Project is consistent with the City's General Plan 2020 goals and policies, as discussed on DEIR page 4-15.

RESPONSE 45-58: As indicated on DEIR page 3-10, the specific Project Objectives include qualification for traditional commercial mortgage financing providing 75 percent of Project costs, generation of a Project income sufficient to pay the mortgage and provide a reasonable rate of return on the 25 percent project down payment, and securing Use Permit conditions necessary for sports operators to succeed given Marin County's high costs of doing business. Any alternative which would reduce the intensity of level of use at the Project site as proposed (e.g., eliminating the indoor proposed recreational facility, reducing the proposed hours of use on the proposed outdoor fields), would jeopardize (or perhaps eliminate) the ability of the Project Applicant to generate a Project income sufficient to pay the mortgage and provide a reasonable rate of return on the 25 percent project down payment. In terms of the costs associated with alternative locations, the soccer operator has indicated that they can afford to pay between $0.60 and $0.65 per square foot to rent an existing building in Marin

County, but that large warehouse rents in Marin County generally ranged from $0.75 to $1.00 per square foot. As indicated on DEIR page 3-9, the General Objectives of the Project require that the proposed multi-sport recreational facility be economically self-sustaining without any financing from tax-payers.

RESPONSE 45-59: Opinion that a revised DEIR must be prepared and recirculated is noted.

RESPONSE 45-60: Opinion that the City must obtain substantial new information to enable adequate assessment of Project impacts is noted.

RESPONSE 45-61: Request that the City to delay further consideration of Project until revised DEIR is recirculated is noted.

MARY M. HANLEY
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May 7, 2009

Kraig Tambornini, Senior Planner
City of San Rafael, Community Development
PO Box 151560
San Rafael, CA 94915-1560

Re: San Rafael Airport / Recreational Facility - DEIR

Dear Mr. Tambornini:

Please accept my comments and questions regarding the DEIR for the Airport Recreational Facility. They are as follows:

RE: CHAPTER 4 LAND USE AND PLANNING - IMPACT ANALYSIS (PAGE 4-17)

Physically Divide or Disrupt an Established Community:

Listed below are just some examples of how the Smith Ranch Neighborhood and the Santa Venetia Community have monitored and engaged in order to protect the "habitat value" and the "environmental characteristics of the Airport site." 46-1

- 1983 Declaration of Restrictions (File #83062935, December 14, 1983)
- Declaration of Robert Roumiguiere regarding lawsuit to have Declaration of Restrictions lifted on Airport property Parcel B. (File #147042, October 20, 1991)
- Court of Appeal of the State of California Affirmation of Declaration of Restrictions for Parcel B. (File #A070133, 1996)
- Opposition to the Smith Ranch Airport's land deal offer to McInnis Park Master Plan in exchange to remove current deed restrictions on the use of the property. (DEIR McInnis Park Master Plan, June 19, 1991, Page 164)
- Participation in Vision San Rafael 2010 with primary focus on Smith Ranch Neighborhood and Land Use Elements. (Vision North San Rafael 2010, November 1997) to be included in the SRGP 2020.
- Participation in the Draft San Rafael General Plan 2020. (Policy Recommendations, July 12, 2001 and Housing Opportunity Sites, August 8, 2002)
- Participation in Initial Study/Mitigated Negative Declaration, Senior Planner Dean Parsons, January 24, 2001

- Participation in the 2002 Master Use Permit Process; Request for a Rezoning and Approval of Master Use Permit. (City Council Report, Agenda Item #14, March 19, 2001) (Please see attached Staff Report to Planning Commission)
- Participation in the annual review of the Airport Use Permit (October 28, 2003 and January 11, 2005)
- Participation in the Marin Countywide Plan Draft and Final Adoption November 6, 2007 – particular emphasis on the Airport Property including full endorsement of the Baylands Corridor to include Santa Venetia
- Participation in helping defend our two creekside Neighbors (along with 50 as-of-yet to be named "John Does") against a lawsuit filed by Airport Operators in connection with the proposed Soccer Complex (ongoing)
- Participation and formation of the Friends of Gallinas Creek and Wetlands Group. (November 15, 2005)
- Contributed to the Gallinas Creek Defense Council in order to properly address our concerns regarding Airport Recreation Facility to Planning Commission. (February 24, 2006)

SO....

Please provide the documentation and process that allowed the Airport/Recreation Land Use Designation into the City of San Rafael General Plan 2020 that is presently and obviously dividing and disrupting our established community.

Conflict with the Adopted goals and policies of the General Plan or other planning program adopted for the purpose of avoiding or mitigating environmental effects: 46-2

Page 16-6 & 16-7 (DEIR)

1. *... the proposed Project is not consistent with the current Planned Development District and Master Use Permit established for the Airport site.*
2. *... the existing Declaration of Restrictions allows for "private and public recreational uses," but not a recreational facility.*
3. *... if the proposed Project is disapproved, a future applicant could also submit a proposal for a project that includes recreational use consistent with the existing Planned Development District and Master Use Permit.*

Page 4-19 (DEIR)
... the General Plan 2020 defines allowable uses for the Airport/Recreation Land Use designation as: a) consistent with 2002 Master Use Permit

My comments regarding these statements are as follows:

The 2002 Master Use Permit was approved by City Council based in part on the Following Findings: (City Council Resolution #10795, page 2)

5. *The project is consistent with Declaration of Restrictions (covenant) on the property which includes the following allowable uses: an airport and related uses; future utility uses (as approved by government agencies); roadways; open space; and private and recreational uses.*
6. *The proposed use and associated improvements are consistent with the Vision North San Rafael in year 2010 Steering Committee's determination that the existing airport and its related uses are consistent with the Declaration of Restrictions (covenant).*

Vision North San Rafael in year 2010 Steering Committee (including Al Boro, Larry Paul, and Joe Shekou) acknowledged and accepted the Vision North San Rafael 2010 recommendation for and into the San Rafael General Plan 2020.

Vision North San Rafael participants recommended the following Land Uses and Policies for the Marin Ranch Airport as: Parks/Open Space (Vision 2010, page 28, attached)

So, In reference to my previous points from Page 16-6 & 16-7 (DEIR):

1. If the Airport/Recreation Land Use Designation is truly and factually consistent with the 2002 Master Use Permit, then why is the Applicant required to submit applications for Amendments to the current PD1764-WO district and the current Master Use Permit in order to establish appropriate standards and regulations for the indoor and outdoor Recreational Facility?
2. If the Airport/Recreation Land Use Designation were truly and factually consistent with the Declaration of Restrictions (Covenant); there would be NO Recreational Facility.
3. If the Recreational Facility is denied approval, the applicant could still submit a proposal that includes recreational use consistent with the existing Planned Development District and Master Use Permit.

And that would be fine....

Because, there would be NO potentially significant impacts, NO mitigation for the environment, and wildlife, NO EIR, and NO opposition from the surrounding neighborhoods. That is exactly what we expected and recommended by participating in the North San Rafael Vision 2010 with a Land Use Designation of Parks/Open Space and policies to be consistent with the Covenant.

Please explain the process, procedures, and documentation of how the Land Use Category/Designation changed from Parks/Open Space (Vision North San Rafael 2010) to the Airport/Recreation (General Plan 2020).

RE: CHAPTER 10 HAZARDS – IMPACT ANALYSIS (PAGE 10-14)

Exposure to Hazardous Materials and Substances: **46-3**

The DEIR states that *"There are likely hazardous materials on the airport site associated with airport operations and use; however, the airport operations would be separate and distinct from the operations of the proposed Project and would have no impact on the recreational facility's users. The site is not included on a list of hazardous materials sites maintained by the State Department of Toxic Substances Control. The fact that the site has not been farmed indicates there would be no potential impact associated with the exposure of the public to pesticides, contaminated soils or other hazardous farming-related materials. Therefore, no impacts would result in these areas as a result of the proposed Project."*

This statement is somewhat misleading. It gives the impression that Airport operations are and have been in complete compliance of the goals and policies regarding hazards and hazardous materials of the SRGP 2020.

After a brief discussion with an inspector with the Department of Toxic Control, I learned the following:

- The San Rafael Airport is a "Hazardous Waste Generator"
- Not to be included or indicated on the hazardous materials list is not any indication of "Good Housekeeping Practices."
- The only way to be included on the maintained hazardous material site is at the request of the Airport Owner ONLY.
- To verify "Good Housekeeping Practices," I could request a copy of the "Hazardous Material Business Plan" filed with our local Fire Department as well as "copies of inspections." I haven't, but I hope someone will/has.

She also suggested I try Geo-Tracker on the internet/web. I did, there I found the California Regional Water Quality Control Board File #2150047(REL) dated February 23, 2007 *"...Completion of site investigation and remedial actions for pollutant releases..."*

Summarily; although there will be no Hazardous Material at the proposed project site, they are present at the Airport Maintenance/Operations site directly adjacent to the ONLY access road to the proposed Recreation Facility.

I find that scenario to be significantly more than, *"less than significant."*

Airport Land Use Plan and Hazards in Vicinity of a Public or Private Airstrip: 46-4

The Aeronautical Safety Review, prepared by Mead & Hunt, April 15, 2008, may be inefficient in recommending appropriate mitigation measures.

Here are my reasons:

Mead & Hunt utilized Report #ZC05-01/UP05-08/ED05-15, dated February 28, 2006. From this information provided they estimated the area with the greatest potential use intensity (crucial in determining the level-of-risk) to be 10 acres. This number appears to be inconsistent with other Project Site Acreage listed in the DEIR. (e.g. 9.2 acres and/or 4.6 acres)

The information provided by the Sports Center also does not indicate the normal maximum occupancy of the Facility. Mead & Hunt estimated the level of risk by using two other methods:

1. Parking Ordinances
2. California Building Codes

During a recent discussion with a soccer enthusiast, I learned the following:

- Currently, Sports City has two facilities in Sonoma County.
- Players/leagues travel from all over Sonoma County, Vallejo, and on occasion, San Francisco, to play each other as well as participating in tournaments.
- Players will meet at designated spots and carpool together to Sports City.
- Presumably, Marin County will be absorbed into the Sports City curriculum.
- Also, no match game is complete without having a "few beers with your mates."

This scenario; by decreasing the number of required parking spaces, it also increases the number of the building's occupants. Thereby eliminating Mead & Hunt's ability to properly and accurately estimate the level-of-risk and Intensity of Use.

Currently, there are five obstructions to the required 7:1 Transitional Surface. These obstructions could be ALSO exceptionally potentially significant as to final "elevation" grade changes. The Project's final elevation level is yet to be determined. I would also like to emphasize the fact that two of the five obstructions include the entrance/exits to the building; thus requiring additional red light indicators to warn pilots of these obstructions to their airspace.

Because of these inabilities and inconsistencies in accurately analyzing the level-of-risk, I would like to make the following recommendations:

1) When the proposed outdoor lighting issues are returned to the DRB for review, a copy of Mead & Hunt's Aeronautical Safety Review should be made available to

DRB for review, recommendation, and/or modification for proper "Special-Risk Reduction Construction Features" to the building's current architectural design for approval.

2) That Mead & Hunt's approval, as well as
3) FAA Authorization Form 7460-1 and FAA determination of "No Hazard to Air Navigation," as recommended by Mead & Hunt, and
4) San Rafael Fire Department approval that the Airport's Aircraft Operations and Maintenance site/property is in compliance with their "Hazardous Material Business Plan,"

be added to the list of ***Required Project Approvals and Permits*** found on page 3-54 of the DEIR. Only then can we be assured that the safety hazards and mitigation measures regarding Airport Land Use will be properly and adequately addressed and implemented into the final proposal.

Thank you for your consideration,

Mary Hanley

Mary Hanley

Attachments:

1) Staff Report to Planning Commission re 2002 Master Use Permit
2) Pacific Sun Article
3) Vision North San Rafael 2010, page 28 of 36
4) Vision North San Rafael Committee Members List

It is anticipated that a total of 6,500 cubic yards of fill would be required for the proposed development. An estimated cut of 5,800 cubic yards of fill located in the "Bauman Fill Area" is to be utilized for needed fill on the site. Approximately 700 cubic yards of additional fill will be required for proposed development.

The site is located within the 100-year flood zone based on a designation by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM). The proposed modular residences and the new non-aviation building finished floor levels are required to be raised a minimum of seven feet above mean sea level so that the site is raised above the anticipated 100-year flood level. At the project entry/parking lot, the grade level is to be raised approximately 3.5 feet to a final elevation of 3-4 feet above mean sea level. No placement of fill for any development is to occur within 100 feet of wetland edges.

As a part of the proposed new construction, six new drainage inlets are to be installed within the expanded easterly drive aisles that will serve additional airplane hangars on the eastern portion of the site. In addition, three new grease and sediment traps would be installed to collect such materials prior to entering the existing open drainage ditch. The new paved driveway and parking lot at the project entry is to be drained into an open swale that runs parallel to the North Fork of Gallinas Creek in an east/west direction. At the east end of the drainage swale, a grease and sediment trap would be installed.

ANALYSIS - 2002 MUP

San Rafael General Plan 2000 Consistency

As noted above, in December 1983, the City of San Rafael, Marin County and the property owner entered into a Declaration of Restrictions (covenant) on the airport property. The proposed project is consistent with the covenant, which restricts use of the property to the existing use of an airport and related uses, recreation, open space, public utility uses as approved by appropriate government agencies (including flood control, sanitary sewer, gas and electric, and public safety facilities). The validity of this declaration was confirmed several years ago.

The San Rafael General Plan 2000 indicates that the site may not otherwise be developed without modification or elimination of this Declaration. However, the General Plan, when adopted, assumed that there was the potential for the declaration to be modified or terminated. With this in mind, the General Plan adopted the various land use designations that presently are applied to the site. If the Declaration was to be modified or terminated, then the site was envisioned to be developed with residential uses, a neighborhood convenience center, a marina, golf course or possibly a neighborhood park to serve Northgate area residents.

While the airport property is designated for neighborhood commercial, residential and park/open space use, these designations were established assuming that the airport site would be redeveloped. However, General Plan Policy NG-7 states that the airport "as presently sized is considered an acceptable existing land use." Therefore, continuation of the airport with the existing non-aviation related uses at its existing intensity would be consistent with the project site's General Plan land use designation and General Plan policies. During the upcoming General Plan update, a re-designation of the General Plan land use designation for this property

may be considered given that the Declaration of Restrictions on the property have been confirmed as valid.

The Noise Element of the City of San Rafael General Plan 2000 contains goals and policies to evaluate the noise impact of new projects. The General Plan noise background section indicates that if the airport remains and does not increase in operations, it would be "acceptable" from a noise impact standpoint, although it has generated complaints from neighbors due to the high peak noise levels generated by some planes.

Zoning Ordinance Consistency

PD-WO Rezoning

The property is zoned PD-WO (Planned Development – Wetland Overlay) District. Planned Development zoning was applied to most properties that were formerly zoned "Unclassified" (U) in the previous Zoning Ordinance. The site has a Wetland Overlay zoning designation due to the existence of wetlands that surround the site.

The Planned Development District requires that any requests for changes to a current development plan to be treated as a Zoning Amendment (rezoning). Since the proposed project includes the construction of new buildings on-site, a rezoning application has been submitted, consistent with the requirements of the Planned Development District.

Master Use Permit

As part of the Planned Development District regulations, a Master Use Permit is required to for non-residential development. The existing Use Permit for the airport expired in 1995 and the new Master Use Permit request allows the City to assess the impacts of the proposed development and uses.

The previous Use Permit authorized both the continued operation of the private airport and the 100-based aircraft, plus several non-aviation uses that had been previously established at the airport site. The non-aviation uses consist of contractors storage yards, warehouses and shops; boat repair, a greenhouse distributor, truck storage, and a tree service. Please see Exhibit 11 for a complete inventory of the existing non-aviation uses. The inventory includes the tenant name, the type of use, a description of the use, the number of employees, a description of the company vehicles and equipment and an update to any modifications to the previously authorized 1992 Use Permit or subsequent modifications.

No intensification of non-aviation uses is proposed. As a part of the proposed Master Use Permit/Development Plan, the proposed new entry design requires the elimination of some existing older commercial buildings. The proposed improvements require the demolition of several previously authorized non-aviation uses (see Exhibit 9 – Applicant's Letter). The buildings proposed to be demolished or removed include: three metal shipping containers totaling 480 square feet; two small storage buildings totaling 1,600 square feet; a 500 square foot contractor's office (totaling 2,560 square feet). The proposed new building is a 2,450 square foot metal light industrial building. A specific use for the building is not proposed at this time,

Pacific Sun 11/15/91 See you there!

Fighting city hall

The folks in North San Rafael are mad as hell ...

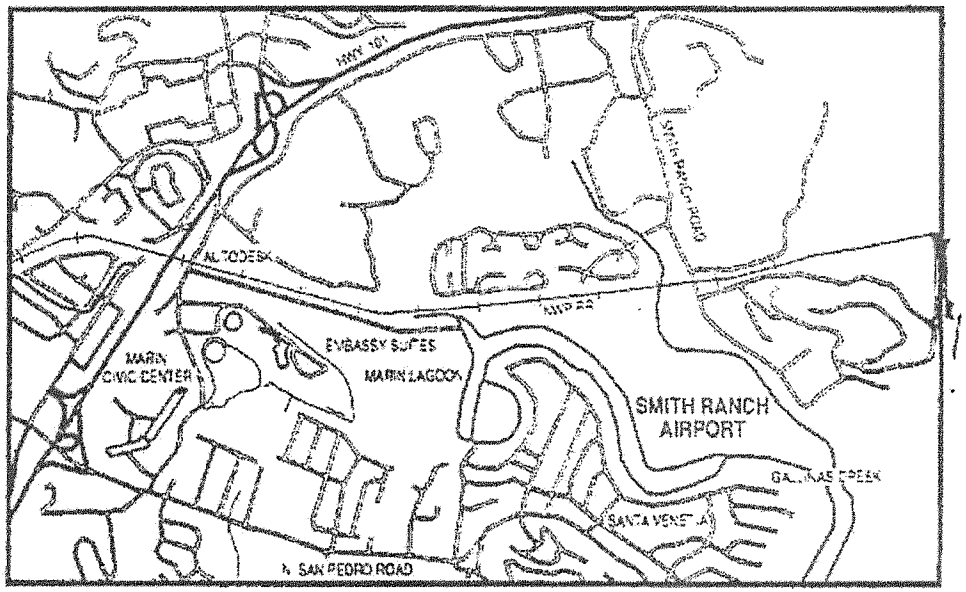
BY JILL KRAMER

Public officials, take warning: the folks in North San Rafael are dead serious about democracy. If they suspect a smoke-filled back room, they'll kick down the door.

Members of this community have fought city hall over a number of development projects in recent years, and they're getting good at it. The next skirmish is set for November 20 at 7:30pm, when a special meeting of the San Rafael Planning Commission will consider whether to renew the use permit for the Smith Ranch Road airport.

A development restriction, now in some jeopardy, was placed on the 120-acre airport property in 1985 when it was part of a parcel that extended westward nearly to Highway 101. The city and county agreed to allow a higher-than-usual density near the freeway in order to keep the more sensitive wetlands to the east free from development.

After that agreement was signed, both parcels were sold to developer Joe Shekou. Because of the development restrictions, the eastern portion with the airport on it sold for a mere $400,000. Shekou then gave former San Rafael city manager Bill Bielser a 10 percent interest in the airport property.



According to county counsel Doug Maloney, Shekou has testified that no money changed hands on that deal; he brought Bielser in, says Maloney, "because he felt Bielser had the political knowhow to get the property approved" for development.

Since then the western parcel has seen considerable development, including the Embassy Suites hotel, the Autodesk complex and the Marin Lagoon condominiums — and there's more to come. The eastern parcel, in addition to serving as an airport, is also used as grazing land for sheep and storage space for contractors. The use permit is worded vaguely, but is understood to limit the property to activities that will pose no threat to the environment.

The neighbors went on the alert in 1988 when, as the City of San Rafael revised its General Plan, city and county officials held private meetings with owners Bielser and Shekou about future development possibilities on the restricted airport property. A recommendation was then written into the final plan calling for 370 houses, a shopping center and a marina or golf course "should the City, County and property owner agree to modify the Declaration of Restrictions."

A storm of protest from the community

3

Policy Development

Amend the General Plan, zoning ordinance and other regulations consistent with the Vision.

1. Consider flexibility in floor area ratios in order to respond to changing business needs.
2. Marin Ranch Airport. Amend the General Plan land use designation to Parks/Open Space, and amend the General Plan policies to be consistent with the covenant.*

   ** The intent of the Steering Committee's General Plan recommendation is to recognize the unique and valuable recreational and environmental characteristics of the Marin Ranch Airport site. The San Rafael General Plan Parks/Open Space land use designation's allowed uses are "Dedicated parks, secured open space, and areas identified as having visual or other natural resource significance that should be protected through the development review process." In addition, the Steering Committee notes that the following uses are listed in the Declaration of Restrictions (covenant) for Marin Ranch Airport, and recommends that they be allowed as activities on the site:*

   - Existing uses consisting of an airport and related uses.
   - Public utility uses as approved by the appropriate government agencies, including flood control, sanitary sewer, gas and electric, and public safety facilities.
   - Airport and airport related uses.
   - Roadways.
   - Open space.
   - Private and public recreational uses.
3. Site at 4300 Redwood Highway along the north fork of Las Gallinas Creek (Fairchild site). Allow office, light industrial, business-serving retail and service, and restaurant uses, and:
   - Prohibit big box retail.
   - Provide creek restoration and widening to handle flooding and improve habitat.
   - Assure quality building design.
   - Provide a pedestrian and bicycle path along the creek with connections to the bike path along the railroad.

North San Rafael Steering Committee Members

Jim Atchison
Ida Baugh
Al Boro
Amadeus Colenbrander
Ann Crew
Carol Dillon
Carol Durham
Jerry Edelbrock
Shirley Fischer
Kitty Forde
Peter Galli
Elissa Giambastiani
Rev. Lon Haack
Tom Hinman
Ben Lowe
Ian MacLeod
Phyllis McGuire
Larry Paul
Gary Phillips
Lauren Pizzi
Joe Shekou
Roger Smith
Ann Song-Hill, co-chair
Valerie Taylor
Pat Webb, co-chair

North San Rafael Organizations

Autodesk
Catholic Charities
Christ Presbyterian Church
Christian Church of San Rafael
City of San Rafael Volunteer Center
Congregation Rodef Shalom
Dixie Elementary School
Dixie School Board
Environmental Forum
Fair Isaac
Federation of San Rafael Neighborhoods
First Congregational Church
Kiwanis
Los Ranchitos Improvement Association
Lucas Valley Homeowners
Lutheran Church of Resurrection
Marin County League of Women Voters
Marin A.I.A. Task Force
Marin Association of Realtors
Marin Builders Exchange
Marin Conservation League
Marin County Office of Education
Marin County Parks and Open Space Commission
Marin Fellowship of Unitarians
Marin Lagoon Homeowners Association
Marin County Farmers Market
Miller Creek Middle School
Miller Creek Middle School Home & School Club
Mont Marin Homeowners Association
North San Rafael Coalition of Residents
Northgate Industrial Park Business Group
Northgate Mall
Quail Hill Homeowners Association
Rafael Meadows Improvement Association
Terra Linda Valley Property Owners
R.U.F.E.S.
St. Isabella's Elementary School
St. Mark's School
San Rafael Chamber of Commerce
San Rafael City Council
San Rafael Downtown Vision Committee
San Rafael Library Board
San Rafael Park and Recreation Commission
San Rafael Planning Commission
Santa Margarita Homeowner's Association
San Rafael Sunrise Lion's Club
Santa Venetia Improvement Association
Smith Ranch Airport Pilots Association
Terra Linda High School Home & School Club
Terra Linda Homeowners Association
Terra Linda Leadership Class
United Way
Vallecito PTA
Vallecito SLT
Vallecito Elementary School
Valley Baptist Church
Villa Marin Homeowners Association
Volunteer Center of Marin
Y.M.C.A.

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Paul Tuttle, Moore Iacofano Goltsman, Inc.
Carie DeRuiter, Art Director
Tim Lehane, Graphic Designer

The Steering Committee is grateful to Ian MacLeod for his illustrations depicting our vision of North San Rafael—may they serve as inspiration to imagine the possibilities.

LETTER 46: Mary M. Hanley, May 7, 2009

RESPONSE 46-1: The process for preparation of the General Plan 2020 is described on pages 1 through 7 of the General Plan 2020. This was a collaborative community effort, which followed the requirements of California law (which requires all cities and counties to prepare and adopt general plans). As noted in San Rafael General Plan 2020 (page 311), the City Council adopted General Plan 2020 on November 15, 2004. The Plan was adopted by Resolution No 116655, and is the long-range plan for the City of San Rafael. Documents regarding the extensive planning effort and public process followed for preparation and adoption of the General Plan 2020 are available for review at City Hall. The time period for challenging the adopted land use designations has lapsed. Furthermore, the current General Plan 2020 Airport/Recreation land use designation applicable to the subject site covers the proposed private recreational facility land use, and would not require an amendment to the General Plan 2020. Thus, providing the documentation related to the adoption of the General Plan 2020 and the land use designation established for this property is beyond the scope of this EIR. However, in an effort to respond to the questions and concerns raised by interested parties, the process regarding adoption of the land use designation for this site has been further discussed herein.

The process to prepare the San Rafael General Plan 2020 was started in year 2000, as an update of the previously adopted General Plan 2000. San Rafael General Plan 2020 (page 311) states "For three years a 19-member Steering Committee, which was carefully and intentionally selected by the City Council as a balanced and diverse group of people representing a wide range of community interests, identified planning issues, and drafted goals, policies and programs." On August 4, 2003, the Steering Committee submitted their draft Plan to the San Rafael City Council. The Planning Commission also conducted 14 public meetings over a period of 8 months to review the draft plan. The general plan process included the preparation of a technical background report, and certification of an EIR for the draft General Plan 2020.

San Rafael General Plan 2020 includes a Land Use Element, which is a state-mandated element of a general plan. Land Use Policy LU-23 includes adoption of the list of land uses and a land use map that designate types of land uses envisioned by the General Plan within the City of San Rafael and its planning area (Land Use Categories Exhibit 11 and General Plan 2020 Land Use Map Exhibit 12). The Airport/Recreation land use category was applied to the San Rafael Airport Property, which includes the Project site. This land use category implements the uses allowed under the underlying land use covenant agreed to by the City, County and property owner (i.e. Declaration of Restrictions, recorded at the County of Marin on December 15, 1983, as document no. 83062935). The General Plan 2020 land use designation replaced the previous General Plan 2000 land use designation, which designated the Airport property (including the Project site) for Medium Density Residential/Low Density Residential/Neighborhood Commercial land uses with Golf Course and Declaration of Restriction policy notations. (General Plan 2000 Land Use Plan Exhibit GP-4a). The

former General Plan 2000 Policy NG-7 that applied to the property referred back to the property Declaration of Restrictions that encumbers the property. The land uses established on the map were identified in the event the covenant were modified or eliminated. General Plan 2000 was adopted by Resolution No 7771 on July 18, 1988, and was in effect until adoption of General Plan 2020.

Opinion that the current General Plan land use designation of the Project site is dividing and disrupting the community is noted. As indicated on DEIR pages 4-17 and 4-18, there are no aspects of the Project as proposed that would physically divide any established community, such as construction of a new roadway which would split an existing neighborhood into two or more parts.

RESPONSE 46-2: Opinion regarding the extent to which the Project as proposed is consistent with the 2002 Master Use Permit is noted. Opinion regarding the extent to which the Project is consistent with the Declaration of Restrictions is noted (see MASTER RESPONSE PD-2, above, which addresses issues related to the Declaration of Restrictions). Opinion on the possible action which might be taken were the Project as proposed to be denied is noted. See RESPONSE 46-1, above, with respect to additional documentation related to the process through which the Project site was designated as "Airport/Recreation" in the City of San Rafael General Plan 2020.

RESPONSE 46-3: As indicated in this comment (and on DEIR page 10-1), the airport site stores, maintains and uses materials considered to be hazardous as part of aircraft maintenance and overall airport operations. This qualifies the airport as a Hazardous Waste Generator. As indicated on DEIR page 10-1, the Project site is located on a 9.1-acre portion of the 119.52 overall airport site, in an area that is physically separated from the portion of the site which supports aircraft operations and maintenance, and which has never supported the aircraft operations and maintenance which require the storage, maintenance and use of hazardous materials. Those using the access road to enter and exit the Project site would not be exposed to any significant hazards associated with the use of hazardous materials in aircraft operations and maintenance nearby. Opinion regarding the significance of the potential for those moving to or from the Project site to be exposed to hazardous materials related to aircraft operations and maintenance is noted.

RESPONSE 46-4: Opinion regarding the adequacy of the Mead & Hunt Aeronautical Safety Review is noted. Development of the Project site, if approved, would be required to comply with all applicable provisions on FAR Part 77 with respect to obstruction lighting, regardless of what the Project's final elevation level will be. See MASTER RESPONSE PD-1, above, which addresses the maximum number of people anticipated at the Project site at any one time, and the calculation of the single-acre use factor. Request that the Mead & Hunt Aeronautical Safety Review be made available to the Design Review Board (DRB) is noted. Request the Mead & Hunt review any modified architectural designs for the proposed Project following DRB review is noted. As indicated on DEIR page 10-26 (**Mitigation Measure**

Haz-2), prior to issuance of building permits or authorization to construct, the Project Applicant should submit a *Notice of Proposed Construction or Alteration* (Form 7460-1) to the Federal Aviation Administration (FAA) and obtain from the FAA a determination of "*No Hazard to Air Navigation.*".

As indicated by the San Rafael Fire Department (e-mail from Steven J. Rupanow, Fire Inspector 1, Fire Prevention Bureau, to Kraig Tambornini, Senior Planner, City of San Rafael, June 10, 2010), the airport did not have a Hazardous Materials Management Plan in place at the time of DEIR publication. The only site on the airport that would require such a plan is the fuel island, and the Project Applicant was working on the plan which was due by the end of November 2010. The plan has since been prepared and accepted by the County and is current.

LETTER 47

Kraig Tambornini

From: Tamara Hull [tamarahull@yahoo.com]
Sent: Thursday, May 07, 2009 5:04 PM
To: Kraig Tambornini
Cc: Bob Brown
Subject: Soccer complex

Dear Mr. Tamborini,

I struggle to reconcile the potential approval of the proposed soccer complex with the City of San Rafael's newly adopted Climate Change Action Plan. **47-1**

Why would the City want to approve the building of any large structure in an area that is projected to be flooded or underwater in a few years?

It's one thing to be "stuck" with projects, such as McInnis Park Golf Center and the San Rafael Airport, because they were approved before anyone realized the importance of their impact on the surrounding wetlands. But we're not that ignorant any more.

I suspect that the reason this project is still being discussed is because the soccer complex was first proposed nearly 4 years ago, before ordinary citizens, like myself, became aware of the environmental and community impacts, not to mention the potential drain on city resources, when building projects such as this.

Why approve building something that will become a thorn in your side when the owners start demanding city services to prevent flooding? **47-2**

I've recently had to review FEMA's new flood zone maps to determine if my home in Santa Venetia was in a flood zone. (Luckily, it's not, but it's 3 homes from one.) When I review the same maps, I see that the proposed location for this soccer complex is either in a Floodway Area zone AE or a Floodway Area zone X. (It's really hard, as a layperson, to determine where the soccer complex will actually be placed.)

If the soccer complex is in Floodway Area zone AE, as I suspect it is, then this is what FEMA says about it on their map: "The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights."

This soccer complex certainly seems like it would be an encroachment.

If the soccer complex is in Floodway Area zone X, then this is what FEMA says about it on their map: "Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas of less than 1 square mile; and areas protected by levees from 1% annual chance flood."

Neither flood zone seems like an acceptable place to build a structure.

I urge the City of San Rafael's Planning Commission to vote no on this project. It's a nice idea but in the wrong location. **47-3**

LETTER 47 (continued)

Sincerely,

Tamara Hull
39 Meadow Drive
San Rafael, CA 94903

LETTER 47: Tamara Hull, May 7, 2009

RESPONSE 47-1: See MASTER RESPONSE HYD-4, above, which addresses issues associated with an anticipated increase in sea level, and MASTER RESPONSE HYD-3, above, which addresses the flooding effects of a possible levee breach at the Project site. Opinions regarding Project consistency with the City's Climate Action Plan, and a possible future demand from the property owner at the Project site for City services to prevent on-site flooding, are noted.

RESPONSE 47-2: See MASTER RESPONSE HYD-1, above, which addresses the assessment of potential flooding impacts at the Project site. Opinion regarding the acceptability of building the proposed structure at the Project site is noted.

RESPONSE 47-3: Comments that the Project is a nice idea in the wrong location, and request that the Planning Commission reject the proposed Project, are accepted and noted.

LETTER 48

Kraig Tambornini

From: anne oklan [akoklan@hotmail.com]
Sent: Thursday, May 07, 2009 3:08 PM
To: Kraig Tambornini
Subject: DEIR of proposed soccer complex at San Rafael Airport

Dear Mr. Tambornini,
As you know, the proposition to establish SMART train was passed by voters in Marin and Sonoma Counties in 2008. Construction of the rail line and pathway project is slated to start in 2011 and operation of the trains is expected to commence in 2014.

The DEIR does not address the impact of SMART on the soccer complex. The existing railroad tracks which are expected to be used by SMART trains, run across the entrance/exit to the proposed soccer complex. The impact of SMART on traffic into and out of the soccer complex, such as the number of times per day that traffic will be stopped due to train passage and subsequent backup onto neighborhood streets, needs to be addressed. Also safety issues with regards to construction of gates and appropriate warning lights at the railroad crossing, need to be addressed as well. **48-1**

Thank you for your attention to this matter.

Anne Oklan
705 Vendola Drive
San Rafael, CA 94903

LETTER 48: Anne Oklan, May 7, 2009

RESPONSE 48-1: See MASTER RESPONSE TRA-3, above, which addresses issues related to SMART operations.

LETTER 49

Marin Audubon Society

P.O. Box 599 | Mill Valley, CA 94942-0599 | marinaudubon.org

May 7, 2009

RECEIVED

MAY 12 2009

COMMUNITY DEVELOPMENT
CITY OF SAN RAFAEL

Planning Commission
City of San Rafael
P.O. Box 151560
1400 Fifth Avenue
San Rafael, CA 94901

Att: Kraig Tambornini, Senior Planner

RE: SAN RAFAEL AIRPORT RECREATION FACILITY

Dear Commissioners:

Thank you for considering Marin Audubon Society's comments on the Draft Environmental Impact Report for the San Rafael Airport Athletic Facility. Our comments include a biological assessment prepared by noted Clapper Rail expert, Jules Evens of Avocet Research Associates (ARA). The report documents a number of errors in the DEIR discussions on Clapper Rails, in particular presenting recent survey data that Clapper Rails do indeed utilize the tidal marshes adjacent to the project site. The report also makes recommendations to protect the Clapper Rail population. We request that all comments and conclusions made in the ARA report, as well as our comments below, be responded to by the EIR consultants. **49-1**

The project is described as consisting of an indoor sports building that would house two soccer fields, court areas for dance and gymnastics, a 14,400 foot viewing deck above and between the soccer fields, a lighted outdoor soccer field and an unlighted soccer warm up area, a paved parking lot for 184 cars, a gravel overflow parking area, and a new 25-foot wide deck over the existing bridge over Gallinas Creek, all situated on a portion of a 119.52 property currently occupied by the San Rafael Airport and related facilities.

The owner purchased the property knowing that there was a Declaration of Restriction on the property between the city of San Rafael, First National Bank and the County of Marin which allowed intensive development on portion of the property nearest the highway. The intent was to have low impact use on the remainder and the uses were specifically restricted to the airport because it was an existing use, open space, roadways and recreational use. It was not intended that recreational use would include a massive building. **49-2**

Our specific comments on the DEIR are as follows:

PROJECT DESCRIPTION

We found several discrepancies in the description of the project that should be cleared up: **49-3**

page 3-11 indoor recreational facility is described as being 87,700 square feet and on page 3-9 the indoor sports fields/courts etc. are described as being 71,300 square feet. The project site is described as being 9.1 acres in size on page 3-1 and other pages, and 4.4 acres on page 11-27. Interestingly the impervious surface area is described as being 4.6 acres on page 11-27.

The use of artificial turf should be discussed. What are the potential benefits (e.g. less use of water, less use of pesticides) and adverse impacts (e.g. loss of habitat by covering soil so that invertebrates cannot survive in the soil, contamination of the local environmental with pieces of plastic, eventual need to replace and dispose of the plastic material) of using artificial turf? Impacts to wildlife, the environmental and human health should be discussed. **49-4**

LAND USE

The discussion of compliance with the site zoning is inaccurate. The property is zoned Planned District (PD) - Wetland Overlay District. The purpose of a PD designation is to ensure the property is planned as a whole. The application for this project is not consistent with this designation because the application only applies to a very limited area (approximately 9.1 acres) leaving significant portions out of the planning area. Approving the project would piecemeal the planning and would set the stage for future development of the remaining undeveloped land. There also would be inadequate consideration of cumulative impacts. If some small portion of the property is to be used, a Master Plan should be required for the entire site. **49-5**

BIOLOGICAL RESOURCES

Inaccurate analysis of Impacts to Clapper Rail
– The DEIR erroneously claims there are no Clapper Rails in the marsh adjacent the to project site. Community members have observed Rails on this section of marsh, a local photographer has photographic documentation of Rails using that section of the marsh, and surveys by Avocet Research Associates have all found Rails on the south side of the creek near the project site. **49-6**

Project Setting:
The discussion on pages 7-1 and 7-3 contains inaccuracies, faulty analyses and conclusions. There is no viewing platform at McInnis Park, only a boat launch for non-motorized boats that was installed long before there was any indication or knowledge of the importance of Gallinas Creek for Clapper rail. Now that the importance of this habitat is realized, we encourage its removal. If it remains in place, the impacts of the athletic complex should be evaluated as cumulative together with the impacts of the existing use of this dock, the trails and other use. These cumulative impacts would be significant. **49-7**

Many of the active uses, including the golf course, restaurant, batting cage, are located well away from the creek. The McInnis Park trails are characterized as being "heavily used by pedestrians with dogs....." This is a mischaracterization. The trail use is passive for walking, running, etc. We have never witnessed it being heavily used as noted in the DEIR. Even if it were, again, this would not justify a huge project that would attract many hundreds of people and add to the **49-8**

cumulative adverse impacts. Significantly increased impacts can be anticipated.

Failure to comply with San Rafael General Plan Policies:
Contrary to the discussion on page 7-13, the project does not comply with General Plan policy CON-5 which states "**Diked Baylands. Protect seasonal wetlands and associated upland habitat contained within undeveloped diked baylands, or restore to tidal action.**" The entire property is diked baylands, that are either diked seasonal wetland or associated uplands. The DEIR's justification is that the "...project site is located adjacent to the existing airport runway, and is maintained through routine mowing and maintenance, no longer provide the beneficial functions and values that are generally associated with diked baylands." Of course, the policy has no such restrictions. The current condition of the wetlands does not have any relevance to of protecting diked baylands. It has no requirements that diked baylands and associated uplands have to provide "functions and values currently associated with diked baylands." This interpretation is a fabrication designed to support the project and it is completely irrelevant and misleading. Failure to comply with this general plan policy should be identified as a significant adverse impact. **49-9**

Clapper Rail Discussion is Misleading and Inaccurate **49-10**
While the consultants may (or may not) have used accepted protocols and did not detect Clapper Rail, this does not mean they do not use the adjacent marsh. Surveys by Clapper Rail expert found Rails in the marshes immediately adjacent to the project site (see attached report)

The DEIR discussion on page 7-22 emphasizes that Rails readily acclimate to human presence (e.g. Palo Alto Baylands) and that only nesting locations are important. All tidal marsh areas are important for Rails. Rails need marshes for foraging and movement between habitats, and particularly dispersal of young. If all that remains is nesting habitat, the species will nor survive. Regarding Palo Alto Baylands, the kinds of uses that would occur with this project are quite different than those that occur in the area where rails are observed in the Palo Alto Baylands. This project will have many hundreds of people playing active sports, many spectators cheering etc. At Palo Alto the people are primarily walkers and birders wanting to see the birds, and along with some people parking. **49-11**

The conclusion that "rails seemed to be well acclimated to a high degree of human activity" is self-serving and questionable. The proposed project would significantly increase the uses adjacent to the creek and, therefore, significantly increase the impacts to the existing Rail population of this important creek, and limit potential use of this area by other Rails in the future.

The discussion of potential noise impacts on page 7-65 also emphasizes the consultant's view that the Rails have already become acclimated. It is not clear that this is anything but the opinion of consultants and the people who hired them. But even if it does not consider the fact that these particular rails will not be living forever. Narrow marshes are needed as movement corridors between larger marshes and as dispersal habitats for young Rails moving out on their own. All Rails do not have the same tolerance nor should we expect or want them to. Further, tolerance to the presence or people would leave the Rails vulnerable to being caught by dogs, cats or harmed by people. Also, acclamation of the Rails to people should not be the guiding principle.

Ensuring native habitat that provides protection, nesting and movement for rails should be.

Considering the inaccuracy of the DEIR analysis and the presence of the Clapper Rails on the adjacent marshes, misinterpretation of Clapper Rail presence near human use areas, and the inadequacy of the buffer area provided (see ARA report) the DEIR conclusion must be changed to indicate that the impacts to Clapper Rails are not reduced to a less than significant level.

Salt Marsh Harvest Mouse
The DEIR claims that for Harvest Mice the "Project will not result in impacts to potentially occupied habitat along Gallinas Creek. Since the Marsh habitats and uplands adjacent to this creek corridor will be protected." Actually this claim is inaccurate as Harvest Mice have been found several hundred feet or more from tidal marshes. They seek refuge in these lands during high tides. **49-12**

Impact BIO-1 Listed Anadromous Fish Species.
The discussion deals only with Coho salmon. Chinook move past Gallinas Creek during out migration. What is the potential for them to stop rest and forage in nearby marshes? **49-13**

Discuss the impact of the pile driving for the bridge on fish. Experience around the bay is that sound waves generated by pile driving have killed fish by bursting their bladders. See comments on "quiet pile driving" below. **49-14**

Impact BIO-2 California Black and Clapper Rail Impacts **49-15**
A 100-foot buffer is proposed between the project and the top of the levee. As discussed by ARA, this measurement is inaccurate and insufficient to protect the rails. As recommended in the ARA report, the USFWS recommended buffer of 250 feet should be applied.

None of the proposed mitigation measures will adequately reduce the noise impacts to a level of insignificance. "Quiet pile driving" procedures (predrilling of holes) is suggested as a remedy for noise impacts. The discussion of impact should describe what this technique involves, evaluate its effectiveness in protecting fish and wildlife, and identify where it has been used effectively, to protect the same or similar species, elsewhere. Describe these procedures and how it would effectively reduce noise levels? How quiet would the pile driving really be? Has it been used in endangered species habitat? Discuss vibrations from the drilling and predrilling? These questions must be answered in order to allow the effectiveness of this as a mitigation program to be evaluated. **49-16**

Not commencing construction until July 1, as noted on page 7-66 and many other discussion, is not an adequate mitigation because the Clapper Rail nesting season extends to September 1. We cannot imagine why the USFWS would allow construction to begin along the Creek that has the largest Clapper Rail population in the North Bay, on July 1, when other projects have to comply with the standard protocol. **49-17**

MM BIO-2 Perimeter Fence/marsh impacts
The stated purposes of the 10-foot tall perimeter is to keep balls out of the marsh. While this may **49-18**

work for most balls, balls will undoubtedly still get into the marsh. A management plan should be required that will ensure that balls do not remain in the marsh decaying and contaminating the habitat and/or that people are not constantly entering the marsh to retrieve the balls. If the intent of the fence is to keep balls our of the marsh, it should be taller than 10 feet.

We see the main benefit of the fence as keeping people and dogs out of the marsh. In addition, signs informing people to stay out of the marsh should be required.

There also should be a requirement for the fence to be maintained.

MM BIO-2b Conservation Area
What reason is there to believe that a requirement for a deed restriction for maintenance of the habitat area for conservation would be effective in protecting the habitat. First of all, while we have no problem with the city having review power, the city does not have the biological expertise necessary to ensure survival of the endangered species. The responsible agencies, USFWS Endangered Species and DFG, should have the review power. Also, who would be the holder of the easement? Finally, considering that the property owner is trying to remove himself from the existing deed restriction, why should there be any confidence that this recommendation would be effective? **49-19**

MM BIO 5-d makes a similar recommendation for a conservation easement for burrowing owl mitigation lands. What agency would hole this easement and take on the responsibility for policing the property owner's compliance? Holding a conservation easement carries responsibilities to monitor and enforce easement restorations. What entity would be willing to take on this responsibility? **49-20**

MM BIO 2-c Levee Maintenance
As discussed above, no work should be done until September 1. **49-21**

Additional Mitiagation Needed
2-c We agree that no mowing should be allowed on the face of the levee adjacent to the project site. In fact, the applicant should be required to revegetate the area with native grasses and shrubs of sufficient height to provide cover for the Rails along this edge. **49-22**

There is no mention of control for domestic animals. This would be an attractive out-of-the-way location for people to dump unwanted cats or let dogs run loose. There should be a prohibition of feeding or dumping cats and maintenance of feral cat colonies on the property. Dogs should be required to be on-leash at all times. **49-23**

MM BIO-2d Avoidance Measures
It is unclear what black mesh exclusion fencing would be made of. Plastic should not be used because it can break or degrade. The resultant pieces can be injested or otherwise harm clapper Rails and other species. Some other method of excluding construction activities from the Rail habitat should be used. **49-24**

MM Bio-2-e The activities of marsh species are guided by the tidal cycles, not night and day. The recommendation, to be protective, should ban activities during high tides when rails are forced up onto adjacent high ground. **49-25**

MM BIO-3a Nocturnal Lighting
This mitigation discussion claims that hoods and cut-off lenses make the light source itself not visible to the naked eye from neighboring properties. This analyses simply assumes that the wildlife will be protected just because neighbors cannot see the light source. Just because the light source is not visible to people does not mean that there would be no impacts to wildlife. What spectrum of light might adversely impact the Rails and other wildlife on and adjacent to the project site? Do wildlife have the same spectrum vision as people. How about glows? Where have these fixtures been used? Where have they been used adjacent to tidal marshes? How effective have they been in avoiding impacts to endangered species? **49-26**

MM BIO 6-a Bridge Construction
Again, the discussion stating that the bridge construction would begin August 1 is in error. The bridge construction including pile driving and moving the surface would be right next to and in the marsh. **49-27**

Impact Bio-9 CDFG Jurisdiction
The SBAA expired on December 31, 2008. It is not clear whether this would be renewed with different conditions, or if it would be renewed at all. **49-28**

GEOLOGY AND SOILS

MM GEO-1 Geotechnical Engineering Recommendations
Significant imported fill will be required. Where would the fill come from? What would assure it is of acceptable quality? How many truck loads would be required to import the fill? What are the impacts of all of these truck loads on streets and local residents? **49-29**

As noted above, pile driving noise is annoying and can be harmful to people, can cause death of fish and adversely impact other wildlife. This should be identified as a potential impact, and mitigations should be discussed. **49-30**

HYDROLOGY AND WATER QUALITY

Exploratory borings found groundwater 10 feet down, and the discussion acknowledges that ground water fluctuates seasonally. It is important to know the date the borings were done. In winter or spring it is likely the groundwater table would to be much higher and, therefore, construction would be more complicated. **49-31**

MM Hyde-2 Drainage Swales
What measures would be used to ensure the grassed swales recommended to filter pollutants from runoff continually consist of a "dense, uniform growth of fine-stemmed herbaceous plants" in our Mediterranean climate with no rain all summer? How and where would they be **49-32**

constructed.

On-site Runoff Quality
It does not appear that the oil and grease from airplane repair and petroleum residues from the airplanes using the runway are recognized as being part of the runoff from the site. **49-33**

Impact Hyd-2 Flooding as a Result of Levee Failure.
The impact description states that the levee is protected by nine foot levees. Nine feet from what? What is the datum used for this height? Is it NAVD, NAVD? **49-34**

Does the 85-acre area projected as being subject to flooding by Obercamper (page 11-31) second paragraph, include the area on which this project is proposed? **49-35**

Extensive fill will have to be placed to raise the elevation of the building pad to finished grade 1.5 foot NAVD (page 3-19) but finished grade elevation in the indoor building is stated to be +10 on page 3-20. building will be encased with a five foot tall concrete block walls. Approximately 32,000 cubic yards of fill would need to be imported.with only 3,000 coming from on-site. **49-36**

Where will the fill come from? What guarantee would ensure it would not be contaminated? What is the potential for mudboil or waves in the nearby tidal marsh as the result of all of the additional weight of the earth fill and concrete walls?

Sea Level Rise
The DEIR (Page 11-34) uses an EPA prediction of sea level rise of 0.5 feet in San Francisco Bay by the year 2050. It concludes that the impacts of sea level rise would be insignificant until 2050 and, therefore, dismisses the significance of this impact. The discussion fails to recognize that sea level rise will be gradual and, therefore, adverse impacts will be gradual, not begin to be significant all of a sudden in 2050. Such an erroneous and simplistic explanation is faulty and misleads the public who would be adversely impacted. **49-37**

This entire discussion should be revised and updated. The April 17, 2009, BCDC staff report LIVING WITH A RISING BAY: VULNERABILITY AND ADAPTATION IN SAN FRANCISCO BAY AND ON THE SHORELINE reports "Global warming is expected to result in sea level rise in San Francisco Bay of 16 inches (40 cm) recent projections that sea level rise in San Francesco Bay by mid century...." (Summary page 1) This is a significantly more alarming scenario than presented in the DEIR. The discussion should be revised and expanded to consider information and recommendations of the BCDC report and to consider the significance of the sea level rise that will far exceed .5 feet and when the rise could be anticipated to place properties and people occupying adjacent low lying lands at risk. The airport property is clearly shown on figure 1.12 in the BCDC report as a property that is vulnerable to flooding with a 16 inch sea level rise.

One of the mitigation measures that should be discussed to address the very significant impact of sea level rise is not building in lowlying baylands that are in the path of projected sea level rise

would increase the risk to people and properties well beyond what already exists.

OTHER EFFECTS

Water Use - According to the DERI, "the applicant has not indicated that recycled water will be utilized." (Page3-17) At this time, when there are increasing uncertainties about water supply, there should be no option, but that this project be required to use reclaimed water particularly when it is so close to Las Gallinas Treatment Plant which has a MMWD's reclaimed water facility. **49-38**

Growth Inducing
The DEIR does not adequately address the growth inducing impacts. If this huge project is approved for a limited amount of land owned by this developer, it will only be the beginning. He would undoubtedly want to develop additional undeveloped portions of the property. **49-39**

ALTERNATIVES ANALYSIS

The No Project Alternative fails to comply with CEQA. To consider a vague, poorly defined project that doesn't even exist, and may never even be proposed our built, as the No Project Alternative is simply an outrageous distortion. A no project alternative must be based on current conditions. In this case, the current condition is no development at all. **49-40**

The DEIR does not present an adequate range of alternatives. A reduced project alternative that does not have a building should be presented. **49-41**

The Alternative 3 analysis is specious. The DEIR concludes that all significant environmental impacts can be mitigated to less than significant because the project would conform to the land use designation and constraints of the site provided mitigation measures are implemented, potentially significant impacts can be mitigated, and the applicant would likely withdraw his application, the offsite location was considered but rejected. We strongly disagree with this self serving analysis. As discussed above, all of the significant impacts are not mitigated to a level of insignificance. Further, since when is it the city's purpose to ensure applicant's don't withdraw? **49-42**

Thank you for considering our input, questions and concerns.

Sincerely,

Barbara Salzman, Co-chair
Conservation Committee

Phil Peterson, co-chair
Conservation Committee

LETTER 49: Barbara Salzman, Co-Chair, Conservation Committee, Phil Peterson, Co-Chair, Conservation Committee Marin Audubon Society, May 7, 2009

RESPONSE 49-1: The ARA assessment prepared by Jules Evens is presented above as LETTER 40. See the RESPONSES to LETTER 40 with respect to the accuracy of the DEIR's assessment of Project-related impacts on the California clapper rail.

RESPONSE 49-2: See MASTER RESPONSE PD-2, above, which addresses the Declaration of Restrictions in relation to the Project as proposed. Opinion regarding the intent of the Declaration of Restrictions with respect to development at the airport site is noted.

RESPONSE 49-3: As indicated on DEIR page 3-9, the area of indoor sports fields/courts proposed at the Project site is 71,300 square feet, and the area of the proposed indoor viewing deck is 14,400 square feet, so the total square footage of indoor space proposed at the Project site is the combination of the two values, or 85,700 square feet, as indicated on DEIR page 3-11. The reference to a 4.4-acre Project site on DEIR page 11-27 relates to the project as described at the time of the Oberkamper & Associates Hydrologic Analysis, and as noted on that page, the Project Description has been modified since that analysis was completed in November, 2005. As indicated on DEIR page 3-1, the Project site is 9.1 acres.

RESPONSE 49-4: There are presently no federal, state, or local restrictions or limitations on the use of synthetic turf for outdoor athletic surfaces, and the proposed installation of synthetic turf as part of the Project would not violate any existing regulations intended to protect human or environmental health. While synthetic turf is composed of chemical elements that may be subject to leaching in some cases (there appear to be no easily-accessible, peer-reviewed studies evaluating the extent to which this might actually represent any serious threat to water quality and aquatic environments), the routine use of fertilizers, herbicides (such as Roundup), and pesticides to maintain natural turf playing surfaces may pose a greater long-term threat to water quality.

Based on revise of available information, it is considered reasonable to conclude that elimination of fertilizer and herbicide application would off-set any potential impact related to chemical leaching from artificial turf, the precise effects of which are presently unknown. Literature review found inconsistent and conflicting data regarding chemical leaching, mostly related to the use of crumb rubber (a component of some artificial turfs). Crumb rubber is commonly used as ground cover under playground equipment, and as a surface material for running tracks and athletic fields. Several public fields in San Francisco have been or are in the process of being converted to artificial turf. San Francisco Recreation and Parks found no documented exposure problems from runoff leaching.

Two researchers (William Crain, Ph.D., Professor of Psychology at City College of New York and President of Citizens for a Green Riverside Park; and Junfeng Zhang, Ph.D., Professor and Acting Chair, Department of Environmental and Occupational Health, the

School of Public Health, the University of Medicine and Dentistry of New Jersey and Rutgers University) took samples of recycled rubber granules taken from A-Turf athletic fields surfaces in 2006, and in evaluating the samples for the presence of fifteen polycyclic aromatic hydrocarbons (PAHs) and toxic metals, found that both samples had concentrations of six PAHs in excess of the concentration levels that the New York State Department of Environmental Conservation (DEC) considers sufficiently hazardous to public health to require their removal from contaminated soil sites. They indicated that it is highly likely that all six PAHs are carcinogenic to humans, and indicated that although their findings based on the two samples are preliminary (and acknowledging that PAHs in rubber might not act the same way as in soil, and that the ease with which the PAHs in these rubber particles might be absorbed by humans by ingestion, inhalation, or absorption through the skin is unknown), they believe it would not be prudent to install synthetic turf until more is known. Although the New York City Parks Department was informed of these findings, it was not known if the Department had altered its plans to continue the installation of artificial turf in numerous City parks. (from "Rachel's Democracy & Health News #873, September 21, 2006, http:/www.precaution.org/lib/06/prn_toxins_in_synthetic_turf_rev. 060921.htm). A follow-up analysis conducted in October 2006 and January 2007, which tested three samples of rubber granules from athletic fields surfaced with FieldTurf for the presence of fifteen PAHs found concentrations of three PAHs to be in excess of the concentration levels that the DEC considers sufficiently hazardous to public health to require their removal from contaminated soil sites in at least one sample. The PAH that exceeded the DEC's tolerable level in all three samples was dibenzo (a,h)anthracene, which the International Agency for Research on Cancer considers to be one of the most dangerous PAHs. This follow-up study found fewer PAHs that were at hazardous levels than the earlier study (from "Rachel's Democracy & Health News #873, April 12, 2007, http:/www.precaution.org/lib/07/prn_toxins_in_ synthetic_turf_rev.070405.htm).

More recent research completed by the University of California, Berkeley (Rachel Simon, University of California Berkeley, Laboratory for Sustainability and Manufacturing, *Review of the Impacts of Crumb Rubber in Artificial Turf Applications,* February 2010) concludes that use of cryogenic crumb rubber for synthetic turf applications is safe for use in sports and athletic field environments. Further, the study points out that the environmental impacts of natural grass are more complex than those of synthetic turf due in large part to the need for continual addition of inputs to sustain the health of grass fields (e.g., water, fertilizer, mowing and maintenance practices). Following proper installation, maintenance and use practices, crumb rubber is considered to be generally safe and have not been proven as unhealthy or causing physical harm.

The placement of synthetic turf at the Project site as proposed would cover soils which currently support invertebrates, and without the level of soil aeration and exposure to rainfall currently provided, the covered areas would not provide acceptable habitats for many invertebrates normally found in local As shown on DEIR Figure 7-2, there are no soil-dwelling invertebrates designated as Special Status Species that have been identified in the

vicinity of the Project site. Using the standards of significance identified on DEIR pages 7-59 through 7-60, loss of soil-dwelling invertebrate species and their habitat as a result of the installation of artificial turf would not be regarded as a significant Project-related impact.

At some point, any artificial turf installed at the Project site would need to be disposed of at the end of its useful life. This synthetic material has not been identified as hazardous by any regulatory agency, and is likely to be suitable for disposal at the Redwood Sanitary Landfill which is expected to remain in operation through 2039 (see DEIR page 14-10).

RESPONSE 49-5: Comment that the DEIR discussion of Project consistency with the current zoning at the Project site is inaccurate and piecemeal in that it applies to only a portion of the site is noted. In fact, the PD amendment applies to the entire airport site area that is within the jurisdiction of the City, not just this 9.1 acre site.

Comment that the site needs a Master Plan is noted. The existing PD 1764 zoning ordinance addresses some of the uses allowed under the General Plan 2020 land use designation (and Deed Restriction). However, these entitlements essentially were limited to the existing developed portions of the airport, with some modification and expansion permitted. At that time, no development was proposed within the remaining vacant portions of the site located north and south of the runway; other than mowing and disking, and grazing sheep for vegetation management.

The DEIR Chapter 4, pages 4-1 through 4-3, notes that the entire airport site is a single 119.5-acre parcel, of which the southerly 43.3 acres is located in the County jurisdiction (including a significant portion that is located under the South Fork of Gallinas Creek). The existing approved and permitted airport facilities consists of the hangar buildings, permitted non-aviation uses, two residences, administrative offices, parking areas and runway, which occupy roughly 38 acres of the site. The Project area, which is located on undeveloped lands north of the runway, account for roughly another 16 acres of the total airport property. The Project development would utilize 9.1-acres of this portion of the site, with the remainder of this area used for access improvements, and as a private open space buffer that is called for between the Project improvements and the North Fork of Gallinas Creek. Thus, the PD amendment would address use of all the remaining developable lands on the north side of the runway, in addition to the existing airport facility improvements. The remaining undeveloped lands located on the south side of the runway, and within City limits, comprise roughly 15 acres of vacant land; which does not include the 43.3 acres of additional property area that falls within the County jurisdiction. This area is currently cut-off from the existing access road and the utilities currently available that would serve the proposed Project. Thus, it is likely that this area would remain vacant/undeveloped land, and would likely continue to be used for grazing and mowed for wildlife management purposes only. Thus, based on the site constraints applicable to the property south of the runway, the Applicant has not proposed any further development on this side of the property. It is worth noting that any proposal to

amend the Project, including established PD zoning regulations and allowable land uses, may trigger the need to revise the DEIR should additional development be proposed.

RESPONSE 49-6: The presence of California clapper rail near the Project site in the North Fork of Gallinas Creek is not disputed in the DEIR. The DEIR documents the results of the 2007 USFWS-approved California clapper rail protocol survey conducted by Monk & Associates in the marsh habitats near the San Rafael Airport Recreation Facility Project site. **Figure 7-5** in the DEIR (page 7-57) documents where Monk & Associates detected clapper rails during this survey, indicating that there were multiple California clapper rail sightings. In addition, the DEIR states that in 2007 two nesting territories were identified near the Project site.

RESPONSE 49-7: **FEIR Sheet 1** (page C&R-21, above) shows the location of the existing outlook pier on the opposite bank of the North Fork of Gallinas Creek. Monk & Associates acknowledges that over the past 50 years there have been cumulative impacts along the Gallinas Creek corridor, and the outlook pier is one example of impacts to the marsh habitats along this creek. It is important to point out that the proposed Project will not result in impacts to marsh habitats and thus will not contribute to the cumulative impacts to the marsh habitats along Gallinas Creek.

RESPONSE 49-8: The DEIR describes the high level of disturbance associated with all sides of the two branches of Gallinas Creek in the vicinity of the Project site. Immediately to the north of the North Fork of Gallinas Creek is the County of Marin John F. McInnis Park and Golf Center that includes a restaurant and parking areas, a golf course and driving range, mini golf, batting cages, and two athletic fields. In addition, there is a pedestrian trail along the northern bank of the North Fork of Gallinas Creek, across the creek channel from the Project site. The pedestrian trail is heavily used by pedestrians with dogs that also use the designated "off-leash" dog park associated with the John F. McInnis Park. Finally, the Mt. Tam Picnic Area is located immediately adjacent to the marsh vegetation along the northern bank of the North Fork of Gallinas Creek, and the McInnis Park Wetland Preserve includes a wildlife viewing dock that extends into the channel from the northern bank of the North Fork of Gallinas Creek. The land uses surrounding the Project site are shown on **FEIR Sheet 1** (page C&R-21, above). The land uses on the northern bank have no buffer between the occupied marsh habitats and the amenities at the John F. McInnis Park. In contrast, the proposed buffer between the Project site development envelope and the top of the levee varies between 130 feet and over 250 feet. Therefore, an appropriate buffer zone would be in place to protect California clapper rails from disturbance. Monk & Associates stated that the pedestrian trail is heavily used since Monk & Associates observed many pedestrians with dogs walking on this trail during the surveys conducted by Monk & Associates staff, and the fact that the trail is worn bare by frequently foot traffic. Other comment letters received on the DEIR indicate that many local residents frequently use this trail.

RESPONSE 49-9: The General Plan policy specifies: "Diked Baylands. Protect seasonal wetlands and associated upland habitat contained within undeveloped diked baylands" (underline emphasis added). Since the Project site no longer provides the beneficial functions and values that are generally associated with diked baylands, and the site is not located within undeveloped diked baylands, this policy would not apply. Furthermore, there are no wetlands mapped within the portion of the Project site proposed for development. A wetland delineation of the Project site was conducted by WRA (Wetlands Research Associates) on September 7, 2005. The *Jurisdictional Area Delineation* report prepared by WRA was submitted to the U.S. Army Corps of Engineers (USACOE) for verification. The USACOE visited the site on October 26, 2006 and verified a jurisdictional map. **Figure 7-1** of the DEIR (page 7-27) shows that there are several wetland areas north of the portion of the Project site proposed for development. These areas were not within the area that was confirmed by USACOE. Regardless, these wetlands will not be affected by the proposed Project and, in fact, are protected within the 100+ foot buffers from the proposed Project facilities.

Although uplands associated with seasonal wetlands are present at the Project site, as indicated in the DEIR (page 7-13) these uplands do not currently provide habitat values, as they have been actively maintained to discourage use by wildlife in the interests of aviation safety for many years.

RESPONSE 49-10: The presence of California clapper rail near the Project site in the North Fork of Gallinas Creek is not disputed in the DEIR. The DEIR documents the results of the 2007 USFWS-approved California clapper rail protocol survey conducted by Monk & Associates in the marsh habitats near the San Rafael Airport Recreation Facility Project site. **Figure 7-5** in the DEIR (page 7-57) documents where Monk & Associates detected clapper rails during this survey, indicating that there were multiple California clapper rail sightings. In addition, the DEIR states that in 2007 two nesting territories were identified near the Project site.

The survey conducted by Monk & Associates in 2007 was approved by the USFWS. The field surveys were conducted following guidelines consistent with the 2000 USFWS *Draft Survey Protocol for California Clapper Rail*. In accordance with this survey protocol, Monk & Associates conducted protocol call count surveys once a week for five weeks. Protocol surveys were conducted on February 5, February 14, February 20, March 5, and March 15, 2007. In addition to the required protocol surveys, two follow-up surveys were conducted by Mr. Monk and Ms. Anderson on May 2 and July 2, 2007 in order to better determine exact nesting locations and determine nesting success. Hence, the survey effort and the dates of the 2007 field surveys were consistent with the USFWS requirements.

RESPONSE 49-11: The multiple surveys conducted along Gallinas Creek during the nesting season indicate that clapper rails successfully nest/reproduce in the marsh habitats along this creek. The DEIR describes the high level of disturbance associated with all sides of the two

branches of Gallinas Creek in the vicinity of the Project site. Hence, for clapper rails to persist in this area they must be successfully reproducing, and thus one must assume that the clapper rails have become accustomed to heavy human disturbances in this area. Wildlife, and birds in particular, are able to habituate to human beings and associated disturbances, especially when the stimuli is predictable (routine or repeated sounds) and when the disturbances that are non-threatening, as illustrated by Knight and Temple 1995[16], Knight and Cole 1995[17], and Riffell et. al. 1996[18]. The proposed buffer between the Project site development envelope and the top of the levee varies between 130 feet and over 250 feet. Therefore, an appropriate buffer zone would be in place to protect California clapper rails from disturbance.

RESPONSE 49-12: Monk & Associates recognizes that if salt marsh harvest mice were present in the channel, they would occasionally seek refuge in the uplands immediately adjacent to the channel during extreme high tides. However, it is unlikely that a salt marsh harvest mouse would ever venture beyond the top of the levee or onto the proposed Project site area due to the absence of suitable habitat (no dense marsh vegetation or suitable escape habitat) and the lack of sufficient cover beyond the top of the levee (this area is frequently mowed). Protective buffers that are well over 100 feet from the top-of-bank of the North Fork of Gallinas Creek ensure that there would be no impacts to the salt marsh harvest mouse from implementation to the proposed Project.

RESPONSE 49-13: The DEIR (pages 7-61 through 7-63) addresses potential impacts to Coho salmon (*Oncorhynchus kisutch*) and steelhead trout (*Oncorhynchus mykiss*). Based on the information provided in the *Historical Distribution and Current Status of Steelhead (Oncorhynchus mykiss), Coho Salmon (O. kisutch), and Chinook Salmon (O. tshawytscha) in Streams of the San Francisco Estuary, California* (Leidy 2003[19]), Chinook salmon are not known to occur in Gallinas Creek or the Miller Creek watershed. Regardless, implementation of various mitigation measures detailed in the DEIR will reduce potential Project-related impacts to anadromous fish to a level considered to be less than significant. As an aside, anadromous fish do not forage in marshes.

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[16] Knight and Temple 1995. Chapter 6: Origins of wildlife responses of recreationists, Wildlife and Recreationists: Coexistence Through Management and Research. Editors: Richard L. Knight and Kevin J. Gutziller, Island Press, 1995 Washington, D.C.

[17] Knight and Cole 1995. Chapter 5: Factors that influence wildlife responses to recreationists, Wildlife and Recreationists: Coexistence Through Management and Research. Editors: Richard L. Knight and Kevin J. Gutziller, Island Press, 1995 Washington, D.C.

[18] Samuel K. Riffell, Kevin J. Gutzwiller, Stanley H. Anderson. 1996. Ecological Applications Vol 6, No. 2 (May 1996). Pp 492-505

[19] Leidy, R.A., G.S. Becker, and B.N. Harvey. 2003. Historical Distribution and Current Status of Steelhead (*Oncorhynchus mykiss)*, Coho Salmon (*O. kisutch)*, and Chinook Salmon (*O. tshawytscha*) in Streams of the San Francisco Estuary, California.

RESPONSE 49-14: **Mitigation Measure Bio-1a** [as modified]in the DEIR (page 7-62 and 7-63) details the timing of the Project activities designed to minimize impacts to federally listed anadromous fish species that may occur in the North Fork of Gallinas Creek. The bridge pile-driving dates are restricted to September 1 and October 15, when potentially occurring anadromous fish are not expected to occur in the North Fork of Gallinas Creek. Thus, pile driving is not expected to impact special-status fish species.

RESPONSE 49-15: See RESPONSE 40-19, above, related to buffers intended to protect California Clapper Rail and California Black Rail.

RESPONSE 49-16: Opinion regarding the effectiveness of mitigation measures identified in the DEIR to reduce Project-related noise impacts is noted. See RESPONSE 45-35, above, which addresses how implementation of **Mitigation Measure N-3** would reduce Project-related noise impacts associated with pile driving in terms of speech interference (pile driving would not be expected to exceed City of San Rafael standards for construction noise impacts). As indicated in RESPONSE 45-35, above, pre-drilling of holes (as indicated in **Mitigation Measure N-3**) reduces the number of blows by the pile driving hammer. In addition to quieter techniques, this measure requires the contractor shorten the duration of pile driving activities and schedule these activities to avoid practices and games when the southernmost (closest) fields at McInnis Park are used.

RESPONSE 49-17: See RESPONSE 40-24, above, which addresses the timing of construction activity at the Project site as it relates to California clapper rail.

RESPONSE 49-18: See MASTER RESPONSE BIO-5, above, which addresses issues related to ball retrieval and the effects of balls going into marsh areas. Suggestion that a management plan to deal with balls which enter the marsh areas is noted. Opinion regarding the appropriate height of a fence to prevent balls from entering the water is noted. These comments have also been addressed by MASTER RESPONSE BIO-5, which confirms the 10-foot height limit as sufficient to provide a barrier between occupants of the site and the buffer zone, and limit access into the area for ball retrieval to facility management.

To ensure that the marsh habitat and the upland buffer along the North Fork of Gallinas Creek is protected, a fence shall be installed around the perimeter of the proposed Project area, and human access into this buffer area will be prohibited except as required by maintenance/operation personnel for continued levee maintenance and other required airport operational tasks that are routinely practiced today. The fence will be ten-feet tall along the soccer field and warm-up area for the purpose of preventing balls from the fields from entering the marsh. Any balls that must be retrieved from behind the fence shall be retrieved at the end of any soccer games. A locked gate will be maintained locked at all times except as necessary to retrieve balls by a single person after games/events have been completed. The optimal ball retrieval period would be the day following soccer events or at times when numbers of spectators are at daily lows. Signs shall be posted stating that public access into

the buffer area is strictly prohibited owing to the sensitivity of the habitat and to ensure the continued use of this habitat by special-status wildlife species. Installation of this fence will protect the marsh habitat along the North Fork of Gallinas Creek and the adjacent upland areas. Implementation of **MM Bio-2a** (as modified) will reduce potential intrusion impacts to the marsh habitats to a level considered *less than significant* pursuant to CEQA. The 100+-foot creek setback/buffer will further reduce this potential impact. The City also typically requires that fencing be continued along restricted open space areas, (e.g., typical 4-foot black-clad and restrictive signage). Thus, it is anticipated that this would also be required, extending from the opposite side of the building along the access road and walkway.

Comment regarding the benefits of the proposed fence in keeping people and dogs out of marsh areas is accurate. Opinion regarding the need to inform people to stay out of marsh areas, and need to require on-going fence maintenance at the Project site are good ideas. The City would address these as part of the Project merits review. The City requires fencing and signage as conditions for all projects adjacent to fenced habitat; that typically consists of vinyl-clad chainlink and signage at key points closest to accessible areas near the fence that advises visitors about the "no entry/protected sensitive habitat area" restriction. Ongoing maintenance of all site improvements is also a standard required condition of Environmental and Design Review permit approvals.

RESPONSE 49-19: **Mitigation Measure Bio-2b** [as revised] addresses the numerous public comments regarding the existing Declaration of Restrictions that some members of the public believe was not adequate to protect open space from the currently proposed land use modifications. Thus, a deed restriction (not an easement) shall be recorded that specifies the prohibited and the allowed uses of the preserved area. The allowed uses would include the continued maintenance of the fields and levees, while the prohibited uses would prohibit any future development or land disturbance (outside of that required for routine maintenance and levee repairs) within the 100+-foot creek protection buffer that is designated as a conservation area. The deed restriction will become a condition of Project approval.

RESPONSE 49-20: The likelihood that burrowing owls or other sensitive species are found on-site is considered extremely low. The proposed mitigation is consistent with requirements that would be identified in consultation with CDFG if discovery occurs during pre-construction surveys. See **Mitigation Measure Bio-5a, Mitigation Measure Bio-5c** and **Mitigation Measure Bio-5d** [as modified] and RESPONSE 68-14 below, which demonstrate that this impact is adequately addressed in compliance with the requirements of CEQA.

RESPONSE 49-21: Maintenance of the berms along Gallinas Creek must be allowed to continue for the existing airport safety purposes as it has occurred for many years as part of the airport operations. Any scheduled maintenance, **other than vegetation control,** should occur in August through September, when rails are not expected to be nesting, except in emergency situations required to protect property and/or life, and as approved by appropriate regulatory resource agencies with jurisdiction over the affected biological resources.

Mowing of vegetation along levees and disking in the adjacent fields has occurred for many years and should continue as necessary to continue to meet FAA guidelines for airport safety. To ensure that clapper rails in the area have necessary vegetative cover to escape predators during high tide events, no mowing shall be allowed on the inboard slopes of the levees (i.e., the slopes that face the creek). It is also worth noting that the mowing restrictions would become documented through recordation of the restrictive covenant area proposed to protect the buffer area between the Project and North Fork of Gallinas Creek.

RESPONSE 49-22: The airport maintains the levee and land adjacent to the Project site pursuant to FAA guidelines. According to the 2004 FAA Advisory Circular *Hazardous Wildlife Attractants On or Near Airports*, undeveloped land commonly found around airports - particularly poorly drained area, roosting habitats or wetlands - present potential hazards to aviation if they encourage wildlife use. Any habitat that encourages additional wetland bird species to occupy the site would result in elevated levels of "bird airstrike hazard." This would lead to elevated risk of loss of life of patrons using the airfield. Hence any native vegetation restoration or revegetation would not be consistent with FAA requirements for this airport.

RESPONSE 49-23: The City contracts with Marin County Animal Control through the Police Department for licensing County animal control services (SRMC Chapter 6.10). Since the control of feral animals (at the Project site and City-wide) is under the jurisdiction of the City, this would not be the Project Applicant's responsibility. The project Applicant has stated that the proposed recreational facility will be fenced. Domestic animals (other than helper animals) will not be allowed in the building, and other animals will be on leash.

RESPONSE 49-24: A temporary four-foot black mesh exclusion fencing made of silt fencing will be installed and maintained along the outside edge of the creek buffer zone (100 feet from the North Fork of Gallinas Creek) to prevent ground-dwelling species from entering the work areas during construction. The fence shall be installed prior to the time any site grading or other construction-related activities are implemented. The fence shall remain in place during site grading or other construction-related activities. This temporary exclusion fencing would be removed following construction and replaced with the permanent fencing discussed under RESPONSE 49-18, above.

RESPONSE 49-25: Soccer game schedules could not realistically be expected to work around tide cycles. M&A recognizes that clapper rails must occasionally seek refuge in the uplands immediately adjacent to the channel, but it is unlikely that a clapper rail would ever venture beyond the top of the levee along the channel or onto the Project site due to the absence of suitable habitat (no dense marsh vegetation and foraging or escape habitats) and the absence of sufficient cover beyond the top of the levee (this area is frequently mowed). Regardless, a 100+-foot development set-back area (creek buffer zone) will be preserved along this channel to provide the California Clapper Rail (and California Black Rail) with this important upland buffer zone adjacent to the channel. Please note that the proposed

buffer between the Project site development envelope and the top of the levee varies between 130 feet and over 250 feet.

RESPONSE 49-26: See RESPONSE 40-25, above, which addresses issues related to nocturnal lighting and effects on wildlife. Wildlife does not have the same vision spectrum as human beings. For example, birds, insects and fish can see ultraviolet patterns on plants and other wildlife that are otherwise invisible to humans. Outdoor lighting (e.g., street lighting, security lighting, lighting for parking/equipment areas, and lighting for recreational facilities) has been used in urban areas around the world for many years, including coastal areas which support busy airports and seaports near marshes. The lighting-related mitigation measures identified in the DEIR are intended to reduce the diffusion of light associated with operations at the Project site (including that generated in portions of the spectrum not visible to humans) to the maximum extent feasible, and while these measures would not eliminate all effects of Project-related lighting on wildlife, they would reduce potential lighting-related impacts associated with the Project to a level considered less than significant.

RESPONSE 49-27: Bridge construction will not extend into the marsh habitats. To account for California Clapper Rails or California Black Rails (and other special-status birds) that occur and nest in the marsh habitats along the creek in the immediate area of the bridge, all work associated with the new bridge, including the demolition of existing bridge deck, installation of the new deck, and other bridge improvements, shall be restricted to August 1 to October 15. The bridge pile-driving dates are further restricted to September 1 and October 15 when potentially occurring anadromous fish are not expected to occur in the channel. This "avoidance window" is outside of the California Clapper Rail, California Black Rail, and other special-status birds breeding seasons, thereby eliminating the potential that bridge reconstruction activities would disrupt breeding attempts.

RESPONSE 49-28: The SBAA which was set to expire on December 31, 2008 (as indicated on DEIR page 7-20) has been extended, and the current SBAA will now expire on December 31, 2013 (see **DEIR Appendix E**).

RESPONSE 49-29: The DEIR indicates on page 9-29 that approximately 32,000 cubic yards of engineered fill will be imported to enable development of the Project site as proposed, but the Project Applicant has not indicated where this imported fill will come from. The City will require documentation of the fill source with the grading permit and plans as part of Best Management Practices and RWQCB standard practices. Since disposal of contaminated fill has not been authorized at the Project site, no fill material formally classified as "contaminated" will be permitted to be moved to the Project site. Assuming that each truck carrying imported fill has a capacity of 20 cubic yards, it would take 1,600 inbound truck trips to move the 32,000 cubic yards of imported fill to the Project site (with an additional 1,600 outbound trips for the empty trucks).

RESPONSE 49-30: Opinion regarding the potential impacts associated with pile driving noise, and suggestion that this be considered a significant Project-related impact is noted. On DEIR page 12-22, the speech interference effects that may be associated with pile driving at the Project site is identified as a potentially significant impact (**Impact N-3**), which could be reduced to a level of less than significant through the implementation of **Mitigation Measure N-2** [as amended] (Construction Time Restrictions and Engine Controls) and **Mitigation Measure N-3** (Pile Driving Noise). As indicated on DEIR page 7-61, the noise impacts from pile-driving could result in indirect impacts to federally listed anadromous fish species that may occur in the North Fork of Gallinas Creek (**Impact Bio-1**), but this impact could be reduced to a level considered less than significant through implementation of **Mitigation Measure Bio-1a** [as modified] and **Mitigation Measure Bio-1b** [as modified] (DEIR pages 7-62 and 7-63).

RESPONSE 49-31: As indicated in **DEIR Appendix G**, the two test borings were conducted on April 25, 2005. The JCH report in **DEIR Appendix G** indicates on page 9 that "...free groundwater was encountered at the elevations shown on the logs of the borings. The groundwater table probably varies with seasonal rainfall and, possibly, tidal action."

RESPONSE 49-32: As indicated on DEIR page 11-25, implementation of **Mitigation Measure Hyd-1e** would require the Project Applicant to submit a final site plan, design, construction details, and maintenance program for the proposed grassed swale(s) to the City's Engineer for review and approval prior to issuance of a grading or building permit, whichever occurs first. Although the Project Applicant has not yet submitted plan details for on-site drainage swales, DPW has reviewed the design plans and has identified grassy-swales would be required within the existing drainage ditches serving the site, as well as incorporated into new landscape areas and drainage improvements carrying runoff into these ditches in order to reduce potential pollution runoff to the maximum extent feasible. DPW has required these swales elsewhere in the City, as part of its program for implementing City storm drainage and water quality ordinances (SRMC Chapter 9.30 and Title 18). These have also been required throughout Northern California for many years despite long periods without rainfall each year, and similar types of fine-stemmed herbaceous plants used at other locations in the area are likely to be approved by the City for use at the Project site, along with specific long-term maintenance requirements.

RESPONSE 49-33: Development of the Project site as proposed would not affect existing aircraft operations on the runway adjacent to the Project site, and would not change the existing runoff characteristics associated with airplane repair and petroleum residues on the portion of the airport site adjacent to the Project site. The DEIR evaluates environmental effects associated with development of the Project site as proposed, and development of the Project site as proposed would not alter current levels of aircraft-related pollutants generated near the Project site.

RESPONSE 49-34: See MASTER RESPONSE HYD-1, above, which addresses issues related to the datum value used in the DEIR analysis.

RESPONSE 49-35: As indicated on DEIR page 11-2, according to maps prepared by the Federal Emergency Management Agency (FEMA), the Project site is located within the 100-year floodplain. The DEIR indicates on page 11-29 that the nine-foot levees that surround the airport would keep most of the floodwaters out of the site in a 100-year storm event, although waters from a 100-year storm that do not fall directly on the site would likely come from the western boundary of the airport site, and indicates that under existing conditions, the maximum depth of water on the site during a 100-year flood would be 0.12 feet.

RESPONSE 49-36: As indicated in RESPONSE 49-29, above, the DEIR indicates on page 9-29 that approximately 32,000 cubic yards of engineered fill will be imported to enable development of the Project site as proposed, but the Project Applicant has not indicated where this imported fill will come from. Since disposal of contaminated fill has not been authorized at the Project site, no fill material formally classified as "contaminated" will be permitted to be moved to the Project site. Since this imported fill would be placed at the site under the guidance of a geotechnical engineer to meet current requirements for engineered fill (see **Mitigation Measure Geo-1** on DEIR pages 9-30 through 9-32), this would reduce the potential for future mudboils at the Project site in the event of a major seismic event to a level of less than significant.

RESPONSE 49-37: See MASTER RESPONSE HYD-4, above, which addresses issues associated with anticipated future sea level rise.

RESPONSE 49-38: Suggestion that the use of reclaimed water should be required at the Project site is noted. Given the close proximity to Las Gallinas treatment plant as noted in the comment, it can be reasonably anticipated that use of reclaimed water may be required by the water service providers, as a condition of building permit issuance. This has been the recent experience within the City for development projects in North San Rafael, where reclaimed water lines are readily accessible to the site. Further, MMWD and LGVSD have stringent guidelines and standards that would be required to be met in the event reclaimed water is used for landscape irrigation. This includes review of plans by MMWD to ensure overspray onto hardscape surfaces would not occur.

RESPONSE 49-39: See MASTER RESPONSE GI-1, above, which addresses issues associated with Project-related growth inducement. Opinion regarding the Project Applicant's intents with respect to future development beyond the Project site is noted. At this time, the Applicant has stated that he is not interested in, and has no plans for, pursuing further development on the property, specifically the vacant lands south of the airport runway. Should additional development be pursued in the future, it would be subject to environmental review, amendment to the PD, and related entitlements all which would be subject to review for consistency with the underlying General Plan land use designation and

policies. It is also worth noting that the Project must rely on existing utility entitlements granted to the site by Las Gallinas Valley Sanitary District through an existing service agreement, which have been identified as adequate for serving the Project; but no increase in utility entitlements have been requested by the Applicant.

RESPONSE 49-40: Opinion regarding the DEIR evaluation of the No Project alternative is noted. See MASTER RESPONSE ALT-2, above, which addresses the effects which might be anticipated with a "no change" alternative at the Project site.

RESPONSE 49-41: Opinion regarding the adequacy of the range of alternatives evaluated in the DEIR is noted. Opinion that an additional alternative should be evaluated (a modification of the Reduced Intensity alternative evaluated in the DEIR, but without a building) is noted. Further alternatives are not required to be evaluated under CEQA and would not serve to provide any greater understanding of the reduced environmental effects that would be realized through less intense or no development on this site. The No Project/No Build alternative presented in **FEIR Chapter 2**, below, as a variant of the DEIR's No Project Alternative sufficiently addresses comments regarding the range of alternatives analysis provided in the DEIR.

RESPONSE 49-42: Opinion regarding the DEIR analysis of possible alternate locations for the proposed Project is noted. See MASTER RESPONSE ALT-1, above, which addresses the DEIR evaluation of alternative locations. Opinion regarding the effectiveness of the identified mitigation measures in reducing identified potentially significant Project-related impacts to a level considered less than significant is noted. The Project Applicant has proposed development of the Project site, and as indicated on DEIR page 16-26, has not development rights on another site in San Rafael which might support the proposed Project. It is the City's obligation, as lead agency under CEQA, to evaluate the Project as proposed at the site proposed. The City has no power to force the Project Applicant to relocate the Project which has been proposed to another site, although potential alternative locations have been considered and found infeasible. Although the City can either approve the Project as proposed, reject the Project as proposed, or approve a modified Project, only the Project Applicant can elect to withdraw the submitted application for the proposed Project prior to the City reaching a decision on the Project. A decision to withdraw a development application for any project for any reason is solely the applicant's, and the City has no purpose or power to "ensure" that any applicant not withdraw an application.

STEVEN SCHOONOVER
Attorney At Law

May 07, 2009

Craig Tamborini
Community Development Dept. – City of San Rafael
P.O. Box 151560
San Rafael, CA 94915-1560

Re: DEIR - Proposed San Rafael Airport Recreation Facility

Dear Mr. Tamborini:

Please include the following comment responding to the DEIR for the San Rafael Airport Recreation Facility:

In Chapter Four of the DEIR there is mention of the Covenant of Restrictions. Notwithstanding Mr. Boloyan's opinion to the contrary referenced in footnote two to Chapter Four, the deed restrictions preclude erection of the proposed imposing commercial edifice, regardless of the purported use for "public or private recreation." Those familiar with the intent behind the creation of the deed restrictions support the view that the restrictions were intended to preclude construction of a large commercial building such as that proposed by Mr. Shekou. It's surprising that Mr. Boloyan was not aware of this. **50-1**

Sincerely,

Steven Schoonover

1537 Fourth Street, # 164
San Rafael, CA 94901

Telephone 415.456.3036
Facsimile 415.456.2328
e-mail: ajaxlaw@comcast.net

LETTER 50: Steven Schoonover, May 7, 2009

RESPONSE 50-1: See MASTER RESPONSE PD-2, above, which addresses the Declaration of Restrictions. Opinion regarding the intent of these restrictions is noted, and addressed in the DEIR and MASTER RESPONSE PD-2, above.

LETTER 51

JoAnne Arakaki
47 Wharf Circle
San Rafael, CA 94903

May 8, 2009

Kraig Tambornini, Senior Planner
City of San Rafael
Community Development Department
1400 Fifth Street
San Rafael, CA 94901

RE: Proposed Recreation Facility at San Rafael Airport
Comments to Draft Environmental Impact Report

Dear Mr. Tambornini:

I have reviewed the Draft Environmental Impact Report (DEIR) for the Proposed Recreation Facility at San Rafael Airport (Proposed Facility) and appreciate the opportunity to comment on this DEIR.

There are many areas in the Traffic section where the DEIR is deficient and should be expanded. Most prominent is its failure to address the impact of traffic on the surrounding neighborhood and failure to require any mitigations to Captain's Cove caused by the impact of increased traffic. **51-1**

1. Failure to consider the impact at three of the busiest intersections

Three of the busiest residential traffic intersections along Smith Ranch Road are noticeably absent from the Traffic review. These intersections at Smith Ranch Road are:

1. **Yosemite Road**
   Serves the residents of Captain's Cove and Contempo Marin

2. **Deer Valley Road**
   Serves the residents of Deer Valley Apartments and Smith Ranch Homes

3. **Cresta Drive**
   Serves Marin Lofts, Highlands of Marin Apartments and Crest Marin Apartments.

An estimate of the number of cars owned by residents of Captain's Cove and Contempo Marin leads to a projection of 1,032 cars.

Captain's Cove: 1.5 cars x 160 units = 240 cars
Contempo: 2 cars x 396 home rental pads = 792 cars

For this reason, the impact of increased traffic created by the Proposed Facility should require a close look at the traffic at the Yosemite Road/Smith Ranch Road intersection.

Regarding the intersection at Cresta Drive and Smith Ranch Road, the San Rafael City Council Agenda Report for the Meeting dated April 6, 2009 lists the following information concerning the unit numbers and bedrooms per unit at Highlands of Marin and Crest Marin.

Highlands of Marin

144	One bedroom units	144 x 1 car	= 144 cars
76	Two bedroom units	76 x 1.5 cars	= 114 cars

Crest Marin

58	One bedroom units	58 x 1 car	= 58 cars
37	Two bedroom units	37 x 1.5 cars	= 55.5 cars
9	Three bedroom units	9 x 1.5 cars	= 13.5 cars

This totals 385 cars. Add to this 385 cars, the number of parking spaces at Marin Lofts taken from the website of its architect, Jerry Kler Architects.

Marin Lofts

6 Two bedroom units w/loft
9 Three bedroom units

41 Total number of parking spaces

A projected estimate of the number of cars of residents at Highlands of Marin, Crest Marin, and Marin Lofts is 426 vehicles. The impact of increased traffic created by the Proposed Facility should result in a close look at traffic at the Cresta Drive/Smith Ranch Road intersection. The DEIR fails to do this.

2. Failure to conduct Traffic Studies when there is peak use of McInnis Fields

The Baseline studies in Appendix A were conducted on Tuesday, October 27, 2008. McInnis fields are not at peak use on Tuesday, October 27, 2008. Likewise, Attachment A counts were conducted on March 29, 2007. The Traffic Study is deficient because it was not conducted during peak use periods. 51-2

3. Failure to require Applicant to reach an agreement with Captain's Cove regarding a traffic mitigation as a condition of project approval

The DEIR is severely deficient because it does not require the applicant to reach an agreement with Captain's Cove to mitigate the nuisance to us and possible reduction in value of our property, especially the units on Sailmaker Court that are closest to the bridge. The Airport Road is the only entrance to the Airport property and bridge. 51-3

Before crossing the bridge, the units on Sailmaker Court are in a straight line path of the headlights of every car approaching the Proposed Facility. Headlights from all cars approaching the bridge will shine on these units, thereby disturbing the peace and quiet enjoyment of these residents in their homes.

The applicant must be required to offer a mitigation such as the building and maintaining of a wall/barrier acceptable to Captain's Cove. In additional, procedures to ensure the proper maintenance of this wall/barrier by the applicant must be required in the DEIR.

Page 22 of The Report to the Planning Commission dated February 28, 2006 states as follows:

> Another issue with the hours of operation is the potential for headlights from vehicles exiting the recreation facility shining into the closest residential structure in the Captain's Cove Community...The applicant has offered to install a new barrier (fence or wall)...Staff has not included this as a condition of approval. As indicated above, since the wall could block some easterly views from Captain's Cove and Contempo Marin, the Commission should consider public comment in their deliberation of whether to add this condition.

The headlights will shine on Captain's Cove units from both entering and exiting cars. Again, it is imperative that the DEIR include a requirement that the applicant build and maintain a wall/barrier to prevent any headlights from shining on the Sailmaker homes and to eliminate the noise from the traffic entering and exiting the Proposed Facility.

5. The DEIR does not consider the impact of the SMART Train

There is no mention whatsoever of the impact the SMART Train will have on traffic entering and exiting the Proposed Facility. Users of the Proposed Facility must cross the railroad tracks on which SMART Train will operate. The DEIR must be revised to include the impart of SMART Train on both traffic and noise. 51-4

Please consider my comments and amend the DEIR to reflect the above concerns. The DEIR must be expanded to address all of the above shortcomings or deficiencies. To do anything less will mean that the full impact of the Proposed Facility on the surrounding neighborhood will never be fully and adequately 51-5

identified. If the full impact cannot be fully and adequately identified, the DEIR isn't requiring sufficient impact mitigations.

Sincerely,

JoAnne Arakaki

JoAnne Arakaki

LETTER 51: JoAnne Arakaki, May 8, 2009

RESPONSE 51-1: See MASTER RESPONSE TRA-1, above which addresses Project-related traffic effects at additional intersections along Smith Ranch Road.

RESPONSE 51-2: See MASTER RESPONSE TRA-2, above, which addresses issues related to the timing of the traffic study.

RESPONSE 51-3: See MASTER RESPONSE AES-2, above, which addressed headlight glare from Project-related vehicular traffic moving to and from the Project site. The City of San Rafael, in considering the development application submitted by the Project Applicant, may approve the Project as proposed, reject the Project, or require modifications to the Project as conditions of approval. There is no mechanism that would enable the City to require the Project Applicant to reach a formal agreement with residents of Captain's Cove (or any other local residents) prior to taking action on the Project. The mitigation measures that are ultimately adopted and implemented will need to be acceptable to the City of San Rafael to address Project impacts and comply with City standards, or the City may determine that it cannot approve the development application. Opinion that the Project Applicant be required to build a wall or barrier to prevent Project-related headlight glare from entering residential areas nearby is noted. This will be addressed as part of the Project merits review, as discussed in MASTER RESPONSE AES-2, above.

RESPONSE 51-4: See MASTER RESPONSE TRA-3, above, which addresses issues related to SMART operations.

RESPONSE 51-5: Request that the DEIR be amended to reflect concerns raised in this comment letter is noted, and has been addressed through preparation of these responses. Opinion regarding the adequacy of the DEIR is noted. The full range of potential environmental impacts have been identified and evaluated as required by CEQA, including modifications to the document and mitigation measures in response to the comments on the DEIR. As a result, the DEIR (and Appendices) and Responses to Comments (and Revisions to the DEIR and Appendices) comprise a complete and thorough review of all the impacts and adequately describes mitigation measures.

Gallinas Creek Watershed Council
http://sites.google.com/site/gallinascreekwatershed

May 8, 2009

Mr. Kraig Tamborini, Senior Planner
City of San Rafael, Community Development
POBox151560
San Rafael, CA 94915-1560

Subject: Comments on the San Rafael Airport Recreational Facility Draft EIR

Dear Mr. Tamborini:

Attached please find a summary of our comments on the Draft EIR. Our comments generally focus on pig picture issues which are of general concern to members of the community. The main issues of concern are:

- Loss of habitat value and restoration potential of historic diked Baylands;
- Unwanted increase in our coastal flood protection burden which opposes current and regional planning efforts to respond to sea level rise; and
- The DEIR fails to consider that the project will require the City and County undertake costly infrastructure upgrades and maintenance. These infrastructure upgrade and maintenance costs could outweigh positive revenue benefits and threaten project sustainability. The potential impacts to adjacent wetland habitats are significant.

We appreciate the opportunity to submit our comments on this important project.

Sincerely,

Mary Fellers
Russ Greenfield
Alex Kahl
Rachel Kamman
Arty Reichert
Judy Schriebman

Members of the
The Gallinas Valley Watershed Council

Gallinas Valley Watershed Council
http://sites.google.com/site/gallinascreekwatershed

Comments on the San Rafael Airport DEIR

The members of the Gallinas Valley Watershed Council are concerned the proposed Airport Soccer Field Recreational facility currently under consideration by the City of San Rafael, and Evaluated in a Draft EIR dated March 2009 threatens several negative outcomes for our community.
These concerns, described in greater detail as follows:

1) Loss of Habitat Value and Restoration Potential **52-1**

The project is to location on a historic wetland which is narrow peninsula of a diked bayland at the confluence of two tidal creeks. The EIR in its narrow focus ignores both regional context and significance of this historic baylands, and the unique restoration potential of the parcel. The EIR fails to identify the site as a prime candidate for tidal salt marsh wetland restoration, consistent with the regionally accepted Baylands Ecosystem Habitat Goals (Goals Report, 1999),
This parcel is part of the diked marshland complex that is contiguous with large scale wetland restoration efforts underway to the north (Hamilton Wetlands), and historic protected marsh to the South (China Camp). Further development of this parcel will yield a lost opportunity to restore valuable wetland habitat contiguous to known threatened and endangered species. This at a time when transitional marshland is needed both as habitat now and in the future, and to buffer coastal storm energy reduce wave and flood impacts on nearby communities.

Tidal salt marsh is one of the most efficient ecosystems on the planet for fixing carbon from the atmosphere (on par with tropical forest). Our dwindling Baylands need to be used as a tool for reducing atmospheric carbon dioxide where feasible, as well as a filter for urban runoff pollution and a nursery for species of fish and shellfish that Bay Area residents consume. Restoring the airport site to tidal wetlands is an option that deserves significant consideration and discussion. The proposed project pre-empts this valuable discussion that has regional and even global implications.

2) Communities should reduce, not increase coastal flood protection demands **52-2**

Currently communities that ring the Bay are preparing for climate change and sea level rise. New developments in historic Baylands run counter to the regional collective wisdom. There is increasing consensus among federal, state and local government agencies that 50-year sea level rise estimates will range from 1 to over 3 feet. Given the limited funding to provide the anticipated upgrades needed for existing infrastructure, our community should not increase the demand for coastal flood protection by constructing new facilities within an A-1 coastal flood zone.

The EIR evaluates the design of proposed facilities but fails to consider the impacts associated the upgrades to levees and drainage infrastructure needed in the near future to protect and maintain these facilities in the context of 1 to 3+ feet of sea level rise. This EIR should consider projected increases on 100-year flood water surface elevations, and the increase in recurrence interval associated with impacting flood events. This is not a consideration of future conditions. A modified100-year flood recurrence interval and year-50 based design is necessary to provide a 50 year design life for both structural and flood protection measures.

3) Maintenance Needs and Project Viability

After construction, the long term operation and maintenance requirements and costs for project will be passed to the City, County and our local tax payers. These costs may likely include requirements for upgrades to levees, drainage and pump systems and structures. Even with upgraded facilities, operation and maintenance costs will continue to rise with sea level. These costs include energy costs to meet increased pumping demands, and increased facilities maintenance and replacement costs associated flood events. 52-3

These costs, and environmental impacts associated with necessary infrastructure improvements should also be considered and compared to the anticipated income benefits to the community. The surrounding infrastructure (levees and pumps) is not considered a part of the project described or evaluated in the EIR. If the project is built, the city or county will have to improve the levees to protect the facility. Now and in the future, as flood hazards increase throughout our local communities, neighborhoods will essentially be competing with a recreational facility for improvement or repair monies. In the near future, available funds will likely fall short of needs, and priorities for protection and repair will need to be set. In this context, construction of the recreational facility on the airport parcel puts the project at risk of failure, and the community at risk for substantial financial loss.

4) Design and EIR do not adequately consider impacts associated with sea level rise on demands for flood protection and drainage facilities. 52-4

The EIR generally does not address surrounding infrastructure as previously noted. However, it does assume the existing levees will be adequate to provided flood protection for the project. This is not likely the case if the 100-year flood water surface elevation increases by 1-3 feet as is anticipated due to sea level rise. In addition, there is not consideration if the incremental increase in failure risk and impact frequency associated with sea level rise. Levee failure risk may increase further in light of the fact that inspection indicated that these structures built in the 1940s, do not meet current design standards, and consist primarily of clayey on-site fill.

The EIR similarly compares existing demand with future project demands assuming current (year-1) conditions. It does not evaluate the impacts of needed upgrades to meet the anticipated increase in demands associated with projected sea level rise. For example, site grades are sited at -2 to 3 ft MSL. Groundwater levels are expected to increase keeping pace with sea level, producing increasing demands on the existing drainage system. The EIR generally underestimates impacts associated with both project construction and maintenance as a result of this incremental assessment approach.

LETTER 52: Mary Fellers, Russ Greenfield, Alex Kahl, Rachel Kamman, Arty Reichert and Judy Schriebman Gallinas Creek Watershed Council, May 8, 2009

RESPONSE 52-1: The DEIR evaluates the environmental effects associated with the development of the Project site as proposed. Please note that the California Environmental Quality Act (CEQA) only requires analysis of the existing (current) condition of a Project site at the time the application is filed with the CEQA lead agency (i.e., in this case the City of San Rafael). The fact that the site was historic bayland cannot, therefore, be considered from a significance perspective in the DEIR. Although at one time the Project site may have been wetlands, as indicated on DEIR page 7-17 no portions of the Project site which have been proposed for development are currently delineated as jurisdictional wetlands, and the Project Applicant does not propose restoration of wetlands at the Project site.

Comment that development of the Project site would result in a lost opportunity to restore wetland habitat at that location is noted. The San Rafael Airport operations facilities are located immediately west of the Project site which includes 100 airport hangars, a runway and taxiway, industrial buildings, residential housing, and associated landscaping. Restoring the Project site area to tidal salt marsh would be incompatible with this land use. According to the 2004 FAA Advisory Circular *Hazardous Wildlife Attractants on or Near Airports*, undeveloped land commonly found around airports - particularly poorly drained area, roosting habitats or wetlands - present potential hazards to aviation if they encourage wildlife use.

RESPONSE 52-2: Opinion that development in areas which were once Baylands runs counter to "regional collective wisdom" is noted. See MASTER RESPONSE HYD-4, above, which addresses issues related to an anticipated increase in sea level. Opinion that the community should not permit new development in an A-1 coastal flood zone is noted. Opinion regarding the adequacy of the DEIR's evaluation of levees and drainage infrastructure is noted. See MASTER RESPONSE HYD-2, above, which addresses the existing condition of the levees. Opinion regarding the necessity of providing a 50-year design life for structural and flood protection measures at the Project site is noted. Based on the additional evaluation and discussion provided on the levee and flood protection systems, it is evident that ongoing maintenance will be required; which is true of all levee systems within the Gallinas Creek flood plain, including those maintained by the County of Marin, Flood Control and Water Conservation District staff. If the Project is pursued and approved, the City would review the Applicant's program for continued maintenance of the levee system as part of Project merits review.

RESPONSE 52-3: As indicated in MASTER RESPONSE HYD-2, above, maintenance costs for the majority of the levees which protect the airport site are borne by the property owner rather than the County of Marin (which is responsible for a limited portion of the levee along the tip of the airport peninsula) or the City of San Rafael.

RESPONSE 52-4: Opinion regarding the adequacy of the DEIR's evaluation of existing levees and drainage infrastructure is noted. See MASTER RESPONSE HYD-2, above, which addresses issues related to the existing condition of the levees. Opinion regarding the adequacy of the DEIR's evaluation of Project-related effects (associated with construction and maintenance) related to an anticipated increase in sea level is noted. See MASTER RESPONSE HYD-4, above, which addresses issues related to an anticipated increase in sea level.

Kamman Hydrology & Engineering, Inc.
7 Mt. Lassen Drive, Suite B250, San Rafael, CA 94903
Telephone: (415) 491-9600
Facsimile: (415) 680-1538
E-mail: Greg@KHE-Inc.com

May 8, 2009

Mr. Kraig Tamborini, Senior Planner
City of San Rafael, Community Development
POBox151560
San Rafael, CA 94915-1560

Subject: Comments on the San Rafael Airport Recreational Facility Draft EIR

Dear Mr. Tamborini:

I am concerned that the City is As follow-up to a discussion at today at the City Managers meeting, I respectfully submit the following points of consideration to the City in regards to the proposal to construct a recreational soccer facility on a portion of the San Rafael Airport parcel on diked bayland at the eastern end of Smith Ranch Road. These comments are relevant to review of the DEIR and the City's consideration of the project in general.

1) The property is deed restricted indicated at Airport/recreational. I believe the history of land use and planning is such that the intended recreational use was low impact, primarily open space. This was intended as a density swap for higher density development of housing, office and hotel facilities in the now Autodesk, Embassy Suites. The proposed recreational development with large buildings, lights, parking, pavements drainage, traffic trash noise etc. represent a comparable level of development and impact as those which the swap was initially intended to mitigate. I is my opinion that the level of impact and mitigation goal should be used to determine if future land use is consistent with the intent of the original deed restriction. It is not appropriate for the City to sidestep the intent of the deed restriction because the project is considered a recreational facility. **53-1**

2) Consideration of the future burden on City and County to defend more coastal levees. Can the City/County afford to take on more flood protection burden at a time when projections for sea level rise put large portions of our community at increased flood risk during both storm and anticipated high tide events? The Intergovernmental Panel on Climate Change (http://www.ipcc.ch/) currently projects sea level rise of between 8 to 88 centimeters (0.26 to 2.9 feet), and BCDC is initiating planning effort which consider mid-century (2050) sea level rise in the Bay area of 2-feet, and 2100 rise estimates of 4.5 feet. (For more background please see: http://www.bcdc.ca.gov/proposed_bay_plan/bp_1-08_cc_draft.pdf). In light of this information, it is unwise for the City to make a significant invest on a parcel which will place the facility at high risk at the time of construction, and can be anticipated to flood consistently, and with increasing frequency in the near future. **53-2**

3) Questionable Adequacy of the Existing Levee System
Little information is available about the height of the levee. A single elevation of 9 ft mls is reported to define levee elevation. This 12,000 lf 1940's a reclamation levee (i.e. not engineered to current standards) is primarily of clayey on-site material and likely subject to non-uniform subsidence and settlement. Little information is available about the conditions and elevation of the existing levee system. The City's geotechnical assessment which examined two locations in the 12,000 foot levee, however adjacent levees are know to have significant problems due to burrowing rodents, and large variation in height and condition as a result of non-uniform maintenance and differential settlement. The DEIR assumes the levees are outside the project definition and adequate to provide protection for the expected life of the project. As due diligence in **53-3**

understanding the financial obligations being undertaken by the City and County, it is necessary to better understand the current conditions of the levee, and their capacity to provide 50-year flood protection to the new development. Required Levee upgrades should be considered a component of the project evaluated in the DEIR. As such, the ecological impacts and costs of these improvements should be considered as part of project evaluation.

4) Implementation of the City's Climate Change initiative
If the City is to make any positive steps to counter global warming impacts of our existing communities, every effort must be made to undertake and expand wetlands which remove carbon from our environment. Construction of a facility that is LEED certified is admirable, but a 87,000 sf air condition facility on historic Baylands producing a negative impact to our environment on two fronts. In addition, the location of the facility on a peninsula at the confluence of two streams at the bay boundary will reduce the capacity for adjacent natural and restored marsh to respond naturally and maintain function as water levels rise. **53-4**

5) Lack of Consistency with the City's 2020 Plan:
Construction of the project at the proposed location is not consistent with the City's 2020 Plan. In Chapter 15: Conservation Elements – Goal 31: Protected Habitat for diked Baylands. The 2020 Plan states: "Protect seasonal wetlands and associated upland habitats contained within undeveloped diked Baylands, or restore to tidal action. Support and promote acquisition from willing property owners." The parcel is designated as diked marsh and identified on Plan Exhibit 36. If all or a portion of this parcel is available to the City, the Plan designates wetland restoration as the appropriate future use. **53-5**

I respectfully submit this body of evidence. It serves as the basis for my conclusion that it is not in the City's best interest to undertake development of this facility at this location. I urge the City to investigate alternative locations for this facility so as to provide the sought after recreational facilities to our community without undue added burden to community infrastructure or impact to our highest valued natural resources. **53-6**

Sincerely,

Rachel Z Kamman, PE
President and Principal Hydrologist

LETTER 53: Rachel Z. Kamman, PE, President and Principal Hydrologist, Kamman Hydrology & Engineering, Inc., May 8, 2009

RESPONSE 53-1: See MASTER RESPONSE PD-2, above, which addressed issues associated with the Declaration of Restrictions. Opinion regarding the type of recreational uses intended to be permitted at the airport site under the Deed of Restrictions is noted. Opinion regarding the extent to which the proposed Project would be consistent with the Deed of Restrictions is noted. Opinion regarding the appropriateness of possible future action by the City following consideration of the Project for possible approval is noted.

RESPONSE 53-2: See MASTER RESPONSE HYD-4, above, which addresses Project-related issues associated with future increases in sea level. Although the DEIR evaluates changes to the physical environment which could result from development of the Project site as proposed, it is beyond the scope of this environmental review document to address economic issues related to the future costs of maintaining levees and other flood control infrastructure. Opinion regarding the wisdom of any significant investment in an area which may be subject to flooding in the event that existing flood control facilities are not maintained and upgraded as necessary to reduce the risk of possible flooding is noted.

RESPONSE 53-3: See MASTER RESPONSE HYD-1, above, which addresses the datum value used in the DEIR as related to existing levee heights. Opinion regarding the existing condition of the levees in the vicinity of the Project site is noted. See MASTER RESPONSE HYD-2, above, which addresses the existing condition of the levees. Request that the City consider a requirement that levees be upgraded as a component of the Project is noted. As indicated in MASTER RESPONSE HYD-2, above, maintenance costs for the majority of the levees which protect the airport site are borne by the property owner rather than the County of Marin (which is responsible for a limited portion of the levee along the tip of the airport peninsula) or the City of San Rafael.

RESPONSE 53-4: Opinion regarding the need to expand wetlands in an effort to counter global warming is noted. Opinion regarding the negative impacts associated with development of the Project site as proposed is noted. Opinion regarding the possibility of Project-related development at the airport site interfering with the capacity for adjacent natural and restored marsh to maintain function as water levels rise is noted. Regulatory agencies, including the Federal Emergency Management Agency (FEMA) and San Francisco Bay Conservation and Development Commission (BCDC), are working on studies, approaches and strategies needed to quantify and address potential impacts associated with a rise in sea level. Adequate analysis of sea level rise has been identified in the DEIR, and an evaluation of impacts beyond year 2050 would be too speculative (See MASTER RESPONSE HYD-1, MASTER RESPONSE HYD-4 and MASTER RESPONSE GHG-1, above). Currently, no local, state or federal plan is in place that would enable acquisition of the property for the purpose stated in this comment. Rather, the Project must be evaluated based on current regulations and information, and information regarding anticipated climate

change impacts have been developing as this DEIR was being prepared. In response to the ongoing development of standards for assessing climate change impacts, the climate change discussion presented in the DEIR has been amended. A greenhouse gas emissions assessment has also been provided using current thresholds adopted by BAAQMD, which would be applicable to projects for which environmental review was commenced after June 2, 2010 (See MASTER RESPONSE GHG-1, above). Although the Project was subject to a different threshold, an analysis of the Project using the recently adopted BAAQMD thresholds is being presented FEIR (see MASTER RESPONSE GHG-1, above) as a means of providing the public and decision makers with all available information regarding environmental impacts.

RESPONSE 53-5: Opinion regarding Project consistency with the City's 2020 Plan is noted. Opinion regarding possible future use of the Project site if acquired by the City of San Rafael is noted. The Project is consistent with the General Plan 2020 Conservation Element goal given that wetland areas that have been identified on-site would be protected with adequate 55-foot setbacks, and a buffer zone setback in excess of 100 feet has been provided from the top of the North Fork of Gallinas Creek bank. The City does not currently have a program or resources designated for purchase of lands for reclamation purposes. Furthermore, the owner has not expressed any interest in dedicating his land for this purpose. Therefore, there is no nexus by which the City can compel the Applicant to offer the entire Project area for reclamation purposes, and the environmental effects of development have been addressed in compliance with the General Plan 2020 Conservation Element.

A significant amount of the total 119.52 acre airport site would remain as undeveloped land. It may be possible for a public agency or private non-profit group to pursue the acquisition of the undeveloped lands for purposes of for restoration or to address future water level rise, if desired or deemed necessary at some future date. As shown on the Project plan sheet C1, this includes the property area that is protected by the levee on the south side of the runway. It is important to note that any work at the airport site must be reviewed for compliance with Federal and State regulations designed to promote aviation safety. The Division of Aeronautics California Airport Land Use Planning Handbook (2002) is published as a guide for management of airport facilities. Reclamation for flood or drainage purposes would need to be reviewed to ensure such work would not conflict with the Federal and State regulations and guidelines. RESPONSE 49-5, above, further identifies the total land area that would be developed and undeveloped on the airport property.

RESPONSE 53-6: Conclusions regarding the extent to which development of the Project site as proposed would relate to the City's best interests is noted. Opinion regarding the need to investigate alternative locations for the proposed recreational facility is noted. These summary conclusion comments have been addressed by responses provided above.

Blake Kameoka
47 Wharf Circle
San Rafael, CA 94903

May 8, 2009

Kraig Tambornini
City of San Rafael
Community Development Department
1400 Fifth Street
San Rafael, CA 94901

RE: Comments About the Deficiencies in the Draft EIR for
The Proposed Recreation Facility at the San Rafael Airport

Dear Mr. Tambornini:

I am a resident of Captain's Cove and have lived here since 1989.

I bought my home here because it was a quiet community and because it was so close to open space. I feel that the proposed Recreation Facility will have a negative impact on the surrounding community and that the Draft EIR does not fully address all concerns. 54-1

The impact of traffic on the neighborhood has not been fully considered or studied in the Draft EIR. First, the traffic study is based on counts done in March 2007. As I said, I've lived here since 1989. The fields at McInnis Park are not at peak use by organized sports during this time--they are not at full capacity until later in the season. The traffic study should have picked times when the fields are at full usage. Therefore, the Draft EIR is not sufficient on this point. While the applicant may be willing to pay a peak hour use traffic fee, that fee will do little for the inconvenience the area residents will experience as a result of the increased traffic. We need to see more meaningful mitigations in this area. 54-2

Second, the traffic study does not consider the needs of area residents or include a study of the needs of area residents. The traffic study fails to review the three major intersections on Smith Ranch Road that are heavily used by area residents--Yosemite Road, Cresta Drive, Deer Valley Road. All three of these intersections serve a heavy residential population. Therefore, the Draft EIR is not sufficient. 54-3

Third and most important of all, the Draft EIR does not include any study of the impact of increased traffic on the units at Captain's Cove located closest to the Airport Road. The increased noise and glare from headlights caused by the dramatic increase in vehicle traffic, in my opinion, will reach the level of a nuisance. The applicant has not offered any mitigations to Captain's Cove and the Draft EIR does not require any. At a minimum, some sort of mitigation needs to be offered to Captain's Cove and this should be a requirement of the Draft EIR and a requirement of project approval. As an owner in Captain's Cove, I will not receive any financial gains from this project, but I will be saddled with the burdens it creates because the Draft EIR does not contain any mitigations to address these burdens of noise, traffic, and headlights that I will need to address financially and mentally. 54-4

Fourth, the traffic study was not updated to include the impact of the SMART train. The railroad tracks cross the path of the ingress to the proposed facility. This will result in traffic back-ups and cars idling on the Airport Road with their lights shining directly on units at Sailmaker Court. The traffic study and for that matter the Air Quality study does not consider this. Idling cars produce exhaust fumes/air pollution. Again, the Draft EIR is not sufficient because it does not include the impact of SMART train on the traffic, particularly as it affects Captain's Cove. 54-5

The other area where the Draft EIR is not sufficient is the hours of operation. There is no need for the facility to be open so late in the evening. For example, the outdoor fields don't need to be open until 10:00 p.m. at night. I understand that the applicant is implying that he needs the fields to be open at night in order to recover the cost of artificial turf. First, the Draft EIR includes turf information from 2005. The Draft EIR should be updated to reflect the latest technology in artificial turf. 54-6

Second, the Draft EIR should include studies of whether or not the applicant needs to open so late in the evening to recoup the cost of the artificial turf. For example, a quick search of the internet would locate information that would tend to indicate otherwise. Please refer to one such study prepared by Lemar Morrison, Turf Manager for the San Francisco Recreation and Parks. In reading this study, a conclusion can be reached that the reduced maintenance costs and longer life-span associated with artificial turf when compared with natural grass, could allow for a full recouping of initial costs with normal day time use in 10-15 years. 54-7

The DEIR is lacking because it does not adequately explore the soundness of the applicant's reasons for wanting to conduct night use of the out door fields. Closing the fields after dusk would cut down on the car traffic, there would be no glaring field lights

to contend with, and no noise from the outdoor fields in the evening when residents want peace and quiet in their homes after a long day of work.

I urge you to expand the Draft EIR to include the above items. Most importantly, the Draft EIR must be expanded to require a mitigation to Captain's Cove for the increased traffic on the Airport Road and the accompanying nuisance it will create. 54-8

Sincerely,

Blake Kameoka

LETTER 54: Blake Kameoka, May 8, 2009

RESPONSE 54-1: The general opinions expressed that the Project will have a negative impact on the surrounding community (e.g., it's character as a quiet community, close to open space), and that the DEIR does not fully address all concerns, are noted.

RESPONSE 54-2: See MASTER RESPONSE TRA-2, above, which addresses the timing of the traffic study. Opinion regarding the effectiveness of Project Applicant payment of the applicable traffic impact fee in mitigating Project-related traffic impacts is noted. Opinion regarding the need for more meaningful measures to mitigate Project-related traffic is noted. The payment of the traffic mitigation fee is the method by which the City funds the improvements needed for build-out anticipated under General Plan 2020. The level of increased traffic must also be measured based on the thresholds adopted in the General Plan 2020, which measures traffic during AM and PM peak hours and represents the most intense periods. The existing peak traffic intensity is already input within the City Traffic Model. The traffic study for the Project was not used to establish baseline conditions that are in the City traffic model, which includes existing land uses and adjustments for vacant buildings or underutilized uses operating below planned capacity. Rather, the Project traffic study was relied on for the purpose of identifying Project-generated traffic, which was then added to the City Traffic Model by the City Traffic Engineer. Therefore, the worst-case scenario has been fully evaluated by the City using its own models and data, which represents the most accurate and conservative approach.

Finally, Project-related traffic impacts must be evaluated based on whether they exceed roadway or intersection design capacities, causing them to fall below acceptable thresholds. As remaining under-utilized properties within the City are further developed, this would be expected to result in a perceptible increase in traffic in the area, which would then be evaluated in relation to the thresholds that apply throughout the City, including Smith Ranch Road. However, the increase in traffic generated by this development is still within the capacity of the roadway system that serves the area, and the required traffic fees will fund improvements that have been identified as needed as the City continues to grow incrementally.

RESPONSE 54-3: See MASTER RESPONSE TRA-1, above, which addresses Project-related impacts at additional intersections along Smith Ranch Road.

RESPONSE 54-4: Opinion regarding the nuisance effects associated with Project-related traffic in the vicinity of Captain's Cove is noted. See MASTER RESPONSE AES-2, above, which addresses the effects of headlight glare associated with Project-related traffic moving to and from the Project site. Opinion regarding the need for the Project Applicant to offer mitigation to residents of Captain's Cove for Project-related impacts (and for the DEIR to include such a requirement) is noted. There is no mechanism that would enable the City to require the Project Applicant to reach a formal agreement with residents of Captain's Cove

(or any other local residents) prior to taking action on the Project. Opinion regarding the personal financial and mental costs associated with adapting to development of the Project site as proposed is noted. The DEIR evaluates the environmental effects associated with development of the Project site as proposed, but it is beyond the scope of this environmental review document to assess the financial and mental costs which each individual affected by the proposed development may bear.

RESPONSE 54-5: See MASTER RESPONSE TRA-3, above, which addresses issues associated with SMART operations. Although the comment correctly points out that idling cars produce exhaust fumes and air pollutants, these generally only approach the thresholds of significance established by the Bay Area Air Quality Management District at major intersections during major traffic delays and in enclosed parking facilities where post-event traffic is backed up as everyone attempts to leave the venue in their vehicles at the same time. The vehicles in the relatively short Project-related traffic queues associated with the brief passage of SMART trains would not generate a volume of air pollutants or fumes which would be considered significant.

RESPONSE 54-6: Opinion on the need to operate the outdoor fields until 10:00 PM is noted. As currently proposed, the outdoor soccer field at the Project site would be lighted, and be use until 11:00 PM Sundays through Thursdays, and until midnight Fridays and Saturdays. The DEIR evaluates the Project as proposed by the Project Applicant, which includes installation of Field Turf as described on DEIR pages 3-12 and 3-13, and does not speculate on how the use of a more technologically advanced artificial turf might alter operating conditions at the Project site (were the Project Applicant to choose a more advanced artificial turf than what has been proposed for use at the site).

RESPONSE 54-7: The DEIR evaluates the environmental effects associated with development of the Project site as proposed. Under CEQA, it is beyond the scope of an environmental review document to evaluate the economic aspects or fiscal soundness of the Project Applicant's proposed use of the site. Opinion regarding the possible benefits associated with limiting activity on the outdoor fields to daylight hours is noted.

RESPONSE 54-8: Request to add discussion of the issues raised in this comment letter to the DEIR is noted. Request for specific mitigation applicable to the Project-related effects on those living in the Captain's Cove area is noted. The DEIR has been amended to respond to comments received, and additional information further clarifying the environmental impacts and mitigation has been provided. This has led to expansion of some of the mitigation measures, and further discussion regarding concerns with headlight glare on Captains Cove residents. The concern with headlight glare would be adequately addressed based on the Applicant's prior agreement to incorporate a wall to screen headlight glare near residents on Sailmaker Court, which would be included as a condition of approval.

Ellen Stein
211 Vendola Drive
San Rafael, CA 94903

Community Development Department
1400 Fifth Avenue 3rd Floor
San Rafael, CA 94901

Dear Planning Commissioners:

The proposed Soccer complex at the airport will increase the number of people coming to and from San Rafael. The report indicates that there will be 1701 daily trips with 268 during peak PM hours. Have there been studies done to see what the affect on traffic will be when there is an event at the Civic Center or the JCC? There are several performances at the Civic Center drawing many cars and in July there is the Fair already creating a traffic nightmare. McInnis Park also has scheduled games in the evening that share that same road. How many people are expected to be at the Complex at any one time and what is the maximum? How will the limits be enforced? How will emergency vehicles be able to effectively respond in a timely manner with all this added traffic congestion? There are traffic issues now why add more? 55-1 55-2 55-3 55-4

Sincerely,

Ellen Stein

Ellen Stein

RECEIVED

MAY - 8 2009

COMMUNITY DEVELOPMENT
CITY OF SAN RAFAEL

LETTER 55: Ellen Stein, May 8, 2009

RESPONSE 55-1: The DEIR traffic impact analysis evaluated a weekday worst case scenario, and special events that may be conducted on- or off-site are unique cases that may require unusual traffic management practices. If the proposed recreational facility (or other nearby off-site facilities with in City jurisdiction such the JCC) schedules a special event which is likely to generate unusually high traffic volumes, the operators will need to collaborate with the City's Traffic Engineering Division in advance to address operational concerns during that event. For special events at the Civic Center or McInnis Park, Marin County is not obligated to consult with the City unless they are proposing street closures, although the City encourages such consultation with the Traffic Engineering Division.

RESPONSE 55-2: See MASTER RESPONSE PD-1, above, which addresses the maximum number of people who would be anticipated at the Project site at any given time (475). At the estimated maximum occupancy, 130 people would be using the outdoor facilities, and 345 people would be inside the 1.6-acre indoor facility. For the purposes of the Single-Acre Intensity analysis, it was assumed that the highest intensity of use per acre would be at the indoor facility, with an average of 216 people per acre at maximum capacity (375 people inside the 1.6-acre (71,000 sq. ft. footprint) structure = 216 people per acre). As indicated in the DEIR, this value would exceed the single-acre criterion of 200 people, which was identified as a potentially significant impact on DEIR page 10-17 (**Impact Haz-1a**). As indicated on DEIR page 10-20, implementation of the risk-reduction design features identified in **Mitigation Measure Haz-1** (e.g., limiting intensity of use to a maximum of 200 people per single acre, or, at a minimum, adding one additional emergency exit within the structure beyond the number required by the CBC, providing the structure with an enhanced sprinkler system, and adding a sign at the entrance to the warm-up field indicating the maximum occupancy of the field is 50 people) would reduce impacts associated with the adjacent airport operations to a level considered less than significant. The San Rafael Fire Department and Building Division have the authority to impose and enforce the risk reduction design features required for the building occupancy, based on its location in an airport safety hazard zone 5, and could establish and enforce a maximum occupancy limit for the sports facility.

Based on the Project Description and analysis of other similar facilities, it is not anticipated that the maximum number of people using the proposed warm-up field at any given time would exceed the proposed limit of 50 persons (40 persons per acre, as indicated on DEIR page 10-19). The warm-up area would be used by teams before games on the single outdoor field. Soccer has 11 players per team on the field (typically one goalie, three defenders, three mid-fielders, three forwards and one striker) plus substitutes. Thus, it would be reasonable to anticipate two standard sized 11-person teams with coaches and substitute players would use the warm-up field prior to the next scheduled game, which would not exceed the capacity limitation proposed (e.g., a reasonable estimated team size of 15 players plus 2 coaches per team would result in 34 persons). It is also worth noting that the soccer field as proposed

could be used for similar sports, such as lacrosse, which fields 10 to 12 person teams, thus the impact of two lacrosse teams using the warm-up field would also be within the limit imposed. Finally, the field would not contain goal posts and is not proposed for use by baseball or American-style football team games, which can have more specialized teams with much larger team sizes.

RESPONSE 55-3: As indicated in the DEIR discussion of Project-related traffic and emergency access impacts, (pages 13-20 through 13-43), development of the Project site as proposed would increase local traffic levels, but not to a level considered significant. Emergency vehicles responding to calls at the Project site would not experience significant delays related to local traffic congestion following development of the Project site as proposed. A two-lane bridge is proposed by the Project Applicant that would eliminate potential queuing effects that would have occurred from the 1-lane bridge deck, as discussed in DEIR **Appendix K**, Traffic, on page 23. Further, as indicated on DEIR page 13-27, the City Traffic Engineers and the Fire Department have reviewed the site plan for adequacy regarding safety and emergency access and have determined that there are no potentially significant impacts.

RESPONSE 55-4: Opinion regarding the extent to which development of the proposed Project would add to existing traffic issues locally is noted. As indicated in RESPONSE 61-3, above, development of the Project site as proposed would increase local traffic levels, but not to a level considered significant.

Ellen Stein
211 Vendola Drive
San Rafael, CA 94903

City of San Rafael Planning Division
1400 Fifth Avenue, Third Floor
San Rafael, CA 94901

RE: Project: 397-400 Airport Recreational Facility

Dear Planning Commissioners:

I have already submitted a letter but after further review, I have a few more questions:

1. Under Haz 1a, the highest estimated concentration of people in a single acre on the Project site would be 216 exceeding the single acre criterion. It appears that the mezzanine level is not considered as part of the acre footprint used in calculating the number of people that can safely occupy the building at any given time. Why is the square footage of each level considered as if they are separate? 56-1

2.Haz 1b is mitigated by adding 1 more exit to enable young children and the elderly to exit out of harms way. How many exits are proposed and are they spread throughout the building in case of an aircraft accident? 56-2

3.What is the source of information provided on the sports center that indicates that below maximum occupancy of the facility is expected and why isn't the overall site occupancy disclosed? The California Building Code (CBC) calculates occupancy levels based on square footage. The study says that "various" agencies have indicated that "many" uses are generally occupied at no more that 50% of their maximum occupancy levels. Is this code dictating the assumptions and if so what are the various agencies and many uses taken into consideration? What are the types of buildings being referenced? 56-3

4. The warm up field is 1.3 acres and resides in Zone 2 which is exposed to substantial risk. Why is this not addressed? A sign indicating maximum occupancy of 50 people is not sufficient. Who will count and enforce such a sign? 56-4

5. Although Mead & Hunt bases the study on approximately 10 acres of the 16.6 acre project site, the concentration of people will be in or near the facility which is a little over an acre. Based on the mitigated 200 people per acre, how can this project realize a profit and sustain economic success? 56-5

6. The parking calculation assumes 1.5 people per automobile using the "local jurisdiction" requirement. Have other sporting events been studied to determine how many people per vehicle actually travel to these types of venues? The project site is rather remote not lending itself to other means of transportation as the report suggests. **56-6**

7. Where is the fuel stored on the airport? **56-7**

8. The report states that the proposed soccer complex application was submitted before legislation was put in place to require further restrictions on newly built buildings in an effort to deal with global warming effects. Isn't it irresponsible to go ahead with a project knowing that future detrimental consequences are likely just because of a filing date? **56-8**

Sincerely,

Ellen Stein

Ellen Stein

LETTER 56: Ellen Stein, May 8, 2009

RESPONSE 56-1: See MASTER RESPONSE PD-1, above, which addresses the maximum number of people who would be using the Project site and any given time, and the related single-acre use calculation. The airport hazards analysis identified the maximum number of people per acre of land. Thus, the building footprint is used as the factor used to determine the 1.6 acres of land upon which the highest concentration of people would be located. Therefore, using the CBC methodology, the number of people anticipated inside the building included all levels and areas, including the upper mezzanine level. This is shown on DEIR pages 10-18 and 10-19.

RESPONSE 56-2: DEIR Figure 3-5 (page 3-27) shows the first floor plan of the proposed structure with a total of 3 entrances (which could also be used as exits in an emergency) and 5 exits, which would be spread throughout the building.

RESPONSE 56-3: As indicated on DEIR page 10-17, the information provided on the proposed Project by the Project Applicant does not indicate the normal maximum occupancy anticipated for a recreational sports facility. As indicated in MASTER RESPONSE PD-1, above, the CBC methodology was used to develop the maximum intensity assumption for the entire Project for purposes of conducting the aeronautical safety review. The highest occupancy assumption identified for the entire recreational facility use is 475 occupants, with 345 people inside the indoor facility which is located on 1.6 acres and 130 people located outside. DEIR pages 10-18 and 10-19 show the number of people that would be allowed in each area of the building and site under the maximum occupancy limit established by the CBC. Thus, the CBC methodology takes the maximum allowable CBC occupancy calculation of 949 people (inside all areas of the building and on the soccer fields) and multiplies this maximum limit by 50 percent, to determine the maximum number of users that would be on the entire recreational facility site during the peak intensity (i.e. 475 people, with 345 people estimated inside the building and 130 people estimated outside the building).

The source of references to "various agencies" and "many uses" is the California Airport Land Use Planning Handbook (January 2002), published by the California Division of Aeronautics. Unfortunately, the Handbook does not specifically indicate the agencies that conducted the studies. It is known that the surveys were conducted by and for various Airport Land Use Commissions and jurisdictions for the purposes of airport land use compatibility planning. The surveys focused on typical occupancy levels of retail and offices uses (uses without fixed seating). Lacking better information, Mead & Hunt applied the same assumption to the proposed recreational facility.

RESPONSE 56-4: As indicated on DEIR page 10-19, the warm-up area is likely not going to exceed the Zone 2 maximum of 40 people per acre standard. However, a sign at the entrance of the warm-up field indicating the maximum occupancy of the field may be prudent. Opinion that installation of such a sign is inadequate to limit the total number of people using

the warm-up area is noted. As indicated in RESPONSE 55-2, above, the San Rafael Fire Department and Building Division would have the ability to impose and enforce the risk reduction design features required for the building and site occupancy limits. Use of occupancy limit signs is common practice and required inside buildings. Therefore, posting of a sign in a visible location within the warm-up field, and at the entry gate, would be sufficient to advise patrons of the limitation and enable enforcement of violations, which are not likely to be triggered based on the anticipated field activity levels previously discussed.

RESPONSE 56-5: The DEIR evaluates the environmental effects associated with development of the Project site as proposed. Under CEQA, it is beyond the scope of an environmental review document to evaluate economic effects associated with the Project, including analysis of the level of activity that would need to take place at the Project site in order to make the Project profitable and sustain economic success.

RESPONSE 56-6: For the purposes of the Aeronautical Safety Review, it was assumed that the average number of persons per vehicle at the project site would be 1.5 (Mead & Hunt, Inc, page 8). The DEIR traffic study was based on actual trip counts at a similar indoor soccer facility, and the estimated trip generation value for dance studio vehicles was based on the ITE manual value for dance studios. The ITE manual does not provide person per vehicle estimates. Therefore, the only estimate provided of the average number of people per vehicle moving to and from the Project site is the 1.5 value identified in the Aeronautical Safety Review. Observations that the Project site is relatively remote and not well served by means of transportation other than motor vehicles are noted.

RESPONSE 56-7: Fuel at the airport is stored above ground near the railroad tracks south of the hangars, approximately 1,400 feet from the nearest point at the Project site.

RESPONSE 56-8: See MASTER RESPONSE GHG-1, above, related to climate change and the evaluation of Project-related greenhouse gases. Opinion regarding the wisdom of proceeding with the proposed Project is noted.

Jonathan Metcalf & Shelley Sweet
26 Point Gallinas Road
San Rafael, CA 94903

Mr. Kraig Tambornini
Senior Planner
City of San Rafael, Community Development
P.O .Box 151560
San Rafael, CA 94915-1560

May 9, 2009

Dear Mr.Tambornini:

We are concerned about the proposed Airport Soccer Field Recreational facility currently under consideration by the City of San Rafael, and under evaluation in a Draft EIR. Our home is located on a hill above the old MacPhail School and overlooks the Santa Venetia Valley and towards the Terra Linda hills behind it. From our side of the neighborhood, we can see *and hear* small aircraft taking off and lifting from the Airport. During the day, as airplanes take-off and land, the engine noise of the planes can cut through the normally peaceful and quiet neighborhood in the Santa Venetia Valley. The relatively low level of the airplane activity is tolerable, however, as the neighborhood is otherwise very still and quiet. We are more concerned, however, about the impact of prolonged ambient noise the proposed Soccer Field facility will bring to the area. Ongoing crowd noise, referee whistles, and increased traffic noise will surely be more intrusive to the community than occasional airplanes -- to both the immediate neighborhoods and Santa Venetia -- and especially at night. **57-1**

We are also concerned about the night-time light that will be generated by the facility. From our vantage point, the lights from the McGinnis Park Golf Center are the brightest lights we see after dark. Additional night-time light from the proposed Soccer Field Facility will increase the amount of night-time light generated from the area and will further degrade the natural night-time environment for humans, plants and wildlife. **57-2**

Our understanding of the proposed project is that significant levels of noise, night-time light and traffic will be generated during the facility's hours of operation and cause significant environmental impacts on the community. We also understand that the underlying property upon which the proposed project is or is close to a sensitive wetlands area that is home to a number of plants and animals. The area is prone to flooding and is protected only by an aging levee system, some of it not owned or controlled by the property owner. Notwithstanding other environmental impact concerns, even if a fully noise-resistant and indoor-light-only facility were erected on the property, the amount of traffic and people visiting the area alone would have a detrimental effect on the surrounding environment. In our review of the DEIR, we think the report does not adequately address how these impacts will be sufficiently mitigated to any tolerable levels for this sensitive area. **57-3**

We also agree with many other Marin citizens who are concerned that the project has other multiple negative outcomes for our community. Below is an excerpt from a letter by Mary Feller and Rachel Kaman opposing the Soccer Field Facility project, which is incorporated herein: **57-4**

Jonathan Metcalf & Shelley Sweet
26 Point Gallinas Road
San Rafael, CA 94903

The project has multiple negative outcomes for our community, including:

1. Loss of habitat value and restoration potential of historic diked Baylands; and an increase in our coastal flood protection burden which opposes current and regional planning efforts; and
2. Costly demands for facilities and infrastructure upgrades and maintenance which could outweigh positive revenue benefits and threaten project sustainability.

The diked bayland where the facility is slated to be built is surrounded by the North and South Forks of Gallinas Creek. The property is below sea level, protected by aging reclamation levees constructed of bay mud in the 1940's.

According to City maps contained in the 20/20 General Plan/Conservation Element, the immediate area provides critical habitat for the endangered Clapper Rail (only about 1,000 remain) and other special status species.

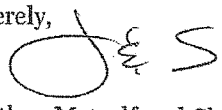
The parcel is subject to tidal inundation, sea level rise, and very high shaking from earthquakes. Furthermore, the proposed facility and fields where children will be playing are adjacent to the airport runway.

The project will generate an astonishing 1,700 hundreds car trips per day. Initial feedback during the DEIR process indicates the facility will attract users from all over the Bay Area, increasing vehicle miles traveled (VMT).

For the reasons cited above, including increased and unreasonable noise, light and traffic levels in the community, additional hazards from aviation, the threat to endangered and special status species, necessary levee upgrades potentially costing tens of millions, the loss of restoration value, and cost to the general public, we believe that the San Rafael Airport Soccer Facility is an inappropriate site for the proposed Soccer Field Facility -- a project that seems to be less of a recreational service to the community and more of a development strategy for commercial exploitation in a sensitive wetland environment. **57-5**

The recreational benefits to the County of Marin, as proposed by this project are compelling and needed by our community. However, the detrimental impacts of the project to the environment far outweigh the recreational benefits, especially since there exist alternate Marin locations to provide this type of service to our residents. **57-6**

Sincerely,



Jonathan Metcalf and Shelley Sweet
San Rafael, CA

LETTER 57: Jonathan Metcalf & Shelly Sweet, May 9, 2009

RESPONSE 57-1: Concern regarding the proposed development of the Project site is noted. Observations regarding existing noise generated by aircraft operating at the airport site are noted. As indicated on DEIR pages 12-13 through 12-26, the Project as proposed would be expected to create potentially significant noise impacts, which could be reduced to a level considered less than significant through implementation of the identified mitigation measures. See MASTER RESPONSE NOI-2, above, which addresses issues related to intermittent noise generated at the Project site.

RESPONSE 57-2: On DEIR pages 5-24 through 5-36, Project-related lighting effects on the surrounding community and wildlife are addressed. **Impact Aesth-1** (DEIR page 5-24) identifies a potentially significant lighting impact that could be reduced to a level of less than significant through implementation of **Mitigation Measure Aesth-1a**, **Mitigation Measure Bio-3a** and **Mitigation Measure Bio-3b** [as corrected]. Outdoor lighting at the Project site is not expected to have a significant adverse effect on plants.

RESPONSE 57-3: The DEIR identifies potentially significant Project-related noise and lighting effects that can be reduced to a level considered less than significant through implementation of the identified mitigation measures. Although development of the Project site would increase local traffic, no significant Project-related traffic congestion impacts have been identified in the DEIR. Although delineated jurisdictional wetlands are present at the Project site, no Project-related development would take place in any delineated jurisdictional wetlands. As indicated on DEIR page 7-2, the Project site has been (and is currently) maintained to discourage use of the site by wildlife in the interests of aviation safety. As indicated in the Biological Resources chapter of the DEIR, there are special status wildlife species that have been observed in the vicinity of the Project site, and potentially significant Project-related impacts to these species that have been identified in the DEIR could be reduced to a level considered less than significant through the implementation of the mitigation measures identified in the DEIR. As indicated on DEIR page 11-2, the Project site is located within the 100-year floodplain, but is protected from flooding by the existing levees.

See MASTER RESPONSE HYD-1, above, which addresses the assessment of potential flooding impacts at the Project site, MASTER RESPONSE HYD-2, above, which addresses the existing condition of the levees. Opinions regarding the character of the detrimental effects associated with development of the Project site as proposed, and the effectiveness of the mitigation measures identified in the DEIR in reducing potentially significant Project-related impacts, are noted.

RESPONSE 57-4: Agreement with other Marin citizens that the Project would have negative outcomes for the community is noted. See RESPONSES to LETTER 17, above, which

address comments from the letter submitted by Gallinas Creek Watershed Council (which includes signatories Mary Feller and Rachel Kaman).

RESPONSE 57-5: Opinion regarding the appropriateness of the Project site to support development as proposed is noted. Opinion regarding the purpose of the proposed Project is noted. As indicated in the DEIR (page 7-61), no portion of the Project site that is proposed for development is located in an area formally designated as wetlands. Appropriateness of the location and intensity of development proposed on this site will be evaluated as part of the Project merits.

RESPONSE 57-6: Opinions regarding the relationship Project recreational benefits and environmental impacts, and the availability of other sites which could support the recreational facility as proposed, are noted. The DEIR has adequately identified the environmental effects of development on this site. The merits of the Project, as proposed, will be evaluated after the EIR is completed.

Patricia L. Moezzi
10 Portola Avenue
San Rafael, CA 94903
415-479-2765

May 9, 2009

City of San Rafael
Community Development Department
Planning Division
P.O. Box 151560
San Rafael, CA 94915-151560

Attention: Kraig Tambornini, Senior Planner

Re: San Rafael Airport Recreational Facility

Dear Planning Office and Planning Commissioners:

In this letter I shall express the reasoning behind my opposition to the above project.

1. The site of the proposed building is a very sensitive natural area. No amount of mitigation will be able to replace the natural beauty that will be lost if this structure is built. McInnis Park now offers gorgeous views of relatively undisturbed land in practically every direction. From the pathway walkers have an unobstructed view of the entire North San Pedro Range from top to bottom, and of Mt. Tamalpais to the right. With a two-story soccer building in the way, people will see only the ridgeline in back of the building, and, looking at Mt. Tamalpais, will no longer be able to see the end of San Rafael Hill coming down in front of Mt. Tam. Since this is a wonderful view of our beloved Mt. Tam, it will be a significant loss. There is, in my opinion, a great difference between seeing a ridgeline and viewing a mountain range in its entirety. To contend that views will not be significantly impaired is incorrect. **58-1**

   The EIR says that the existing eucalyptus trees will mask the soccer building. Even if the building is not built, if these trees get so tall that they obstruct the present view of the North San Pedro Range from top to bottom, just as the proposed building would, the trees should be topped. Not every tree is an unmitigated blessing... certainly not a eucalyptus in Marin! Did someone ask permission to build such a barrier in the first place? **58-2**

2. Users of the Las Gallinas Valley Sanitary District trails can now get lovely glimpses of the dome and the Hall of Justice wing of our famous Frank Lloyd Wright Civic Center. These views, which I personally cherish as I walk around the lakes, will probably be lost if the proposed project is built. **58-3**

3. It is my understanding that when the airport project was approved, certain provisions were made that would have prevented a structure such as this from being built on this property. How honest is it to placate citizens in one instance while knowing, from a planner's standpoint, that you can always find ways to get around such concessions in the future? **58-4**

4. I have lived in San Rafael for over fifty years and have come to know the value that the citizens of San Rafael and Marin County place on nature and doing things the "natural" way. Most sports are seasonal, and that is, I believe, right and good -- "everything to its season." How "natural" is an indoor soccer field with artificial turf, with a different size of playing field and different rules from those of traditional soccer, played in a totally enclosed building? Is that in tune with the priorities of Marin County residents? **58-5**

   - While Marin County gets quite a bit of rain, how many soccer games had to be cancelled during the last soccer season because of bad weather?
   - Does San Rafael truly have a shortage of soccer fields to accommodate our population? There are outdoor soccer fields at McInnis, at our various public schools, and at the Marin Academy, and there is already an indoor soccer field at the nearby Y.
   - Will a significant number of Marin County residents feel deprived if they are unable to play soccer on a year-round basis?
   - A recent check of our Marin County telephone directory shows approximately thirty listings for opportunities to dance in Marin County. We need more? There are probably even more businesses devoted to fitness. The nearby Y and the Jewish Community Center both offer dance and fitness opportunities.

5. My family frequently goes to McInnis Park and LGVSD for walks, and we generally encounter no significant traffic all along the way. If the proposed building is built, that will certainly change, especially along McInnis Parkway. But there might well be other significant impacts. **58-6**

   Can we really be assured that all soccer players and fans both entering and exiting the proposed building will use the Smith Ranch Road offramp? What about all those split-second decisions such as, "Oh, let's just go the other way [Civic Center or Northgate]", or "Oh, the traffic is backed up...let's take the frontage road instead"? If they opt for the Civic Center exit, this will most assuredly impact the people in my immediate area, known as Portola Gardens (over one hundred homes with just one access and egress: Garden Avenue). I invite you to enter on Garden (no problem), but then see what happens when you try to exit. Note how we have to contend with a four-way signal at the entrance to the Civic Center, "battle" right and left turns from that intersection, and accommodate all traffic on North San Pedro generated by homes, schools, churches, and the Jewish Community Center. Then too, any Santa Venetia resident desiring to visit the soccer center will, of course, have to pass through the Civic Center intersection.

   But if soccer fans bypass *our* exit, they might choose to use the Northgate offramp. This could really cause problems, because this particular intersection is awkward at best, and

can even be dangerous because it is confusing for drivers who are unfamiliar with it...you have to know when it's your turn, and you have to be quick about it. Put more traffic on that intersection than there already is, and you've got trouble!

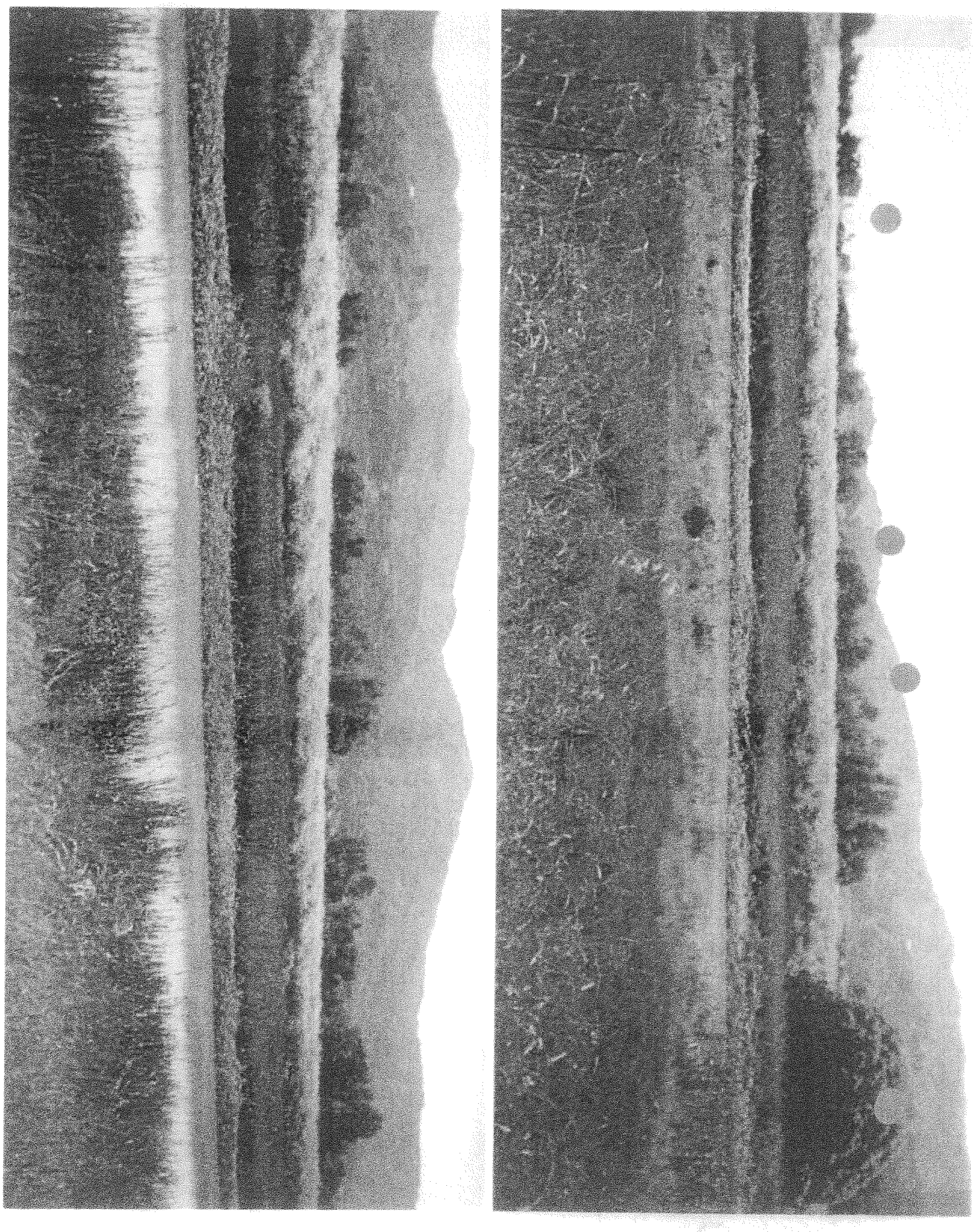
Is someone trying to tell the citizens of San Rafael and Marin County that they really need this facility, and that disturbing the clapper rail and the loss of all that wonderful natural setting isn't terribly significant? The stance of the planners at the EIR meeting seemed to be that every undesirable aspect of this project can be mitigated. Not much consideration was given to all that will lost for the foreseeable future, but that is foremost in my mind. Marin needs to protect important natural wildlife areas in perpetuity both for current residents and visitors and for the future enjoyment of all those who will cherish the beauty of Marin just as we now do. **58-7**

We have a reputation here of preservation of our natural environment...so many ridgelines in their natural state, China Camp, Mt. Tam, the Headlands, Samuel P., Muir Woods, our Civic Center complex. In keeping with the priorities of the residents of our beloved Marin County, the Airport Recreational Facility should be rejected for this site. If the potential owners want to be in this county, they can find another place that will not have such a negative effect on the natural beauty of Marin. **58-8**

Enclosed are photographs [one set for each of the Planning Commissioners, and one for your files] that I took of the region, with green dots indicating the tops of the story poles. Most of the poles, unfortunately, did not show up in my photographs, but I think the Commissioners can get my point quite well, and that is: This is too beautiful, too natural, an area to be disturbed in perpetuity by a large, two-story building. Please, Planners and Commissioners, reject this plan! **58-9**

Sincerely,

Pattricia L. Moezzi



LETTER 58: Patricia L. Moezzi, May 9, 2009

RESPONSE 58-1: Although there are sensitive biological resources in the vicinity of the Project site, as indicated on DEIR page 7-2, the Project site has been (and is currently) maintained to discourage use of the site by wildlife in the interests of aviation safety. Although the site may appear to provide "natural beauty", the site has been created as a result of the installation of levees, and would appear as baylands in the absence of those non-natural structures. As shown in the visual simulations provided in DEIR pages 5-15 through 5-21, development of the Project site as proposed would alter existing views from the representative vantage points selected for analysis. However, Project-related impacts to scenic resources and the visual character of the area would be considered less than significant (DEIR pages 5-23 through 5-24). Opinion regarding the significance of Project-related interference with existing views in the area is noted.

RESPONSE 58-2: Opinion regarding the need to top eucalyptus trees at the Project site in the interest of protecting existing views from blockage is noted. The Project Applicant had proposed to infill existing eucalyptus trees as part of Project to screen the site. The planting of the existing eucalyptus trees were not part of any approval or permission, as City approval or permission is not required for the planting of trees on private property. Alternate evergreen trees (native or compatible) would be likely recommended by City Staff as a condition of approval.

RESPONSE 58-3: Observation that views from the Las Gallinas Valley Sanitary District trails may be obstructed as a result of development of the Project site as proposed is noted. As noted previously, while the Project will disrupt views along a 600-foot-long portion of the trail, and certainly change the unobstructed views that currently exist across the undeveloped Project site area, the DEIR has indicated that this would not result in a significant visual impact considering that it would not result in a complete or significant amount of blockage of a scenic vista or view.

RESPONSE 58-4: See MASTER RESPONSE PD-2, above, which addresses the Declaration of Restrictions. Opinion regarding planner's ability to know that you can "always find ways to get around" earlier development-related concessions is noted. It is not possible to respond in the EIR to any individual person or person's understanding regarding the intent of the Declaration of Restrictions recorded in 1983, or any concessions believed to be included in such agreement at that time. It is also not possible, appropriate, nor within the scope of the EIR to discern whether City planners, or any other party to the agreement, intended to execute this agreement with knowledge or intent to "get around" any actual or implied concessions that were believed to be included as a part of the agreement. Rather, the Declaration of Restriction that has been recorded against the property represents a legally binding agreement and it must be considered and enforced based on the clear and precise language of the agreement. The City Attorney's office has reviewed the document and has confirmed that the agreement, as written, does not preclude the Applicant from requesting

development of a private recreational facility that includes a structure. Thus, no actual or implied intent to "get around" the deed restriction exists, and the deed restriction is being applied and enforced consistent with the stated terms of the agreement.

RESPONSE 58-5: Opinion regarding the importance of doing things the "natural" way and personal preference for seasonal sports are noted. Opinions on how "natural" an indoor soccer field can be, and the extent that such an indoor field may be consistent with the priorities of Marin County residents are noted. The DEIR evaluates the environmental impacts associated with the development of the Project site as proposed. Although prior to submitting the development application the Project Applicant may have considered such factors as the number of Marin County soccer games that were cancelled due to inclement weather during the last soccer season, the present inventory of available soccer fields in Marin County, the extent to which local residents may feel deprived if unable to play soccer year-round, and the current availability of opportunities to pursue dance training or fitness activity locally, it is beyond the scope of the DEIR to address these factor, as the central focus of the environmental review is the environmental effects of the Project as proposed.

RESPONSE 58-6: As indicated in the DEIR traffic analysis, although development of the Project site as proposed would result in an increase in local traffic, in terms of traffic congestion at the intersections and arterials evaluated this increase would not be considered significant using the City's thresholds of significance. Although traffic modeling generally relies on standard assumptions regarding driver behavior in developing trip distribution and trip assignment estimates for specific projects, there is no guarantee that driver behavior might not change as perceptions regarding traffic conditions might change, particularly if a number of alternate route choices are available. The purpose of the traffic modeling conducted for the DEIR was to determine whether or not Project-related traffic could be expected to result in significant delays at the intersections and arterials evaluated during peak traffic periods, and not to extrapolate possible impacts that might occur at other intersections in the event driver behavior deviates from that assumed for modeling purposes. Opinion regarding the potential for additional traffic trouble in the event that traffic patterns deviate from the assumptions used in modeling traffic impacts associated with development of the Project site as proposed is noted.

RESPONSE 58-7: The DEIR evaluates the environmental impacts associated with the development of the Project site as proposed, and does not make any effort "to tell the citizens of San Rafael and Marin County that they really need this facility". The DEIR identifies possible disturbance of California Clapper Rail and California Black Rail as a potentially significant Project0-related impact, and identifies mitigation measures which would reduce this impact to a level considered less than significant (DEIR pages 7-63 through 7-69). As indicated in this comment, the DEIR identifies mitigation measures that could reduce all potentially significant impacts associated with development of the Project site as proposed to a level considered less than significant. Opinion that natural wildlife areas in Marin County need to be protected in perpetuity is noted. Although there are sensitive biological resources

in the vicinity of the Project site, as indicated on DEIR page 7-2, the Project site has been (and is currently) maintained to discourage use of the site by wildlife in the interests of aviation safety.

RESPONSE 58-8: Opinion that the Project should be rejected in order to preserve the natural beauty of the area is acknowledged and noted.

RESPONSE 58-9: Receipt of the attached photographs is acknowledged. Comment that Planning Commission should reject the Project, noting that this is too natural and too beautiful an area to be permanently disturbed by a large two-story building, is noted.

805 Rincon Way
San Rafael, CA 94903
May 10, 2009

Mr. Kraig Tamborini, Senior Planner
City of San Rafael, Community Development
1400 Fifth Avenue, 3rd Floor
San Rafael, CA 94901

Re: Draft EIR, San Rafael Soccer Facility

Dear Mr. Tamborini:

I am adding my voice to those of the many other concerned citizens protesting the proposed zoning change at the San Rafael Airport to allow a huge Soccer Field Recreational Facility to be built on deed-restricted property. **59-1**

Adverse impacts on the endangered clapper rail are not adequately addressed in the Draft EIR. The noise produced in the area, from fans, players, referees' whistles, music from the dance studios in addition to the 1700 car trips per day and the attendant slamming of vehicle doors, will certainly negatively impact not only the rails but all other fauna calling Gallinas Creek and surrounding marshlands home. The noise, seven days a week until late at night, will also impact nearby residential areas.

The DEIR also does not address the growth-inducing impacts of this project. There is potential for increased development on this property if there is a change is zoning. **59-2**

Sincerely,

Sandra Fullerton

LETTER 59: Sandra Fullerton, May 10, 2009

RESPONSE 59-1: Opposition to the proposed Project is noted. Opinion regarding the adequacy of the DEIR's evaluation of Project-related impacts to the California Clapper Rail is noted. Potentially significant Project-related impacts to the California Clapper Rail and California Black Rail are addressed on DEIR pages 7-63 through 7-69, and can be reduced to a level considered less than significant through implementation of **Mitigation Measure Bio-2a** [as revised], **Mitigation Measure Bio-2b** [as modified], **Mitigation Measure Bio-2c**, **Mitigation Measure Bio-2d** [as modified] and **Mitigation Measure Bio-2e**. See MASTER RESPONSE BIO-1, above, for additional discussion of Project-related impacts to the California Clapper Rail. See MASTER RESPONSE BIO-4, above, which addresses Project-related noise effects on wildlife. Operational noise effects on residents in the vicinity of the Project site are addressed on DEIR pages 12-16 through 12-22. These can be reduced to a level considered less than significant through implementation of **Mitigation Measure N-1** [as modified] (DEIR pages 12-21 and 12-22).

RESPONSE 59-2: Opinion that the DEIR did not address Project-related growth-inducing impacts is noted. See DEIR discussion of growth-inducing impacts on pages 14-14 and 14-15, and MASTER RESPONSE GI-1, above, which also addresses the potential for growth inducement associated with development of the Project site as proposed.

807 Hacienda Way
San Rafael, CA 94903
May 10, 2009

Mr. Kraig Tamborini, Senior Planner
City of San Rafael, Community Development
1400 Fifth Avenue, 3rd Floor
San Rafael, CA 94901

Re: Draft EIR, San Rafael Airport Recreational Facility

Dear Mr. Tamborini:

This letter serves as comment to the above DEIR.

The proposed Airport Soccer Complex will severely impact the quality of **all** life in the area. I challenge the assumptions stated in the report and point out some significant omissions. 60-1

Of the many impacts of this complex, I will concentrate on two issues: light and noise.

Light

The report mentions that there will be almost two times the allowable average lighting intensity in the parking lot but nowhere in Chapter 5 is there any mention of the methodology used for gauging the effects of vehicle headlights on the community across the creek. Since the planned parking lot will have to be raised nearly 3½ feet and vehicles will be required to back in, this is a major concern. The statement: "The project lighting may exceed the lighting intensity standards of the surrounding community" is an understatement at best. The proposed outdoor field lighting is 71 times the allowable average lighting intensity for the City of San Rafael. 60-2

Noise

This citizen finds it curious that none of the noise measurement locators were situated directly across from the proposed complex in any residents' backyards (a mere 750 feet away from the project). Instead, Lt-2 was placed over 1700 feet away to the east in the Santa Venetia Marsh! Further, there seems to be no noise measurement provided for spectator sounds, game playing with whistles in the outdoor fields or traffic and conversations in the parking lot. Rather, the report suggests that the residents of Santa Venetia and surrounding communities simply close their windows and abandon the quiet enjoyment of their backyards. 60-3

The proposed complex is an offense and should not be approved. 60-4

Sincerely,

Paula H. Kotzen

LETTER 60: Paula H. Kotzen, May 10, 2009

RESPONSE 60-1: Opinion regarding the severity of Project-related impacts on the quality of all life in the area is noted.

RESPONSE 60-2: See MASTER RESPONSE AES-2, above, which addresses headlight glare from Project-related vehicles moving to and from the Project site. Although DEIR Figure 5-7 (page 5-31) shows that the lighting levels for illuminating the outdoor soccer field would range from 0 to 71 foot-candles, the majority of the light intensity would be focused primarily on the outdoor soccer field, with some illumination of the overflow parking area south of the field (DEIR page 5-26). **Impact Aesth-1** (DEIR page 5-24) indicates that Project lighting may exceed the light intensity standards of the surrounding community, a potentially significant impact. As indicated on DEIR page 5-36, this impact could be reduced to a level considered less than significant through implementation of **Mitigation Measure Aesth-1a**, **Mitigation Measure Aesth-1b**, **Mitigation Measure Bio-3a** and **Mitigation Measure Bio-3b**.

RESPONSE 60-3: Opinion regarding the selection of representative noise measurement locations for the DEIR noise analysis is noted. See MASTER RESPONSE NOI-2, above, which addresses the effects of intermittent noise at the Project site. Operational noise impacts associated with the use of the proposed recreational facility are addressed on DEIR pages 12-15 through 12-22. The DEIR indicates on page 12-17 that a one decibel Project-related increase in exterior noise level during nighttime noise hours would likely go unnoticed given that a) the existing ambient noise levels in this area is 49 dBA to 54 dBA L_{dn}, b) considering the noise exceedance is of an exterior threshold, residents are unlikely to be outside during the hours of 9 p.m. and midnight to experience any increase, and c) considering the 15-25 dBA outdoor –to-indoor noise reduction provided by standard construction (depending on whether windows are open or closed) interior noise levels at the nearest residences would remain well below the 40 dBA and 45 dBA interior noise thresholds at any time of the day or night. At no point does the DEIR indicate that having nearby residents either simply close their windows or remain indoors mitigates Project-related noise impacts. As indicated in **Impact N-1** (DEIR page 12-15,) operation of the proposed recreational facility would have the potential to increase noise levels at the Project site, which could adversely affect nearby residential uses, a potentially significant impact. This impact could be reduced to a level considered less than significant through implementation of **Mitigation Measure N-1** [as modified] (DEIR pages 12-21 and 12-22).

RESPONSE 60-4: Opinion characterizing the proposed Project as "an offense", and recommendation that the City not approve the Project, are noted.

LETTER 61

Kraig Tambornini

From: thomas.andrews@gsa.gov
Sent: Monday, May 11, 2009 2:01 PM
To: Kraig Tambornini
Subject: RE: Copy of DEIR for Smith Ranch Road

Thanks, Kraig. FYI, the link to the Table of Contents does not work. It sends you to the Introduction.

The DEIR does not seem to discuss light pollution. Am I missing something? Right now, we enjoy pitch dark skies at night with little ambient light due to the area being residential/wetlands/golf course. The impostion of a lighted soccer field immediately across the creek from my house will wipe out the night sky, and since this facility is intended to be run until midnight, I will lose my night sky permanently. However, the report does not seem to touch on it. Is this form of pollution exempt from EIR considerations? **61-1**

Tom.

Thomas L. Andrews, III
Broker Branch Chief
U.S. General Services Administration
PBS, Real Estate Acquisition Division (9PED)
450 Golden Gate Avenue, 3rd Floor East
San Francisco, CA 94102
(w) (415) 522-3181
(c) (415) 740-3719

"Kraig Tambornini" <Kraig.Tambornini@ci.san-rafael.ca.us>

05/11/2009 09:34 AM

To "Tom Andrews" <tlandrews3@comcast.net>
cc "Tom Andrews GSA" <thomas.andrews@gsa.gov>
Subject RE: Copy of DEIR for Smith Ranch Road

http://www.cityofsanrafael.org/Government/Community_Development/San_Rafael_Airport_Recreational_Facility_[

The link above will take you to the document. Let me know if you have any trouble. KT

From: Tom Andrews [mailto:tlandrews3@comcast.net]
Sent: Monday, May 11, 2009 7:15 AM
To: Kraig Tambornini
Cc: Tom Andrews GSA
Subject: Copy of DEIR for Smith Ranch Road

Questions/Rebuttals regarding claims made in DEIR 2006-012-125 – 397 – 400 Smith Ranch Road (San Rafael Airport Recreational Facility)

Lighting: Table 2-1 (Page 2-2) talks about the potentially significant impact of the project lighting, and the only mitigation recommended is that the lights will be scheduled to turn off at 10:00 PM. That does nothing to mitigate the effect of the light before 10:00, which is when most people would be out enjoying the night sky. The night sky in Santa Venetia, because of all the surrounding undeveloped area, is pitch black at night, and I enjoy sitting in my driveway using my telescope to view the skies. I do that between sunset and bedtime, not after 10:00. Lighting of the outdoor field would preclude me from being able to look at the night skies with my telescope. I do not believe the mitigation is adequate. **61-2**

Lighting: Table 2-1 (Page 2-13). This same issue is brought up as Impact Bio-3. Again, the mitigations don't take effect until 10:00, which is inadequate. I am also curious as to why, if the field lighting shuts down at 10:00 why the safety lighting needs to stay on until after midnight. **61-3**

Hours of Operation: There seem to be inconsistencies regarding the hours of operation. In various places, such as those noted in my comments above, there is reference to the field shutting down operations at 10:00 PM. In Table 3-1 (Page 3-13) there are references to soccer being played outdoors until midnight. I am curious as to how lighting of the field will be accommodated for play from 10:00 to midnight. **61-4**

Lighting: Table 3-1 (Page 3-16) and the paragraph preceding it talk about the lighting being provided to the field. Eight 1500 watt pole-mounted lights will provide lighting to the field. This lighting will cast a glare that will completely inundate the night sky. This is a terrible effect to impose on the surrounding neighborhoods. Mounted at 40 feet on the north side of the field and 23 feet on the south side of the field, they will be visible from the windows of the houses along Vendola and will shine light into those houses. This is unacceptable. **61-5**

Noise: The EIR talks about the existing noise environment. I can tell you in two words: Dead Calm. There is absolutely no noise at night around Santa Venetia. Occasionally you will hear a bird, or some animal moving outside. There will be the occasional car pass by. And, ever so faintly, you may be able to hear the trucks on Highway 101. For a week every year, we put up with the sounds of the County Fair, but even this shuts down by 10:00. With the soccer field and indoor facility, we will be subjected to the loud noises of cheering crowds and screaming players every night until 10:00 PM, and later if the schedules change. In addition, we will have to put up with all the ambient noise that goes along with a sports venue – the before and after game parties, the car noise, honking horns and general revelry associated with sporting events. This noise will totally change the character of the surrounding neighborhoods. With some houses as close as 300 feet to the field, the noise will be particularly intense for them. Sound walls will not help, as the sound will just be reflected up higher on the cliff, then back off the cliff. My wife **61-6**

wakens at the sound of me tip-toeing to bed at night – there will be no rest if we have to put up with the din of soccer crowds to and past 10:00.

I challenge most of the statistics on page 12-16 and Appendix J. Houses along Vendola are much closer than 1,000 feet away from the outdoor facility. On this page, again, there is discussion of the outdoor facility operating until midnight. The increase in noise at night and on weekends is the most important consideration for residents who work, and those who are at home all day are concerned about the increase in noise at all times of the day. The study is just plain wrong when it says that the facility will only increase noise levels by 3 DBA, and a 60 dBA is simply unacceptable for suburban living. Considering that our standard of noise is more akin to rural than suburban, the proposed noise levels are out of sight. **61-7**

The cheering that goes on at soccer matches is as loud as it is at any sporting event. I challenge IRI to take noise levels 300 feet away from soccer matches and tell me what the noise level rises to. It certainly will be louder than 50 dBA. **61-8**

The sentence at the bottom of page 12-17 is the most ridiculous of all. The increase in noise levels is not only going to be perceptible, it is going to be annoying to the point of being angering. **61-9**

Noise: Impact 2a of Appendix J is totally wrong. In order to get an indication of what the existing noise level is, I challenge anyone to come sit outside my house on any given night with a measuring device and tell me that the average noise level is 49 to 54 dBA. The only noise makers in my neighborhood, aside from the birds, are the occasional car and the very occasional airplane. **61-10**

Summary:

The EIR is extremely deficient in its presentation of the Noise Pollution and the Light Pollution that will be generated by this soccer facility. It grossly underestimates the impact that this facility will have on the quality of life enjoyed by the residents of Santa Venetia. It is an insult to our senses, literally. **61-11**

Tom Andrews
626 Vendola Drive
San Rafael, CA 94903
(415) 472-6506

LETTER 61: Thomas L. Andrews III, May 11, 2009

RESPONSE 61-1: Light and glare associated with the development of the Project site as proposed are addressed on DEIR pages 5-24 through 5-36. As indicated on DEIR page 5-24 (**Impact Aesth-1**), Project lighting may exceed the light intensity standards of the surrounding community, a potentially significant impact. This impact could be reduced to a level considered less than significant through implementation of **Mitigation Measure Aesth-1a**, **Mitigation Measure Aesth-1b**, **Mitigation Measure Bio-3a** and **Mitigation Measure Bio-3b** [as modified]. **Mitigation Measure Aesth-1a** includes a provision that exterior lighting be shielded to direct illumination downward, which would reduce Project-related illumination of the night sky to some extent. The threshold of significance used for evaluating light and glare in the DEIR is whether the Project would create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area (DEIR page 5-6).

RESPONSE 61-2: Observation that the proposed restriction on use of exterior field lighting after 10:00 PM would not reduce Project-related lighting impacts in the hours of darkness before 10:00 PM is noted. Opinion that **Mitigation Measure Aesth-1a**, **Mitigation Measure Aesth-1b**, **Mitigation Measure Bio-3a** and **Mitigation Measure Bio-3b** are inadequate to reduce Project-related lighting impacts to a level which would enable satisfactory viewing of the night sky through a telescope in the hours of darkness before 10:00 PM is noted. The City does not have an ordinance restricting urban lighting levels within the City for the purpose of viewing the night sky through a telescope. Rather, the Project is within the existing City urban boundary, and urban lighting levels within the City are regulated to minimize the potential for light spillover and glare impacts on adjacent properties and passers-by. Thus, there is no applicable significance threshold against which the City would measure any physical impacts on the environment in response to this comment. The discussion in the DEIR pages 5-24 through 5-36 adequately evaluates the potential light and glare impacts on views in the area.

RESPONSE 61-3: Opinion regarding the adequacy of **Mitigation Measure Bio-3a** and **Mitigation Measure Bio-3b** as a means of reducing Project related lighting effects on the California clapper rail and the California black rail are noted. Although the proposed mitigation would prohibit the use of exterior field lighting after 10:00 PM, the indoor recreational facilities would be expected to remain in use until midnight on Fridays and Saturdays, and safety lighting at the Project site would need to remain illuminated at minimum required low-levels for purposes of security, in order to allow those patrons to safely exit the building and the parking areas.

RESPONSE 61-4: The Project as proposed would operate the outdoor soccer field under exterior lighting until 11:00 PM Sundays through Thursdays and until midnight Fridays and Saturdays. The DEIR identified this proposed use of exterior lighting as creating a potential significant environmental impact, which could be reduced to a level considered less than

significant through implementation of **Mitigation Measure Aesth-1a**, **Mitigation Measure Aesth-1b**, **Mitigation Measure Bio-3a** and **Mitigation Measure Bio-3b**, which includes prohibiting the use of exterior field lighting after 10:00 PM.

RESPONSE 61-5: Opinion regarding the effects and unacceptability of pole-mounted exterior field lighting as proposed at the Project site is noted. Concerns with visibility of the poles and potential for lights to cast a glare that will completely inundate the sky and have potential to shine light into houses along Vendola Drive is noted. See RESPONSE 61-2, above, which addresses the threshold for review that applies in this case, as discussed in DEIR Chapter 5. Lighting fixtures would be required to be shielded so that light sources would be concealed and that all lighting would be focused downward onto the area intended for illumination, and away from property boundary lines.

RESPONSE 61-6: Observations regarding the current noise environment in the vicinity of the Project site is noted. Opinion regarding the effects of Project-related noise on surrounding neighborhoods is noted. Project-related noise impacts are addressed on DEIR pages 12-13 through 12-26, and where Project-related noise impacts have been identified as potentially significant, mitigation measures have been identified which, if implemented, would reduce those impacts to a level considered less than significant. As indicated on DEIR page 12-16, the nearest homes to the Project site are located 750 feet south of the nearest edge of the proposed warm-up area, not within 300 feet of the Project site as indicated in this comment. Opinion regarding the effectiveness of sound walls in reducing Project-related noise impacts to a level considered less than significant is noted. Opinion regarding the anticipated effects of the noise generated at the Project site on personal sleep patterns is noted. See MASTER RESPONSE NOI-1, above, for further discussion of Project-related noise.

RESPONSE 61-7: Opinion regarding the veracity of the distances referred to on DEIR page 12-16 and DEIR **Appendix J** is noted. As indicated on DEIR page 12-16, the nearest homes to the Project site are located 750 feet south of the nearest edge of the proposed warm-up area. The Project as proposed would operate the outdoor soccer field under exterior lighting until 11:00 PM Sundays through Thursdays and until midnight Fridays and Saturdays. Opinion regarding the accuracy of the analysis of Project-related increases in ambient noise levels in the area is noted. As indicated on DEIR page 12-16, although ambient noise levels with the Project would be as high as 56 dBA (L_{eq}) and 60 dBA (L_{dn}) 180 feet from the center of the outdoor soccer field during soccer games, these ambient noise levels as perceived at the nearest homes would be reduced considerably due to the effects of distance as a means of noise attenuation. As indicated in this comment, and shown on DEIR **Figure 12-1** (page 12-5), an exterior noise level of 60 dB L_{dn} in residential areas is regarded as conditionally acceptable by the City of San Rafael, and may only be permitted after detailed analysis of the noise reduction requirements and needed noise insulation features included in the design. The Project site is not located in a residential area and no residential uses are proposed at the Project site.

RESPONSE 61-8: Opinion regarding anticipated noise levels at 300 feet during a soccer game on the outdoor soccer field at the Project site is noted. See MASTER RESPONSE NOI-2, above, which addresses the effects associated with intermittent noise.

RESPONSE 61-9: Opinion regarding the DEIR statement on page 12-17 that Project-related noise would be considered a potentially significant impact, even though the increase in existing noise levels would be largely imperceptible, is noted.

RESPONSE 61-10: Opinion regarding the accuracy of **Impact 2a** in DEIR **Appendix J** is noted. Although the Environmental Noise Assessment conducted by Illingworth & Rodkin, Incorporated (Revised December 15, 2005) provided the basis for the DEIR's evaluation of Project-related noise impacts, the Impact statements provided in the DEIR discussion of Project-related noise effects (pages 12-13 through 12-26) represent the Project-related noise impacts identified by the EIR preparers. Impact 2a in DEIR **Appendix J** states: "Outdoor recreation activities would result in an increase in noise levels surrounding the site. Activities would not raise ambient noise levels by more than 3 dBA Ldn or create noise impacts that would increase noise levels to more than 60 dBA Ldn at the nearby residences nor would the City of San Rafael Noise Ordinance limits be exceeded. This impact is less-than-significant." DEIR **Appendix J** was completed for an earlier version of the Project which is different from the Project as currently proposed, so although the noise measurements provided in that report have been used in the DEIR, the text of Impact and Mitigation Measures provided on DEIR pages 12-13 through 12-26 may differ somewhat. The existing noise environment in the vicinity of the Project site is addressed on DEIR page 12-2. Opinion regarding the accuracy of the noise levels measured in the vicinity of the Project site is noted.

RESPONSE 61-11: Opinion regarding the adequacy of the DEIR in addressing Project-related noise and lighting effects is noted.

JANE CHANG
23 Wharf Circle
San Rafael, CA 94903

May 11, 2009

Kraig Tambornini, Senior Planner
City of San Rafael, Community Development
P. O. Box 151560
San Rafael, CA 94915-1560

Dear Mr. Tambornini:

I have been a homeowner in Captain's Cove for 15 years. Due to my professional background, I have extensive experiences in reviewing reports similar to the DEIR. I reviewed the DEIR and found the deficiencies in the report, specifically, Flooding and Hydrology. Here are the comments and deficiencies I noted in the DEIR:

1. The site is located in Flood Zone AE with 9 feet base flood elevation determined, delineated on the Flood Insurance Rate Map (FIRM) for Marin County California and Incorporated Areas, 06041C0294D, effective May 4, 2009. The DEIR must be revised to including the flooding hazard analysis based on the current FEMA flood determination. **62-1**

2. Hydrology Analysis dated November 26, 2005 and a letter dated February 24, 2006 both prepared by Oberkamper & Associates in Appendix I of the DEIR contains outdated information. Both documents calculated the base flood elevation, the risk associated with flood and the potential levee breach analysis based on the National Geology Vertical Datum 1929 methodology which was consistent with an outdated FIRM. The current FIRM is based on the North American Vertical Datum of 1988 methodology to calculate the base flood elevation. The DEIR must be revised to include the current FIRM and the North American Vertical Datum of 1988 methodology. **62-2**

3. Chapter 11, Hydrology and Water Quality, of the DEIR stated that the project site is protected by 9-foot levees on north, south and east. It is questionable whether the existing 9-foot levee would provide sufficient protection to the project site with the base flood elevation at 9-foot on current FIRM not at 6-foot on an outdated FIRM. **62-3**

4. The recommended mitigation measures in the DEIR stated that the City of San Rafael further recommends an additional 1 foot of BFE elevation to allow for freeboard space, resulting in a minimum BFE of at least +7 feet NGVD 1929. DEIR must be revised since **62-4**

the floodproof design elevation of +7 NGVD is no longer sufficient to protect the building and human life.

5. The DEIR did not recommend any mitigation measures for an access road to higher ground for safety during the flooding. **62-5**

The deficiencies noted in the DEIR must be corrected in order to be acceptable for the City Council. Your prompt attention to this matter is greatly appreciated.

Sincerely,

Jane Chang

LETTER 62: Jane Chang, May 11, 2009

RESPONSE 62-1: As indicated on DEIR page 11-2, according to maps prepared by the Federal Emergency Management Agency (FEMA), the Project site is located within the 100-year floodplain. The DEIR was released for public review in March, 2009. As indicated in this comment, the revised FIRM was effective on May 4, 2009, after the DEIR was published.

RESPONSE 62-2: See MASTER RESPONSE HYD-1, above, regarding the use of datum values in the assessment of potential Project-related flooding impacts. Opinion regarding the validity of the hydrology analysis used in preparation of the DEIR is noted. See MASTER RESPONSE HYD-1, above, which addresses the datum value used in the DEIR assessment of Project-related flooding impacts. Opinion regarding the need to revise the DEIR to include the current FIRM and the NAVD of 1988 methodology is noted, and has been completed. See also RESPONSE 62-4, below.

RESPONSE 62-3: See MASTER RESPONSE HYD-2, above, which addresses the existing condition of the levees.

RESPONSE 62-4: Opinion that the DEIR must be revised because the floodproof design elevation of +7 NGVD is no longer sufficient to protect the building and human life is noted. The change in the flood datum from the NGVD to NAVD standard results in a difference in measurement of 2.67 feet. However, this is primarily based on the differences in the method of measurement and is not based on any new hydrology. Thus, the physical height of flood waters would not be materially changed. Therefore, as also explained in MASTER RESPONSE HYD-1, above, the new NAVD elevation measurement of +9.67 NAVD is equivalent to the +7 NGVD standard, and the FEMA flood requirement for flood proofing at this site would still be adequate and appropriate.

RESPONSE 62-5: As indicated on DEIR page 11-31, the Oberkamper analysis of potential flooding a the Project site associated with a levee breach during a 100-year flood event indicated that floodwater would reach an elevation of +1 in 45 minutes, an elevation of +1/75 in an hour and a half, and +2 in two hours and fifteen minutes, which would allow sufficient time to safely evacuate the Project site before the depth of water presents a hazard. As indicated in this comment, no additional access was identified in the DEIR as necessary to permit safe evacuation of the Project site during flooding.

LETTER 63

Kraig Tambornini

From: Anthony R. White [poet@ninegates.org]
Sent: Monday, May 11, 2009 9:36 AM
To: Kraig Tambornini
Subject: Soccer Complex DEIR comment

Dear Mr. Tambornini,
My wife and I live up on Mt. San Pedro on Bayhills Drive in the Santa Venetia neighborhood. Our house looks down on the airport and golf course.
The proposed soccer complex would be a nightmare for us with the increased noise and light pollution. **63-1**
This sensitive environment is not the appropriate place for such a massive sports complex.
Sincerely,
Anthony & Daphne White
1100 Bayhills Drive
San Rafael, CA 94913

LETTER 63: Anthony R. White, May 11, 2009

RESPONSE 63-1: Opinion regarding the effects of Project-related noise and light pollution is noted. Opinion that the Project site is a sensitive environment unsuitable for development as proposed is noted.

Mary Feller

Comments on the San Rafael Airport DEIR

HYDROLOGICAL ANALYSIS WAS NOT PEER REVIEWED **64-1**

The geotechnical analysis was peer reviewed by Kleinfelder. However, the hydrology, levee breech analysis, and levee conditions were analyzed by engineers hired by the applicant.

There is an appearance of peer review of the hydrology because the final letter from Kleinfelder, dated December 15, 2005, is misfiled in the hydrology section of the technical appendices.

This letter should be property re-filed in the geotechnical section.

UNSUBSTANTIATED STATEMENTS PRESENTED AS SCIENCE IN HYDROLOGY/LEVEE ANALYSIS **64-2**

I am deeply troubled by the hydrology analysis. (chapter 11, page 30)

A levee analysis was prepared by John C. Hom (JCH) – a short letter included in the technical appendices dated February 24, 2006.

First, Mr. Hom states that "two test borings" were conducted during the geotechnical analysis. Mr. Hom failed to add that the test borings were not conducted on the levees themselves.

Mr. Hom goes on to state that "we inspected the surface conditions of the entire levee" – in other words, apparently only what Mr. Hom could see with the naked eye.

Mr. Hom says that he "observed" that clayey soils were used as fill for the levees.

Based on his personal observations – not on any test borings or data – Mr. Hom then states that the levee fill consists of "on-site bay mud and a portion of the levee was constructed with apparent imported clayey fill."

Mr. Hom concludes: "Since we did not observe any sandy fill during our inspection of the levee and did not encounter any saturated sandy soils in our test borings, it's is our opinion that liquefaction is highly unlikely."

Once again, Mr. Hom fails to note that the borings in question were not in anyway associated with the levees.

Again, only two test borings were conducted. These borings were conducted to test the soils of the soccer facility project site ONLY.

Not a single test boring was conducted on the entire 2.5 mile length of levee.[1]

It is risky to assume the levees consist of the same exact same soils as the project site.

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[1] #1 boring was located between the two proposed outdoor soccer fields; #2 boring was located on the southwest corner of the proposed indoor soccer field. ("Plate One, Test Boring Location Plan" contained in the technical appendices/geotechnical section.)

The DEIR then magnifies Mr. Hom's already faulty analysis and takes the fallacy even further afield!

Chapter 11, page-30, the DEIR concludes: "The JCH levee failure assessment concludes that since their inspection of the levees did not encounter any saturated sandy soils in test borings, the levees are not subject to liquefaction."

Once again, Mr. Hom's levee inspection consisted ONLY of a visual inspection of the surface of the levee. No test borings exist for the levees themselves.

The borings question is significant because the DEIR conclusion rests on this faulty analysis.

Wetlands and Water Resources calls out the same issues with the Hom analysis. "More troublesome," states WWR, "is the lack of a thorough geotechnical investigation of the levees."

Furthermore, this peculiar and specious statement by Mr. Hom made its way into the DEIR:

"We understand that the levee was built by [sic] the 1940's. The levee system did not fail in either the Santa Rosa Earthquake of 1969 with a Richter Scale of 5.7 or the Loma Prieta Quake of 1989 with a Richter Scale of 7.1."

What did Mr. Hom mean by this statement? Did he mean that the levees would not fail in the future because they did not fail in these past? Nevertheless, this is the conclusions that is naturally inferred by his statement. The statement "boobytraps" the reader into inferring a false conclusion.[2]

There is a famous adage among flood plain managers: "All levees will fail." So, Hom's remark – especially one made about a 2.5 mile levee system built in the 1940's of untested soils - seems particularly specious and dangerous.

The earthquake epicenters (Loma Prieta and Santa Rosa) used as a basis of comparison were quite far from the proposed site. In the case of Loma Prieta, at least 100 miles away.

The Association of Bay Area Governments (ABAG) maps the San Rafael Airport as an area that will experience the highest level of shaking (very violent/Modified Mercalli Intensity Shaking Severity Levee) assuming a 6.9 magnitude earthquake on the Hayward-Rodgers Creek Fault system.

For liquefaction susceptibility, the area is mapped at the highest possible level - very high. It's striking that Mr. Hom fails to mention the Hayward-Rogers Creek fault in his levee analysis - because in the map he submitted as part of the geotechnical analysis (Plate Nine, geotechnical technical appendices), the Hayward-Rogers Creek system has the highest potential for rupture of any Bay Area fault – 27% potential fo a magnitude 6.7 or greater, between the years 2008 to 2032.

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[2] *Boobytrap*
A linguistic snare which is not itself fallacious, but may cause someone to inadvertently commit a fallacy. For instance, an ambiguous or vague sentence is not in and of itself fallacious, since it is not an argument, but it may cause somebody to infer a false conclusion.

In light of the sloppy analysis, there is absolutely no basis for the DEIR to conclude that the potential for levee failure due to liquefaction is less than significant.

(Attached. Home letter, boring map)

VIOLATIONS OF TITLE 18

County of Marin Direction of DPW Farhad Mansourian stated the levees are in poor condition. If the levees break, the DEIR does not address the cost to the general public that will result from this development. **64-3**

These costs could include the cost of evacuation (the DEIR mentions helicopter, which is very expensive) or the monies that might be collected by the property owner from FEMA and/or the State of CA for reconstruction in the event of a disaster declaration.

The DEIR overlooks Title 18. Allowing additional construction in areas with large potential costs to the general public is a violation of Title 18.

THE DEIR FAILS TO ANALYZE AND PLAN FOR EXPECTED FEMA MAP CHANGES **64-4**

According to my conversations with FEMA officials, FEMA is currently in process of a new study called the "San Francisco Bay Shoreline Study."

Preliminary results will be available in December 2009. This is NOT the mapping that recently stirred so much controversy.

FEMA is REMAPPING parcels adjacent or near the San Francisco Bay. Existing mapping doesn't fully incorporate wave run-up conditions. When the new maps are released, areas previously mapped A Zone will "VERY LIKELY" become VE Zones (high velocity wave run-up).

The San Rafael Airport (currently A1) may be remapped VE. Buildings located in VE Zone will have to be engineered to "accommodate lateral force of waves."

The County of Marin is well aware of this mapping; we have to assume the City of San Rafael is also aware of this next round of map changes.

The DEIR should address the design and engineering implications of this remapping for non-residential buildings.

THE CITY OF SAN RAFAEL PARROTS MISLEADING CLAIMS MADE BY APPLICANT'S LAWYER **64-5**

"Any agency that allows the applicant too much control over the CEQA document process could jeopardize it's ability to defend the document if it is ever challenged. CEQA requires that the lead agency subject the draft environmental document to the lead agency's own review and analysis and that the document must reflect the independent judgment of the lead agency. The lead agency is responsible for the adequacy and objectivity of the information, conclusions, and findings in the CEQA document sent out for public and agency review and comment."
http://www.ciwmb.ca.gov/permittoolbox/CEQA/TopTen.htm

Per the San Rafael Airport and the 2004 FAA CIRCULAR "HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS" (chapter 7, page two):

The DEIR claims the San Rafael Airport's "mowing and discing" is "annual maintenance "pursuant to the FAA guidance" established in the 2004 Circular.

In terms of mowing and discing, we are left to infer that the Airport owners are required to adhere to the 2004 FAA circular and maintain a 5,000-foot buffer.

Staff are parroting a fallacy promoted by the applicant's lawyer, John Briscoe. During the Countywide Plan hearings, Mr. Briscoe - in a letter dated March 12, 2007 – cleverly misled the Marin County Planning Commission about the nature of the 2004 FAA Circular.

Mr. Briscoe made the following claim:
"All Airport operators, including the San Rafael Airport and County of Marin (Gnoss Field) have **a legal responsibility** to maintain their lands free of vegetation and water features that attract or sustain wildlife....These responsibilities are comprehensively outlined by the FAA in its 132 page manual, Wildlife Hazard Management at Airports."

There is no "legal responsibility" per the FAA and wildlife attractants applicable to the San Rafael Airport.

The San Rafael Airport is a special-use airport (as noted later in the DEIR, chapter 10, page 17). The FAA does not use the term "special use." The San Rafael Airport is listed in the FAA database as a "Private" airport.

The assertions made by Briscoe were nullified by Patrick Miles, Aviation Safety Officer, California Division of Aeronautics. In a letter dated September 18, 2007, Miles stated: "FAA Advisory Circulars outline safety and compliance standards that apply to **public-use airports** receiving state and federal funding for improvement projects. Beyond that, they are what they claim to be – advisory."

Miles concludes: "If they [the Airport owners] are unable to maintain safety standards via **cooperative arrangements** with adjacent property owners they run the risk of loosing their permit."

Due to public testimony and the aforementioned letter from the California Division of Aeronautics, Marin County Supervisors excised all FAA language in reference to the San Rafael Airport.

(Attached ,Miles letter)

THE DEIR FAILS TO NOTE THAT THE PROJECT AREA WAS RECENTLY ARMY CORPS DELINEATED WETLAND. (Chapter 7, page 24) **64-6**

The DEIR fails to mention that the project site was very recently delineated wetland. According to a map ("Marin Ranch Airport, September 1996") provided by the County of Marin Department of Public Works, much of the project area is "Corps Jurisdiction."

Furthermore, the DEIR notes that the project area is pumped and disced, in other words, the wetland may have been "purposely removed." The City of San Rafael must explain (and provide relevant documentation) as to how this delineated wetland was initially removed from Corps jurisdiction, disclose all applicable laws and regulations, and indicated whether or not all applicable laws and procedures were followed.

Furthermore, photos available on the gallinascreek.org website show the project site flooded with what appears to be several inches of water on Dec. 31, 2005. The DEIR states the pump station is sufficient to clear the site in the event of a 100-year storm.

The December 31, 2005 storm dumped a total of 2.8 inches of rain for the 24-hour period, as measured by the Marin County Civic Center rain gauge. This is the closest gauge to the airport property and the most accurate measure.

2.8 inches of rain in a 24-hour period is approximately a 2 year storm return. Obviously, the pump station at the Airport is incapable of clearing the property during even moderate storms.

The flooding also indicates that that the project site is very likely seasonal wetland. Again – as noted above - there is no legal requirement, per the FAA, to pump water off the property.

DEIR FAILS TO ANALYZE FOR CONSISTENCY WITH KEY GENERAL PLAN POLICY Conservation Element #5 **64-7**

The DEIR skipped over General Plan, Conservation element #5 "Diked Bayland" "Protect seasonal wetlands and associated upland habitat contained within undeveloped diked baylands, or restore to tidal action. Support and promote acquisition from willing property owners."

IMPARTIALITY OF CITY STAFF OPEN TO QUESTION **64-8**

The impartiality and objectivity of the City staff is open to question. The now former City Manager Rod Gould emailed the applicant to say that he was "flabbergasted" to hear that the certain County of Marin personnel expressed doubts about the project.

Gould went on to describe the project as "excellent," thanking the applicant (Bob Herbst] and "Joe" [Shekou[for bringing it forward. He also stated that "City staff are very supportive..So is the City Council." Gould indicated the City would strongly lobby the County – which Bob Brown did, in a strongly-worded letter.

In the Fall of 2006, the contract being considered for EIR consultants, prepared by City staff, stated that the purpose of the work was to "counter the viewpoints...of Marin Conservation League, Marin Audubon, Friends of Gallinas Creek. and Stuart Siegal and Christina Toms of Wetlands and Water Resources."

After protest by Marin Audubon, the San Rafael Planning Commission called the contract language a "poor choice of words" and excised the language. Nevertheless, the intent was already clear.

Representing the Santa Venetia Neighborhood Association, I testified before the San Rafael City Council about the problems surrounding contract intent and the DEIR. Yet, the City Council approved the contract.

Director of Community Development further stated in the Marin IJ that the purpose of conducting the DEIR was merely to make the project "legally defensible."

The City of San Rafael should conduct itself with the highest level of impartiality. In this case, they have not.

(See attached: Marin IJ article, San Rafael Planning Commission minutes, 9/26/06; San Rafael City Council minutes, 10/16/06; Marin Ij, 6/23/06)

DEIR PARTIALLY DESCRIBES DEED RESTRICTIONS WHILE WITHHOLDING CRITICAL DOCUMENTATION **64-9**

The DEIR glaringly failed to note a critical element of the deed restrictions. The DEIR also ignores a plethora of evidence indicating that the deed restrictions forbid commercial development.

The deed restrictions allow for Open Space uses. This is not mentioned in the DEIR description of the deed restrictions. Hence, the DEIR also failed to analyze for consistency with the General Plan Open Space Element.

During hearing on the Negative Declaration of Impacts, City staff asserted that the deed restrictions had nothing to do with a density exchange. Furthermore, for four years, City staff failed to disclose Supervisor Bob Roumiguiere's sworn testimony regarding the deed restrictions. Roumiguiere was a signator to the deed restrictions.

Roumiguiere's deposition was taken on 10/30/91 during a lawsuit in which the applicant sued the City and County to invalidate the restrictions. The City of San Rafael was party to this lawsuit. City staff and the DEIR improperly ignore this information.

Mr. Roumiguiere made it abundantly clear that the restrictions were imposed due to the higher density allowed in the Civic Center area.

"I previously urged the City of San Rafael to require a declaration of restrictions of this type and nature as a condition of approval of the Civic Center North project to ameliorate adverse impacts engendered by the density allowed for this project. If the Declaration of Restrictions had not been required, I, on behalf of my constituents in the vicinity, would have urged to [sic] to reduce the allowed density for the project.

In my opinion, based on my experience as a County Supervisor, during which I considered scores of land development projects, the Declaration of Restrictions was an integral factor in the approval of the Civic Center North project at the allowed density."

City staff also failed to mention remarks made by City of San Rafael Planning Staff, in a staff report dated November 20, 1991. (Principal Planner Sheila Delimont)

"The site is covered by a Declaration of Restrictions entered into by the then property owner, County and City in 1983 ...**limiting the intensification of the non-aviation uses is consistent with the General Plan AND Declaration of Restrictions."**

LEVEE OWNERSHIP ISSUES **64-10**

The descriptions of the levees that protect the San Rafael Airport and the project site fail to disclose significant facts that reveal ownership of those levees which in turn reveal regulatory, liability and safety issues that have not been discussed in the DEIR.

Various descriptions of the levee system exist in the DEIR including those in the Project Description on page 3-3 which describe:

> The 12,000 linear feet of perimiter levees along he North and South Forks of Gallinas Creek which connect to the levee system surrounding the Contempo Marin development.

The levees are further described in the hazards section at page 11-30:

> The airport site is surrounded on three sides by an existing levee system. The levee system requires periodic maintenance due to settlement and erosion. In the late 1990's the applicant topped a portion of the levees on the eastern portion of the site in an area under the jurisdiction of Marin County. The Applicant currently maintains the entire levee system consistent with all local, state and federal standards and requirements.

These descriptions fail to disclose that as much as 30% of the perimeter levee system is owned by the State of California in public trust for the people of California. This goes beyond merely being in an area under the jurisdiction of Marin County.[3] These levees are the responsibility of the State of California and/or Marin County despite the illegal posting of signs by the Applicant on these areas indicating that the land is "airport property."

The Applicant is under no obligation, *nor has any right* to maintain these levees. The applicant is well aware of these areas as they have tried, without success since 1996 to gain control of these areas.

The taxpayers of California and or the County of Marin would therefore bear any liability for their failure in addition to their existing maintenance obligations. This project would increase these liabilities in conflict with City of San Rafael Policies not to increase taxpayer liabilities for flood prevention.
In fact, a portion of these levees failed in November of 2006 due to an admitted lack of maintenance by the County of Marin[4]

Certifying the EIR and permitting this project would place an additional burden and liability on the taxpayers of California and Marin County. In addition, this could lead to higher FEMA flood insurance rates to Marin County residents outside of San Rafael.

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[3]See Exhibit A, perimeter levees not owned by the Applicant. Source: County of Marin Real Estate department..
[4] See Exhibit C, Email account of levee failure at San Rafael Airport. Farhad Mansourian, Director of Marin County Department of Public Works. November 2006.

Additionally, the solitary storm water pumping station for the project encroaches on PublicTrust land owned by the State as shown in Exhibit C. This illegal encroachment is in jeopardy of abatement in the eventuality that the State decides to enforce public trust rights for an alternate use. It is prudent, in the very least, for San Rafael to require the pump station be moved to land actually owned or leased by the Applicant. An alternate approach would be construction of an additional pumping station as specified by Andrew Preston, San Rafael Director of Public works in his letter to the Applicant on February 28. 2006.

64-11

JCH
JOHN C. HOM & ASSOCIATES, INC.
1618 Second Street
San Rafael, California 94901-2707
Telephone(415)258-9027 Fax(415) 258-9309

February 24, 2006

Job Number 1250.12

JHS Properties
Attention: Bob Herbst
2173 Francisco Boulevard, Suite D
San Rafael, California 94901

Dear Mr Herbst:

Existing Levees
San Rafael Airport Recreation Building
Smith Ranch Road
San Rafael, California

This letter provides our assessment of the potential for liquefaction during an earthquake that could affect the levees surrounding the San Rafael Airport and in particular, the proposed San Rafael Airport Recreation Building located off Smith Ranch Road in San Rafael, California. We previously prepared a geotechnical investigation report for the San Rafael Airport Recreation Building dated May 9, 2005. The geotechnical investigation included two test borings extending through the fill, Bay Mud and into stiff soil and bedrock. The purpose of our letter is to address the issue raised that the site and the levee in general was mapped within an area of potential liquefaction. Large scale mapping generally identifies potential areas that may be subject to liquefaction and would warrant further site specific study. We have reviewed the source reference

PRELIMINARY MAPS OF QUATERNARY DEPOSITS AND LIQUEFACTION SUSCEPTIBILITY, NINE-COUNTY SAN FRANCISCO BAY REGION, CALIFORNIA: A DIGITAL DATABASE

Geology By

Keith L. Knudsen, Janet M. Sowers, Robert C. Witter, Carl M. Wentworth, and Edward J. Helley

Digital Database By

Carl M. Wentworth, Robert S. Nicholson, Heather M. Wright, and Katherine H. Brown

The reference maps areas underlain by fill and Bay Mud are generally susceptible to liquefaction. The reference also cited that the potential for liquefaction varies depending on the fill material.

On February 9, 2006, we inspected the surface conditions of the entire levee. We observed that clayey soils were used as fill for the levees. Generally, the levee fill consisted of on-site Bay Mud and a portion of the levee was constructed with apparent imported clayey fill.

Liquefaction is a condition during and shortly after an earthquake where loose, sandy soils below the water table become "liquid and quick". During this time, the sandy soils lose rapid strength. As this occurs foundations could settle and slopes could become unstable. A number of soil and geologic conditions must exist in order for liquefaction to occur. Without one or more of the conditions, the potential for liquefaction is insignificant. The site must be near a known active earthquake fault. The nearest faults that are considered to be active are the Hayward Fault about 8 miles to the northeast

and the San Andreas about 10 miles to the southwest. The site must have a high groundwater table and high groundwater does exist at the levee site. The site needs to be underlain by loose, sandy soils below the groundwater table. The materials used for the levee fill were observed to be clayey and those encountered in our test borings are clayey and therefore not subject to liquefaction.

Examples of liquefaction are the San Francisco Marina District during the 1989 Loma Prieta earthquake. Test borings conducted in the San Francisco Marina District encountered sandy fill underlain by Bay Mud. Our work in the San Francisco Marina District showed that it was that the sandy fill that liquefied. Liquefaction did not occur in the underlying Bay Mud. Generally, the liquefaction resulted in foundation settlement. Based on our experience, areas that are underlain by clayey fill and Bay Mud did not experience liquefaction during the 1989 earthquake. These areas include the eastern parts of Marin County, including east San Rafael and the eastern parts of the San Francisco peninsula, including the Foster City area. Since we did not observe any sandy fill during our inspection of the levees and did not encounter any saturated sandy soils in our test borings, it is our opinion that liquefaction is highly unlikely.

Like the entire San Francisco Bay Area, the site and the levees would be subjected to ground shaking during an earthquake. The ground shaking could originate from an earthquake on any of the know earthquake faults, such as the San Andreas or the Hayward Fault. We expect that like all structures in the San Francisco Bay Area, the levees to be subjected to ground shaking. Clayey soils have cohesive properties. For that reason, the levees are considered to be plastic. Plastic material could deform and deflect without failure.

We understand that the levee was built by the 1940's. The levee system did not fail in either the Santa Rosa earthquake of 1969 with a Richter Scale of 5.7 or the Loma Prieta earthquake of 1989 with a Richter Scale of 7.1.

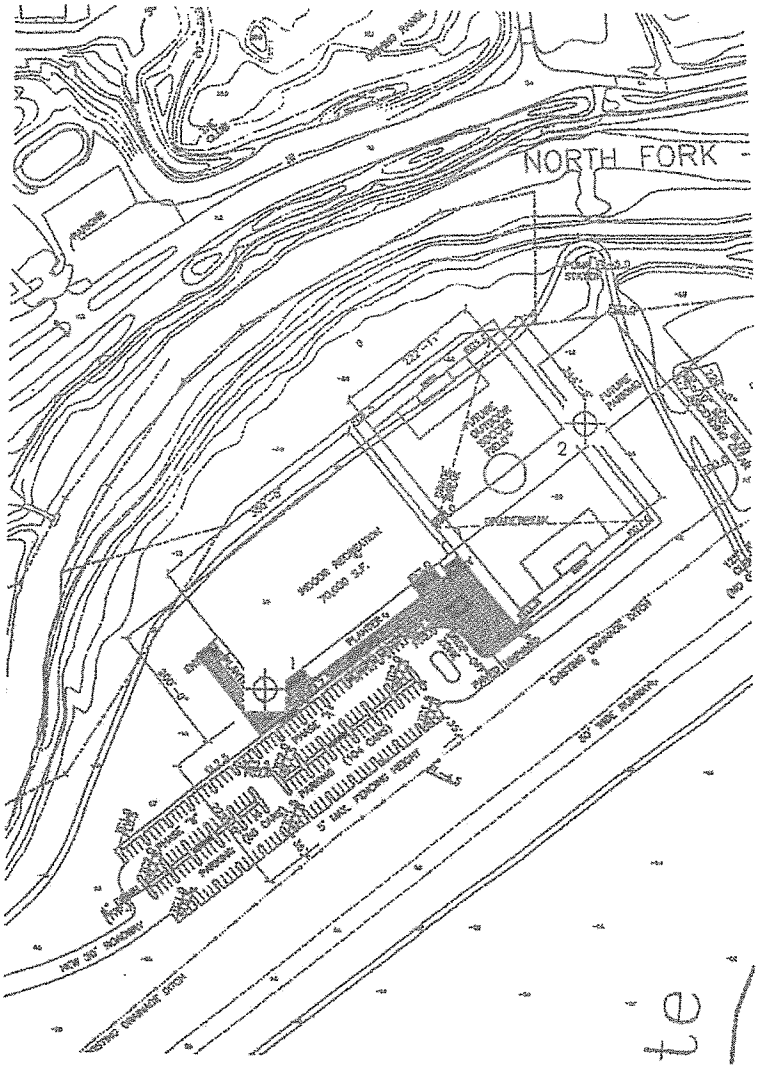
We trust this provides the information you require at this time. If you have any questions, please call.

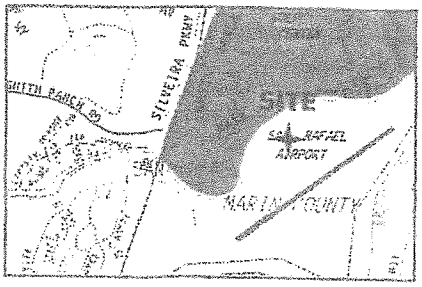
Yours very truly,

JOHN C HOM & ASSOCIATES, INC

John C Hom
Civil Engineer - 28877
Geotechnical Engineer - 412
Certificates Expire 3/31/07

JCH
three copies submitted





EXPLANATION

Test Boring

Reduced from Base Map

Prepared by Oberkomper and Associates

Dated: 1/31/05

JCH JOHN C. HOM & ASSOCIATES, INC. *Geotechnical Consultants*	Job No. : 1250.13 Appr: JCH Date: 5/05	TEST BORING LOCATION PLAN Smith Ranch Airport Fields San Rafael, California	PLATE 1

State of California
DEPARTMENT OF TRANSPORTATION
DIVISION OF AERONAUTICS

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: Ms. Mary Feller
870 Estancia Way
San Rafael, CA 94903

Date: September 18, 2007

From: Patrick Miles
Aviation Safety Officer

Subject: San Rafael Airport

Mary,

I enjoyed talking to you this morning and I am happy to respond in writing to your questions.

The San Rafael Airport is listed in the FAA database as a "Private" airport. It has a "Special-Use" permit issued by this office on July 31, 1970. A corrected permit was issued on March 25, 1999, to reflect a name change and a change in ownership. The permit states: "White R's are to be displayed on each end of the runway to denote the airport is privately owned and is not open to the general public."

FAA recognition was obtained by submitting an FAA Form 7480-1. Airports listed in the FAA database are included on aeronautical charts so that pilots flying in the vicinity will be know that the airport is there and that it is "PVT."

The FAA does not use the term "Special-Use." The state's definition is: "An airport not open to the general public, access to which is controlled by the owner in support of commercial activities, public service operations and/or personal use" (California Code of Regulations or CCR, Title 21, Section 3527). Permit requirements for all permitted airports are found in CCR Section 3534.

When an airport permit is issued by our office, we expect the airport owner(s) to comply with all requirements listed on the permit. I will include an electronic copy of the San Rafael Special-Use Airport permit in my e-mail to you.

California Public Utilities Code, Section 21659 states: "No person shall construct or alter any structure or permit any natural growth to grow at a height which exceeds the obstruction standards set forth in the regulations of the Federal Aviation Administration relating to objects affecting navigable airspace contained in Title 14 of the Code of Federal Regulations, Part 77, Subpart C (FAR Part 77), unless a permit allowing the construction, alteration, or growth is

issued by the Department (of Transportation)." FAR Part 77, however, states that its standards are only applicable to public-use airports.

This means then that safety standards for special-use airports are somewhat of a grey area. Our interpretation of all this is that the airport owners are responsible for maintaining the airport in accordance with the permit, but their leverage in doing so is quite limited. In other words, if they are unable to maintain safety standards via cooperative arrangements with adjacent property owners they run the risk of loosing their permit.

FAA Advisory Circulars essentially outline safety and compliance standards that apply to public-use airports receiving federal and state funding for improvement projects. Beyond that, they are what they claim to be – advisory. In other words, they are recommended operating practices. They do not apply to property owners located next to special-use facilities, unless the property owners voluntarily agree to abide by them.

I hope this helps. I am available at (916) 654-5376 or by cell phone at (916) 849-8698 if you have other questions or need further clarification. Best wishes.

Patrick J. Miles

PATRICK J. MILES

4C: ADEIR Section – Impacts and Mitigations Analysis. All foreseeable potential direct and indirect impacts to biological resources that could occur on the project site from development activities will be identified and discussed. Once M&A has identified the project's potential impacts to biological resources, appropriate mitigation measures will be prescribed to offset the project's impacts to a level considered less than significant. M&A is proposing two M&A Associate Biologists prepare the impacts and mitigations analysis (a botanist and wildlife biologist), with time also budgeted for Mr. Monk, M&A's Principal Biologist, to review and edit this analysis.

The M&A report will attempt to counter negative responses to the circulated Initial Study pertinent to wetlands, California clapper rail, and salt marsh harvest mice. Letters that M&A could appropriately prepare selected responses for include letters from the Marin Audubon society, Sierra Club, Friends of Gallinas Creek, Christina Toms and Stuart Siegal, Marin Conservation League, and Save the Bay.

5: Prepare Graphics. M&A will prepare suitable graphics for inclusion in the M&A report (for example, a map of significant trees and a vegetation/wildlife habitat map).

6: Revisions to the ADMINISTRATIVE DRAFT EIR Biological Resources Section. M&A will complete one round of report revision based upon the ADMINISTRATIVE DRAFT EIR. *NOTE: It is not possible to accurately anticipate the extent of Staff comment on the ADMINISTRATIVE DRAFT EIR. For this reason, the cost estimate for preparing the response to comments is an estimate only, based on an estimated 8 hours of Principal Biologist time and 32 hours of Associate Biologists time. The time necessary to respond to comments beyond the hours included in this budget will be completed on a time-and-materials basis.*

7: Responses to Comments on the DRAFT EIR. M&A will prepare responses for public comments received by the City of San Rafael on the Biological Resources section of the circulated DRAFT EIR, for incorporation by Lamphier-Gregory into the FINAL EIR. *NOTE: As this effort will depend completely on the volume of comments received, M&A would charge on a time-and-materials basis through completion of this task. For the purposes of this scope/budget, M&A is setting an interim budget that should be adequate to complete this task. If M&A sees the need to revise this budget based upon a larger than anticipated expenditure of time and effort to respond to comments, M&A reserves the right to revise this budget upwards at the time the task can be scoped accurately.*

8: Coordination/Administration. M&A is allotting time to coordinate with the City of San Rafael and/or its contractors, and Lamphier-Gregory. M&A anticipates that four meetings will be necessary, including one or two Planning Commission meetings and

SAN RAFAEL, CA 94915-151560

TEL: (415) 485-3095
FAX: (415) 485-3184

FIRST Community Meeting for Santa Venetia Residents was held June 22, 2005.

Raffi Boloyan

From: Rod Gould
Sent: Tuesday, June 21, 2005 10:31 AM
To: 'Robert Herbst'
Cc: Bob Brown; Bill Scharf; Raffi Boloyan
Subject: RE: Indoor Soccer Facility

Dear Bob, I am flabbergasted that the County would put up barriers to your excellent project. Your letter to Susan Adams is well put and compelling on all points. I have a call into Mark Reiseinfeld to ask for his reasons for this initial opposition. He promised to get back to me, but is deep in transition to retirement on the 30th. We on City staff are very supportive of your project. So is the City Council. I believe that the Planning Commission will also see its many merits. Nonetheless, change comes very hard in Marin. We have received a petition from Captain's Cove residents objecting to traffic and parking impacts that we will answer. We will reach out to the County to try to get it to step back and assess all that your project offers. Thank you and Joe for bringing it forward. It will make a lasting dent in the severe need for additional field space (especially all-weather fields) in North Marin and beyond. -Rod

-----Original Message-----
From: Robert Herbst [mailto:rherbst@jhsproperties.net]
Sent: Thursday, June 16, 2005 5:09 PM
To: Rod Gould
Cc: Raffi Boloyan
Subject: FW: Indoor Soccer Facility

Dear Rod,

As you may know, we have made our final submission for the airport recreational facility. Joe and I both greatly appreciated the supportive message you left a few months ago when we made our original submission.

We've run into a little friction from the County regarding the project, from a somewhat unexpected source: the County parks and rec people. We thought they would be supportive of new fields and facilities, but so far that has not been the case. Their McInnis Park staff member (Stephen Peterle) has stated he is opposed to the project, and he has written a negative letter to City Planning. I spoke with Mark Riesenfeld who is the acting Parks and Open Space Director (the position is currently unfilled) today, and followed up with the attached email. I wanted to bring you and Mayor Boro into the loop on this (could you please forward this email to him?). Any help or advice in establishing a positive dialogue with the County parks and rec people is greatly appreciated.

Kind Regards,

Bob Herbst

80

LETTER 64 (continued)

marinij.com

Planned soccer complex delayed

Rob Rogers

Posted: 06/23/2009 04:52:15 AM PDT

Developers of a proposed indoor soccer complex near the San Rafael Airport have agreed to a city request to prepare an environmental impact report, effectively delaying hearings on the project until early next year.

Opponents of the complex say the report is necessary to address concerns about the project's impact on the Gallinas Creek ecosystem, as well as the potential dangers of building near the airport.

"Our primary concern was performing this EIR, and now it looks like that's going to happen," said Ron Ford, an aide to Marin Supervisor Susan Adams, who has expressed reservations about the project.

But supporters of the $6 million project say the environmental report is a waste of time. They say the report will delay construction of soccer fields needed by youth sports teams.

"There were rumors going around among some of the neighbors that if they were forced to do the EIR, it would kill the project," said Tighe O'Sullivan, president of Football Club Marin. "We're grateful that the developer is willing to take this bite."

The proposed Airport Sports Complex would be a 35-foot-tall, 86,000-square-foot building that would include two soccer fields as well as a baseball and gymnastics training compound.

Situated between the San Rafael Airport and the McInnis Park golf course, the complex would include locker rooms, offices, a kitchen, a cafe serving wine and beer, and two parking lots with 268 spaces.

Robert Herbst, a spokesman for the airport, one of the developers, said the group is determined to see the complex completed, despite the delays and expense of the environmental report.

"This is a project that's badly needed in Marin County," Herbst said. "We are 100 percent committed to its going forward."

While the city requested the environmental report, San Rafael officials say they don't expect it to reveal any new information about the project.

That's because the city completed a 194-page report on the project in January, at a cost of about $150,000 to the developer. The study found that the project would not hurt the environment.

LETTER 64 (continued)

Community Development Director Robert Brown said the city is requesting the more extensive report as a hedge against future legal challenges to the controversial project.

"The report will be based largely on material that we already have," Brown said. "Ultimately, we're acting to make this project more legally defensible. The courts tend to have a low threshold when it comes to legal challenges to negative declarations" of environmental impact.

The report is expected to include additional analysis of wildlife habitat issues and airport safety. It will examine any possible alternatives.

Supporter O'Sullivan doesn't believe those alternatives exist.

"If we don't do it here, there's not another place that it can happen," O'Sullivan said. "You're never going to see a facility like this anywhere else in Marin County. And that would be a real loss to the community."

While the project's developer will pay for the report - at an estimated cost of $200,000 to $300,000, according to Brown - the city will oversee its completion.

"We'll be choosing a consultant who's worked with us in the past," Brown said. "We expect that it would begin in August, and be completed by the end of the year."

Brown expects the city Planning Commission to begin holding public hearings on the complex in early 2007.

The San Rafael Design Review Board approved the project last year.

Read more San Rafael stories at the IJ's San Rafael page.

Contact Rob Rogers via e-mail at rrogers@marinij.com

SAN RAFAEL Planning Commission 9/26/06

step the building down.

Commissioner Kirchmann wanted a sense of the Commission about changing the north elevation. Commissioner Mills agreed to change the elevation.

Commissioner Kirchmann asked for a color rendering at the next meeting. Commissioner Mills desired a gazebo. The Commission felt a gazebo would crowd the open space.

Senior Planner Boloyan summarized the Commission's comments:

- Reconsider the relationship of this building to the other building. Explore lowering the northwest corner of the parapet and potentially reducing the parapet at northwest corner. Continue asymmetry of two different buildings.
- Increased articulation of the eastern end of the north northern wall, articulation of surface treatments and show wall through color renderings.
- Provide additional landscaping in front of office.
- Double check security at the entry to the residential lobby at the north northern corner of the property.
- Add new condition – Address change in use of the building from *"residential"* to *"nonresidential."*
- Add new condition – that each unit be deeded one directly accessible parking space and add that to the Tentative Map.
- Three changes suggested to the draft conditions of approval, couple of typos to Design Review Permit Condition No. 4, Design Review Permit Condition No. 5 and adding language to Design Review Permit Condition No. 42A.

Chair Atchison asked for a motion.

Commissioner Kirchmann moved and Commissioner Paul seconded, to continue the matter to the October 10th Planning Commission meeting for the applicant to respond to the above concerns. Motion carried unanimously. 7-0.

AYES:	**Commissioners:**	**Kirchmann, Paul, Atchison, Colin, Lang, Mills, Pick**
NOES:	**Commissioners:**	**None**
ABSTAIN:	**Commissioners:**	**None**
ABSENT:	**Commissioners:**	**None**

Commissioners Kirchmann and Paul recused themselves from the next agenda item in order to avoid the appearance of a conflict.

3. **397-400 Smith Ranch Road (San Rafael Airport)** – Review of a Draft Scope of Work for the preparation of an Environmental Impact Report by an environmental consultant for the proposed Recreational Facility project at the San Rafael Airport; APNs: 155-230-10-11, 12, 13, 14, 15 and 16; Planned Development – Wetland Overlay (PD1764/WO) District; San Rafael Airport, LLC, owners, Robert Herbst/San Rafael Airport, applicant; File Nos.: ZC05-01/UP05-08/ED05-18.

Project Planner: Raffi Boloyan
Environmental Review: Environmental Impact Report

Raffi Boloyan, Senior Planner, summarized the staff report and recommended that the Commission review the draft Scope of Work and provide a recommendation to the City Council on its adequacy.

Chair Atchison asked staff when materials were sent out to the various associations. Senior Planner Boloyan responded that on August 16th staff mailed out the scope of work to nearby Homeowners Associations and various groups.

Commissioner Pick asked staff why "Hazards and Hazardous Materials" is a scoping item. Senior Planner Boloyan responded that it was main topic area to further study the impacts of the project on aviation coming in and out of airport, change of wind patterns as well as safety of users of the facility relating to aircraft landing and taking off. Before the EIR process, staff identified a consultant out of Santa Rosa and that was a topic that had to be expanded upon.

Chair Atchison opened the public hearing on this item.

Barbara Salzman, representing, Marin Audubon Society, suggested a scoping meeting is needed because the project has been modified. Director Brown pointed out that tonight is the scoping meeting. Ms. Salzman is unclear about what is being proposed and wanted a chance to comment after the applicant submits the changes. Also, she is interested in hearing the Monk Associates description. She is very familiar with all the projects in Marin County. Regarding the Sonoma Creek Bridge project, she is surprised to hear that Monk Associates worked on that because the Marin Audubon Society is doing a restoration project that is mitigation for that bridge widening, so she is interested in their response. The most significant item is the statement on the second page of her letter that the M&A report will attempt to "counter the negative responses to the circulation initial study". In her view this is a struggle because it depends on the question asked of the consultants. This question did not encourage or even allow the consultant to give realistic or factual comments and she hoped that is made clear. Also, the natural diversity database is not really adequate and more site visits are needed. She stated that the onsite habitat and levees should be recognized as habitat. She further noted confusion about the amount of time that an associate biologist would be used given the sensitive area.

Chair Atchison indicated that CEQA is becoming more of an adversarial process and the sound science is being buried in this adversarial process. Ms. Salzman agreed, but believed the process has always been adversarial. State law has certainly changed and it is more focused and people have gotten sharper in knowing how to direct consultants, but in her view it has always been adversarial and it is an opportunity for the public to be informed about problems.

Commissioner Pick pointed out that the Scope of Work items in his view responded to Ms. Salzman's concerns outlined in her letter. Ms. Salzman believed so for the most part.

LETTER 64 (continued)

Due to a family obligation, Councilmember Cohen excused himself and left the Council Chambers.

COUNCIL CONSIDERATION:

NEW BUSINESS:

11. CONSIDERATION OF RESOLUTION AUTHORIZING THE CITY MANAGER TO EXECUTE AN AGREEMENT FOR PROFESSIONAL SERVICES WITH LAMPHIER-GREGORY TO PREPARE AN ENVIRONMENTAL IMPACT REPORT (EIR) FOR THE PROPOSED "RECREATIONAL FACILITY AT THE SAN RAFAEL AIRPORT" PROJECT (397- 400 SMITH RANCH ROAD) FOR AN AMOUNT NOT TO EXCEED $124,288 (CD) – FILE 4-3-460 x 9-3-88

Community Development Director Bob Brown stated that this item was reviewed by the Planning Commission at their meeting of September 26, 2006. Most of the speakers at this hearing spoke in support of various aspects of the draft scope of work and virtually all of the suggestions made by members of the public had been incorporated into the revised scope of work.

Mr. Brown stated that the major change in the scope was that a protocol level survey for the presence of the California Clapper Rail would now be done by the sub-consultants, Monk & Associates. He indicated this would require several site visits by the staff of Monk & Associates, who had staff certified in conducting the U.S. Fish & Wildlife Service Survey Protocols for Clapper Rail. This had to occur between January and April; therefore, for that reason, the EIR would be somewhat delayed and because of the requirements of this Protocol Survey, it was now anticipated that a draft EIR would be available for the public in May of 2007.

Councilmember Heller noted that two Planning Commissioners abstained and while she understood Mr. Paul's reasons, she inquired as to Mr. Kirchmann's.

Mr. Brown explained that Mr. Kirchmann was a part-time soccer referee and receives some of his income, albeit minimal, from this; therefore, he believed it to be a conflict of interest.

Roger Roberts, Marin Conservation League, on his own behalf and that of Jean Starkweather, stated that in reading the proposed scope of work and the steps associated with the work to be done by Lamphier-Gregory, he had a question of staff. He quoted from page 9, "Traffic and Circulation using traffic analysis, updated studies to be provided by the project applicant and reviewed and analyzed by the City Traffic Engineer. Lamphier-Gregory would prepare a Traffic and Circulation section..." and inquired why the City was accepting analysis and updated studies of the project applicant and not an independent analysis. He stated it appeared to him that an independent analysis was deserved.

Mr. Brown explained that the only piece of data that the traffic engineer has an applicant provide in San Rafael, which was unique among cities, was that they only provide information on the amount of traffic they expect the project to generate, and this was an unusual facility. He stated that the change the project proponent requested the City to look at from the Initial Study and Initial Traffic Study work done by Mr. Mansourian was allowing the soccer portion of the facility to be open from 4:00 – 6:00 p.m. They originally had not proposed that, rather they would be closed for that portion of the facility for those hours; however, now that an EIR was being done, they would like to see the results of that analysis as an alternative. Mr. Brown stated the actual traffic study would be done by Mr. Mansourian and his staff as was City practice. Only a small amount of data would be coming from the applicant, and Mr. Mansourian always reviewed that data for its general accuracy.

Robert Dobrin referred the City Council to the Clapper Rail video submitted earlier this evening which he indicated had relevance to this project also.

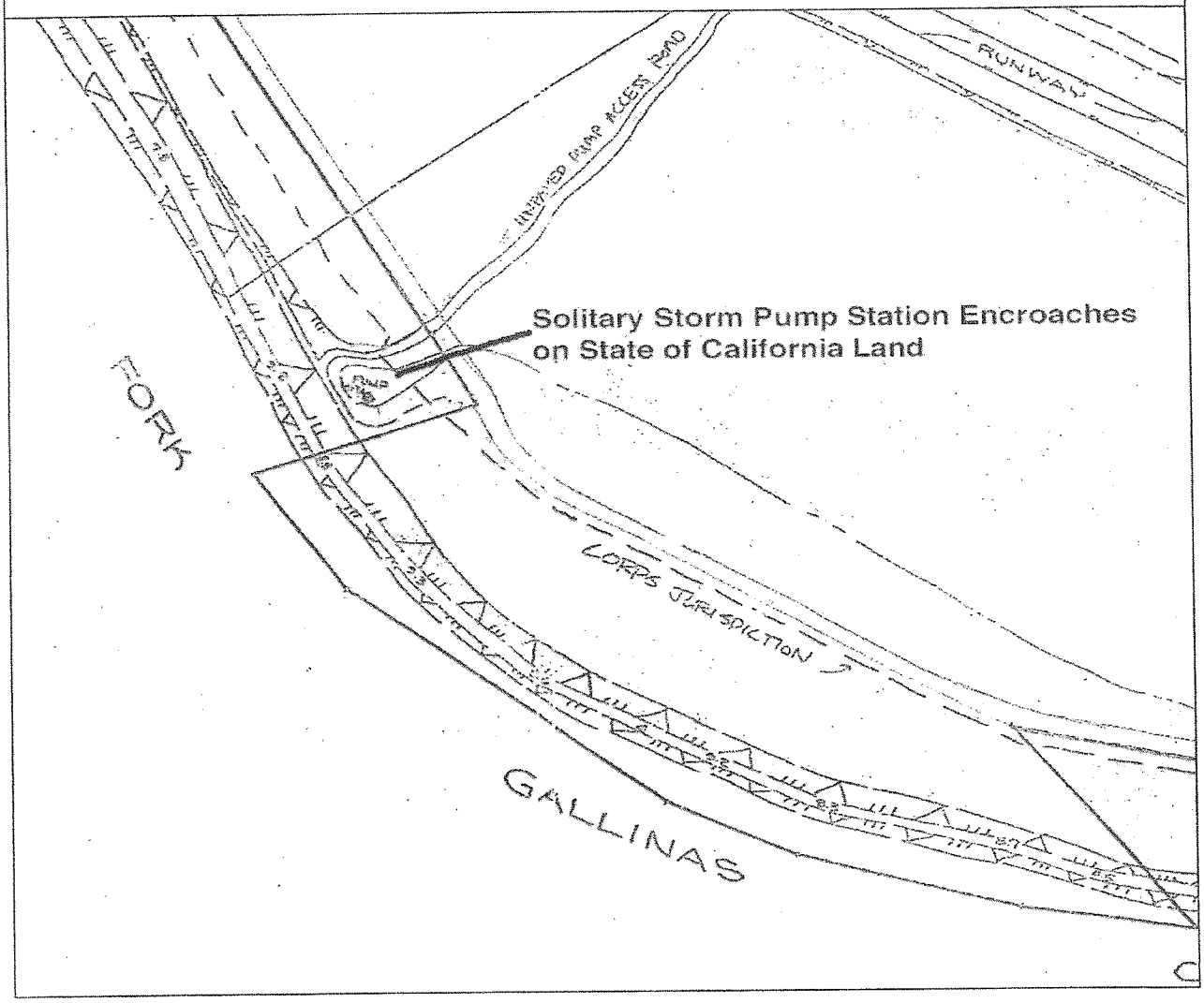
Mary Feller, Santa Venetia Neighborhood Association and Friends of Gallinas Creek, stated she remained concerned about events that transpired which the City Council might or might not be aware of.

Ms. Feller indicated that the Lamphier-Gregory proposal stated they would: "...address deficiencies identified in the circulation of the Initial Study." However, the original proposal actually read: "The report will attempt to counter negative responses to the circulated Initial Study pertinent to wetlands, California Clapper Rail and Salt Marsh Harvest Mice. Letters that would appropriately be prepared included responses to Marin Audubon, Sierra Club, Friends of Gallinas Creek, Kristina Ton, Stuart Segal, Marin Conservation League and Save the Bay."

Ms. Feller stated that one City Planning Commissioner characterized this original language as "An unfortunate choice of words. The consultant said it was merely boiler plate." She commented that it was troubling to hear such language from the consultant and it would be a

Exhibit B:

The San Rafael Airport Pump station is clearly on Public Trust lands. Outside of the boundaries of the San Rafael Airport property.



LETTER 64 (continued)

breach of public trust, perhaps, if the Community Development Department directed the consultant to confirm the findings of their own negative declaration, rather than objectively analyzing the conditions at the site.

Nevertheless, Ms. Feller stated that Mr. Brown did tell the Marin Independent Journal in June, that the "City is requesting the more extensive report as a hedge against future legal challenges to the controversial project." She noted the article stated that San Rafael officials did not expect the EIR to reveal new information on the project and Mr. Brown went on to state: "Ultimately the City is acting to make this project more legally defensible."

Ms. Feller stated her deep concern was that she believed the intent of an EIR process was to objectively analyze the conditions at the site and she was appealing to the City Council to ensure the impartiality of the studies upon which these important decisions would be made. She noted that even if competitive bidding was not required for the EIR, because it was being paid for by the developer, they would like the EIR contract to be put out to bid to other vendors and to let the public have a voice in how the consultant was directed to prepare the proposal because this one appeared to have been somewhat tainted from the start.

Mr. Brown stated there was nothing in the California Environmental Quality Act that required public participation in the hiring of a consultant, which was the reason for doing a public scoping meeting, which was done before the Planning Commission, and as mentioned to the City Council, all of the issues raised by the public regarding the draft scope had been expanded upon in the revised scope.

Mr. Brown clarified for Mayor Boro that this was all independent analysis. They would review the background reports that were used in the initial study, there would be some additional reports on airport safety, hydrology, Clapper Rail and Salt Marsh Harvest Mouse and Lamphier-Gregory had an impeccable reputation, as did Monk & Associates. He believed most present who heard the biologist from Monk & Associates speak were highly impressed with him.

Councilmember Phillips moved and Councilmember Miller seconded, to adopt the Resolution.

RESOLUTION NO. 12137 – RESOLUTION AUTHORIZING THE CITY MANAGER TO EXECUTE AN AGREEMENT FOR PROFESSIONAL SERVICES WITH LAMPHIER-GREGORY FOR PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE RECREATIONAL FACILITY AT THE SAN RAFAEL AIRPORT PROJECT (Term of Agreement: From October 16, 2006 to October 16, 2007, for an amount not to exceed $124,288)

AYES: COUNCILMEMBERS: Heller, Miller, Phillips and Mayor Boro
NOES: COUNCILMEMBERS: None
ABSENT: COUNCILMEMBERS: Cohen

12. **CONSIDERATION OF DRAFT *PROJECTIONS 2007* (ASSOCIATION OF BAY AREA GOVERNMENTS) (P06-016) (CD) – FILE 111 x 13-16 x 9-3-86**

Principal Planner Linda Jackson stated that the Staff Report outlined the issue on the *Draft Projections* for housing and jobs growth in San Rafael through the year 2025. As background, Ms. Jackson stated that ABAG (Association of Bay Area Governments) puts out these draft projections every couple of years and they are adopted.

Ms. Jackson stated that they were important to San Rafael at this point because the jobs projection and housing, particularly the jobs projection, was an important critical part of the formula that ABAG uses in determining San Rafael's regional housing need – the affordable housing San Rafael has to plan for. She indicated that the next planning period was 2009 through 2014; therefore, these draft projections would be used in that formula that splits up the regional housing need for the Bay Area to all the local jurisdictions.

Explaining two of the methodologies being evaluated currently, Ms. Jackson stated that both take jobs growth into account; therefore, the amount of jobs projected by ABAG for San Rafael was critical.

With a slide presentation, Ms. Jackson explained that the projections actually went out to 2035 and showed a really substantial increase in jobs in San Rafael; however, they did not reflect what was included in General Plan 2020, adopted only two years ago. ABAG stated they were supposed to reflect local policy; however, in reality, these projections reflected ABAG's visioning process which was conducted in 2000. She stated the intent of that visioning process was that there should be growth redirected from the agricultural areas of the Central Valley back to the Bay Area; however, during the General Plan process the community spent a lot of time talking about the need to have a jobs/housing balance and that there should be sufficient housing in San Rafael to meet the City's jobs.

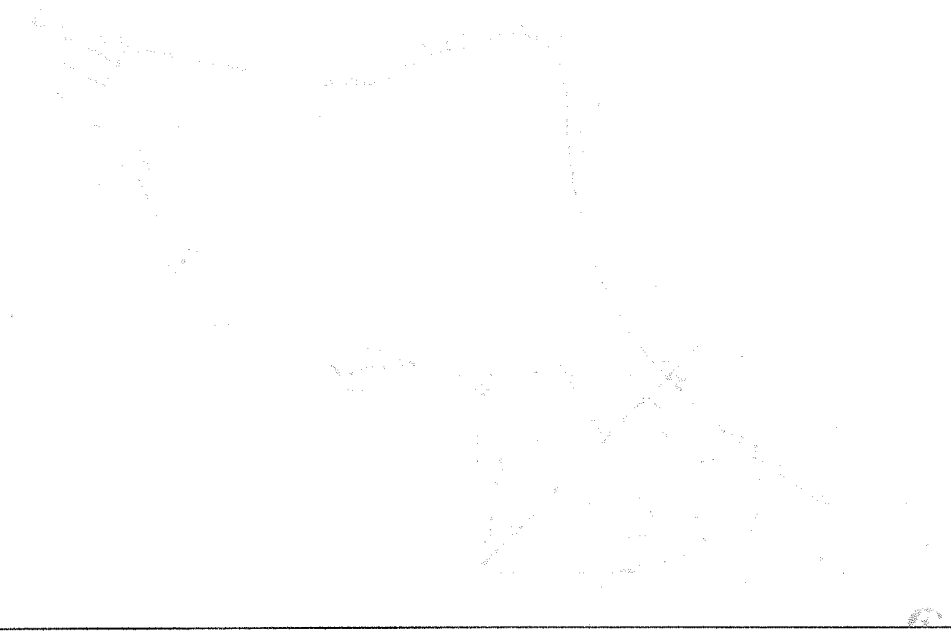
Exhibit A:
The San Rafael Airport Does not own much of the levees or underlying land protecting the project. Areas shaded in gray belong to California and/or the County of Marin. Partial failure of Levee was at tip of peninsula near the confluence of the North and South forks of Gallinas creek.


Exhibit C:

Their was a failure of the levee in November of 2006 requiring emergency repairs. Farhad Mansourian, the Director of Public work offered this explanation of the failure.

Their was no storm or high tide at the time of the failure.

From: "Mary Hanley" <maryinmarin@comcast.net>
Subject: **[GallinasCreek] FW: Levee Breach at San Rafael Airport**
Date: November 14, 2006 4:00:13 PM PST
To: <GallinasCreek@yahoogroups.com>
Reply-To: GallinasCreek@yahoogroups.com

Here is the response from Farhad to my email to his Assistant.
-- Mary

From: Mansourian, Farhad [mailto:FMansourian@co.marin.ca.us]
Sent: Tuesday, November 14, 2006 1:54 PM
To: maryinmarin@comcast.net; Stewart, Jeri
Cc: Ford, Ron; Adams, Susan
Subject: RE: Levee Breach at San Rafael Airport

Greetings

Here is quick answers to the questions you asked:

1- the fill material came from one of County's Flood Control job sites in Mill Valley. The work was done as an emergency measure by County Crew

2- the cause of the partial failure of the levee is old age and lack of maintenance by us

3- the location of the partial failure was nearest to the end of the runway. This levee is owned and maintained by the County of Marin

take care

farhad

LETTER 64: Mary Feller (NO DATE)

RESPONSE 64-1: Opinion regarding the need for peer review of the hydrology analysis, the evaluation of levee breach conditions, and the evaluation of levee conditions prepared for use in the DEIR is noted. Request that the Kleinfelder letter of December 15, 2005, be re-filed in the geotechnical section of the DEIR Appendices is noted.

RESPONSE 64-2: Concern regarding the hydrology analysis used in the DEIR is noted. See MASTER RESPONSE HYD-2, above, which addresses the existing condition of the levees and additional test borings on the levees that have been conducted since publication of the DEIR. The DEIR indicates on pages 11-30 and 11-31 that "The study also notes that the levee system was constructed in the 1940's and it did not fail in either the 1969 Santa Rosa earthquake with a Richter Scale measurement of 5.7 or the 1989 Loma Prieta Earthquake, with a Richter Scale measurement of 7.1.", which is simply a statement of fact. This statement does not imply that the levees could never fail, but simply indicates that they did not fail during two previous earthquakes, and that as a result of that past performance and the existing condition of the levees, the potential for levee failure due to earthquake induced liquefaction is considered less than significant (which means that there is a relatively low risk of such a failure, not that there is absolutely NO risk of failure). Opinion regarding the validity of the DEIR's characterization of the potential risk of levee failure due to liquefactions is noted.

RESPONSE 64-3: This comment correctly indicates that the DEIR does not evaluate the costs that may be associated with a levee failure at the Project site. The DEIR evaluates the environmental effects associated with the development of the site as proposed. As an environmental review document, it is beyond the scope of the DEIR to evaluate potential economic effects associated with development of the Project site as proposed.

RESPONSE 64-4: The DEIR was released for public review in March, 2009. As indicated in RESPONSE 62-1, above, the revised FIRM was effective on May 4, 2009, after the DEIR was published. It is beyond the scope of the DEIR to analyze expected FEMA map changes, as it relies on the most current information available at the time of publication, and does not speculate on possible modifications which may or may not be made to that current information at some undefined point in the future. Opinion that the DEIR should address the design and engineering implications of future re-mapping as related to proposed development at the Project site is noted. See MASTER RESPONSE HYD-1, above, for further discussion of the FEMA flood datum changes.

RESPONSE 64-5: Opinion regarding a "legal responsibility" to maintain the airport site to discourage use of the area by wildlife in the interest of aviation safety (see DEIR page 7-2) is noted.

RESPONSE 64-6: As indicated on DEIR pages 7-16 and 7-17, the most current delineation of wetlands at the Project site (September 7, 2005) was verified in a U.S. Army Corps of Engineers letter dated December 14, 2006. DEIR **Figure 7-1** (page 7-27) shows wetlands currently delineated at the Project site, and as indicated on DEIR page 7-17, the proposed Project will not result in impacts to the Corps' jurisdiction. Opinion regarding the City's need to explain changes in the delineation of jurisdictional wetlands at the Project site over time is noted. Comment regarding observations related to the presence of water at the Project site during storm events is noted. Opinion regarding the ability of storm drainage infrastructure to remove water from the Project site is noted. Opinion regarding the likelihood of seasonal wetlands being present at the project site is noted. As indicated in the DEIR, there are several jurisdictional wetland areas delineated at the Project site, but no Project development is proposed in any jurisdictional wetlands areas. As indicated in this comment, FAA guidelines discourage open water near runways because it attracts birds, and the airport operator is encouraged to pump water off the airport site.

RESPONSE 64-7: Project consistency with the City of San Rafael General Plan 2020 Policies (including Policy CON-5) are addressed on DEIR pages 7-11 through 7-13.

RESPONSE 64-8: Opinion regarding the impartiality and objectivity of City Staff is noted.

RESPONSE 64-9: See MASTER RESPONSE PD-2, above, which addresses issues related to the Declaration of Restrictions.

RESPONSE 64-10: As indicated in MASTER RESPONSE HYD-2, above, maintenance costs for all but a relatively small portion of the levees which protect the airport site are borne by the property owner rather than the County of Marin (which is responsible for a limited portion of the levee along the tip of the airport peninsula) or the City of San Rafael. Opinion that failure of the levees at the Project site would place additional burden and liability of the taxpayers of California and Marin County, and could lead to higher FEMA flood insurance rates to Marin County residents outside of San Rafael, is noted.

RESPONSE 64-11: Opinion regarding the extent to which the existing storm water pumping station in the vicinity of the Project site may illegally encroach on Public Trust land is noted. Opinion regarding the need for the existing pump station to be relocated to land owned or leased by the Project Applicant as part of the Project is noted. Opinion regarding the construction of an additional pump station as part of the Project is noted. As indicated on DEIR page 11-28, the existing pump house is capable of handling all additional drainage flows from the Project site to convey them into the North Fork of Gallinas Creek. The County of Marin is responsible for maintaining portions of the levee that are located on public lands, and is aware of the existing pump station that is maintained by the airport site property owner. There is no evidence that the pump station has been placed in its present location illegally, and the County has not required the relocation of this pump station equipment either as a condition of this Project or on past project approvals; including the

Parcel Map recorded for the property (which would have been the most appropriate time) or any other applications processed for the property while it was still within County jurisdiction. The Applicant and County of Marin, Flood Control District staff would be responsible for working out any agreement for ongoing responsibility and a maintenance program for the levee and pump station improvements. It is worth noting that the City may further consider and discuss the Applicant's program for continued maintenance of the storm drainage improvements as part of the Project merits review.

SAN FRANCISCO
BAYKEEPER®

May 12, 2009

Mr. Kraig Tambornini, Senior Planner
City of San Rafael, Community Development
PO Box 151560
San Rafael, CA 94915-1560

Sent via electronic mail to kraig.tambornini@cityofsanrafael.org

RE: San Rafael Airport Recreational Facility Draft Environmental Impact Report

Dear Mr. Tambornini,

We are writing on behalf of San Francisco Baykeeper ("Baykeeper") to express our concerns about impacts that the proposed San Rafael Airport Recreational Facility ("Project") will have on the water quality and hydrology of Gallinas Creek and the San Francisco Bay. Baykeeper is local nonprofit organization dedicated to protecting and improving the water quality of San Francisco Bay. For more than two decades we have worked to reduce the pollution reaching our Bay and creeks through a combination of advocacy, science and litigation.

The proposed Project will convert low-lying, undeveloped land in a floodplain into acres of impervious parking lots and roofs. In light of the projected climate change-related sea level rise in the Bay Area, it is undesirable and arguably foolish to develop any Bay margin lands, especially those that are already flood-prone and surrounded by levees. We recognize, however, that the purpose of the California Environmental Quality Act ("CEQA") is merely to ensure that environmental impacts are considered, not to prevent unsound decision-making. Our comments today, therefore, focus on the draft Environmental Impact Report's ("EIR's") failure to adequately describe the Project's impacts on hydrology and measures to mitigate these impacts. **65-1**

Stormwater runoff from impervious surfaces is the largest source of pollution reaching San Francisco Bay and Bay Area creeks. In developed landscapes, pavement, roofs, and compacted soils prevent rainfall from soaking into the ground. As the amount of impervious surface increases in a watershed, so does the amount of nonpoint source pollution (e.g., pesticides, fertilizers, oil, etc.) reaching local waterbodies. The increase in runoff also increases creek flow, volume and velocity, which destroys habitat by eroding banks and scouring creekbeds. A related, but sometimes overlooked, impact is reduced year-round flow in creeks. Impervious surface prevents rainfall from recharging groundwater, which keeps many Bay Area creeks flowing year-round. Studies show that increasing the amount of impervious surface area in a watershed beyond even ten percent routinely leads to impairment of water quality and to biological communities.[1] **65-2**

Gallinas Creek has been designated by the San Francisco Bay Regional Water Quality Control Board ("Regional Board") as supporting many important beneficial uses, including the **65-3**

[1] http://crd.dnr.state.ga.us/assets/documents/jrgcrddnr/ImperviousLitReview_Final.pdf

preservation of rare and endangered species (RARE).[2] Unfortunately, the Gallinas Creek watershed is already heavily developed and the Creek is listed as impaired by pesticides (in stormwater) by the San Francisco Bay Regional Water Quality Control Board ("Regional Board").[3] Any new development in this watershed is likely to increase stormwater runoff and pollution, further compromising the health of the Creek and the organisms that depends on it. Therefore, any new development in this watershed should be very carefully considered. This Project should be subject to particular scrutiny considering that it will pave over undeveloped land located in a floodplain and will be immediately adjacent to an already-impacted creek.

Despite the significant size and sensitive location of this Project, the writers of the EIR appear to have given scant attention to the impacts of this Project on Gallinas Creek and the Bay. The draft EIR's hydrology section has only a cursory discussion of the impacts to Gallinas Creek, the analysis of the Project's hydrological impacts is unsound, and the mitigation measures identified are inadequate. 65-4

The EIR fails to adequately describe the Project's impacts on the hydrology of Gallinas Creek. 65-5

The draft EIR only identifies two types of impacts to Gallinas Creek resulting from the Project: an increase in stormwater pollution resulting from facility operations, and an increase in erosion during construction of the Project. Missing is an analysis of the Project's impact on the hydrology of Gallinas Creek itself. Already the erosive force of discharges from the pump station outfall appears to have modified the Creek bank. The Project is likely to increase the outfall's discharge volume and frequency, which may result in further erosion. The EIR should quantify the increase in the volume and frequency of outfall discharges as well as the resulting impact on the Creek's bed and banks.

The EIR's hydrology analysis relies on flawed assumptions regarding the size of the Project. 65-6

The EIR's conclusions that the Project will have no significant impact in terms of the following hydrology thresholds specified in the CEQA Guidelines are based on a flawed assumption in the hydrology study:

- Groundwater Supplies and Recharge,[4]
- Alteration Of Drainage Pattern Resulting in Erosion or Siltation,[5]

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[2] San Francisco Bay Regional Water Quality Control Board, Water Quality Control Plan for the San Francisco Bay Basin, at Table 2-1.

[3] *See* California Water Resources Control Board, 2002 CWA Section 303(d) List of Water Quality Limited Segments, Approved by USEPA July 2003; San Francisco Bay Regional Water Board, *Basin Plan Amendment Incorporating a TMDL and Water Quality Attainment Strategy for Diazinon and Pesticide-Related Toxicity in the Bay Area's Urban Creeks*, adopted November 16, 2005, Approved by the State Water Resources Control Board on November 15, 2006.

[4] EIR at 11-26.

[5] EIR at 11-27.

- Excessive Runoff,[6] and
- Otherwise Substantially Degrade Water Quality.[7]

Specifically, in finding that there will be no significant impact, the EIR relies on the hydrology study's conclusions that, post-development, only 19% of the site will be impervious surface, and that, therefore, the runoff coefficient will increase less than 4%. These conclusions are misleading because the hydrology study assumes that the Project site consists of the entire airport site located within the levees, which is 106 acres. In truth, the Project site is only 9.1 acres, 4.6 acres of which will be converted to impervious surface. The table below shows the substantial difference that this assumption makes in terms of calculating the increase in percentage of impervious surface, and the increase in the runoff coefficient.

Project Site Area	106 acres	9.1 acres
Current Impervious Surface	16 acres	0 acres
Current Runoff Coefficient	0.56	0.5
Post-Development Impervious Surface	20.6 acres	4.6 acres
Post-Development Runoff Coefficient	0.58	0.7
Percent of Imp. Surface	19%	51%
Percent Increase Runoff Coefficient	3.6%	40%

Defining the Project site to include land that will not be part of the actual development would undermine the fundamental purpose of CEQA, which is to inform the public and decision-makers of significant environmental impacts. As can be seen in this scenario, this "piecemealing" allows a finding of no significant impact even when the development would dramatically change the landscape. Carried to its logical conclusion, this type of analysis could allow the entire airport site, or even the entire watershed, to be paved with no finding of significant impacts. In short, the EIR's finding of no significant impacts for the thresholds listed above is wrong because the hydrology analysis upon which this finding is based should consider only the Project site, and not the airport site as a whole.

We further note that the EIR's discussion of whether there will be significant impacts in terms of "excessive runoff" and "alteration of drainage pattern resulting in erosion and siltation" is misleading. As written the EIR considers the impacts of the Project on the site's existing drainage system, whereas it should consider the impact of the Project on Gallinas Creek. As is discussed in the preceding section, the EIR must discuss whether and to what extent the frequency and volume of discharges to Gallinas Creek will increase and the resulting impacts. **65-7**

[6] EIR at 11-28.
[7] EIR at 11-28.

The post-construction mitigation measures are inadequate to mitigate the hydromodification impacts of the development. 65-8

The draft EIR fails to identify what measures the developer will take to reduce, and ideally eliminate, any increase in stormwater runoff resulting from making more than half of the site impervious. The Marin County Stormwater Pollution Prevention Program ("MCSTOPPP") has published guidelines[8] identifying the minimum measures that developers must take in order to minimize stormwater runoff and thereby comply with the State Water Resources Control Board's General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (Order No. 2003-0005-DWQ). These guidelines require a low impact development ("LID") approach that "must be integrated into the planning, design, construction, operation, and maintenance of each project."[9]

The stormwater management measures identified in the draft EIR are at odds with the MCSTOPPP emphasis on low impact development, and are wholly inadequate to mitigate the Project's various hydrological impacts. LID is a holistic approach wherein the amount of impervious surface created is minimized, and landscape features are used to facilitate infiltration and evapo-transpiration of stormwater. When incorporated throughout a Project's design, LID is effective in reducing stormwater pollution, runoff volume, and runoff velocity. In contrast, all of the post-construction mitigation measures identified in the draft EIR are focused on treating stormwater.[10] No mention is made of site design and other measures that will be taken to reduce the volume and speed of runoff that will result from this project.

To mitigate hydromodication impacts and facilitate groundwater recharge, the EIR must identify specific LID-based measures that will be used to reduce the flow of stormwater runoff into Gallinas Creek, and thereby comply with the MCSTOPP requirement for a low impact development approach. As a starting point, the Project must minimize the amount of impervious surface area created. The EIR must also incorporate multiple LID techniques to increase infiltration and evapo-transpiration to reduce site runoff. Such techniques that have been successfully incorporated into other Bay Area cities' new developments include green roofs, rain gardens, cisterns, and properly sized bioretention facilities. The EIR should then be revised to describe, in detail, LID measures that will be incorporated into the site design to eliminate the hydrologic impacts of this Project.

We have attached to these comments a list of resources that may assist both the Project proponent and the City of San Rafael in better understanding the impacts of stormwater and how to use low impact development to mitigate them.

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[8] STORMWATER QUALITY MANUAL FOR DEVELOPMENT PROJECTS IN MARIN COUNTY. http://mcstoppp.org/acrobat/GuidanceforApplicantsv_2-5-08.pdf

[9] State Water Resources Control Board's General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (Order No. 2003-0005-DWQ)Section 2-1

[10] For example, the Stormwater Management Plan described in mitigation measure Hyd-1d states that the final site plan "would clean site waters in accordance to RWQCB and MCSTOPPP standards before they enter San Rafael Bay." Similarly, mitigation measure Hdy-1e indicates that the purpose of any drainage swales will be to "filter pollutants from runoff." EIR at 11-24.

* * *

Ultimately, Baykeeper believes that no Project is the best alternative for Gallinas Creek and San Francisco Bay. In the event that the Project moves forward, however, we hope that the City of San Rafael will ensure that its design incorporates the most innovative of LID measures in order to minimize the impact on water quality and the health of our aquatic ecosystems. 65-9

Sincerely,

Amy Chastain

Amy Chastain
Staff Attorney

SAN FRANCISCO BAYKEEPER

Appendix 1: Low Impact Development Resources

A growing number of communities are finding success using Low Impact Development (LID) strategies to reduce stormwater pollution. As a result, there are many resources available to help municipal staff and officials understand what LID is, and how it can be implemented in their communities. Below, San Francisco Baykeeper offers a selection of LID resources.

General Overview of LID

- The United States Environmental Protection Agency Nonpoint Source Pollution Program has a wide range of LID related information. http://www.epa.gov/nps/lid/
- The Low Impact Development Center provides general and technical information for cities, planners, and developers. The San Luis Obispo SloGreen Build Organization has compiled a document outlining some of the technical and economic aspects of LID including its application in the context of the San Lois Obispo watershed. http://www.lowimpactdevelopment.org/ http://slogreenbuild.org/Library/documents/general/LID_greenpaper_9_2008.pdf
- The Surfrider Foundation advocates for LID as a way to protect the nation's beaches from stormwater pollution. http://www.surfrider.org/a-z/lid.php

State Level Guidance and Information on LID

- The California Stormwater Quality Association (CASQA) Handbook for New Development and Redevelopment reflects the current practices, standards, and knowledge about the effectiveness of LID best management practices. http://www.cabmphandbooks.com/Development.asp

LID Resources from Some Bay Area Counties Stormwater Programs

- The Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) http://www.scvurppp-w2k.com/guidance_tools.htm
- The Alameda Countywide Clean Water Program (ACCWP) http://www.cleanwaterprogram.org/businesses_developers.htm
- The Contra Costa Clean Water Program (CCCWP) http://www.cccleanwater.org/new-developmentc3/technical-reports-and-design-guidance/

Examples of LID Design Guidelines and manuals from Bay Area Cities

- San Francisco Stormwater Design Guidelines created by the Port of San Francisco and the San Francisco Public Utilities Commission – outlines a design process for incorporating LID BMPs into site design. http://sfwater.org/detail.cfm/MC_ID/14/MSC_ID/361/MTO_ID/543/C_ID/4406
- The City of San Francisco's Better Streets Plan incorporates LID principles into the City's long term planning for its streets. http://www.sfgov.org/site/uploadedfiles/planning/Citywide/Better_Streets/index.htm
- The City/County Association of Governments of San Mateo County Sustainable Green Streets and Parking Lots Design Guidebook provides state-of-the-art information on creating low-impact development roadways and parking lots within San Mateo County. http://www.flowstobay.org/documents/municipalities/sustainable%20streets/San%20Mateo%20Guidebook.pdf
- The Bay Area Stormwater Management Agencies design guidance manual, Start at the Source provides guidance on how to incorporate LID into site design. http://www.sanjoseca.gov/planning/stormwater/startatsource.pdf

Pollution hotline: 1 800 KEEP BAY
www.baykeeper.org

785 Market Street, Suite 850
San Francisco, CA 94103
Tel (415) 856-0444
Fax (415) 856-0443

Overcoming Process Barriers to Code Reform

- The State of California's Review of Low Impact Development Policies: Removing Institutional Barriers to Adoption.
  http://pepi.ucdavis.edu/mapinfo/pdf/CA_LID_Policy_Review_Final.pdf
- The Ahwanee Water Principle has crafted a model ordinance for incorporating sustainable water strategies as a core principle in all municipal planning.
  http://www.lgc.org/ahwahnee/h2o_principles.html
  http://www.lgc.org/ahwahnee/h2o_principles_adopt.html

LETTER 65: Amy Chastain, Staff Attorney, San Francisco Baykeeper, May 12, 2009

RESPONSE 65-1: Opinion regarding the extent to which development of Bay margin lands may be undesirable and foolish is noted.

RESPONSE 65-2: Observations related to adverse effects associated with stormwater runoff from impervious surfaces are noted.

RESPONSE 65-3: Observations related to current conditions at Gallinas Creek are noted.

RESPONSE 65-4: Opinion regarding the adequacy of the DEIR's evaluation of impacts of the Project on Gallinas Creek and San Francisco Bay is noted.

RESPONSE 65-5: No significant change to the rate or intensity of outfall to Gallinas Creek from the Project site is proposed, as indicated in the Hydrology discussion in DEIR (pages 11-27 and 11-28).

RESPONSE 65-6: Opinion regarding the adequacy of the DEIR hydrology analysis with respect to the extent of impervious surface to be created at the Project site is noted. Although as indicated in the comment approximately 4.6 acres of the 9.1-acre Project site would be developed in impervious surfaces under the Project, the Project site represents a small fraction of the area within the 106-acre watershed in which it is located. The DEIR evaluated the Project-related increase in the area of impervious surfaces within the watershed, and determined that given the extent of land area within the watershed which would remain permeable and allow for filtration, development of the Project site as proposed would have a less than significant impact in terms of alteration of drainage patterns resulting in flooding (see DEIR pages 11-27 and 11-28).

RESPONSE 65-7: Opinion regarding the DEIR's evaluation of excessive runoff and alteration of drainage pattern resulting in erosion or siltation is noted. As indicated in RESPONSE 65-5, above, no significant change to the rate or intensity of outfall to Gallinas Creek from the Project site is proposed.

RESPONSE 65-8: Opinion regarding adequacy of mitigation measures identified in the DEIR to reduce Project-related stormwater runoff impacts is noted. The Project site has drainage ditches that will hold runoff until it meters it through existing pumps. Pump rate and volume will not increase (see DEIR pages 11-21 and 11-22, and **Mitigation Measure Hyd-1a** [as modified], **Mitigation Measure Hyd-1b**, **Mitigation Measure Hyd-1c**, **Mitigation Measure Hyd-1d** [as amended], **Mitigation Measure Hyd-1e** and **Mitigation Measure Hyd-1f**). When the building permit application is submitted, the City will review plans for conformance with established MCSTOPPP requirements (a standard requirement). This will include review of further opportunities to include swales, drain water to landscape/swale areas, and enhance existing ditches with vegetation (consistent with Low Impact Development measures).

RESPONSE 65-9: Opinion regarding a No Project situation as being the best alternative for Gallinas Creek and San Francisco Bay is noted. Request that the City of San Rafael ensure that the Project design incorporates the most innovative low impact development measures in order to minimize the impact on water quality and aquatic ecosystems is noted.

31 Wharf Circle

San Rafael, CA 94903

Tuesday, May 12, 2009

Dear San Rafael Planning Department:

I am writing you with my concerns about the DEIR for the proposed San Rafael Recreation Facility on the land also occupied by the private special use "San Rafael Airport" (originally known as the "Smith Ranch Airport).

I am a private pilot who currently flies from the Novato / Gnoss (public) Airport, but I used to rent and fly aircraft from the San Rafael Airport when "Ace Aviation" had an aircraft rental and repair service based there. I am familiar with the takeoff and landing procedures for runways 4 and 22 and the "Fly Friendly" procedures for the "TPA" traffic pattern area.

Without making this letter too long or ponderous for your records, I must say that I have reviewed the aviation / recreation facility safety considerations and proposed mitigations and I am still left wondering why in the world anyone would seriously consider and spend this much time and effort trying to put these two uses in such close proximity to one another. 66-1

I have read carefully about the mitigations of special recreation building modifications / requirements, hazard lighting, cautionary signage, height limitations and parking lot / vehicle management, yet still feel that they are not enough to sufficiently mitigate the potential of future tragedy if these two uses are blended so closely together.

A recreational facility is a value to Marin's public – both young and old – in many ways. An airport is also an extremely valuable community asset (even a special use private one) as aircraft owners most often use their aircraft for both business and personal applications – helping San Rafael and Marin's economy in ways that may not be as obvious as a shopping mall, but that definitely have positive effect. Any airport (even private ones) is also providing a valuable, strategic emergency access point during either local or wider emergencies. Both the recreational facility and airport are important city assets, but I do worry about mixing the two so closely in spite of the listed mitigations.

Controlling parking by signage at a private facility has always been a difficult to enforce practice – particularly with "scofflaws" or anxious patrons if / when patronage approaches (or happens to exceed) maximum occupancy levels. 66-2

Obstruction lighting at night can be both helpful, but also confusing to a pilot landing at night. Glare / distraction issues are possible and if any of this lighting is damaged or malfunctions, it can be more of a distraction during takeoffs or landings – the two most critical times of aircraft flight. 66-3

Public airports are supported by FAA regulated and special radio service supported "Notice to Airman" ("NOTAM"s) announcements of inoperable equipment at public airports. There is no such service provided or available for private airports. If lighting failures occur at this project, a departing or landing aircraft may be distracted during critical flight procedures. 66-4

All pilots MUST be trained in "emergency procedures" prior to being licensed. All takeoffs are preceded by a careful preflight and "run-up" check of flight controls and engine(s). Zones 2 and 5 are identified for their hazard levels. However, I am concerned that zone 5 (where much of the project is located) may have more risk exposure than a mere paper and pencil evaluation can give. 66-5

Normally, that area is not going to be heavily overflown, but if engine or control / airframe trouble develops, the project can very possibly be exposed to serious hazard. Many aircraft will be in the critical "liftoff" or initial "climbout" part of takeoff from the preferred Runway 4 by the time they reach the project zone 5 area. If landing while coming in from the bay on the preferred Runway 22, the north end of the project is heavily exposed. Mechanical or other problems or failures may present significant risk to population of the project.

Control of an aircraft at such low altitude during any failure is VERY challenging and a pilot has perhaps only seconds to think and respond with whatever correction is possible. Looking back at the recent New York airline emergency landing in the Potomic River, should a "bird strike" happen at the airport at takeoff altitude (even geese have been seen in the vicinity), the pilot windshield – even the propeller – could be significantly damaged and give him a very hard to handle emergency.

One other quick example of concern is a "ground loop" type of aircraft accident. Because of mechanical failure, wind action, pilot error, or a combination of those or other possible factors, a pilot can lose steering control of his aircraft and can go zig-zagging out of control on the runway and often completely off it. Usually, the engine is still running as the distressed pilot attempts to regain aircraft control. While these accidents are not all severe (sometimes only embarrassing and costly to the pilot) a runaway aircraft is a serious liability to a public facility should the aircraft cross into it.

In summary, I won't continue to list all my concerns but, as a pilot that is not completely unfamiliar with the San Rafael airport and the environment, I ask that you look very closely and critically the project and the mitigations offered. Please consider another location for this recreation project because the mitigations offered have some serious issues. **66-6**

Thank you,

Samuel Cogswell

LETTER 66: Samuel Cogswell, May 12, 2009

RESPONSE 66-1: Opinions regarding the advisability of placing the proposed recreational facility adjacent to an active runway, and regarding the effectiveness of the proposed mitigation measures in reducing potential aviation-related hazards, are noted.

RESPONSE 66-2: Opinion regarding the difficulty of controlling parking limitations through the use of signage is noted.

RESPONSE 66-3: Observation regarding the possibility of pilot confusion/distraction as a result of the placement of obstruction lighting at the Project site is noted.

RESPONSE 66-4: Observation that an obstruction lighting failure at the Project site (were it to occur) could cause pilot distraction is noted.

RESPONSE 66-5: Concern that Zone 5 may have more risk exposure than indicated in DEIR, due to the types of aircraft operations that take place at low altitudes during takeoffs and landings and the potential for ground looping, is noted.

RESPONSE 66-6: Request that the City take a critical look at the Project and the mitigations proposed in the DEIR is noted. Request that the City consider another location for the proposed Project is noted.

The Friends of Gallinas Creek

May 12, 2009

Mr. Kraig Tamborini
Community Development Department
Planning Division
P.O. Box 151560, San Rafael, CA 94913

Mr. Tamborini;

This letter is in response to your request for comments for the administrative record on the Draft Environmental Impact Report for the Airport Sports Facility (DEIR), The attached technical memorandum concentrates on safety and hydrology. The memorandum largely speaks for itself, however The Friends of Gallinas Creek point out a few of it's implications below:

The DEIR reaches unsubstantiated conclusions based on faulty assumptions as well as incorrect and/or antiquated data including:

- ✓ Assumptions about sea level rise are based on 1995 data even though more current and accurate information is readily available. **67-1**

- ✓ The DEIR erroneously concludes that elevations of as little as 1.13 feet adequately reduce the risks from flooding. The DEIR must be revised with greater elevations using current knowledge of sea level rise with accurate and consistent data and revised flood maps. Impacts of the new elevations must be mitigated including their revised effects on finished building heights, grading/fill, aviation safety, emergency evacuation plans and aesthetics. **67-2**

- ✓ The DEIR relies on visual inspections and *nearby* soil borings for assessing perimeter levee performance and behavior during a 100 year flood event or earthquake. The actual composition and construction of the levees must be fully analyzed and properly mitigated. **67-3**

- ✓ Stormwater runoff analysis is sparse and inadequate. Mere conclusions provide inadequate analysis for public review. **67-4**

Thank you for the opportunity to comment.

Sincerely

Mary Feller
Co-Chair. The Friends of Gallinas Creek.

1103

WETLANDS AND WATER RESOURCES, INC.

Technical Memorandum
San Rafael Airport Recreational Sports Facility
Review of Draft Environmental Impact Report

To: Friends of Gallinas Creek
From: Christina Toms and Stuart Siegel
Date: 12 May 2009

At the request of Friends of Gallinas Creek (FOGC), Wetlands and Water Resources, Inc. (WWR) reviewed the Hydrology and Water Quality chapter of the Draft Environmental Impact Report (DEIR) for the San Rafael Airport Recreational Facility. The DEIR was develop by Lamphier-Gregory (Oakland, CA) and released in March 2009. Pursuant to the California Environmental Quality Act (CEQA), the DEIR assesses potential impacts to the environment stemming from proposed development of 9.1 acres on a 119.5-acre parcel of diked baylands located in between the north and south forks of Las Gallinas Creek in San Rafael, CA.

The purpose of this review was to evaluate the science and engineering used to assess (1) the severity of potential environmental impacts and (2) the adequacy of mitigation measures proposed to address such impacts. A summary of our comments on the document is as follows:

1. **The DEIR fails to describe the substantial risk to the safety of children and adults using the project site from flooding due to levee failure.** The DEIR only considers the potential for levee failure due to liquefaction, and does not consider multiple mechanisms that commonly lead to levee failure, such as piping and overtopping. The levee breach analysis performed as part of the project planning process uses the wrong method to calculate the potential dimensions, timing, and dynamics of a breach, and fails to consider how tidal and fluvial dynamics would influence the duration and magnitude of a 100-year flood event within the Las Gallinas Creek system. In addition, the analysis provides no basis for describing how, in the event of a breach, children and adults using the site would be able to escape in enough time without harm. Finally, mitigation measures as described in the DEIR fail to reduce the significance of this impact from *potentially significant* to *less than significant.* **67-5**

2. **The DEIR mischaracterizes the risk of flooding on the site by using inaccurate or inconsistent information to describe site elevations and the Federal Emergency** **67-6**

818 Fifth Avenue, Suite 208, San Rafael, CA 94901
tel 415.457.0250 • fax 415.457.0260 • www.swampthing.org

Management Agency (FEMA) Base Flood Elevation (BFE). New FEMA Flood Insurance Rate Maps (FIRM) effective as of May 9, 2009 describe a BFE of +9 ft NAVD88, equivalent to +6.3 ft NGVD29, which is a third of a foot higher than the BFE of +6 ft NGVD29 described in the DEIR. In addition, the DEIR consistently confuses the datums of MSL and NGVD29, which are more than a foot apart. These and similar inaccuracies and inconsistencies call into question much of the hydrologic analysis performed for the DEIR.

3. **The DEIR uses obsolete data that underestimates the significant risk of future flooding due to sea level rise.** The DEIR uses data from the 1980s and 1990s to describe potential sea level rise scenarios, instead of more recent data from the Intergovernmental Panel on Climate Change (IPCC) 2007 analysis of sea level rise (IPCC 2007) and the Bay Conservation and Development Commission (BCDC) 2009 analysis of sea level rise within San Francisco Bay (BCDC 2009). These estimates are widely accepted by many governmental institutions (such as the City of San Rafael and the State of California) and the overall scientific and engineering communities. The BCDC estimates for local sea level rise are significantly higher than the 1995 EPA estimate cited in the DEIR. The DEIR also completely ignores recent work done by BCDC, the Bay Institute, and the Pacific Institute that map the project site as vulnerable to sea level rise. Impacts associated with sea level rise would be *potentially significant*, instead of *less than significant*, and the DEIR must provide mitigation measures for such impacts. **67-7**

4. Like the Initial Study/Mitigated Negative Declaration (IS/MND) before it, **the DEIR fails to establish that proposed measures to address stormwater quality will prevent pollutants from reaching sensitive habitats within and along Las Gallinas Creek.** The DEIR establishes no quantitative performance standards for any of the proposed water quality protection measures, such as "interceptors" in the parking lots or vegetated swales along the project boundary. As such, the level of analysis presented in the DEIR is inadequate to determine the protection levels provided by the proposed stormwater infrastructure. **67-8**

5. Finally, **the Project described in the DEIR is inconsistent with regional policies and guidance concerning development of diked baylands around San Francisco Bay.** Communities around San Francisco Bay are moving away from development of diked baylands due to the expensive and unsustainable nature of development on such lands. Concerns about flooding risks, maintenance costs, greenhouse gas emissions, and environmental impacts are instead leading communities around the Bay to either restrict land use on diked baylands to low-impact uses such as agriculture, or to restore diked baylands parcels back to tidal marsh. Development of the Project site will adversely effect the City of San Rafael's fiscal and environmental resources in the long-term, creating potentially significant impacts. **67-9**

Our full comments are provided in detail below.

1. The DEIR fails to describe the substantial risk to the safety of children and adults using the project site from flooding due to levee failure.

Levee Failure Mechanisms. Impact Hyd-2, *Flooding as a Result of Levee Failure*, only discusses the potential for levee failure due to liquefaction. However, levee breaches can occur due to a broad range of mechanisms, including seepage and overtopping and erosion during flood events. Though the latter are primarily issues during the winter storm season, failure due to seepage can happen at any time, often without any warning. For example, in June 2004, during a period of neither storms nor spring high tides, a levee along the Jones Tract in the Sacramento-San Joaquin Delta suddenly collapsed, flooding 12,000 acres of farmland with 160,000 acre-feet of water at an average depth of 12 feet, placing lives at risk and infrastructure underwater. The eventual repair and cleanup cost for the failure was close to $100 million (DWR 2005). Though the exact cause of the breach was impossible to determine, speculation focused on rodents burrowing into the levee, causing piping (accelerated seepage) which ultimately led to failure (CFBF 2005, PPIC 2008). The levee in question was inspected by an engineer the day before it failed, who apparently noted nothing unusual about the levee's condition (PPIC 2008).

Along with seepage, levee failure due to overtopping and erosion are processes that can occur over both long and short timescales, and are common methods of failure for unengineered levees built of Bay Mud, such as the levees on the Project site. Bay Mud expands when saturated and contracts when dry, leading to the development of cracks that can facilitate the movement of water through the levee. Over multiple tidal/storm cycles, these cracks can deepen and broaden, allowing more and more water to pass back and forth through the cracks. This positive feedback loop (water → cracks → more water → larger cracks) can result in the eventual loss of structural integrity within the levee, leading to failure. Levee failures due to seepage, overtopping and erosion, or a combination of the two, have been observed throughout the Delta, Suisun Marsh, and San Francisco Bay on over 160 occasions during the last century (DWR 2007). Catastrophic levee failures such as those observed on the Jones Tract are not uncommon, and similar breaches have resulted in the permanent flooding of other parcels such as Frank's Tract and Big Break. The continued risk of such failures throughout the Delta and San Francisco Bay has led the State of California and the US Army Corps of Engineers to embark on multiple efforts aimed at identifying and addressing areas with levee systems at risk of failure, such as the Delta Risk Management Strategy (DRMS 2009).

The levees along the Project site have a past history of failure. In November 2006, levees along the southeastern edge of the airport parcel failed, requiring emergency repairs. The failure timing did not correspond with either a major flood or tide event, and the cause of failure was vaguely identified by

Marin County Director of Public Works as "old age and poor maintenance" (M. Feller pers. comm.). It is not known whether the levee failed from seepage, overtopping and erosion, or a combination of the two.

Unfortunately, the description within the DEIR of the current condition of the levees along the Project site is similarly if not more vague. The document describes the levees as being "9 feet above MSL [mean sea level]", but no topographic data is presented to support these claims. More troublesome, though, is the lack of a thorough geotechnical investigation of the levees. Though the geotechnical memorandum by John C. Hom and Associates (JCH) dated February 24, 2006 (notably, part of the Hydrology appendix, and not the Geology + Soils appendix peer-reviewed by Kleinfelder, Inc.) discusses the levees' vulnerability to liquefaction, it contains absolutely no discussion of the their structural integrity. The memo mentions that JCH staff inspected the "surface conditions" of the perimeter levee, but this was apparently only done to confirm visually that the levee was constructed of Bay Mud. The memo does not discuss the presence/absence of cracks, boils, bulges, eroded portions, or other characteristics of concern within the levee surface or subsurface. No cores were collected within the levee, so nothing is known of the levees' subsurface conditions, such as the location of the phreatic surface (groundwater table) within the levees, grain size distribution of levee material, or the presence/absence of vegetation roots (which can potentially lead to piping). Knowledge of these conditions is necessary to assess levee stability and safety and is completely lacking from the DEIR.

Levee Failure Dynamics. **Impact Hyd-2, *Flooding as a Result of Levee Failure***, describes a levee breach analysis prepared by Oberkamper and Associates on February 24, 2006. Like the JCH geotechnical memo referenced earlier, this analysis is also contained within the Hydrology appendix, and was not subject to the geotechnical peer review performed by Kleinfelder. The goal of the analysis was to describe the potential impacts to the site from a levee breach along the Project site during a 100-year-flood.

Levee breach analysis in tidal environments is a complicated form of analysis, requiring knowledge of multiple static and dynamic inputs. Such inputs include, but are not limited to: a broad range of geotechnical parameters (grain size distribution, plasticity, water content, shear strength, etc.), the location of the phreatic surface within the levee (and how that location may change with tidal dynamics), the magnitude, frequency, and duration of tidal/storm inundation of the levee, and much more. [For an exceptionally comprehensive and peer-reviewed discussion of levee failure mechanisms and probabilities, see DRMS 2009.] Unfortunately, the analysis performed by Oberkamper and Associates considers none of these factors, instead simplifying the breach analysis to the application of an equation more commonly used to calculate flow over static rectangular weirs. The Oberkamper analysis is described within the DEIR as "conservative" because the use of this equation assumes (1) an instantaneous breach that is 100 feet wide and is incised to +3 ft NGVD29, and (2) that "the velocity of the flow will diminish to the point at which it will no longer

be erosive, since the flood elevation will diminish as the tide goes out." There are a number of errors inherent in these assumptions:

1. While the assumption of an instantaneous breach may be conservative, the assumption that a breach during a 100-year storm would incise to an invert elevation of +3 ft NGVD29 is arbitrary and must be explained further. According to local tidal datums based on calculations performed by WWR in 2006 (Table 1), +3 ft NGVD29 is immediately below local Mean High Water (MHW). Levee breaches in tidal areas can incise to elevations below MHW depending on a variety of factors, including breach flow velocities, geotechnical parameters, hydraulic head behind the levee, and the persistence of high water surface elevations in source flood waters. Local engineers with extensive experience within San Francisco Bay report that levees constructed of Bay Mud are capable of incising to elevations of at least Mean Lower Low Water (MLLW) when conditions allow (E. Hultgren, P.E., pers. comm.., S. Moore, P.E., pers. comm.); such incision tends to be highly dependent upon the levees' geotechnical characteristics. **Since the DEIR presents very little information about levee surface and subsurface conditions, it does not support an analysis of how site levees would respond to a breach event.** Further, the Oberkamper analysis presented in the Hydrology appendix appears to confuse the MSL tidal datum with the NGVD29 tidal datum. The two are not the same; as the tidal datum table below demonstrates, there is actually a difference of 1.1 ft between MSL and NGVD29.

	Elevation		
Datum	ft MLLW[1]	ft NAVD88[2]	ft NGVD29[3]
BFE*	8.35	9.00	6.32
MHHW	5.92	6.56	3.89
MHW	5.31	5.96	3.28
MTL	3.16	3.81	1.13
MSL	3.13	3.78	1.10
NGVD29	2.03	2.68	0.00
MLW	1.01	1.66	-1.02
MLLW	0.00	0.65	-2.03
NAVD88	-0.65	0.00	-2.68

Notes:
1. Based on NOAA benchmark data sheet, Gallinas Creek, CA, Station ID #9415052
2. MHW calculated by WWR 2006; other elevations based on conversion from NOAA MHW to WWR MHW
3. NAVD88 to NGVD29 conversion based on VERTCON datum shift of 0.816 m (2.68 ft)
*Base Flood Elevation from new FEMA FIRM map, effective May 9, 2009.

Table 1. Tidal datums at Gallinas Creek.

2. Tidal flooding dynamics during 100-year storm/flood events are very different from those of non storm/flood events. In baylands areas such as the Project site, the 100-year storm considers flooding from both upstream sources (i.e., the Gallinas Creek watershed), and tidal

sources (San Pablo Bay). When high flows from the watershed reach San Pablo Bay, tidal dynamics result in tidal "damming", where tides from the Bay impede the drainage of flows from the watershed. This effect is intensified during extreme storm events, especially if peak flows coincide with high tide events; the subsequent low tide may not be enough to adequately drain upstream areas. As a result, high water surface elevations within Gallinas Creek can persist for periods of time that are much longer than a typical tidal cycle (~25 hours). During a 100-year flood event, it is highly unlikely that water surface elevations within the lower Gallinas Creek system would significantly recede on ebb tide, making it highly likely that erosive flood velocities would persist.

The levee breach analysis performed by Oberkamper and Associates for this DEIR uses incorrect methods of modeling breach dynamics, and uses incorrect assumptions within the analysis. For these reasons, **the levee breach analysis performed for the DEIR does not meet the levels of adequacy required by CEQA.**

Escape Analysis. The Oberkamper analysis described above concludes by stating "the foregoing time line [calculated flood elevations of +1 ft NGVD29 in 45 min., +1.75 ft in 1.5 hours, and +2 ft in 2.25 hours] is such that people will be able to leave the facilities long before the depth of water presents a hazard." Separate from the errors inherent to the flood elevation calculations, the analysis provides no evidence to support this conclusion. The proposed project provides parking for 270 cars, with an estimated maximum occupancy of 949 people (as described by Mead and Hunt in DEIR Appendix H, Hazards). The plans indicate that one bridge over the north branch of Gallinas Creek will provide all ingress and egress from the site. The DEIR contains no calculations that describe how long it might take to move different amounts of people (and, presumably, their cars) across the bridge in the event of sudden flooding or other emergency. Therefore, the conclusion that site users would be able to leave the Project site "long before the depth of water presents a hazard" is completely unsupported.

For these reasons, the DEIR must be revised in order to describe adequately the substantial risk to the safety of children and adults using the project site from flooding due to levee failure, and must identify mitigation measures that will protect the public from such risks.

2. The DEIR mischaracterizes the risk of flooding on the site by using inaccurate or inconsistent information to describe site elevations and the Federal Emergency Management Agency (FEMA) Base Flood Elevation (BFE).

As part of its response to the incredible amounts of damage and loss of life sustained by citizens of New Orleans and other southern coastal cities from Hurricane Katrina, the Federal Emergency Management Agency (FEMA) recently released updated Flood Insurance Rate Maps (FIRM) for

many areas, including Marin County. These maps, effective as of May 9, 2009, display the entire airport parcel and much of the surrounding lands as being within Zone AE, a Special Hazard Flood Area (SFHA) subject to inundation by the one-percent-annual-chance flood event (i.e., a "100-year" flood) (Figure 1). The Base Flood Elevation (BFE) for these areas is mapped as +9 ft NAVD88. The previous FIRM maps, dated May 1984, described a BFE of +6 ft NGVD29. As demonstrated in Table 1, a BFE of +9 ft NAVD88 is equivalent to a little over +6.3 ft NGVD29, a difference of a third of a foot. **Mitigation Measure Hyd-2a** provides for one foot of freeboard elevation above the BFE but incorrectly describes the BFE as + 6 ft NGVD29. Since the actual BFE is +6.3 ft NGVD29, the proposed structures must therefore be floodproofed to at least an elevation of +7.3 ft NGVD29, not +7.0 ft NGVD29 as currently proposed.

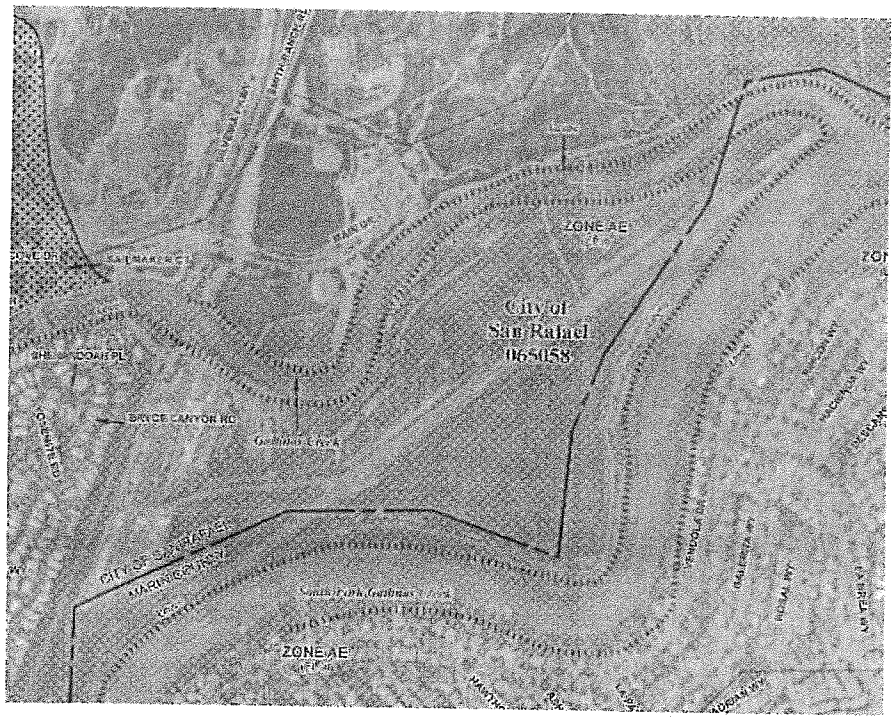

Figure 1. May 9, 2009 FEMA FIRM for San Rafael, CA. Cropped from panel 065058.

It is important to note that increasing floodproofing to an elevation of +7.3 ft NGVD29 will likely still fail to protect users of the proposed Project from loss, injury, or death as a result of flooding. FEMA itself has stated that *"constructing a building to the minimum National Flood Insurance Program (NFIP) requirements – or constructing a building outside the SFHA shown on the FIRMs – is no guarantee that the building will not be damaged by flooding… buildings elevated only to the BFEs shown on the FIRMs have a significant chance of being flooded over a period of decades. Users should also be aware that the flood limits, flood elevations, and flood hazard zones shown on the FIRM reflect ground elevations, development, and flood conditions at the time of the Flood Insurance Study (FIS)"* (FEMA 2006). FEMA BFEs do not consider multiple environmental factors that may influence a location's susceptibility to flooding, including subsidence, levee degradation/settlement, sea level rise, and changes in the frequency/intensity of storm events

(FEMA 2006). BCDC currently recommends that *"where shoreline protection is necessary to protect development, it should be constructed to provide protection for a 100-year flood with the addition of 16-inches of sea level rise, at a minimum"* (BCDC 2009). Given these anticipated rises in sea level within San Francisco Bay (discussed in greater detail below), the uncertain condition of the levees surrounding the Project site (see above), and the projected lifespan of the proposed Project, **the level of floodproofing proposed in the DEIR is not adequate to reduce the risk of loss, injury, or death as a result of flooding to *less than significant*. This impact remains *potentially significant* and requires improved levels of analysis and mitigation within the DEIR.**

In addition to using obsolete data, the DEIR consistently confuses the datums of MSL and NGVD29. They are not equivalent, as previously discussed – the NGVD29 datum is approximately 1.1 ft lower than MSL, a significant difference. This confusion calls into question the hydrologic analyses performed in support of the DEIR.

3. The DEIR uses obsolete data that underestimates the significant risk of future flooding due to sea level rise.

Under a section labeled "Sea Level Rise" in Chapter 11, the DEIR discusses the potential for increased flooding hazards on the site due to sea level rise (SLR). Despite the wide availability of the most recent and scientifically vetted SLR estimates from the United Nations' Intergovernmental Panel on Climate Change (IPCC) and a broad range of local agencies and advisory panels, the DEIR instead uses obsolete estimates from the 1980s and 1990s to analyze potential impacts to the site from SLR.

The DEIR states "the most recent region-specific [SLR] estimate from US EPA [Environmental Protection Agency] predicts an 0.5-foot (6 inch) rise in the level of San Francisco Bay by the year 2050." This EPA estimate is from 1995; since then, the state of climate science and our understanding of global and local SLR has improved dramatically. Despite the DEIR's assertion that "uncertainties in data and methods have provided an inadequate foundation to assess future sea level rise in the San Francisco Bay Area", the EPA estimate has since been superceded by a significant body of work recently developed by local organizations including BCDC, the Bay Institute, the Pacific Institute, and the California Energy Commission's Public Interest Energy Research Program. In general, this work centers on estimates developed by the IPCC in 2007 and the California Climate Action Team (CAT) in 2009. The City of San Rafael General Plan refers to the IPCC reports as providing "the most current estimates of sea level rise" (Policy S-21). These estimates have been thoroughly peer-reviewed by the global and local scientific communities and represent the most current state of our knowledge of climate change, sea level rise, and their potential effects on San Francisco Bay and its shoreline. Without going into the intricate details involved in modeling climate change and SLR at global and local scales (topics that are much better addressed in the IPCC and CAT reports), scientists and planners estimate that the likely range of SLR within San Francisco Bay

is between 12 and 17 inches by 2050, leading to an increase of 20 to 55 inches by 2099 (BCDC 2009). As a result, **even the lowest estimate for SLR within the Bay by 2050 is twice what was previously estimated by the EPA in 1995 and cited within the DEIR.** To illustrate the impacts such SLR scenarios would have on the baylands of San Francisco Bay, BCDC created a series of maps displaying shoreline areas vulnerable to flooding from SLR of 16 and 55 inches. The map for the northern portion of central San Francisco Bay in the Project vicinity is displayed in Figure 2; it displays the Project site as vulnerable to SLR scenarios of both 16 and 55 inches.

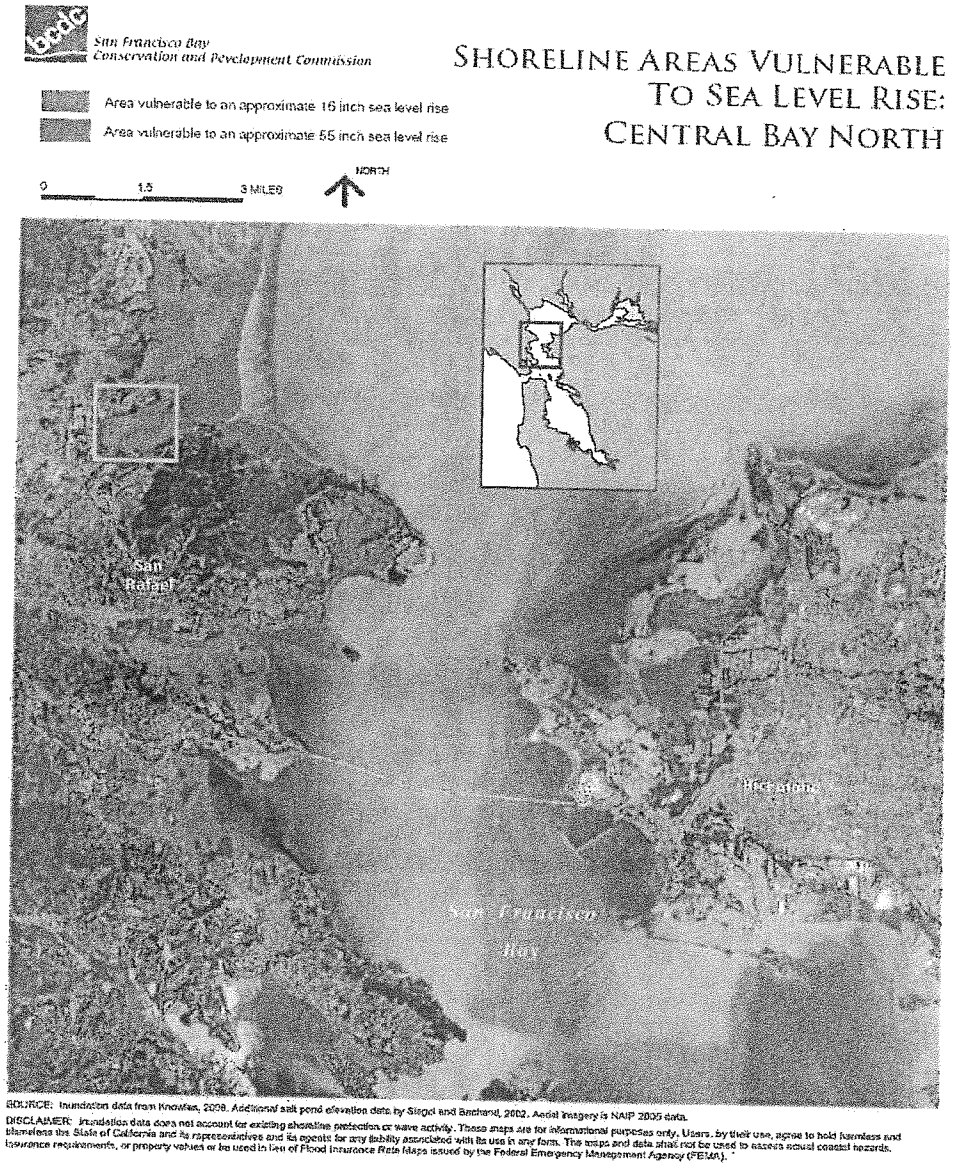

Figure 2. A map produced by BCDC in 2009 to display areas around San Francisco Bay vulnerable to SLR of 16 and 55 inches. The Project site is located within the yellow box.

The DEIR states that "if a 0.5-foot rise in the Bay were to occur by 2050, inundation would not occur on the Project site." This is a dubious assertion, especially given the uncertainties surrounding levee stability at the Project site, and it is rendered more questionable given that it underestimates likely SLR by at least half. The DEIR also states "according to a report prepared by FEMA concerning their National Flood Insurance Program (NFIP)... the NFIP would not be significantly impacted under a one-foot rise in sea level." The cited FEMA report dates to 1991, and can no longer be considered applicable as FEMA is currently implementing a new study that will assess the effects of climate change on the NFIP (FEMA 2009).

In summary, the DEIR significantly underestimates the potential for increased flooding hazards art the Project site and impacts associated with sea level rise. **This impact is *potentially significant* and requires improved levels of analysis and mitigation within the DEIR.**

4. The DEIR fails to establish that proposed measures to address stormwater quality will prevent pollutants from reaching sensitive habitats within and along Las Gallinas Creek.

The DEIR repeats faulty arguments from the IS/MND (ultimately rejected by the City of San Rafael) that proposed elements within the development plan will prevents pollutants from reaching sensitive seasonal and tidal marsh habitats within and along Gallinas Creek. In **Mitigation Measure Hyd-1d**, the DEIR states that the Project proponents will develop a Storm Water Management Plan (SWMP) which will feature elements that would "clean site waters in accordance with RWQCB [Regional Water Quality Control Board] and MCSTOPPP [Marin County Stormwater Pollution Prevention Program] standards before they enter San Rafael Bay." Potential elements to be incorporated into the design include "bioswales, filters inserted into the site drainage inlets to filter runoff, and landscaped and unimproved areas that would act as bio-swales to allow microorganisms in the soil to clean and filter site waters before release into Gallinas Creek." As we have previously established (WWR 2006), **quantitative performance standards for such systems have yet to be established by regulatory agencies such as RWQCB and MCSTOPPP.** The DEIR fails to provide the information necessary to determine that the amount of treatment provided by these features will result in less-than-significant pollutant discharge into Gallinas Creek, the ultimate destination for Site runoff and home to the federally- and state-endangered California clapper rail (*Rallus longirostris obsoletus*). Pollutants likely to impacts such habitats include:

- Copper from vehicle brake pads, which is toxic to aquatic life unless it is chelated (chemically bound) by compounds such as peats or polydentate ligands or bound by sulfides (forming copper sulfide, CuS) in a reduced (low-oxygen, low-redox potential) environment. Such an environment is unlikely to form in a bioswale, given the constant wetting and drying cycles such

areas are subject to, which prevent the development of a consistently saturated and reduced environment.

- Motor oil, gasoline, and other hydrocarbons can be only be broken down in bioswales with long enough hydraulic retention times (HRTs) to allow the hydrocarbons to be broken down by microorganisms (biodegradation). The DEIR does not describe the HRTs of the proposed bioswales, so it is impossible to analyze their effectiveness at removing hydrocarbons from stormwater. In addition, the DEIR fails to describe performance standards for the proposed "filters" to be located at drainage inlets.

- If conventional commercial turf management is practiced on the proposed grass soccer fields, large quantities of herbicides, fungicides, and pesticides will likely be used in conjunction with frequent irrigation. These substances are complex organic compounds that can only be removed from the water column through adsorption to peats, photodegradation (prolonged exposure to UV light), or biodegradation. These compounds are highly toxic to aquatic life (in certain instances, even at concentrations as small as one part per billion), especially when meant for use in a terrestrial setting such as soccer fields. There are two mechanisms through which these compounds can reach receiving waters: subsurface drainage to groundwater due to irrigation and seepage, and surface drainage to Gallinas Creek through the existing and proposed stormwater conveyance system. These compounds are unlikely to be removed from the water column in a bioswale due to their complex biochemistry, and will likely be discharged to sensitive tidal marsh and aquatic habitats within and along Gallinas Creek. **The release of such compounds would be a *potentially significant impact* that is not addressed within the DEIR and requires mitigation.**

Given the high environmental sensitivity of Gallinas Creek, the level of analysis presented in the DEIR is inadequate to determine the protection levels provided by the proposed drainage infrastructure.

5. The Project described in the DEIR is inconsistent with regional policies and guidance concerning development of diked baylands around San Francisco Bay.

Throughout San Francisco Bay, shoreline communities are moving away from development of diked baylands due to the significant impacts to fiscal and environmental resources associated with such development. Costs of levee maintenance and repair and stormwater and groundwater pumping on diked baylands can be expected to increase with sea level rise, making the protection of such parcels unsustainable in the long-term. At the same time, recognition of the environmental value of such lands has increased. Diked baylands provide crucial feeding and roosting habitat for resident and migratory shorebirds and waterfowl during the winter and spring, along with providing feeding and

breeding habitat for more terrestrial species such as mammals (squirrel, fox, etc.) and passerines (perching birds) during the drier seasons. When restored to tidal marsh, diked baylands provide an exceptionally broad range of benefits to their communities, such as flood storage, water quality improvement, fisheries support, carbon sequestration, and recreational/educational opportunities. [For a comprehensive discussion of the significant environmental values of diked baylands and tidal marsh, see the 1999 Baylands Ecosystem Habitat Goals Report.] As a result, regional and local agencies have developed policies and guidance documents aimed at discouraging development of diked baylands. Such policies include BCDC's Ecological Value of Diked Historic Baylands (1983), the Habitat Goals Project, and Marin County Baylands Corridor policies (2007). Thanks to these and other policies, development on diked baylands around San Francisco Bay has been slowed (Goals Report 1999), and shoreline communities have prioritized restoration of diked baylands back to tidal marsh. The Hamilton Wetlands Restoration Project, Bel Marin Keys Unit V Wetland Restoration Project, Bahia Wetlands Restoration Project, and Sears Point Restoration Project are just a few of the many efforts along San Pablo Bay aimed at restoring diked baylands with low land use intensities back to tidal marsh. The Project site presents unique opportunities for restoration to tidal marsh, as it is apparently not subsided to elevations significantly below MLLW (based on the DEIR's vague description of site elevations between 2 feet above and below MSL [-1 to + 3 ft NGVD29]), is located at the confluence of two branches of Gallinas Creek, and is located in an area with a significant population of the federally endangered California clapper rail. **We believe that the City should consider carefully the significant benefits of restoring the airport parcel to tidal marsh against the considerable short-term and long-term costs of development.**

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Personal Communications

Mary Feller, Friends of Gallinas Creek
Ed Hultgren, P.E., Hultren-Tillis Engineers. Principal geotechnical engineer.
Steve Moore, P.E., Nute Engineering. Senior civil engineer.

LETTER 67: Mary Feller, Co-Chair, The Friends of Gallinas Creek, May 12, 2009

RESPONSE 67-1: See MASTER RESPONSE HYD-4, above, which addresses issues related to an anticipated increase in sea level.

RESPONSE 67-2: Opinion regarding the adequacy of the DEIR's evaluation of potential flooding hazards at the Project site is noted. The DEIR evaluates the environmental effects associated with development of the Project site as proposed. Suggestion that the DEIR be revised to reflect increased elevations (not proposed by the Project Applicant) is noted.

RESPONSE 67-3: See MASTER RESPONSE HYD-2, above, which addresses the existing condition of the levees.

RESPONSE 67-4: Opinion regarding the adequacy of the DEIR's evaluation of Project-related stormwater runoff impacts is noted. See MASTER RESPONSE HYD-5, above, which addresses issues associated with Project-related stormwater runoff and water quality.

RESPONSE 67-5: See MASTER RESPONSE HYD-3, above, which addresses Project-related effects associated with a levee breach. As indicated on DEIR page 11-31, the Oberkamper analysis indicated that in the modeled levee breach scenario, there would be sufficient time to enable those using the Project site to safely leave before the depth of water presents a hazard (with water reaching an elevation of +1 in 45 minutes). Opinion regarding the adequacy of **Mitigation Measure Hyd-2a** and **Mitigation Measure Hyd-2b** in reducing potentially significant impacts in the event of a levee breach at the Project sit to a level considered less than significant is noted. **Mitigation Measure Hyd-2a** has been revised to reflect current flood datum and **Mitigation Measure Hyd-2b** has been revised to reference the specific performance standards established and enforced by the City Department of Public Works.

RESPONSE 67-6: Opinion regarding the DEIR's evaluation of flooding risk at the Project site is noted. See MASTER RESPONSE HYD-1, above, which addresses the datum value used in the DEIR analysis and the assessment of flooding impacts.

RESPONSE 67-7: Opinion regarding the adequacy of the DEIR's evaluation of the effects of an anticipated increase in sea level on the proposed Project is noted. See MASTER RESPONSE HYD-4, above, which addresses effects associated with an anticipated increase in sea level. Opinion regarding the significance of Project-related impacts associated with an anticipated increase in sea level, and the need for mitigation, is noted.

RESPONSE 67-8: Although implementation of **Mitigation Measure HYD-1a** [as modified], **Mitigation Hyd-1b**, **Mitigation Measure Hyd-1c**, **Mitigation Measure Hyd-1d** [as amended], **Mitigation Measure Hyd-1e**, and **Mitigation Measure Hyd-1f**, in combination, would be expected to reduce the potential adverse water quality impacts associated with development and operation of the Project site to a level of less than significant, there is no

quantified "standard" established to enable determination of the appropriate "protection levels" that would be provided by such measures in relation to sensitive habitat areas near the Project site.

RESPONSE 67-9: Opinion regarding the consistency of the Project as proposed with regional policies and guidance concerning development of diked baylands around San Francisco Bay is noted. Opinion regarding the effects of Project development on the City's fiscal and environmental resources, and the significance of Project related impacts, is noted. The DEIR evaluates the environmental effects associated with development of the Project site as proposed, but does not assess the fiscal impacts of such development.

May 12, 2009

City of San Rafael Planning Commissioners
c/o Senior Planner Kraig Tambornini
Community Development Department
P. O. Box 151560
San Rafael, CA 94901-151560

Re: Comments to DEIR for San Rafael Airport Recreational Facility

Dear Planning Commissioners:

Thank you for the opportunity to provide comments on the draft EIR for our proposed recreational facility at the San Rafael Airport. The DEIR has taken over two years to complete and represents thousands of hours of effort and study by City staff and multiple experts in their respective fields of environmental study, at a cost of over $300,000. In trying economic times like these, this amount of money is undoubtedly a hardship for any recreational project, especially one that does not receive any taxpayer assistance. It is nevertheless gratifying that the time and money has been well spent, and that the DEIR has confirmed that the project can be designed and sited in an environmentally sensitive way that will not create any significant environmental impacts.

Our comments to the DEIR focus on over-reaching mitigation measures that are not supported by findings within the DEIR analysis, and/or are infeasible to implement. Proposed mitigation measure Bio-2d limiting construction equipment to 70 dBA is a good example. According to Table 2 in the project Noise Study, 70 dBA is the sound level of normal human speech at 3 feet. Obviously we cannot build a project with a 70 dBA limitation on construction equipment (our existing airport would have to shut down under such a restriction). CEQA law only requires a mitigation measure when a project is likely to cause an adverse environmental change. Clearly that is not the case here, as the analysis in the DEIR indicates that wildlife in the project area are acclimated to existing high levels of noise and human disturbance from airport operations and McInnis Park activities along the creek. **68-1**

CEQA also requires that proposed mitigation measures be feasible to implement. Several of the proposed mitigation measures in the DEIR conflict with our existing safety practices for the airport property, including flood control, fire control, and wildlife/aircraft hazard management. A detailed list of these practices in included with our comments herein. Mitigation measure Bio-2c proposes limiting disking and mowing of fields and levees to the August-September time frame. That would mean that long dry grass would be present from May through August, which defeats the purpose of both fire control and wildlife management, in the process endangering lives and property. **68-2**

In general we believe the City and EIR consultants have done a thorough and detailed job analyzing the likely environmental impacts from our project. Where more work is needed is in the designing of mitigation measures that better fit the analysis and findings within the DEIR, and ensuring that those mitigation measures are feasible to implement in project construction and operation, and do not conflict with existing airport operations. Our comments include additional facts and analysis from biological and noise experts, and are focused on ensuring that the EIR accurately describes the project and any likely impacts, and mitigates those impacts in a manner consistent with CEQA requirements. **68-3**

Our detailed comments to the DEIR are included in the following pages. We look forward to working with the Planning Commission and City Planning Staff to adequately address any potential significant impacts from the project, in order that this much needed community serving facility can come to fruition.

Sincerely,

Bob Herbst
San Rafael Airport LLC

SECTION 1: COMMENTS TO DEIR PROPOSED MITIGATION MEASURES

Several of the proposed mitigation measures in the DEIR inadvertently jeopardize health and safety at the airport property by interfering with our existing maintenance practices for the airport levees and fields. It is important therefore that Chapter 3 of the DEIR include the following accurate and complete description of these maintenance practices including the reasons they are needed. 68-4

Maintenance Practices for Levees and Grassland Fields:
Annually in late spring (April/May) after the grasses have bloomed, we mow the levee tops and inside levee slopes with brush mowers and tractor pulled mowers. At the same time, we disk the grassland fields between the levees with a heavy duty agricultural tractor and disker. The mowing and disking is done for fire control and to remove wildlife attractants pursuant to FAA guidelines for aircraft safety. Doing the work before April/May is ineffective because the grasses will immediately grow back. Doing it later defeats the purpose of the work, which is to remove the vegetation as soon as possible so that it does not create a fire and aviation hazard through the rest of the year.

In the late fall before the heavy winter rains (October/November), we condition the levee tops by running a track mount loader along the tops of the levees. This is done to smooth and re-compact the levee tops in preparation for winter. At this time we also add new material to the levees in any small areas needing repair. This material is delivered by dump trucks which drive through the grassland fields adjacent to the levees. Periodically (every 5-10 years), we perform a more extensive levee capping process where we add 1-2 feet of new material onto entire large sections of the levee top. This work is done in the dry season from June to October using heavy construction equipment including dump trucks, bulldozers, cranes, and excavators. The work is staged, including stockpiling of levee capping material, in the grassland fields adjacent to the levees.

Also in the late fall (October/November) we perform a second disking or mowing of the grassland fields and levee side slopes. The purpose is to remove any new vegetation that has re-established itself over the summer. At this time we also add seed and soil amendments to the fields to enrich the soils for agricultural purposes and to ensure a consistent growth of grass types suitable for feed stock and future livestock grazing.

Stormwater is drained from the airport property via a series of long linear earthern drainage ditches and swales that traverse the property. These ditches are cleaned out with a backhoe as needed every 1-2 years to remove accumulated sediment and plant matter that restricts the flow and carrying capacity of the ditches. As there are well over 2 miles of ditches on the property, this is an on-going job that is performed throughout the dry season and occasionally as needed during the wet season. The clean-out procedure is augmented, where needed, by hand mowing to remove grasses that could serve as a wildlife attractant.

Impact Aesthetics-1: Light and Glare

The statement that "project lighting may exceed the lighting intensity standards of the surrounding community, particularly the inclusion of exterior field lighting" is not factual, and should not be used as a basis for a determination that the impact of the project lighting on the community is considered to be *potentially significant*. There is no adopted City of San Rafael lighting standard for minimum parking lot lighting or maximum recreational field illumination, nor is there a standard for maximum lighting overlapping an adjacent property. Apparently there are no County of Marin adopted standards for either. **68-5**

Assessing lighting impacts is difficult without any adopted standards, and communities use differing standards in reviewing lighting. For example, Novato has used .5 foot candles minimum for parking lot safety. In this case the lighting level for the fields has to be appropriate for this outside recreational use. There are various and sometimes conflicting issues to consider: safety, security, energy conservation, aesthetics, etc. It is a complex matter that cannot be resolved with simple language that lighting should be adequate but not excessive.

Page 5-25 of the DEIR states that San Rafael has no written policy establishing a specific threshold regarding spillover of light from a project, but uses "the General Plan 2020 and the City's Design Review Criteria". General Plan "CD 19" states that projects should have adequate lighting for safety purposes while controlling excessive light spillover and glare, but offers no standards. The Design Review Criteria includes a similar statement and includes no additional specifics.

Note that the lighting impact on biological resources is addressed in Chapter 7 of the DEIR and its is concluded that with the measures recommended there will be a *less than significant* impact on wildlife.

On Page 5-25 of the DEIR it is noted that, based on conversations with the City Planning Department (see footnote same page), the general policy used for project review purposes is that lighting should have a minimum 1 foot candle intensity. It further states on Page 5-25 that a potentially significant impact would be created if light exceeds 1 foot candle average or there is light spillover at the property line. Even this Planning Department direction seems inconsistent; does lighting have to be exactly at 1 foot candle otherwise it is not in keeping with the minimum or the maximum? Additionally, "spillover" is also not defined. Is spillover measured at the property line, 10 feet from the property lines as in some analyses, and at what elevation?

A DEIR conclusion that there is a potentially significant "Light and Glare" impact is not properly supported because there is no adopted City guideline or standard against which to measure the project impacts.

Mitigation Measure Bio-1b: Listed Andronomous Fish Species-SWPPP & SWMP 68-6

The project SWPPP and SWMP are required to be in conformance with Regional Water Quality Control Board standards as administered by the Marin County Pollution Prevention Program (MCSTOPP). MCSTOPP guidelines require projects to "Control peak flows to pre development rates." This condition is met by the fact that the existing airport pump station pumps stormwater at a constant rate of 500,000 gallons per minute (not 500 gallons per minute as erroneously stated in the mitigation summary on page 2-8). There is no MCSTOPP requirement that the volume of water discharged be unchanged. The reference to 'volume of water discharged" should be removed or revised to state the "volumetric flow rate of water discharged".

Impact Bio-2: California Clapper Rail and California Black Rail 68-7

Impact Bio-2 states that "indirect impacts to California clapper rails, and possibly to California black rails, could result from noise generated during Project construction and as part of Project operation." However, no evidence is presented to support this statement nor are any noise thresholds provided by which to substantiate or measure it. To the contrary, the Biological Resources section of the DEIR contains numerous statements and findings indicating that the project will not cause any impacts to clapper rail or black rail:

1. five clapper rail protocol level surveys conducted over 2 months found no black rail; two pair of clapper rail were discovered to be nesting on the opposite bank of the creek, over 310 feet from the *closest portion* of the project site; by contract the nests are immediately adjacent to active play fields and a pedestrian/dog walk trail at McInnis Park

2. clapper rail in the area are acclimated to noise and disturbance from airport flights, mowing and disking of airport fields and levees, and McInnis Park activities along the creek

3. clapper rail were never observed on the airport levee or on the project site, nor would they be expected to venture there owing to lack of escape cover since the areas are frequently disked and mowed for wildlife control

We asked Wetland Resource Associates (WRA) to review the DEIR and provide their expert comments regarding the proposed biological mitigation measures. The attached letter dated May 8, 2009 contains the recommendations of Jeff Drier, Senior Wildlife Ecologist and Principle at WRA. Mr. Drier has extensive experience with clapper rail and black rail, including preparation of CEQA documents, and in his expert opinion the proposed mitigation measures are overly cautious given the project circumstances, and exceed the requirements imposed through EIRs done on other projects in the Bay Area. His detailed letter provides factual support for his conclusions, and proposes modifications to the project mitigation measures.

Mitigation Measure Bio-2a: California Clapper Rail & Black Rail-Perimeter Fence 68-8

The measure references "airport operational tasks that are routinely practiced today (see following paragraphs)". However, it is unclear which paragraphs are being referred to, and there is no complete description of existing airport maintenance practices anywhere in the DEIR. The condition should reference the detailed list of maintenance practices that we have provided with this comment letter.

The measure calls for a perimeter fence to be "ten-feet tall for the purpose of preventing balls from the soccer field from entering the marsh." This is completely unnecessary as the soccer field is separated from the marsh habitat in the creek by the existing 20-25 foot tall eucalyptus trees, 9 foot tall levees, and over 150 feet of grasslands. No one can kick a soccer ball that far, and even if they could a 10 foot tall fence would not stop it as the ball would have to be kicked 30 feet in the air or higher. The fence only needs to be 5-6 feet tall to effectively stop people from entering the upland buffer area and the creek beyond. If a ball happens to get kicked over the fence into the upland buffer area, the referees can easily retrieve it after the game. It's an area that gets disked or mowed at least twice per year, in addition to other maintenance activities, so there's no environmental damage that the referees can do and they'll be visually shielded from wildlife in the creek by the 9 foot tall levees.

Mitigation Measure Bio-2b: Permanent Conservation Area 68-9

Under *Impact Bio-2* it states that "the proposed project will not impact marsh habitats along the North Fork of Gallinas Creek" and that there are "no direct impacts to the California Clapper Rail or the California Black Rail". The only potential impacts stated are indirect impacts from noise during construction and from noise during operation. Clearly a permanent deeded conservation area is not required to address temporary construction noise. Regarding noise during operation, page 7-65 of the DEIR states that "once the recreational facility is operational, clapper rails in the marsh habitats to the north of the site are not expected to be significantly adversely affected". It goes on to state that "due to the high degree of human activity and disturbance that already exists in the area around the airport, it is expected that most wildlife using the North Fork of the Gallinas Creek would readily acclimate to new noises generated by the proposed facility."

Based on these DEIR conclusions, a mitigation condition requiring a deed restriction to provide a permanent conservation area is simply not warranted. If the City finds through its review of the project merits that a performance standard is necessary, then this can be addressed through a condition of the zoning or use permit actions. An additional item on the title just serves to complicate the title and makes it more difficult to finance the project. Any performance standards must not restrict our ability to maintain the fields and levees for purposes of fire control, flood control, and aviation safety, as outlined in the detailed property maintenance list provided with this comment letter.

Mitigation Measure-2c: California Clapper Rail and Black Rail-Levee Maintenance 68-10

The airport levees and adjacent grassland fields are not part of the proposed project. Therefore, it is inappropriate to propose a project mitigation measure concerning their future maintenance. We will need to continue to maintain our levees and adjacent grassland fields pursuant to the detailed list of maintenance practices provided with this comment letter. Time limitations in particular are unacceptable, as maintenance is required year round.

The attached comment letter from Wetland Research Associates includes a modified condition that is acceptable to us.

Mitigation Measure-2d: California Clapper Rail and Black Rail-Avoidance Measures 68-11

This measure contains conditions limiting construction equipment to 70 dBA within 200 feet of Gallinas Creek, and limiting the general construction timeframe to only 3.5 months each year (July 1 – October 15). Wetland Research Associates has provided detailed commentary in their May 8, 2009 letter regarding why these conditions are overly conservative from a biological viewpoint. They conclude that "because of existing levels of disturbance and associated rail acclimation, distance from occupied habitat, proposed buffers, and existing visual and noise buffers provided by the levee and vegetation, WRA does not recommend any noise restrictions associated with construction of the recreational facility."

From a construction standpoint, the proposed conditions are infeasible. We asked Illingworth and Rodkin acoustical consultants to review the DEIR findings related to noise. Their April 23, 2009 comment letter is attached. The stated limitation lacks a distance reference standard, but assuming 50 feet is the reference standard, they state that "this would restrict all equipment necessary to do the work". Portions of the proposed building and soccer field are located within 150 feet of the creekbank, and portions of the soccer practice area are within 120 feet of the creekbank. The City of San Rafael General Plan acknowledges the existence of rail and other sensitive wildlife species in the area, and requires a 100 foot project setback from creekbanks. The project was designed to comply with that standard. The mitigation measure should be modified to comply with the City of San Rafael 100 foot setback standard.

Limiting construction to 3.5 months per year would mean that the project will take 3-4 years to complete. Fill and grading would take one year, pile driving and foundation another, and shell construction a 3rd. Interior improvements would be completed in year 4. A lot can change in 4 years. Tenants, like our original baseball operator, can't typically wait 4 years for a space to be ready. Lenders will not typically provide construction loans for such a long period of time, especially without signed leases from tenants. As such, this condition conflicts with our Project Objective to "qualify for traditional commercial mortgage financing providing 75% of project costs." 68-12

Mitigation Measures 4b: Nesting Raptors-Recreation Facility Construction 68-13

See comments to MM-2d above regarding construction time limits. Also see Wetland Resource Associates letter dated May 8, 2009, which recommends removal of the proposed time limit.

Mitigation Measures 4c,5a,5b: Raptors & Western Burrowing Owl-Nesting Surveys 68-14

See Wetland Resource Associates letter dated May 8, 2009 recommending that raptor and burrowing owl pre-construction surveys occur 30 days prior to beginning work, and that appropriate buffers be established around any active nest sites.

Mitigation Measures Bio 6b,6c: Common & Special Status Nesting Birds-Nesting Surveys 68-15

See Wetland Resource Associates letter dated May 8, 2009 recommending appropriate construction buffers for identified nest sites.

Impact Hazard-1a:

The Hazards section of the DEIR relies on an indirect and speculative measure of project occupancy in order to arrive at a finding that "the highest estimated concentration of people in a single-acre area of the project would be 216, which slightly exceeds the single-area criterion of 200 people for Airport Safety Zone 5 –Sideline Zone." However, when actual occupancy data from the DEIR Project Description and Traffic Study.is used, the single acre occupancy falls far below 200 people. 68-16

The problem stems from the use of California Building Code maximum occupancy limitations to estimate the projected occupancy of the proposed project. CBC numbers are *maximum legal limits* for a given use, based on safety codes related primarily to fire protection and emergency exiting. They are not designed to be used as estimators of actual occupancy for a specific project. The Hazards analysis recognizes this limitation, stating that "surveys of actual occupancy levels conducted by various agencies have indicated that many uses are generally occupied at no more than 50% of their maximum (CBC) occupancy". Another problem with the CBC methodology is that it does not contain categories for soccer fields, dance, or gymnastics. The proxies that are used in the Hazards analysis, Skating Rinks and Exercise Rooms, far exceed the actual expected use intensity of our proposed project. For example, the CBC occupancy limit for Exercise Rooms is 50 square feet per occupant, which equates to 281 people in the gymnastics studio at any one time. Even taking a 50% reduction the number is 141. By contrast, Table 3-1 of the DEIR Project Description indicates a maximum of 200 gymnastics users *for the whole day*, and the DEIR Traffic Study Table 6 shows one class per hour with a projected class size of only 40 people.

Single acre occupancy calculations need to be redone using the actual project occupancy data contained within the DEIR in the Project Description and Traffic Study. This is the same data that is used within the DEIR to analyze all the other environmental impacts, so it must also be used to analyze the Hazards impacts. Table 6 of the Traffic Study contains an estimate of 1701 weekday daily trips. Each car makes one trip in and one trip out per visit, so this equates to 851 cars visiting the project on a daily basis. Assuming 1.5 people per car, this comes to 1276 total users per weekday, which is consistent with the user projections contained in the Project Description in Table 3-1.

The trip numbers assume the project is open from 9 am to midnight, which is 15 hours in total. Dividing 1276 daily users by 15 hours produces an average hourly occupancy rate of 85 people per hour. Unquestionably certain hours of the day will be more busy than others. The Traffic Study estimates 268 total trips during the PM peak hour, 56 of which will go to the outdoor soccer field. This leaves 212 trips (106 cars) going to the indoor facility. At 1.5 people per car, this comes to 159 people at the indoor facility during the PM peak hour. Dividing by the 1.637 acre footprint of the facility (based on 71,300 square feet, not 70,000 square feet as erroneously stated in the Hazards analysis), this produces a single acre occupancy level of only 97 people, which is less than half of the 200 person per acre criterion for establishing a potential impact.

As stated above, the occupancy data from the Project Description and Traffic Study have been used within the DEIR to analyze all other environmental impacts, and must therefore also be used to analyze the Hazards impacts. If other calculation methodologies are also used, they must incorporate the actual occupancy data contained within the Project Description and Traffic Study.

Mitigation Measure Hydrology -2a: Wet Flood-proofing **68-17**

Clarify whether wet flood-proofing or dry flood-proofing is required for the areas of the building located below 7.0 feet MSL. The mitigation measure outlined on pages 11-32 and 11-33 of the Hydrology section is different than the mitigation measure contained in Table 2-1. If dry flood proofing is required, as suggested on pages 11-32 and 11-33, then please remove any references to limitations on what types of rooms or facilities can be located below 7.0 feet MSL. Dry flood proofing means the building is watertight, in which case FEMA requires no limitations on rooms or facilities below 7.0 feet MSL. Such limitations are only relevant when wet flood proofing is proposed. Wet flood proofing means flood waters are allowed to pass through the building.

Mitigation Measure N-1: Evening Noise **68-18**

The original project noise study by Illingworth & Rodkin did not provide a detailed calculation of night time noise levels from the outdoor fields, because the original project did not include outdoor field lights. At our request, they have reviewed the DEIR and provided the attached comment letter dated April 23, 2009. That comment letter includes results of a detailed calculation of night time noise from the outdoor fields, which states that the predicted noise level would be 38 dBA Leq, which is within the City of San Rafael's night time noise ordinance of 40 dBA Leq. Therefore, there is no impact to neighbors to the south and the mitigation measure should be eliminated.

68-19

Impact N-2 & N-3: Construction and Pile Driving Noise Impacts at McInnis Park

Impact N-2 & N-3 are similar, and state that noise from construction and pile driving could disrupt soccer and softball practices or games at McInnis Park. However this is directly contradicted on page 12-3 of the Noise analysis section, which lists the uses at McInnis Park, including softball and soccer fields, and states that "active recreational uses such as these are not considered to be noise sensitive". Illingworth and Rodkin acoustical consultants have reviewed the DEIR and their April 23, 2009 comment letter states that "short term construction noise would not cause a significant environmental impact upon the intermittent use of a softball field." Because there is no significant impact to recreational users at McInnis Park, it is not necessary to establish mitigation measures, so MM N-2 and MM N-3 should be removed. In particular the requirement to schedule work around use of the softball field is problematic, as is limiting construction equipment to 72 dBA Leq at 100 feet. Both are infeasible from a project construction standpoint.

SECTION II: COMMENTS TO INDIVIDUAL DEIR CHAPTERS

On pages 3-1, 4-1, & 4-2, the San Rafael Airport property is described with reference to "Parcel B" as shown on Parcel Map 21 PM 70, recorded on August 16, 1983. This map is over 25 years old and contains numerous inaccurate references to easements, options, and dedications that no longer exist. A more detailed and recent Record of Survey was recorded on July 25, 2008 in Book 2008 of Maps, Page 144, a copy of which is attached. This map contains the most current reference information regarding the San Rafael Airport property and as such is the appropriate map for use in the EIR. All references to "Parcel B" and Parcel Map 21 PM 70 should be eliminated from the EIR. **68-20**

Page 3-2 paragraph 3 and page 4-2 paragraph 3 correctly state that access to the airport is across a private paved road. It should also be noted that the portion between Smith Ranch Road and the airport bridge was offered to the City for dedication (pursuant to the Captain's Cove approved subdivision map) but was not accepted by the City. From the bridge to the railroad tracks is another property that is not part of the airport property, but there is a 40 foot access and utility easement over that property to serve the airport. We have not received approvals to pave up to the "end" of the industrial uses as stated. That was approved as compacted base rock, which is what is currently installed. **68-21**

Page 3-3 paragraph 3, page 4-3 paragraph 3, and page 11-3 paragraph 3 all state that "The airport site is bordered by the North and South Forks of the Gallinas Creek. The borders with the creeks include a maintained perimeter levee system...". It should be clarified that the perimeter levee system does not follow the airport property boundaries, and that of the 119.52 acres owned by the airport, approximately 20 acres are located underwater in the bed of the North and South Forks of Gallinas Creek, as shown on the attached Record of Survey recorded July 25, 2008. It should also be noted that the railroad right of way is only 4-6 feet in elevation and is constructed of water permeable ballast, and therefore does not provide flood protection to either the airport property or Contempo Marin Mobile Home Park. **68-22**

Page 3-3 paragraph 4 and page 4-3 paragraph 3 state that "The undeveloped area between the levees is characterized as non-native grassland fields that are mowed, grazed by sheep or disced annually." This description is incomplete. A detailed explanation of the existing airport maintenance practices for both the levees and the adjacent grassland fields should be included in these two sections of the EIR, the Biological Resources section, and elsewhere as needed. Numerous project mitigation measures, as proposed, conflict with our existing maintenance practices and in so doing jeopardize the safety of the airport property and our pilots. This directly violates an important Project Objective (see page 3-10) which states that the "Project shall not include any features that attract wildlife that is hazardous to aircraft safety". All mitigation measures that conflict with the existing property maintenance practices must be modified so they no longer conflict. **68-23**

Page 3-3, paragraph 5: replace "outsides of the levees" with "insides of the levees". The 2001 and 2006 delineations were done on areas inside the airport levees, not outside (which is the side facing the creek). **68-24**

Page 3-21: Project cannot be completed within two years under the proposed mitigation measures limiting outside construction to only 3.5 months per year (July 1 – Oct. 15). Under this restriction we estimate that 3-4 years would be necessary. **68-25**

Page 4-2, paragraph 2: replace "un-maintained" with "unimproved". The final sentence incorrectly states that "the San Rafael Airport runway is located on a separate property that is part of the airport site". The runway is located on a separate assessor's tax parcel, but the airport site is a single property. **68-26**

Page 4-2, paragraph 3: Under *Site Access* it should be noted that there is an additional 60 foot wide roadway and utility easement that serves the airport property. It is shown on the attached Record of Survey recorded July 25, 2008, and described in the attached Grant Deed recorded July 15, 1964. As shown on the attached historical aerial photo, this easement was used as the primary property access prior to the development of Contempo Marin Mobile Home Park. Contempo Marin has located mobile homes over portions of the 60 foot roadway and utility easement, but the airport still maintains rights to use the easement, and as recently as 2001 the airport placed new fire and water lines in the easement. There is also a 16 foot wide railroad crossing located at this approximate location, as granted to the airport pursuant to the attached Indenture recorded Nov. 23, 1937. **68-27**

Page 5-25, paragraph 1: The paragraph states that "Given that this project is in an undeveloped area, urban lighting standards may not be appropriate for the site." Does the City have guidelines for which types of properties should be subject to 'urban' lighting standards, or what constitutes an "undeveloped area". We do not agree that the airport property can accurately be categorized as undeveloped, or non-urban. The airport itself is clearly developed with 232,500 square feet of buildings and 418,000 square feet of impervious surfaces. The fields and clear zones around the runway are intrinsic to an airport development, and can not be accurately categorized as 'undeveloped'. They in fact contain an additional 1 million square feet of pervious areas that are maintained in a compacted, drive-able condition for aviation safety purposes. Regarding the uses surrounding the airport property, they include dense residential subdivisions with street lighting, and an active recreational park with a large restaurant and lighted parking lot, along with lighted golf driving range and lighted playfields. It does not seem accurate to characterize this as an 'undeveloped' area. There is substantial urban lighting already in this area at the airport and surrounding properties, and no finding for significant light impacts of the proposed project should be based on application of non-urban lighting standards to the proposed project. **68-28**

Page 5-27, paragraph 2: The paragraph states that the project field lights have the potential to annoy residents at Contempo Marin Mobile Home Park. However, there is no line of sight between the proposed outdoor field lights and Contempo Marin Mobile Home Park residences. The closest residence is over 1800 feet from the field lights, and the railroad grade and existing airport buildings block any line of sight to the lights, as does the project building itself which is 38 feet tall and located between Contempo and the outdoor fields. **68-29**

Page 7-3, paragraph 1: The distance between the proposed facility is a minimum of 118 feet (for the soccer warm-up area), not 100 feet as stated. **68-30**

Page 7-62, paragraph 2 states that "the proposed new bridge will be the exact width and length of the existing bridge deck". In fact, the new 25 foot wide bridge deck will be several inches narrower than the existing bridge deck. **68-31**

Page 7-80, paragraph 3 erroneously states that the SBAA expires on December 31, 2008. In fact it has been extended and now expires on December 31, 2013. **68-32**

Page 11-3, paragraph 3: The description of the perimeter levee system should match that used on page 3-3, paragraph 3 and page 4-3, paragraph 3. **68-33**

Page 10-15, paragraph 1: It is incorrectly noted that there are likely hazazdous waste materials on the airport site associated with airport operations and use. This has never been documented that we are aware of and considering the low intensity of use over the years it is very unlikely that there is anything hazardous on the property. **68-34**

Page 11-29, paragraph 3 implies that the railroad tracks provide flood protection for the airport property. In fact, as noted on page 3-3, paragraph 3 and 4-3, paragraph 3, the airport levees "connect directly to the levee system surrounding the Contempo Marin development and, as a whole, provide flood protections to the area." It should also be noted that the railroad right of way is only 4-6 feet in elevation and is constructed of water permeable ballast, and therefore does not provide flood protection to either the airport property or Contempo Marin Mobile Home Park. **68-35**

Page 11-32: See comments to Mitigation Measure Hydro 2a. The project plans contained in the DEIR include restrooms and locker rooms on the ground floor. Conditioned spaces are allowed on the ground floor under FEMA guidelines if dry flood proofing is used. **68-36**

Page 11-34, paragraph 2 and page 11-35, paragraph 2: See comments to Mitigation Measure Hydro 2a regarding references to wet flood proofing. **68-37**

Page 14-13, paragraph 2 and page 16-7, paragraph 3 erroneously state that the underlying restrictive covenants limit the property uses to open space and private and public recreation. This is incorrect. The attached Declaration of Restrictions recorded Dec. 16, 1983 also allows public utility uses (including flood control, sanitary sewer, gas and electric, and public safety facilities), airport and airport related uses, and roadway. Additionally, all existing uses existing on the property are approved uses. These include commercial, industrial, exterior storage uses, etc. The General Plan and Zoning permit these commercial and industrial uses. Please refer to the attached letter from the San Rafael City Attorney dated July 19, 1991 in which the City Attorney verifies that "uses originally in existence on the date of the recordation of the Restrictions may be reasonably expanded and enlarged provided that they do not change the essential nature and character of the originally grandfathered use" (all "grandfathered" uses were later recognized in the 2002 Master Plan zoning). **68-38**

Page 16-25 paragraph 3: It is incorrectly stated that "the current restrictive covenants do not permit the indoor sports facility". This is incorrect as the Declaration of Restrictions item 1f allows "private and public recreational uses" without any limitations. **68-39**

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Date: April 23, 2009
To: Bob Herbst
San Rafael Airport LLC
rherbst@jhsproperties.net
From: Richard B. Rodkin, PE
SUBJECT: San Rafael Airport Recreational Facility Draft EIR – Comments on the Noise Section

At your request, we have reviewed the noise section of the Draft EIR.

Comment 1. As you know, our firm prepared the environmental noise study for the project as it was envisioned in 2005. This noise study was used as the basis for the analysis in the noise section of the Draft EIR. The 2005 noise study did not evaluate noise from outdoor soccer games at night because lighted fields were not proposed as a part of the project at that time. Noise levels were calculated at the nearest residential receptor utilizing a first pass screening method where straight hemispherical spreading was assumed (6 dBA per doubling of distance from the source). Under this assumption, steady noise levels were projected to be "less than 41 dBA L_{eq}." The noise ordinance allows a steady daytime noise level of up to 50 dBA. Because noise levels, using this conservative calculation method, were 9 dBA below the allowable limits, no further analysis was completed. **68-40**

The nighttime noise limit is 40 dBA. Had the noise assessment included an analysis of outdoor soccer at night, a more detailed calculation would have been completed to determine whether or not predictable excess attenuation would reduce the noise levels to below the standard. Excess attenuation over long distances occurs as a result of molecular absorption and ground absorption. Also, there was no credit given for any attenuation that would be afforded by the existing berm that would separate the fields from the residential neighbors. Again, ignoring the effects of the berm, but accounting for molecular absorption and minimal ground absorption, predicted noise levels would be at least 3 dBA lower, a steady noise level of 38 dBA L_{eq}. A detailed analysis of nighttime noise would conclude that levels would not be expected to exceed the noise ordinance limits. Furthermore, based on the weeklong noise survey, it is clear that ambient noise levels regularly exceed 40 dBA L_{eq} between 9:00 PM and midnight. So, the projected noise levels from soccer would be below existing ambient noise levels and when added to existing levels would be calculated to increase noise levels by less than 1 dBA during the sensitive nighttime hours, an insignificant change.

Comment 2. In the Biology section, mitigation measure MM Bio-2d would include 'limiting the use of high decibel construction equipment (70-90 DBA) to areas at least 200 feet from the North Fork of Galinas Creek. **68-41**

- What level of noise is expected to impact the rails?
- What is the expected noise level in the identified rail habitat areas that prompts the limitation?
- What is the reference distance for the noise performance standard for the construction equipment (70-90 dBA)?
- Why is the distance referenced to the "North Fork of Galinas Creek" rather than the boundary of the habitat area shown in Figure 7-5?

Assuming the limitation intends to restrict use of equipment that emits a noise level of 70 dBA to 90 dBA at a distance of 50 feet, this would restrict all equipment necessary to do the work.

Comment 3. Impact N-2 states that construction activities could disrupt softball practices or games on the closest field and identifies this as a potentially significant impact. Short-term construction noise would not cause a significant environmental impact upon the intermittent use of a softball field. The discussion correctly states that there could occasionally be some acoustical interference, but this does not lead to a finding that there would be a significant environmental impact. Regarding mitigation MM N-2, because it is not a significant impact, it is not necessary to establish mitigation measures. Nonetheless, the standard controls that are normally associated with construction projects would be presumed and applicable to this work. The mitigation measure requiring controls to limit heavy construction equipment noise to 72 dBA L_{eq} at 100 feet is not feasible based on our experience with construction site noise generation. Regarding the third bullet, because there would not be a significant environmental impact and construction activities would occur within the allowable noise ordinance time periods, it would be incumbent upon the parks and rec department to take precautions such as scheduling their activities if they so choose, but should not be the responsibility of the contractor or the applicant to schedule around use of the fields. **68-42**

RBR:gfl
(05-025)

wra
ENVIRONMENTAL CONSULTANTS

May 8, 2009

Robert Herbst
JHS Properties
2173-D East Francisco Blvd.
San Rafael, California 94901

RE: San Rafael Airport Mitigation Recommendations

Dear Mr. Herbst:

WRA has completed a review of the Biological Resources mitigation measures in the San Rafael Airport Recreational Facility Draft Environmental Impact Report (DEIR). Following the review, WRA conducted a biological reconnaissance of the proposed project area to assess habitat suitability and potential project-related impacts to special status species in the vicinity.

Jeff Dreier, Senior Wildlife Ecologist/Principal, completed the DEIR review, and conducted the site reconnaissance. Mr. Dreier has authored several CEQA documents in the San Francisco Bay region, and has extensive experience conducting habitat assessments, field surveys, and impact analyses for the special status wildlife species addressed in the San Rafael Airport Recreational Facility DEIR. He has conducted numerous California Clapper Rail and California Black Rail surveys over the past 15 years.

This letter report provides revised mitigation recommendations for biological resources based on the document review, site visit, and previous experience with the species documented to occur in the vicinity of the project.

EXISTING CONDITIONS

On March 26, 2009, WRA conducted a biological reconnaissance of the proposed San Rafael Airport Recreational Facility site (Project Area). The DEIR accurately describes the plant communities and existing levels of disturbance. It should be noted that mowing and disking associated with Federal Aviation Administration guidelines for reducing attractants for wildlife hazards is conducted throughout the site, including the levees, between March and November. This timing coincides with the breeding season of most birds, including the federal and state endangered California Clapper Rail (*Rallus longrostris obsoletus*). This maintenance has been conducted annually for decades. The fact that California Clapper Rails continue to occupy two territories in the North Fork of Gallinas Creek suggests that the birds are not likely to be significantly disturbed by the noise associated with heavy equipment. The height of the levee not only provides a visual buffer between the Project Area and the rail habitat, but it very likely deflects and absorbs noise. **68-43** **68-44**

Clapper Rails occurring in this area have become accustomed to heavy human disturbances, and they nest adjacent to a pedestrian walking path with frequent dog traffic. The DEIR notes that noise levels around the site are already elevated due to the pre-existing airport, nearby freeway, sporting events at McInnis Park, and the driving range. It is likely that temporary point **68-45**

2169-G East Francisco Blvd., San Rafael, CA 94901 (415) 454-8868 tel (415) 454-0129 fax info@wra-ca.com www.wra-ca.com

source noise associated with construction located at least 120 feet beyond a visual buffer will not significantly alter the breeding behavior of rails.

Disking operations also discourage the establishment of California Ground Squirrel (*Spermophilus beecheyi*) colonies. During the site reconnaissance, a few scattered burrows were located in tall grass within the Project Area. None contained evidence of Burrowing Owl (*Athene cunicularia*) occupation. 68-46

CALIFORNIA CLAPPER RAIL AND BLACK RAIL

According to the DEIR, Dr. Jules Evens "stated that Clapper Rails that live in areas with heavy disturbances (similar to the conditions surrounding the Project site) tend to become more habituated and less elusive, such as the Clapper Rails are in the vicinity of the Project site". Observations of Clapper Rails at other San Francisco Bay region sites by WRA biologists are consistent with Dr. Evens' statement. Examples of Clapper Rail observations in habitats with heavy noise and/or other human disturbances include: Sierra Point, adjacent to U.S. Highway 101 in San Mateo County; Bothin Marsh in Marin County; Palo Alto Baylands in Santa Clara County; and Arrowhead Marsh in Alameda County. 68-47

Physical conditions between the Project site and the occupied rail habitat were not considered in the DEIR's noise analysis. The influences of vegetation, topography, and atmospheric conditions as noise reduction factors can vary greatly and are often impossible to quantify. Therefore, these factors are generally not taken into account in environmental noise analyses, which likely result in predicted noise levels that are higher than actual noise levels. According to the U.S. Department of Transportation (1995), a break in the line of sight between the noise source and the receptor (such as the levee along the North Fork of Gallinas Creek) can result in a 5 dB reduction. In addition, wind can reduce noise levels by as much as 20 to 30 dB at long distances (USDOT 1995). 68-48

WRA generally concurs with most of the rail impact analysis provided in the DEIR. However, considering existing levels of disturbance, distance from occupied habitat, and visual and noise buffers, the following revised impact and mitigation measures are considered more appropriate. 68-49

> Impact Bio-2 California Clapper Rail and California Black Rail.
> The proposed Project will not impact marsh habitats or adjacent upland habitats along the North Fork of Gallinas Creek; therefore, there will be no direct impacts to the California clapper rail or the California black rail. However, indirect impacts to California clapper rails, and possibly to California black rails, could result from noise generated during Project construction and as part of Project operation. Unless mitigated, these impacts would be ***potentially significant.***
>
> As discussed above, California clapper rail is a federally and state listed endangered species, and the California black rail is a State-listed endangered species. M&A conducted USFWS-approved protocol clapper rail surveys along the North Fork of Gallinas Creek in 2007. M&A determined that two pairs of clapper rails nested along the North Fork of Gallinas Creek on the opposite bank approximately 310 feet from the proposed Project during the 2007 survey (see **Figure 7-4**). The nest sites were situated in areas where there is a significantly wider band of tidal marsh vegetation. It is important to note that the side of the channel used by the California clapper rails for most of their activities, including nesting, is the same side of the channel where there is an existing park, a heavily used pedestrian trail, and a golf course. Accordingly, M&A believes that these clapper rails are well acclimated to high levels of human activity. Clapper rails were not observed at any time during M&A's surveys occupying or using anything but the tidally

influenced marsh habitats along and within the North Fork of Gallinas Creek. They were never observed on the top of the levee or the outboard side of the levee on the Project site.

While not observed during California clapper rail surveys, the California black rail could use the band of marsh vegetation along the North Fork of Gallinas Creek now or in the future. Thus, potential impacts to this species must also be considered.

The proposed Project will not result in any direct impacts to marsh habitats along the North Fork of Gallinas Creek. The distance between the proposed recreational facility, including the building and the outdoor fields, and the top of the levee along the North Fork of Gallinas Creek will be 100 feet or greater, as shown on the Project site plan (see **Figure 7-4**). Additionally, the existing levee, which is situated between the marsh habitat and the Project development envelope, will provide additional buffering effect. Therefore, an appropriate development setback (buffer area) would be in place. The South Fork of Gallinas Creek located on the south side of the airport will also not be affected by the Project. The airport runway, areas bordering the runway and the levee along the South Fork of Gallinas Creek will remain between the Project site and this creek. Consequently, M&A does not believe that California clapper rail or California black rail (or their habitat) will be directly impacted by the proposed Project.

However, to ensure that there are no direct impacts to California clapper rails or California black rails, the Project should preserve and protect the marsh habitats and the uplands adjacent to the North Fork of Gallinas Creek that provide habitat value for the California clapper rail and California black rail. In doing so, the proposed Project would be consistent with the U.S. Fish and Wildlife Services' Recovery Plan for the salt marsh harvest mouse and California clapper rail that states that "...marshes should have a wide, relatively undisturbed band of upland vegetation adjacent to the upper zone." Preserving and protecting the marsh habitats and the uplands adjacent to the North Fork of Gallinas Creek will ensure that the California clapper rail and California black rail habitat will not be directly impacted by the proposed Project.

Indirect impacts to California clapper rails, and possibly to California black rails, could result from noise generated during project construction. As part of the proposed Project, a new deck will be placed over the existing bridge crossing the North Fork of Gallinas Creek, which currently provides access to the airport. The bridge improvements would include pile-driving new piers into paved areas above the top-of-bank in order to support the new bridge structure. The noise impacts from the pile-driving could result in: (1) nest abandonment; (2) loss of young; (3) reduced health and vigor of eggs and/or nestlings (resulting in reduced survival rates). These impacts would be considered significant and adverse unless the proposed mitigation measures are implemented.

The noise analysis in Chapter 12 of this EIR discusses the potential impacts of pile-driving on people and provides **MM N-2**, which requires the implementation of construction equipment engine noise controls, the restriction of construction hours, and the designation of a Noise Disturbance Coordinator to respond to any local complaints on construction noise. Additionally, Chapter 12 provides **MM N-3**, which requires that quiet pile-driving procedures be implemented, such as pre-drilling holes to maximum depth. Implementation of these measures will also assist in reducing noise impacts to special-status species in the vicinity to a level considered less than significant.

It is also important to note that the nests will be below the levee elevation in the creek channel zone and thus will be somewhat buffered from noise and certainly from visible disturbance. In addition, the 100-foot creek protection buffer will be maintained between all construction activities of the recreational facility and the top-of-levee along the North Fork of Gallinas Creek, providing additional buffering. This should eliminate all impacts to birds nesting along the North Fork of Gallinas Creek, including rails.

Indirect impacts to the rails in the North Fork of Gallinas Creek could also result from noise generated from the recreational facility once it is in operation. As discussed in the noise analysis in Chapter 12, potential noise impacts could result from an increase in ambient noise levels generated from the recreational facility, specifically nighttime noise generated from spring and summer sporting events at the recreational facility. However, these impacts are not considered to be significant. Once the recreational facility is operational, clapper rails in the marsh habitats to the north of the site are not expected to be significantly adversely affected. Clapper rails living in this area have already become accustomed to heavy human disturbances, and they nest adjacent to a pedestrian walking path with frequent dog traffic. Moreover, as discussed in the noise analysis in Chapter 12 of this EIR, noise levels around the Project site are already elevated due to the pre-existing airport, nearby freeway, sporting events at the neighboring park, and golfers in the driving range located on the North Fork of Gallinas Creek. Due to the high degree of human activity and disturbance that already exists in the area around the airport, it is expected that most wildlife using the North Fork of Gallinas Creek would readily acclimate to new noises generated by the proposed facility. Furthermore, additional noise generated at the recreational facility would be minimized by the creek setback/buffer discussed above.

Finally, indirect impacts to clapper rail and black rail habitat could result from any adverse water quality impacts of the Project on the North Fork of Gallinas Creek. Such impacts would be considered potentially significant pursuant to CEQA; however, these impacts could be mitigated to a level considered less than significant.

Construction of the recreational facility could extend into October, with interior work allowed throughout the year. Under the required timeframe for construction of the recreational facility, construction activities at the Project site would not be expected to have any deleterious effects on nesting clapper or black rails if the following recommended mitigation measures were implemented.

Recommended Mitigation Measures

WRA does not recommend any changes to MM Bio-2a or MM Bio-2b.

Mowing and disking of vegetation on levees and adjacent fields has occurred for decades pursuant to FAA guidelines. Despite this annual activity during the breeding season, rails continue to occupy nearby habitat. The maintenance activities are largely conducted beyond the line-of-sight of the tidal marsh. The levee also likely contributes to sound attenuation. For these reasons, WRA recommends that no seasonal restriction be placed on maintenance activities. The reference to post-breeding season mowing in MM Bio-2c has been removed. **68-50** **68-51**

MM Bio-2c California Clapper Rail and California Black Rail – Levee Maintenance. Maintenance of the levees and fields along Gallinas Creek must be allowed to continue for airport safety purposes. Mowing and disking of vegetation on levees and adjacent fields has occurred for many years pursuant to FAA guidelines, and should continue. To ensure that clapper rails in the area have necessary vegetative cover to escape predators during high tide events, no mowing should be allowed on the slopes of the levees that face the creek.

Because of existing levels of disturbance and associated rail acclimation, distance from occupied habitat, proposed buffers, and existing visual and noise buffers provided by the levee and vegetation, WRA does not recommend any noise restrictions associated with construction of the proposed recreational facility. Based on the observations of Monk and Associates and Avocet Research Associates, rails continue to nest along the North Fork of Gallinas Creek despite several surrounding disturbances during the breeding season, including: (1) aircraft operations ranging from 70-100 dBA, (2) airport maintenance mowing and disking, (3) ball field **68-52**

activities to the north, and (4) pedestrian use along the north shore of Gallinas Creek. Because the rails occupying habitat along the North Fork of Gallinas Creek continue to nest despite breeding season disturbances, and temporary construction noise will be reduced by the levee, vegetation, and implementation of existing (MM N-2 and MM N-3), a construction timing restriction is not considered necessary. The timing restriction has been removed from MM Bio-2d. 68-53

> MM Bio-2d California Clapper Rail and California Black Rail – Avoidance Measures. Disturbances to clapper rails and black rails can be minimized during the construction of the proposed recreational facility by implementing the following avoidance measures:
>
> To account for California clapper rails or black rails, and other special-status birds, that likely occur and nest in the marsh habitats along the creek in the immediate area of the bridge, all work associated with the new bridge, including the demolition of existing bridge deck, installation of the new deck, and other bridge improvements, shall be restricted to August 1 to October 15. The bridge pile-driving dates shall be further restricted to September 1 and October 15 when potentially occurring anadromous fish would not be expected to occur in the channel. This "avoidance window" is outside of the California clapper rail, California black rail, and other special-status birds breeding seasons, thereby eliminating the potential that bridge reconstruction activities would disrupt breeding attempts.
>
> Noise abatement measures during construction of the recreational facility shall include restricting construction to the daylight hours. Consequently, noise from the Project site construction will not disrupt nocturnal wildlife species' activity patterns. Daytime high decibel construction noise will be buffered by distance from habitat occupied by rails, topography, existing noise and human activity adjacent to areas occupied by rails, and the established noise abatement zone along the North Fork of Gallinas Creek.
>
> Finally, four-foot black mesh exclusion fencing shall be installed along the outside edge of the creek buffer zone (100 feet from the North Fork of Gallinas Creek) to prevent sensitive species, such as clapper rails and black rails, from entering the work areas. The exact location of this fence shall be determined by a qualified biologist. The fence shall be installed prior to the time any site grading or other construction-related activities are implemented. The fence shall remain in place during site grading or other construction-related activities.

WRA does not recommend any changes to MM Bio-2e.

NOCTURNAL LIGHTING

WRA does not recommend any changes to Impact Bio-3, MM Bio-3a, or MM Bio-3b. 68-54

NESTING RAPTORS

WRA does not recommend any changes to Impact Bio-4 or MM Bio-4a. 68-55

The DEIR recommended that nesting raptor surveys only be conducted in June. WRA recommends a wider construction window for the recreational facility. This can be achieved by recommending pre-construction surveys at any time during the breeding season. WRA regularly conducts pre-construction breeding bird surveys throughout the nesting season (February 1 through August 31); these surveys are often conducted to satisfy mitigation requirements in other CEQA documents. The existing DEIR measure is overly conservative based on the fact that no evidence of nesting raptors was observed by biologists during several

site visits. WRA revised MM Bio-4b by widening the survey window, and incorporating MM Bio-4c into Bio-4b as follows: 68-56

MM Bio-4b Nesting Raptors – Recreation Facility Construction Pre-construction Nesting Surveys. Pre-construction nesting surveys shall be conducted as follows:

- A pre-construction nesting survey shall be conducted during the breeding season (February through July) of the year construction of the project will commence. The nesting survey shall be conducted within 30 days prior to commencing of construction work. The raptor nesting surveys shall include examination of all habitats and trees within 500 feet of the entire Project site, including near the bridge, not just eucalyptus trees on the northern boundary of the Project site.

- If a nesting raptor species is identified, a 300-foot radius buffer around any active nest site that is located on or within 300 feet of the Project site shall be fenced with orange construction fencing. If the nest is off the Project site, the Project site shall be fenced where this buffer intersects the project area. This 300-foot buffer may be reduced in size if a qualified raptor biologist determines that the nesting raptors are acclimated to people and disturbance, and otherwise would not be adversely affected by construction activities. At a minimum, however, the non-disturbance buffer shall be a radius of 100 feet around the nest site. When construction buffers are reduced from the 300 foot radius, a qualified raptor biologist shall monitor distress levels of the nesting birds until the young fledge from the nest. If at any time the nesting raptors show levels of distress that could cause nest failure or abandonment, the raptor biologist shall have the right to re-implement the full 300-foot buffer. Instances when the buffer could be reduced in size would be if the raptors were well acclimated to disturbance and/or if there were physical barriers between the nest site and the construction project that would reduce disturbance to the nesting raptors.

- No construction or earth-moving activity shall occur within the non-disturbance buffer until it is determined by a qualified raptor biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by July 1. Regardless, the resource agencies consider September 1 the end of the nesting period unless otherwise determined by a qualified raptor biologist. Once the raptors have completed the nesting cycle, that is the young have reached independence of the nest, no further regard for the nest site shall be required and no other compensatory mitigation is required.

Resulting level of significance

Implementation of measures **MM Bio-4a** and **MM Bio-4b** will reduce potential impacts to nesting raptors to a level considered ***less than significant*** pursuant to CEQA.

WESTERN BURROWING OWL

WRA has conducted numerous field surveys in the San Francisco Bay region and has monitored a large population of owls in Alameda County. The Burrowing Owl is unlikely to occur in the Project Area due to limited burrow habitat, annual disking, and an absence of sightings or other evidence during several site visits by qualified biologists. WRA recommends pre-construction surveys to be conducted concurrently with MM Bio-4b. The mitigation measures are revised as follows: 68-57

Impact Bio-5 Western Burrowing Owl. Construction and operation of the proposed Project could result in disturbance of the western burrowing owl, possibly resulting in death of adults and/or young owls. This is a ***potentially significant*** impact.

The western burrowing owl is a California species of special concern. This owl is also protected under California Fish and Game Code §3503, §3503.5, §3513, and §3800, and the Federal

Migratory Bird Treaty Act. Finally, based upon this species' rarity status, any unmitigated impacts to rare species would be considered a "significant effect on the environment" pursuant to §21068 of the CEQA Statutes and §15382 of the CEQA Guidelines. Thus, this owl species must be considered in any project that will, or is currently, undergoing CEQA review, and/or that must obtain an environmental permit(s) from a public agency. When these owls occur on a Project site, typically, mitigation requirements are mandated in the conditions of project approval by the CEQA lead agency.

As reported by both WRA and M&A, there is a low potential for this owl species to nest in the ruderal grasslands on the Project site or in the ruderal habitats immediately adjacent to the Project site due to the frequent mowing of these open fields on the site to control vegetation. Moreover, M&A did not identify any suitable burrows within the project area, and WRA biologists or M&A biologists have never observed this owl on or adjacent to the Project site. However, although this species is not currently known to occur on the site, the western burrowing owl is a mobile species that could move onto the Project site in the future, which presents the possibility that Project construction activities could disturb or harm nesting burrowing owls. Construction activities that disturb the nesting activities of burrowing owls would be a ***potentially significant*** impact pursuant to CEQA. This impact could be mitigated to a level considered less than significant by conducting pre-construction nesting surveys for western burrowing owls, as recommended below.

Recommended Mitigation Measures

MM Bio-5a Western Burrowing Owl – Pre-construction Survey. A preconstruction survey of the Project site shall be conducted within 30 days prior to ground disturbing activities. If more than 30 days lapse between the time of the preconstruction survey and the start of ground-disturbing activities, another preconstruction survey must be completed. This process should be repeated until the Project site habitat is converted to non-habitat (e.g., developed for recreational uses). If Burrowing Owls are not present, no further mitigation is required.

If Burrowing Owls are present, the applicant shall consult with CDFG to develop appropriate mitigation measures.

Resulting level of significance

Implementation of measure **MM Bio-5** will reduce potential impacts to western burrowing owls to a level considered less than significant pursuant to CEQA. Significance after Mitigation: Less than significant.

COMMON AND SPECIAL-STATUS NESTING BIRDS

Most common birds that may potentially nest in and near the Project Area are typical of areas frequently disturbed by human activity. In such areas, these species are habituated to human activity and generally are less sensitive to disturbance. In addition, the special status species that nest in vegetation along the North Fork of Gallinas Creek near the proposed recreational facility will be protected by the required setback and the levee, which create a visual and noise buffer between the North Fork of Gallinas Creek and the proposed project. The Project DEIR requires a 75-foot buffer around active passerine nests. Other CEQA documents often require a smaller buffer. The breeding bird mitigation measures in the *Village at Loch Lomond Marina DEIR* (City of San Rafael 2006) and *Sanborn Park Trails Master Plan Mitigated Negative Declaration* (County of Santa Clara 2008) recommended 50-foot buffers for active nests of both common and special status passerine bird species. WRA recommends that the exclusion zone

68-58

around active passerine nests in the Project Area be reduced to 50 feet, as indicated in MM Bio-6b and MM Bio-6c below.

Impact Bio-6 Impacts to Common and Special-Status Nesting Birds. Construction and operation of the proposed Project could adversely impact common and special-status nesting passerine birds, their eggs, and/or young. Common and special-status nesting passerine birds are protected under the California Fish and Game Code (Sections 3503, 3503.5), and the Migratory Bird Treaty Act. This is considered a ***potentially significant*** impact pursuant to CEQA.

Common nesting passerine birds (that is, perching birds) and special-status birds, such as San Pablo Song Sparrow and Saltmarsh Common Yellowthroat, could be affected by the proposed Project. Birds and their nests are protected under California Fish and Game Code (Sections 3503, 3503.5), and the Migratory Bird Treaty Act. Impacts to nesting birds, their eggs, and/or young resulting from the proposed Project would be potentially significant pursuant to CEQA. These impacts shall be mitigated to levels considered less than significant.

Impacts to unoccupied nesting habitats for these species would not be considered significant as there are other local and regional nesting habitats available for use by these species that could be used in subsequent nesting seasons. Consequently, no mitigation is warranted for impacts to unoccupied nesting habitats.

Recommended Mitigation Measures

MM Bio-6a Common and Special-Status Nesting Birds – Bridge Construction. The bridge reconstruction component of the project shall occur between the dates of August 1 and October 15, and the pile-driving activities will be restricted to September 1 to October 15, as otherwise specified above. This "avoidance window" is outside of the breeding season, thereby eliminating the potential that bridge reconstruction activities would disrupt nesting birds.

MM Bio-6b Special-Status Nesting Birds – Nesting Surveys. A nesting survey shall be conducted within 15 days prior to commencing construction work. If special-status birds, such as Saltmarsh Common Yellowthroat and San Pablo Song Sparrow, are identified nesting near the bridge reconstruction component of the Project, a 50-foot radius buffer must be established around the nest site by installing bright orange construction fencing. Similarly, if Great Blue Herons, Great Egrets, Snowy Egrets, or Black-crowned Night Herons are found nesting near the bridge or near the Project site area, a 200-foot radius around the nest site(s) must be fenced with bright orange construction fencing. If nests are found off the Project site but within the appropriate buffer, the portion of the buffer on the Project site shall be fenced with bright orange construction fencing. No construction or earth-moving activity shall occur within a buffer until it is determined by a qualified biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by August 1. This date may be earlier than August 1, or later, and would have to be determined by a qualified ornithologist.

MM Bio-6c Common Nesting Birds – Nesting Surveys. If common (that is, not special-status) passerine birds (that is, perching birds such as Western Scrub-jays and Northern Mockingbird) are identified nesting within the project area or immediately adjacent to the Project site, a 50-foot buffer demarcated by orange lath staking installed every 20 feet around the buffer shall be established. No grading/construction activities shall occur in the established buffer until it is determined by a qualified biologist that the young have fledged and have attained sufficient flight skills to leave the area. Typically, most passerine birds can be expected to complete nesting by July 1, with young attaining sufficient flight skills by early July.

Resulting level of significance

Implementation of measures **MM Bio-6a** through **MM Bio-6c** will reduce potential impacts to common and special-status nesting birds to a level considered ***less than significant*** pursuant to CEQA.

NOISE

68-59

The combination of existing levels of disturbance, noise reduction measures, topography, vegetation, and distance will reduce recreation facility construction noise impacts during the breeding season to a less than significant level. For these reasons, WRA recommends that no seasonal restriction be placed on recreational facility construction activities.

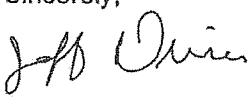
CONCLUSION

68-60

Based on a review of the San Rafael Airport Recreational Facility DEIR, site visit, and experience with the species addressed in the DEIR, it is my opinion that the mitigation measures proposed in the DEIR are overly conservative. Some DEIR mitigation measures create constraints that are not consistent with those of other regional project CEQA documents. The revised biological mitigation measures included in this letter are more appropriate given (1) past and present human disturbance, (2) ongoing airport maintenance activities which in some ways are similar to proposed project grading activities, (3) proposed noise reduction measures, and (4) the continued occupancy of nearby habitat by special status species despite local conditions.

Please let me know if you have any questions.

Sincerely,



Jeff Dreier
Senior Wildlife Ecologist

References

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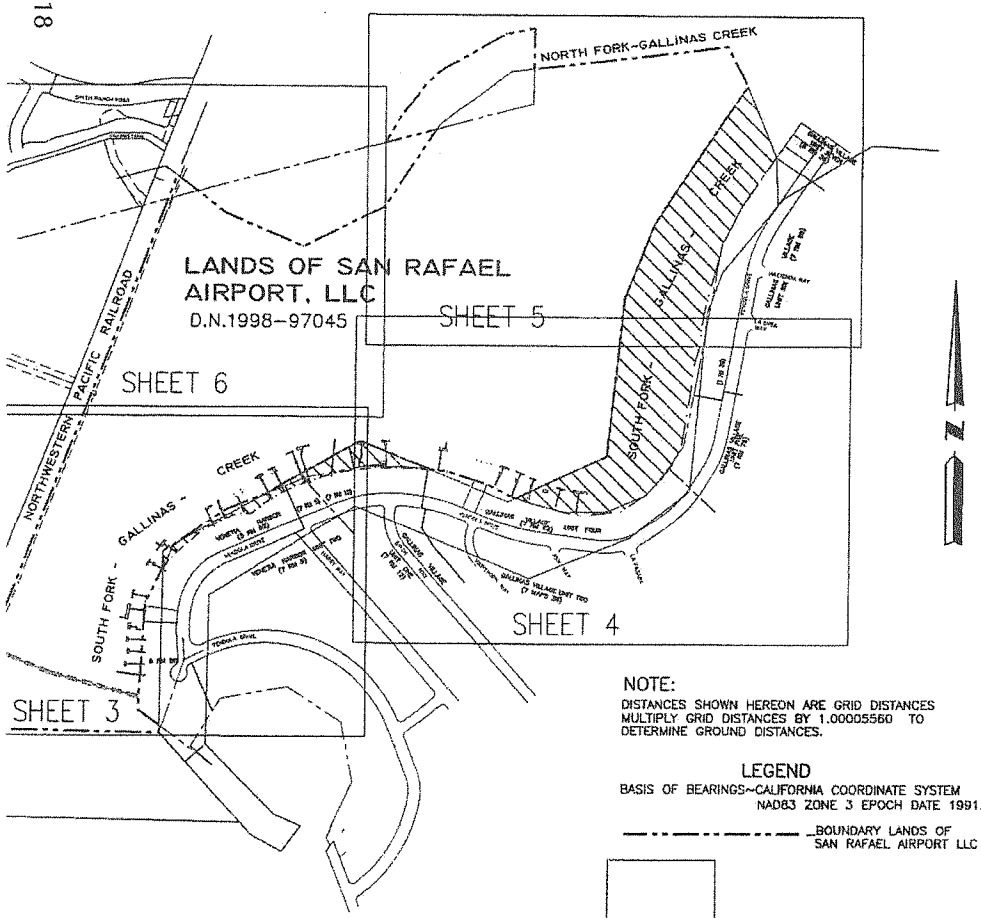
United States Department of Transportation (USDOT). 1995. Office of Environment and Planning. *Highway Traffic Noise Analysis and Abatement, Policy and Guidance.*

Wilson, Ihrig & Associates. 2008. Pile Driving Noise Study for Opus Office Center, Sierra Point, Brisbane. Prepared for Wactor & Wick, LLP.



KEY MAP

NOTE:
DISTANCES SHOWN HEREON ARE GRID DISTANCES MULTIPLY GRID DISTANCES BY 1.00005560 TO DETERMINE GROUND DISTANCES.

LEGEND
BASIS OF BEARINGS~CALIFORNIA COORDINATE SYSTEM NAD83 ZONE 3 EPOCH DATE 1991.35

_____ BOUNDARY LANDS OF SAN RAFAEL AIRPORT LLC

MAP 3 OF SALT MARSH AND TIDE LANDS, SITUATED IN THE COUNTY OF MARIN, STATE OF CALIFORNIA 1871

AREA GRANTED IN TRUST TO THE COUNTY OF MARIN BY STATE LANDS COMMISSION 1959

ENGINEER'S STATEMENT

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION, IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYORS ACT AT THE REQUEST OF ROBERT HERBST IN NOVEMBER OF 2007

LEON E. OBERKAMPER, RCE 12094 (Expires 3/31/09)

REGISTERED PROFESSIONAL ENGINEER — No. 12094 — Exp. 3-31-09 — STATE OF CALIFORNIA

COUNTY SURVEYOR'S STATEMENT

THIS MAP HAS BEEN EXAMINED IN ACCORDANCE WITH SECTION 8768 OF THE PROFESSIONAL LAND SURVEYORS ACT, THIS 21ST DAY OF JULY, 2008.

CRAIG TACKABERY, MARIN COUNTY SURVEYOR

LICENSED LAND SURVEYOR — CRAIG TACKABERY — Exp. 12-31-09 — No. 7125 — STATE OF CALIFORNIA

RECORDER'S STATEMENT

FILED THIS 25 DAY OF JULY 2008 AT 10:44 Am IN BOOK 2008 OF MAPS AT PAGE 144 AT THE REQUEST OF THE MARIN COUNTY DEPARTMENT OF PUBLIC WORKS.
SERIAL NUMBER 2008-0035200 FEE $ 22-

Joan C. Thayer
COUNTY RECORDER

Dan Wylie
BY DEPUTY

RECORD of SURVEY

LANDS OF SAN RAFAEL AIRPORT, D.N.1998-97045

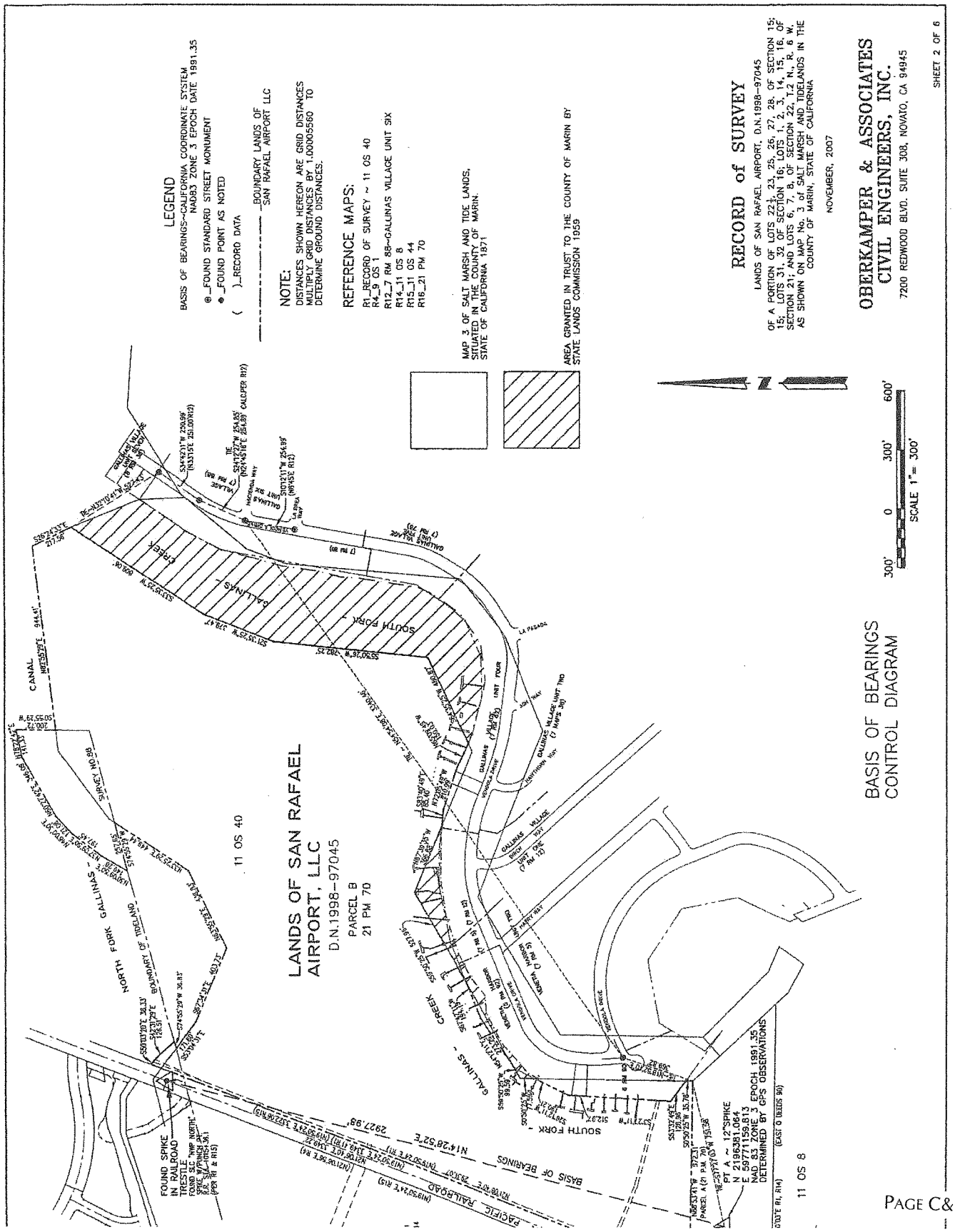
OF A PORTION OF LOTS 22½, 23, 25, 26, 27, 28, OF SECTION 15; 15; LOTS 31, 32 OF SECTION 16; LOTS 1, 2, 3, 14, 15, 16, OF SECTION 21; AND LOTS 6, 7, 8, OF SECTION 22, T.2 N., R. 6 W. AS SHOWN ON MAP No. 3 of SALT MARSH AND TIDELANDS IN THE COUNTY OF MARIN, STATE OF CALIFORNIA

NOVEMBER, 2007

OBERKAMPER & ASSOCIATES
CIVIL ENGINEERS, INC.
7200 REDWOOD BLVD. SUITE 308, NOVATO, CA 94945

APN 155-230-10, 11, 12, 13, 14, 15, 16

144


LEGEND
BASIS OF BEARINGS—CALIFORNIA COORDINATE SYSTEM NAD83 ZONE 3 EPOCH DATE 1991.35
●_FOUND STANDARD STREET MONUMENT
●_FOUND POINT AS NOTED
( )_RECORD DATA
_____BOUNDARY LANDS OF SAN RAFAEL AIRPORT LLC
NOTE:
DISTANCES SHOWN HEREON ARE GRID DISTANCES MULTIPLY GRID DISTANCES BY 1.000055560 TO DETERMINE GROUND DISTANCES.
REFERENCE MAPS:
R1_RECORD OF SURVEY ~ 11 OS 40
R4_9 OS 1
R12_7 RM 88-GALLINAS VILLAGE UNIT SIX
R14_11 OS 8
R15_11 OS 44
R16_21 PM 70
MAP 3 OF SALT MARSH AND TIDE LANDS, SITUATED IN THE COUNTY OF MARIN. STATE OF CALIFORNIA 1871
AREA GRANTED IN TRUST TO THE COUNTY OF MARIN BY STATE LANDS COMMISSION 1959
RECORD of SURVEY
LANDS OF SAN RAFAEL AIRPORT, D.N.1998-97045
OF A PORTION OF LOTS 22, 23, 25, 26, 27, 28, OF SECTION 15; 15; LOTS 31, 32 OF SECTION 16; LOTS 1, 2, 3, 14, 15, 16, OF SECTION 21; AND LOTS 6, 7, 8, OF SECTION 22, T.2 N., R. 6 W. AS SHOWN ON MAP No. 3 of SALT MARSH AND TIDELANDS IN THE COUNTY OF MARIN, STATE OF CALIFORNIA
NOVEMBER, 2007
OBERKAMPER & ASSOCIATES
CIVIL ENGINEERS, INC.
7200 REDWOOD BLVD. SUITE 308, NOVATO, CA 94945
SHEET 2 OF 6
SCALE 1" = 300'
BASIS OF BEARINGS
CONTROL DIAGRAM
LANDS OF SAN RAFAEL AIRPORT, LLC
D.N.1998-97045
PARCEL B
21 PM 70
11 OS 40
11 OS 8
NORTH FORK GALLINAS - BOUNDARY OF TIDELAND
SOUTH FORK - GALLINAS CREEK
CANAL
PACIFIC RAILROAD
FOUND SPIKE IN RAILROAD TIE
PT A ~ 12"SPIKE
N 2196381.064
E 5977115918.813
NAD 83 ZONE 3 EPOCH 1991.35
DETERMINED BY GPS OBSERVATIONS

OFFICIAL RECORDS COUNTY OF MARIN

RECORDING REQUESTED BY
28798

28798
BOOK 1836 PAGE 395

RECORDED AT REQUEST OF
TITLE INSURANCE
AND TRUST COMPANY
AT 35 MIN PAST 2 P. M.
JUL 15 1964
[illegible] County, Calif.
N. J. Giacomini
FEE $ 2.50 RECORDER

SPACE ABOVE THIS LINE FOR RECORDER'S USE

AFFIX I.R.S. $ 3.15 IN THIS SPACE

Grant Deed

TO ORDER OF THIS FORM FURNISHED BY TITLE INSURANCE AND TRUST COMPANY

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

FRIEDA SMITH, JORDAN K. SMITH and EDWARD SMITH,
each as their separate property

hereby GRANT(S) to

W. R. FORDE, H. W. LASTER and SHAUN WILTSHIRE, as tenants in common each as to an undivided one-third interest,

the following described real property in the County of Marin, State of California:

(FOR DESCRIPTION SEE "EXHIBIT A" ATTACHED)

Dated: July 15th, 1964

Frieda Smith
(Frieda Smith)

Jordan K. Smith
(Jordan K. Smith)

Edward Smith
(Edward Smith)

STATE OF CALIFORNIA
COUNTY OF Marin } ss.

On ..... before me, the undersigned, a Notary Public in and for said State, personally appeared Frieda Smith, Jordan K. Smith and Edward Smith

..... known to me to be the person S whose name S are subscribed to the within instrument and acknowledged that they executed the same.

WITNESS my hand and official seal.

(Seal)

Signature [illegible]
(Name Typed or Printed)
Notary Public in and for said State

If executed by a Corporation the Corporation Form of Acknowledgment must be used.

Title Order No. .....

Escrow No. .....

BOOK 1836 PAGE 395

Official Records County of Marin

"EXHIBIT A"

DESCRIPTION:

THAT certain real property situate in the County of Marin, State of California, described as follows:

BEGINNING at a point on the Northerly line of that certain tract of land described as Parcel One in the Deed from Henry Scattrini et ux to the County of Marin, recorded April 26, 1956 in Book 1024 of Official Records at page 7, Marin County Records, at the most Easterly corner of that certain parcel of land described as Parcel Three in the Deed from Frieda Smith et al to the State of California, recorded July 26, 1956 in Book 1046 of Official Records at page 141, Marin County Records; running thence along the Northerly line of said Parcel One North 89° 56' 03" East 252.57 feet and thence North 27° 56' 03" East 629.56 feet to the most Northerly corner of said Parcel One; thence along the Northwesterly boundary of that certain parcel of land described in the Deed from Henry Scattrini et ux ;to the County of Marin, recorded April 26, 1956 in Book 1024 of Official Records at page 10, Marin County Records, North 27° 56' 03" East 165.08 feet, North 39° 10' East 43.66 feet; and thence North 58° 34' East 586.4 feet to the Southwesterly terminus of the call set forth as North 61° 05' 00" East 873.75 feet on the parcel of land depicted as Parcel One in the "Agreement For Exchange of Lands", executed by and between the County of Marin and Frieda Smith et al and recorded January 17, 1961 in Book 1429 of Official Records at page 204, Marin County Records; running thence along last said line North 61° 05' 00" East 613.60 feet; thence leaving last said line North 47° 46' West 625.71 feet to a point on the Southeasterly line of the Northwestern Pacific Railroad Company right of way, as described in the Deed from Union Trust Company, et al, and recorded November 23, 1916 in Book 183 of Deeds at page 104, Marin County Records; running thence along said right of way South 40° 34' 03" West 2050.0 feet to the Northeasterly corner of the aforesaid parcel of land described as Parcel Three in the Deed from Frieda Smith et al to the State of California; running thence along the Northeasterly line of said Parcel Three South 27° 26' 35" East 212.78 feet to the point of beginning.

Containing 17.63 acres, more or less.

RESERVING unto the Grantors however, a non-exclusive easement, 60 feet in width, running generally Easterly from U. S. Highway 101 Service Road, across the lands herein conveyed to the Easterly boundary thereof, for street and public utility purposes, to be selected and located, or re-located by the Grantees in their sole discretion, but in such a manner as to provide Grantor's remaining lands to the East of those herein conveyed with adequate street and public utility access to the service road paralleling the Easterly side of U. S. Highway 101; said easement to terminate when such a street is dedicated and accepted for public use.

BOOK 1836 PAGE 396


INQUIRY #: 1653834.1
YEAR: 1953
= 555'
N

354

352- 354

6077 Value of interest herein conveyed less than $100.

THIS INDENTURE, made this 28th day of October, 1937, between SAM SMITH and FRIEDA SMITH, his wife, and ZEKIE SMITH, a single person, first parties, and NORTHWESTERN PACIFIC RAILROAD COMPANY, a corporation, second party; WITNESSETH: That said first parties, for and in consideration of the sum of Ten (10) Dollars, lawful money of the United States of America, to them paid by the said second party, the receipt whereof is hereby acknowledged, do by these presents, remise, release and forever quitclaim unto the said second party and to its successors and assigns, all those certain pieces or parcels of land situate, lying and being in the County of Marin, State of California, particularly described as follows:

PARCEL #1: ALL that portion of fractional Tide Land Lot No. 14 in Section 21, Township 2 North, Range 6 West, MDB&M, lying within fifty feet on each side of the center line of the main track of the Northwestern Pacific Railroad Company as said railroad is now constructed across said lot, excepting therefrom that portion of said lot conveyed to Northwestern Pacific Railroad Company by Union Trust Company of SanFrancisco, as Trustee of the Estate of William T. Coleman, deceased, et al. by deed dated October 4, 1916, recorded October 25, 1916 in Volume 183 of Deeds, page 104, records of Marin County, containing an area of 0.92 of an acre, more or less.

PARCEL #2: ALL those portions of Tide Land Lots No. 2 and No. 15, Township 2 North, Range 6 West, MDB&M, lying within fifty feet on each side of the center line of the main tract of the Northwestern Pacific Railroad Company, as said railroad is now constructed across said lots, containing an area of 3.12 acres, more or less. First parties do also by these presents grant unto the said second party, and to its successors and assigns, the right to reconstruct, maintain and operate second party's pole line in its present location. If and when, in the opinion of first parties, it becomes necessary, first parties, will be permitted at their own expense to construct and maintain one private farm crossing, sixteen (16) feet in width, over and across the right of way and tracks of railroad on Parcel #2 described hereinabove, subject, however, to the prior and continuing right and obligation of second party and its successors to use and maintain its entire railroad right of way and property in performance of its public duty as a common carrier, and also subject to the right and power of second party and its successors in interest or ownership of the said railroad right of way and property, to construct, maintain, use and operate, on the present or other grade, existing or additional railroad tracks and appurtenances thereto, including water and fuel pipe lines and booms, and telegraph, telephone, signal, power and other electric lines, and other railroad facilities and structures of any kind upon, along or across any or all parts of said land above described, all or any of which may be freely done at any time or times by second party or its successors without liability to first parties, or to anyone else, for compensation or damage. TOGETHER with all and singular the tenements, hereditaments and appurtenances thereunto belonging or in anywise appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof. TO HAVE AND TO HOLD all and singular the said premises, together with the appurtenances, unto the said second party and to its successors and assigns forever. IN WITNESS WHEREOF, the said first parties have executed these presents the day and year first above written.

SAM SMITH

FRIEDA SMITH

ZEKIE SMITH

Description Correct: W. H. Kirkbride
Chief Engineer

Correct as to Corporate Owner: J. B. Boden
Valuation Officer.

Form Approved: A. G. Stewart, Contract Attorney

STATE OF CALIFORNIA)
COUNTY OF MARIN) ss.

On this 2nd day of November, in the year One Thousand Nine Hundred and thirty-seven, before me, H. A. Tilden, a Notary Public in and for the County of Marin, State of

California, residing therein, duly commissioned and sworn, personally appeared Sam Smith and Frieda Smith, his wife, and Zekie Smith, a single person, known to me to be the persons described in and whose names are subscribed to the within instrument, and they acknowledged to me that they executed the same. IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official Seal, the day and year in this certificate first above written.

H. A. TILLEM
Notary Public in and for said
(SEAL) County of Marin, State of California.

My commission expires January 16, 1941.

Filed for record and recorded
at request of M. L. Gillogly, Nov. 25, 1937 at 5 min. past 2 o'clock P.M.

J. W. FAULON, Recorder.

Rec. Fee $1.50 By A. Green Deputy

TYPED LB
COMPARED

83062935 RECORDED AT REQUEST OF

AGENCY SHOWN

AT — MIN. PAST 2 P M.

DEC 1 5 1983

Official Records of Marin County, Calif.

FEE $ — RECORDER

RECORDING REQUESTED BY:

AFTER RECORDING MAIL TO:

RETURN TO: City of San Rafael, Department of Public Works, P.O. Box 60, San Rafael, California 94915-0060, ATTN: Office Engineer

DECLARATION OF RESTRICTIONS

THIS DECLARATION OF RESTRICTIONS is made and entered into by and between the City of San Rafael, a municipal corporation (hereinafter referred to as "City"), the First National State Bank, a national banking association (hereinafter referred to as "Owner"), and the County of Marin, a political subdivision of the State of California (hereinafter referred to as "County"), in connection with the following circumstances:

(a) City is processing at the request of Owner a tentative subdivision map and final subdivision map relating to certain real property of Owner, including the real property designated as "PARCEL B" in the exhibit attached hereto and incorporated herein.

(b) As a condition for approval of said tentative subdivision map and final subdivision map, City has required, and Owner has agreed to, this declaration of restrictions on the terms and conditions hereinafter set forth.

NOW, THEREFORE, the Owner declares that the real property designated as "PARCEL B" in the exhibit hereto shall be held, transferred, encumbered, used, sold, conveyed, leased, and occupied, subject to the restrictions and covenants herein contained, expressly and exclusively for the use and benefit of said real property and for each and every parcel of real property owned by City and by County and by each of them.

1. Limitations On Use. No use of said real property described shall be made or permitted except the following:

83062935 83062[illegible]

(a) Existing uses consisting of an airport and related uses.

(b) Public utility uses as approved by the appropriate government agencies, including flood control, sanitary sewer, gas and electric, and public safety facilities.

(c) Airport and airport related uses.

(d) Roadways.

(e) Open space.

(f) Private and public recreational uses.

~~(g) Any other related uses agreed to by the City, County, and Owner.~~

2. Run With Land. This declaration of restrictions and the covenants contained herein are to run with the land, and for the benefit of the City and County, and each of them, and shall be binding on all parties and all persons claiming under them, including the successors and assigns of Owner.

3. Enforcement. Enforcement hereof shall be by proceedings at law or in equity against any person or persons violating or attempting to violate any provision herein contained, either to restrain violation or to recover damages, or both. In the event of litigation arising from or relating to this Declaration of Restrictions, the prevailing party therein shall be entitled to an award in a reasonable amount to be set by the Court for attorney fees and costs incurred.

4. Severability. Invalidation of any one of these covenants by a judgment or court order shall in no way affect any other provision hereof, and the same shall remain in full force and effect.

Dated: Dec 9, 1983

OWNER - FIRST NATIONAL STATE BANK

BY: Edward L. Heil
Edward L. Heil
Senior Vice President

STATE OF NEW JERSEY]
COUNTY OF ESSEX] ss:

BE IT REMEMBERED, That on this Ninth day of November, 1983, before me, a Notary Public of New Jersey, personally appeared Edward L. Heil, Senior Vice President of First National State Bank, who I am satisfied is the person who has signed the within instrument; and I have first made known to him the contents thereof, he did acknowledge that he signed, sealed, and delivered the same as such officer aforesaid; and that the within instrument is the voluntary act and deed of said corporation and he has signed same with the full authority vested in him.

RUTH V. O'BOYLE
[illegible] OF NEW JERSEY
Commission Expires March 7, 1984

83062935

Dated: Dec 14, 1983

CITY

by Lawrence E. Mulryan
LAWRENCE E. MULRYAN, Mayor

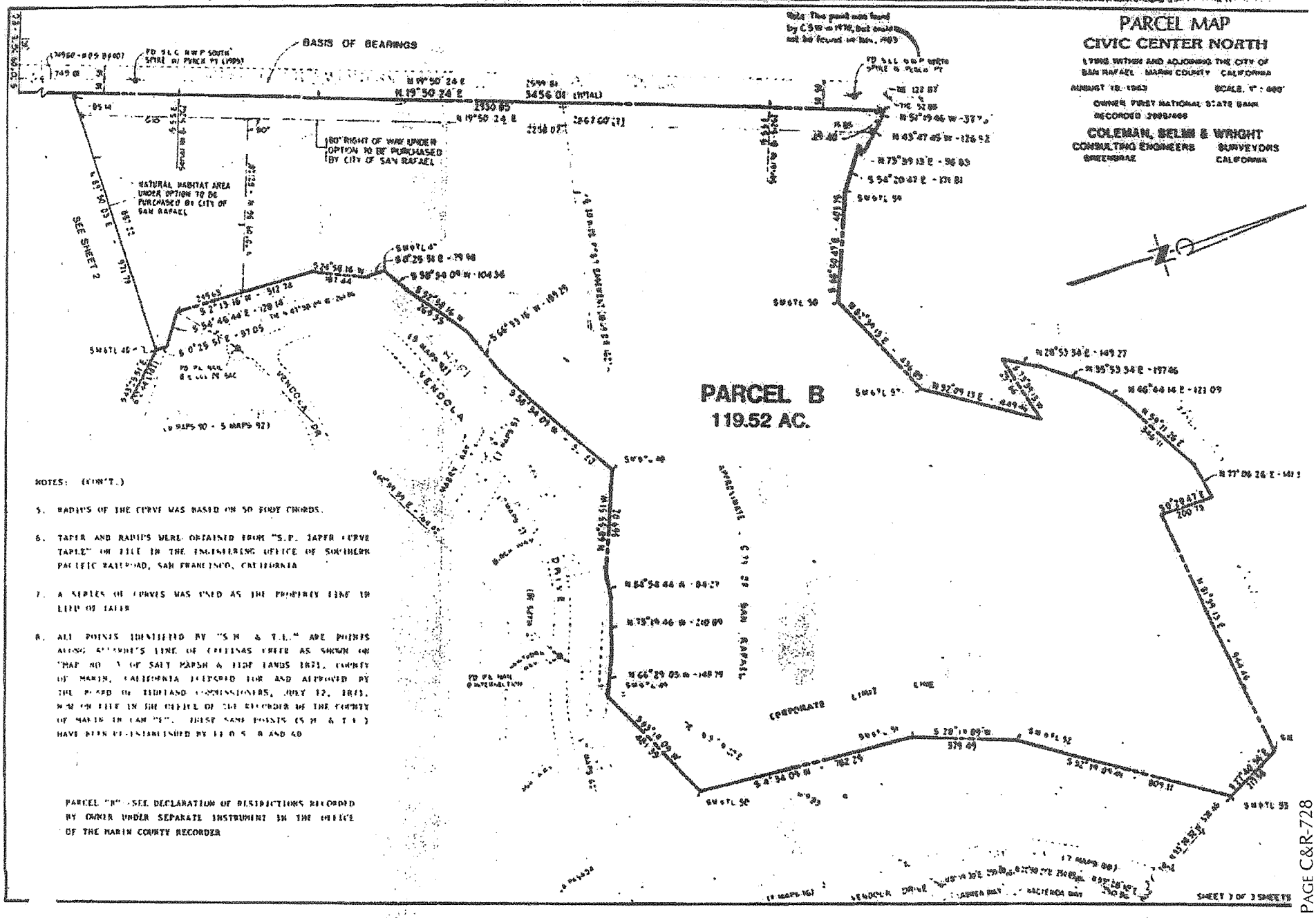
ATTEST: by Jeanne M. Leoncini
JEANNE M. LEONCINI, City Clerk

Dated: Dec 14, 1983

COUNTY

by Bob Roumiguiere

by _____



NOTES: (CON'T.)

5. RADII OF THE CURVE WAS BASED ON 50 FOOT CHORDS.

6. TAPER AND RADII WERE OBTAINED FROM "S.P. TAPER CURVE TABLE" ON FILE IN THE ENGINEERING OFFICE OF SOUTHERN PACIFIC RAILROAD, SAN FRANCISCO, CALIFORNIA

7. A SERIES OF CURVES WAS USED AS THE PROPERTY LINE IN LIEU OF TAPER

8. ALL POINTS IDENTIFIED BY "S M & T.L." ARE POINTS ALONG ST.VINCENT'S LINE OF CREEKS CREEK AS SHOWN ON "MAP NO. 1 OF SALT MARSH & TIDE LANDS IN", COUNTY OF MARIN, CALIFORNIA DEPOSED FOR AND APPROVED BY THE BOARD OF TIDELAND COMMISSIONERS, JULY 12, 1873, NOW ON FILE IN THE OFFICE OF THE RECORDER OF THE COUNTY OF MARIN IN CAN "S". THESE SAME POINTS (S M & T L) HAVE BEEN RE-ESTABLISHED BY U.S.C. & G.S.

PARCEL "B" - SEE DECLARATION OF RESTRICTIONS RECORDED BY OWNER UNDER SEPARATE INSTRUMENT IN THE OFFICE OF THE MARIN COUNTY RECORDER

RESOLUTION NO. 6680

A RESOLUTION AUTHORIZING THE SIGNING OF AN OPTION AGREEMENT AND DECLARATION OF RESTRICTION WITH FIRST NATIONAL STATE BANK OF NEW JERSEY (Civic Center North)

THE CITY COUNCIL OF THE CITY OF SAN RAFAEL RESOLVES as follows:

The MAYOR and CITY CLERK are authorized to execute, on behalf of the City of San Rafael, an option agreement and Declaration of Restriction with FIRST NATIONAL STATE BANK OF NEW JERSEY (Civic Center North) contingent upon approval by the City Attorney and the failure of any Councilmember, within 24 hours after receipt of true copies of said documents, to object to said documents.

I, JEANNE M. LEONCINI, Clerk of the City of San Rafael, hereby certify that the foregoing resolution was duly and regularly introduced and adopted at a regular meeting of the City Council of said City held on Monday the fifth day of December, 1983, by the following vote, to wit:

AYES: COUNCILMEMBERS: Breiner, Frugoli, Nave, Rumsom & Mayor Mulryan

NOES: COUNCILMEMBERS: None

ABSENT: COUNCILMEMBERS: None

Jeanne M. Leoncini
JEANNE M. LEONCINI, City Clerk

JAN 22 '92 12:02 P.1/3

CITY OF SAN RAFAEL

1400 FIFTH AVENUE, P.O. BOX 60, SAN RAFAEL
CALIFORNIA 94915-0060 / FAX: (415) 459-2242

MAYOR
LAWRENCE E. MULRYAN

COUNCIL MEMBERS
ALBERT J. BORO
DOROTHY L. BREINER
MICHAEL A. SHIPPEY
JOAN C. THAYER

OFFICE OF THE CITY ATTORNEY
Gary T. Ragghianti,
City Attorney
Tessie Selva,
Assistant City Attorney

July 19, 1991

Albert Bianchi, Esq.
BIANCHI, ENGEL, KEEGIN & TALKINGTON
1000 Fourth Street, Suite #600
San Rafael, CA 94901

RE: MARIN RANCH AIRPORT USE PERMIT EXTENSION

Dear Al:

This is written in response to your 5-31-91 letter about which we recently conversed. I am familiar with the Declaration of Restrictions as well as the subdivision approval conditions as they each relate to use of the subject site. I have a different interpretation, however, than yours of the language "...(a) Existing uses consisting of an airport and related uses..." contained in both previously referred to documents.

I read this language to mean those specific types of uses then in existence on the site, and none other. While admittedly subject to semantic differences of opinion, an analogy to the law of non-conforming uses might be helpful in understanding my analysis.

In my judgment, 1)whatever types of uses were actually in existence at the time of recordation of the Restrictions establishes the base line information necessary to be utilized here. The City needs to assess whether current uses are within or without the ambit of the Restrictions. In this regard, I view the responsibility for providing this information to the City as exclusively that of the owners. 2)Uses originally in existence on the date of recordation of the Restrictions may be reasonably expanded and enlarged provided they do not change the essential nature and character of the originally "grandfathered" use. 3)Uses not in existence when the Restrictions were recorded are simply not permitted unless, of course, they were determined by the City, after public hearing, to be the proper subject of a use permit. I realize that 4)the City has granted several use permit extensions over the last several years, and as to the uses expressly permitted

The use on the site operated by Bauman Landscaping is currently the subject of investigation. Public complaint and staff scrutiny of the use, as well as the site itself, has caused City concern over whether there may be additional uses operating on the site not allowed under the restrictions. For example, Planning staff has recently written to the owners advising that they believe unauthorized office use; R.V. storage, container storage, etc. may now be in existence on the site. The containers, we believe, are being located in the buildings adjacent to the airport. In addition, and as you know, assertions have been made by members of the public and staff that unauthorized fill has been placed on the site by Bauman, and that the actual operations conducted by Bauman may, as presently carried out, constitute a public nuisance. Also of importance here is the fact that Condition No. (b) of the use permit extension granted on 5-21-87 recites: "...modification to existing facilities or erection of new or different structures from those existing 2-5-74 shall not be permitted..." I also enclose a copy of Roy Butts' 7-10-91 letter directed to William Bielser concerning apparent new and unauthorized uses on the property.

In order to intelligently assess these contentions by the public and address staff inquiry concerning the current uses on the site and their legitimacy, staff must be provided with the information it has requested. I am advised by staff that the owner has declined to provide the information and your letter of 5-31-91 suggests the same reluctance and lack of legal need to produce this data as well.

At the present time, the use permit extension has been scheduled for consideration by the Planning Commission on 8-27-91. On or before 8-9-91 we must have all information staff has previously requested from the owner. Without limitation, I understood this to include a complete list of each and every use currently in operation on the site, as well as the names and business purpose(s) of all employees on the site, hours of operation, numbers of employees, number and type(s) of equipment used in connection with all business uses in operation currently, such as trucks, and location and type of any sanitary facilities on the property (eg. restrooms). Staff may also require a more detailed site map. This requirement may be further clarified by contacting Sheila Delimont at 485-3085.

I appreciate the information you provided to me concerning this issue. I request that you assist us in obtaining the information we need to process this application. If the materials and information requested are not submitted by 8-9-91, I must advise staff to recommend denial of the Use Permit.

Please contact me if you would like to discuss this matter further.

Sincerely,

GARY T. RAGGHIANTI
City Attorney

GTR/mhp

Enclosure

cc: Joan Thayer
Tessie Belue
Sheila Delimont
Robert Pendoley
Dave Bernardi
Roy Butts
Shirley Fischer - North San Rafael Coalition of Residents
c/o Mr. Greg Brockbank
Douglas Maloney

LETTER 68: Bob Herbst, May 12, 2009

RESPONSE 68-1: Opinion regarding the extent to which **Mitigation Measure Bio-2d** (DEIR page 7-68) is reasonable and feasible is noted. This mitigation measure states, in part: "Noise abatement measures shall include restricting construction to the daylight hours and limiting the use of high decibel construction equipment (70 – 90 dBA) to areas at least 200 feet from the North Fork of Gallinas Creek. This restriction does not apply to bridge pile-driving activities, provided these activities occur during the 'avoidance window' provided above." As indicated on DEIR page 7-64, M&A believes that the California Clapper Rail observed in the vicinity of the Project site are well acclimated to high levels of human activity.

RESPONSE 68-2: Opinion that implementation of **Mitigation Measure Bio-2c** (DEIR page 7-68) would endanger lives and property by limiting disking and mowing of fields and levees is noted. The mitigation measures adequately allow the airport facility operator to maintain the site for aviation safety.

RESPONSE 68-3: Opinion regarding the DEIR analysis of Project-related environmental impacts is noted. Opinion that mitigation measures identified in the DEIR need to have a better fit with impact analysis, need to be feasible and need to avoid conflict with existing airport operations is noted.

RESPONSE 68-4: Detailed information provided regarding the current maintenance practices for levees and grassland areas at the airport site is acknowledged. Opinion that mitigation could inadvertently jeopardize health and safety at airport property by interfering with maintenance is noted. The mitigation measures adequately allow the airport facility operatior to maintain the site for aviation safety.

RESPONSE 68-5: Opinion regarding the validity of the DEIR's characterization of Project-related lighting impacts and the basis used for determining light and glare impacts is noted. The threshold used for this project, described in **Impact Aesth-1**, is consistent with the Planning Division's general policy for project review purposes used throughout the community. In this case, more conservatively restricting the lighting levels to 1.0 foot-candle intensity with no spillover off-site is reasonable for this Project location, which is at the edge of urban development.

RESPONSE 68-6: Comment noted. In response to this comment, the text of the *third bulleted paragraph* under **MM Bio-1b** on DEIR pages 2-8 and 7-63 has been modified to read as follows:

> "Since the proposed Project will increase the amount of impervious surface on the Project site, the SWMP shall also address storm water detention and shall ensure that the ~~volume of water discharged~~ volumetric flow rate of water discharged into the

North Fork of Gallinas Creek does not exceed the pre-project ~~volumes~~ rate. Treated storm water will continue to be discharged at constant rates up to the existing pump station capacity of 500,000 gallons per hour/18.5 cubic feet per second."

RESPONSE 68-7: Opinion suggesting the absence of potential significant Project-related effects on California clapper rail and California black rail is noted. As indicated on DEIR pages 7-63 through 7-66, although there would be no direct Project-related impacts to these two species associated with the development and use of the Project site as proposed, there could be potentially significant indirect Project-related impacts to these two species, including possible exposure to noise levels greater than those currently generated at the Project site (particularly during pile driving) and possible adverse effects on water quality which, if unmitigated, could adversely affect these two species. As indicated in Section 15151 of the CEQA Guidelines, disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. In this case, WRA believes that development and use of the Project site as proposed would have no potentially significant environmental impacts on California clapper rail and California black rail, while Monk & Associates (the biological resources consultants for the preparation of the DEIR) believes that indirect Project-related impacts to these two species could be potentially significant unless mitigated.

RESPONSE 68-8: In general, Monk & Associates concur with the commentor's conclusions. The points are all valid and germane. To ensure that the marsh habitat and the upland buffer along the North Fork of Gallinas Creek is protected, a fence shall be installed around the perimeter of the proposed Project area, and human access into this buffer area will be prohibited except as required by maintenance/operation personnel for continued levee maintenance and other required airport operational tasks that are routinely practiced today. The fence will be a minimum of ten feet tall for the purpose of preventing balls from the soccer fields from entering the marsh. Any balls that must be retrieved from behind the fence shall be retrieved at the end of any soccer games. A locked gate will be maintained locked at all times except as necessary to retrieve balls by a single person after games/events have been completed. The optimal ball retrieval period would be the day following soccer events or at times when numbers of spectators are at daily lows. Signs shall be posted stating that public access into the buffer area is strictly prohibited owing to the sensitivity of the habitat and to ensure the continued use of this habitat by special-status wildlife species. Installation of this fence will protect the marsh habitat along the North Fork of Gallinas Creek and the adjacent upland areas.

RESPONSE 68-9: **Mitigation Measure Bio-2b** (DEIR page 7-67), as modified, addresses the numerous public comments regarding an existing Declaration of Restrictions over the airport property that some members of the public believe was not adequate to protect open space from the currently proposed land use modifications. Thus, a deed restriction shall be recorded that specifies the prohibited and the allowed uses of the preserved area. The allowed uses would include the continued maintenance of the fields and levees, while the prohibited

uses would prohibit any future development or land disturbance (outside of that required for routine maintenance and levee repairs) within the 100+-foot creek protection buffer that is designated as a conservation area. The deed restriction will become a condition of Project approval.

RESPONSE 68-10: Monk & Associates believe appropriate mitigation (**Mitigation Measure Bio-2c** on DEIR page 7-68) is identified in the DEIR to address levee maintenance issues. Mowing of vegetation along levees and disking in the adjacent fields has occurred for many years, and should continue as necessary to continue to meet FAA guidelines for airport safety. To ensure that clapper rails in the area have necessary vegetative cover to escape predators during high tide events, no mowing shall be allowed on the inboard slopes of the levees (i.e., the slopes that face the creek).

RESPONSE 68-11: See RESPONSE 68-1, above. Recommendation that **Mitigation Measure Bio-2d** be modified to reflect the City of San Rafael setback standard (100 feet vs. 200 feet as indicated in the DEIR) is noted.

RESPONSE 68-12: On DEIR pages 2-11, 7-68 and 7-69, the text of the second and third paragraphs under **MM Bio-2d: California Clapper Rail and California Black Rail – Avoidance Measures** has been modified to read as follows:

> "Pile driving associated with the recreational facility building shall not commence until September 1st and shall be completed by February 1st. Outside of pile driving, exterior construction of the recreational facility shall be allowed between July 1st and February 1st without limitation. Interior work shall be allowed without timing limitations. Construction ~~of the recreational facility~~ shall not commence on the recreational facility Project ~~until~~ on July 1st until a qualified biologist determines that there are no nesting California Clapper Rails or California Black Rails within 200 feet of the Project construction envelope. In the event nesting rails are found within 200 feet of the Project site on or after July 1st, construction shall be delayed until the nesting attempt is completed and the nest is abandoned or a qualified biologist determines that the nesting would not be adversely affected by commencement of the project. If California Clapper Rails or California Black Rails are determined to be nesting between 200 feet and 500 feet from the Project construction envelope on July 1st, the Project may proceed if a qualified biologist determines that the nesting rails would not be affected by the proposed construction activities. Under all circumstances any nest identified within 500 feet of the Project construction envelope would be monitored by a qualified biologist while construction activities were in progress. The monitoring biologist would have the right to shut down any and all construction activities immediately in the event that such activities were determined to be disturbing the nesting attempt. Nests greater than 500 feet away would not require biologist monitoring ~~when the rails can be expected, in most cases, to have~~

~~fledged young. Construction of the recreational facility could extend into October, with interior work allowed throughout the year~~.

To account for California clapper rails or black rails, and other special-status birds, that ~~likely~~ occur and nest in the marsh habitats along the creek in the immediate area of the bridge, all work associated with the new bridge, including the demolition of existing bridge deck, installation of the new deck, and other bridge improvements, shall be restricted to August 1 to October 15. The bridge pile-driving dates shall be further restricted to September 1 and October 15 when potentially occurring anadromous fish would not be expected to occur in the channel. This "avoidance window" is outside of the California clapper rail, California black rail, and other special-status birds breeding seasons, thereby eliminating the potential that bridge reconstruction activities would disrupt breeding attempts. This mitigation measure provides conservation measures that are consistent with the ISP Best Management Practices."

Statement that the time limitations on construction activity at the Project site stated in **Mitigation Measure Bio-2d** (DEIR pages 7-68 and 7-69) would be inconsistent with Project Objectives related to qualifying for traditional commercial mortgage financing providing 75% of Project costs is acknowledged.

RESPONSE 68-13: Request to remove time limitations on construction activity which are incorporated into **Mitigation Measure Bio-4b** (DEIR page 7-72) is noted.

RESPONSE 68-14: In response to this comment, the text of the first bulleted paragraph under **Mitigation Measure Bio-4c: Nesting Raptors – Pre-Construction Nesting Surveys** on DEIR pages 2-14 and 7-72 has been modified to read as follows:

"A pre-construction nesting survey shall be conducted ~~in June~~ during the breeding season (February through July) of the year construction of the project will commence. The nesting survey shall be conducted within 30 days prior to commencing of construction work. The raptor nesting surveys shall include examination of all habitats and trees within 500 feet of the entire Project site, including near the bridge, not just eucalyptus trees on the northern boundary of the Project site."

In response to this comment, the text of **Mitigation Measure Bio-5a: Western Burrowing Owl - Nesting Surveys** on DEIR pages 2-15, 2-16 and 7-74 has been deleted and replaced with the following text:

MM Bio-5a: Western Burrowing Owl – Nesting Surveys.

- Pre-construction Survey. A preconstruction survey of the Project site shall be conducted within 30 days prior to any ground disturbing activities to confirm the absence or presence of burrowing owls. If more than 30 days lapse between the time

of the preconstruction survey and the start of ground-disturbing activities, another preconstruction survey must be completed. This process should be repeated until the Project site habitat is converted to non-habitat (e.g., developed for recreational uses). If western burrowing owls are not present, no further mitigation is required.

- If burrowing owls are found on the Project site during the non-breeding season (September 1 through January 31), impacts to burrowing owls shall be avoided by establishing a fenced 160-foot buffer (50 meters) between the nest site (i.e., the active burrow) and any earth-moving activity or other construction-related disturbance on the Project site.

- If burrowing owls are detected on the site during the breeding season and appear to be engaged in nesting behavior, a fenced 250-foot buffer (75 meters) shall be installed between the nest site (i.e. the active burrows or ground nests) and any earth-moving activity or other disturbance on the Project site. This 250-foot buffer may be removed once it is determined by a qualified raptor biologist that that young have fledged (that is, left the nest). Typically, the young fledge by August 31st. This fence removal date may be earlier than August 31st, or later, and would have to be determined by a qualified raptor biologist. Once the qualified raptor biologist confirms there are no owls inside any active burrows, these burrows may be collapsed.

RESPONSE 68-15: In response to this comment, the text of **MM Bio-6b: Special-Status Nesting Birds – Nesting Surveys** on DEIR pages 2-19, 7-76 and 7-77 has been modified to read as follows:

"**MM Bio-6b: Special-Status Nesting Birds – Nesting Surveys.**

A nesting survey shall be conducted within 15 days prior to commencing construction work. If special-status birds, such as saltmarsh common yellowthroat and San Pablo song sparrow, are identified nesting near the bridge reconstruction component of the Project, a ~~200~~ 50-foot radius buffer must be established around the nest site by installing bright orange construction fencing. Similarly, if great blue herons, great egrets, snowy egrets, or black-crowned night herons are found nesting near the bridge or near the Project site area, a 200-foot radius around the nest site(s) must be fenced with bright orange construction fencing. If nests are found off the Project site but within ~~200 feet~~ the appropriate buffer, the portion of the ~~200-foot~~ buffer on the Project site shall be fenced with bright orange construction fencing. No construction or earth-moving activity shall occur within a ~~200-foot~~ buffer until it is determined by a qualified biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by August 1. This date may be earlier than August 1, or later, and would have to be determined by a qualified ornithologist."

In response to this comment, the text of **MM Bio-6c: Common Nesting Birds – Nesting Surveys** on DEIR pages 2-19, 2-20, and 7-77 has been modified to read as follows:

> "**MM Bio-6c Common Nesting Birds – Nesting Surveys.**
>
> If common (that is, not special-status) passerine birds (that is, perching birds such as western scrub jays and northern mockingbird) are identified nesting within the project area or immediately adjacent to the Project site, a ~~75~~ 50-foot buffer demarcated by orange lath staking installed every 20 feet around the buffer shall be established. No grading/construction activities shall occur in the established buffer until it is determined by a qualified biologist that the young have fledged and have attained sufficient flight skills to leave the area. Typically, most passerine birds can be expected to complete nesting by July 1, with young attaining sufficient flight skills by early July. Swallows species are the exception typically fledging and attaining sufficient flight skills in mid-July.

RESPONSE 68-16: Opinion regarding the adequacy of the methodology used to estimate the maximum number of people that would be at the Project site at any given time is noted. See MASTER RESPONSE PD-1, above, which addresses this issue and the single-acre use calculation.

RESPONSE 68-17: Comment acknowledged. The text of **MM Hyd-2a** on DEIR pages 2-31 and 2-32 has been modified to be consistent with **MM Hyd-2a** on DEIR pages 11-32 and 11-33, and to refer to the change in datum measurement, as follows:

> "**MM Hyd-2a** **Floodproofing.** In order to provide for one foot of freeboard elevation above the base 100-year flood elevation of +6.0 NGVD (+8.67 NAVD), the portions of the building below +7.0 NGVD (+9.67 NAVD) shall be flood proofed according to the following specifications per FEMA *Technical Bulletin 3-93* (see **Appendix I**):
>
> - The building must be watertight to the floodproof design elevation of +7 NGVD (+9.67 NAVD). Floodproofing to any elevation less than 1 foot above the BFE will have a serious negative impact on the flood insurance rating for the building. Generally a minimum of 1 foot of freeboard is recommended. Additional freeboard is warranted for sites where predicted flood depths may be inaccurate, such as sites within large drainage areas and rapidly urbanizing areas.
>
> - The building's walls must be "substantially impermeable to the passage of water." FEMA has adopted the U.S. Army Corps of Engineers (ACOE) definition of substantially impermeable from the ACOE publication "Flood Proofing Regulations." This document states that a substantially impermeable wall "shall not permit the

accumulation of more than 4 inches of water depth during a 24-hour period if there were no devices provided for its removal. However, sump pumps shall be required to control this seepage." Flood resistant materials, described in Technical Bulletin 2, "Flood-Resistant Materials Requirements," must be used in all areas where such seepage is likely to occur.

- The building's utilities and sanitary facilities, including heating, air conditioning, electrical, water supply, and sanitary sewage services, must be located above the BFE, completely enclosed within the building's watertight walls, or made watertight and capable of resisting damage during flood conditions.

- All of the building's structural components must be capable of resisting specific flood-related forces. These are the forces that would be exerted upon the building as a result of floodwaters reaching the BFE (at a minimum) or floodproofing design level.

- The construction plans must be signed and stamped by either a registered engineer or architect, certifying that the building and materials are designed to comply with the requirements and guidelines of the flood proofing methods established by FEMA."

RESPONSE 68-18: The Illingworth & Rodkin letter referred to here was attached to this comment letter, and those comments are addressed below. Opinions regarding the DEIR's characterization of Project-related noise impacts on residents living south of the Project site, and on the need to eliminate **Mitigation Measure N-1**, are noted.

RESPONSE 68-19: The Illingworth & Rodkin letter referred to here was attached to this comment letter, and those comments are addressed below. Opinions regarding the DEIR's characterization of Project-related noise impacts on outdoor recreational activities at McInnis Park, and on the need to eliminate **Mitigation Measure N-2** and **Mitigation Measure N-3**, are noted.

RESPONSE 68-20: Submission of a copy of the more detailed and recent Record of Survey that was recorded on July 25, 2008 in book 2008 of Maps, Page 144, is noted. Request to eliminate references to "Parcel B" in the DEIR is noted.

RESPONSE 68-21: In response to this comment, the text of the last sentence of the second complete paragraph on DEIR page 3-2 and the last sentence of the last paragraph on DEIR page 4-2 (continuing on to page 4-3) has been modified to read as follows:

> "Through the previous approvals for the airport rehabilitation project, the Airport has received approvals to ~~pave~~ install compacted base rock on the entry and roadway up until the end of the light industrial buildings."

RESPONSE 68-22: Information regarding the perimeter levee system not following the airport boundaries, with approximately 20 acres of the 119.52-acre airport site located underwater beyond the outer edges of the levees, is noted. Information that the nearby rail line is constructed of water-permeable ballast, and does not provide flood protection to either the airport site or Contempo Marin Mobile Home Park is noted.

RESPONSE 68-23: Opinion regarding the completeness of the DEIR's characterization of the undeveloped area between the levees is noted. Opinion regarding the extent to which the mitigation measures identified in the DEIR would conflict with existing maintenance practices at the property in violation of an important Project Objective is noted.

RESPONSE 68-24: In response to this comment, the fifth paragraph on DEIR page 3-3 has been modified to read as follows:

> "Portions of the airport property contain delineated wetlands under the jurisdiction of the U.S. Army Corps of Engineers (ACOE). Two ACOE delineations were prepared for the airport site. The delineation prepared in 2001 includes areas on the ~~outsides~~ insides of the levees along the southern perimeter of the overall Airport property. The delineation prepared in 2006 includes areas on the ~~outsides~~ insides of the levees along the northern perimeter of the overall Airport property, which is the area under analysis in this EIR. ACOE wetland delineations are valid for five years."

RESPONSE 68-25: Opinion that construction on the Project could not be completed within 2 years with implementation of the mitigation measures identified in the DEIR is noted.

RESPONSE 68-26: In response to this comment, the text of the first complete paragraph on DEIR page 4-2 has been modified to read as follows:

> "The Project site is currently undeveloped and contains maintained grasslands, two drainage swales and ~~un-maintained~~ unimproved dirt maintenance road. To the north of the Project site, the North Fork of the Gallinas Creek is situated on an adjacent property. To the south of the Project site, the San Rafael Airport runway is located on a separate ~~property that is part~~ portion of the airport site."

RESPONSE 68-27: Information regarding the additional 60-foot-wide easement that serves the airport site and the 16-foot-wide railroad crossing is noted.

RESPONSE 68-28: The Project site is considered part of the City's urban area, and would be subject to typical urban lighting standards. Opinion regarding the accuracy of the DEIR's characterization of the Project site as being located "in an undeveloped area" is noted.

Although the City does not have a "dark skies" ordinance, the City will require the provision of the minimum lighting needed for safety and security of parking areas and walkways, given the Project site's location at the outer edge of the City near open space. Opinion regarding the DEIR's characterization of Project-related lighting impacts is noted.

RESPONSE 68-29: Opinion regarding the extent to which Project-related lighting may adversely affect residents at the Contempo Marin Mobile Home Park is noted.

RESPONSE 68-30: In response to this comment, the text of the fourth sentence in the first complete paragraph on DEIR page 7-3 has been modified to read as follows:

> "The distance between the proposed recreational facility, including the building and the outdoor fields, and the top of the levee along the North Fork of Gallinas Creek will be a minimum of ~~100~~ 118 feet, as shown on the Project site plan."

RESPONSE 68-31: In response to this comment, the text of the first complete paragraph on DEIR page 7-62 has been modified to read as follows:

> "An increase in shadows on the creek as a result of the Project would also be considered "fill", and consequently, pollution, by the RWQCB. However, the proposed new bridge will be the exact ~~width and~~ length of the existing bridge deck and slightly narrower than the existing bridge deck (see **Figure 3-16** for bridge details) so there would be no increase in shadows on the creek as a result of the bridge replacement; and, therefore, no increase in fill material within the creek as a result of this Project."

RESPONSE 68-32: In response to this comment, the last sentence in the next to last paragraph on DEIR page 7-80 has been modified to read as follows:

> "The SBAA expires on December 31, ~~2008~~ 2013."

RESPONSE 68-33: In response to this paragraph, the text of the last paragraph on DEIR page 11-3 has been modified to read as follows:

> "The ~~Project~~ airport site is bordered by the North and South Forks of Las Gallinas Creek. The borders with the creeks include a ~~privately~~ maintained perimeter levee system that extends from the southwest corner of the site along the southern perimeter, wrapping back to the west along the northern border of the site. The land within the levees is situated at 0-3 feet elevation above mean sea level (MSL) and the levees are 9 feet above MSL. Since the Project site ranges in elevation from 0-3 feet above MSL, the site is exposed to 100-year tidal flooding at an elevation of 6 feet MSL. In terms of storm event flow rates, the estimated peak 100-year flow from the existing 16.6-acre site is 71.23 cubic feet per second (cfs).[2]"

RESPONSE 68-34: Opinion regarding the DEIR's characterization of the possible presence of hazardous materials at the airport site is noted. Aircraft operations and maintenance activities require the use of aviation fuels and lubricants, as well as other substances used for maintenance purposes that would be regarded as hazardous materials. Although there is no evidence that these aviation-related substances are present in concentrations that would represent a potential health hazard at the Project site (which has never supported aviation operations or maintenance), these substances are present where aircraft are present on other portions of the airport site.

RESPONSE 68-35: As indicated on DEIR page 11-29, rather than implying that the railroad embankment on the western edge of the airport site provides flood protection, the DEIR indicates that barring a levee breach, waters from a 100-year storm that do not fall directly on the site would likely come from that direction.

RESPONSE 68-36: See RESPONSE 70-17, above, regarding modifications to DEIR **Table 2-1 (Mitigation Measure Hyd-2a)**.

RESPONSE 68-37: In response to this comment, the text of the fourth sentence in the second paragraph on DEIR page 11-34 has been modified to read as follows:

> "Moreover, MM Hyd-2a requires all portions of the building below +7 NGVD (+9.67 NAVD) to be ~~wet~~ floodproofed, allowing +1 foot of freeboard above the 100-year flood elevation of +6 NGVD."

In response to this comment, the text of the first sentence in the first complete paragraph on DEIR page 11-35 has been modified to read as follows:

> "All portions of the proposed building will be ~~wet~~ floodproofed below the +7 NGVD (+9.67 NAVD) elevation (thereby providing at least one foot of freeboard above the 100-year flood elevation) and the site is protected by nine-foot levees."

RESPONSE 68-38: In response to this comment, the text of the third sentence of the second bulleted paragraph on DEIR page 14-13 has been modified to read as follows:

> "The Project conforms to the airport's Master Use Permit and underlying restrictive covenants, which confine future uses to ~~recreational or open space uses~~ existing airport and related uses, public utility uses as approved by the appropriate government agencies, airport and airport related uses, roadways, open space, and private and public recreational uses."

In response to this comment, the text of the fifth sentence in the paragraph starting at the bottom of DEIR page 16-6 has been modified to read as follows:

> "The existing Declaration of Restrictions allow for "private and public recreational uses~~,"~~ ~~but not a recreational facility~~."

In response to this comment, the text of the second sentence in the first complete paragraph on DEIR page 16-7 has been modified to read as follows:

> "This alternative assumes that the outdoor soccer field and warm-up area that are currently proposed would conform to the existing PD District and Master Use Permit~~, however, the indoor soccer/dance/gymnastics facility would not~~."

RESPONSE 68-39: In response to this comment, the text of the third complete paragraph on DEIR page 16-25 has been modified to read as follows:

> "The San Rafael Airport has a land use designation of Airport/Recreation on the *General Plan 2020* Land Use Map (General Plan Exhibit 12). The proposed Project is recreational in nature and conforms to the land use designation of the site; as described throughout this document, the Project site is subject to a Master Use Permit and restrictive covenants that permit a narrow range of uses. ~~The current restrictive covenants do not permit the indoor sports facility proposed by the Project; however, as part of the Applicant's application submission, the Applicant also requests to amend the Master Use Permit to allow this use.~~ The analysis provided in this EIR has determined that the proposed Project would conform well to the land use designation and additional constraints of the site, provided the recommended mitigation measures contained in this EIR are properly implemented. Moreover, McInnis Park is located to the northwest of the site, across the North Fork of Gallinas Creek and provides recreation activities similar to and compatible with the proposed uses on the airport site."

Comments from attached letter from Richard B. Rodkin, PE , Illingworth & Rodkin, Inc., April 23, 2009

RESPONSE 68-40: On page 12-16, the DEIR states the estimated noise level of 41 dBA (Leq) would not exceed ambient noise levels, although it exceeds by 1 dB the San Rafael Noise Ordinance nighttime noise limit. On page 12-17, the DEIR acknowledges that estimated noise levels would only exceed the noise limit by 1 dB and noise levels from proposed activities can be vary due to a number of factors. Given the long distance between source and receptors, Geier & Geier Consulting concurs with Illingworth & Rodkin, Incorporated that there are variety of conditions in the intervening area (such as berms or residential fencing) that could reduce estimated noise levels and also affect noise attenuation rates. Similarly, noise characteristics from proposed activities can be quite variable due to the variety of noises that could be generated by these activities, as noted in the DEIR (noise from spectators, referee whistles, parking cars, etc.). Therefore, whether we apply a slightly higher attenuation rate or estimated noise level to be just below the ordinance limit or not include this adjustment to be just above this limit, the basis for the "potentially significant" impact

determination also relates to the potential for disturbance due the noticability of Project-related noise since the characteristics of Project-related noise would contrast with the existing ambient noise environment. The DEIR states, "Although the noise level exceedance could be small, there is the potential that the characteristics of the noise (noise from spectators, referee whistles, parking cars, etc.) would contrast with the ambient noise environment and therefore, would be noticeable."

On page 12-17, the DEIR also acknowledges that "a one decibel increase in exterior noise level during these hours would likely go unnoticed given that a) the existing ambient noise levels in this area is 49 dBA to 54 dBA, Ldn, b) considering the noise exceedance is of an exterior threshold, residents are unlikely to be outside during the hours of 9 p.m. and midnight to experience any increase, and c) considering the 15-25 dBA outdoor-to-indoor noise reduction provided by standard construction (depending upon whether windows are open or closed) interior noise levels at the nearest residences would remain well below the 40 dBA and 45 dBA interior noise thresholds at any time of the day or night."

For these reasons, the scope of the mitigation measure was intentionally reduced to account for these factors. First, **Mitigation Measure MM N-1** requires the Project Applicant to *measure* noise levels during nighttime games to determine whether or not the 40-dBA ordinance threshold is exceeded. While contrasting types of noise could be disturbing to nearby residents, the only CEQA significance criterion that can be applied to this impact is the noise ordinance noise limit. Only if the ordinance threshold is exceeded, would the Project Applicant be required to reduce the noise impact to a less-than-significant level. The mitigation measure presents the option for the Applicant to curtail nighttime activities as specified, if City Noise ordinance limits are exceeded as a result of Project activities. These measures would not be implemented if noise measurements determined that Project-related noise did not exceed the noise ordinance threshold. This measure has been could be "clarified" in the Final EIR to require noise monitoring between 9:00 PM and 11:00 PM. During at least 5 nighttime games, under normal capacity during full operation of the facility; noise measurements should be taken at the closest residences to the south as well as a reference location near the noise source. Based on this noise monitoring, the degree of noise mitigation needed could be determined and implemented as necessary.

In response to this comment the text of **Mitigation Measure N-1: Evening Noise** (DEIR pages 2-33 and 12-21) has been modified to read as follows:

- ~~"Close the outdoor fields at 9 p.m., Sundays through Thursdays, and 10 p.m. on Fridays and Saturdays. Alternatively~~ During the first year of operations, the project sponsor shall ~~annually~~ monitor noise levels during a minimum of five nighttime games to determine whether the use of outdoor fields and warm-up areas actually causes the 40 dBA (Ldn) nighttime noise threshold to be exceeded at the closest residential property boundary as a result of outdoor field use. The City shall be consulted in determining the games that are to be monitored. This shall include at least 3 mid-week games and 2 weekend games. A

copy of the noise consultant's analysis shall be submitted to the City. If the Noise Ordinance nighttime noise threshold is exceeded, the outdoor facilities shall close at 9 p.m., Sundays through Thursdays, and 10 p.m. on Fridays and Saturdays. ~~or~~

- ~~Project sponsor shall revise the site plan to provide sufficient space to accommodate a noise wall along the southern boundary of the parking lot and soccer warm up areas. If noise measurements of nighttime games indicate that the ordinance noise limits are exceeded, the project sponsor could build a noise wall instead of closing the outdoor fields at 9 p.m. If a noise wall is constructed, it shall be subject to the following requirements:~~

  - ~~Pursuant to General Plan Policy S-4, the wall's location shall be subject to a geotechnical investigation, and the wall's design and construction shall proceed in accordance with the recommendations of the geotechnical investigation, as set forth in the City's Geotechnical Review Matrix.~~

  - ~~The design of the sound wall shall be subject to review and approval by the City's Design Review Board.~~

  - ~~The sound wall shall be constructed consistent with Part 77 of the Federal Aviation Regulations, *Objects Affecting Navigable Airspace,* specifically, the 7:1 transitional surface that governs Airport Safety Zone 5 – Sideline Zone, as analyzed by airport hazards safety specialist.~~"

While annual monitoring would account for any changes in future activities, it is unlikely that noise characteristics and levels would vary on an annual basis to a degree that would trigger a new significant noise impact. By requiring that a worst-case condition be captured in the single noise monitoring survey, appropriate noise mitigation should be determined and the potential for some variability in future noise levels should then be taken into consideration when determining appropriate noise mitigation to be required.

RESPONSE 68-41: The noise level as well as characteristics of the noise can be factors in the level of disturbance to birds and wildlife in general. Continuous noise can generate less stress (flight) response than transient (sudden noise peaks) types of noise such as pile driving. Some jurisdictions (e.g., County of San Diego) have adopted a 60-dBA significance threshold for special-status bird species, based on a bird's ability to vocalize loud enough to ensure successful breeding.[20] However, there are other instances where successful breeding has occurred despite the presence of high ambient noise levels. Nevertheless, there is a

[20] Bioacoustics Research Team 1997. Environmental effects of transportation noise, a case study: noise criteria for the protection of endangered passerine birds. U.C. Davis, Transportation Noise Control Center (TNCC). Technical Report 97-001, 1997. In: County of San Diego 2008. Guidelines for Determining Significance, Biological Resources. Department of Planning and Land Use, Department of Public Works. Second Revision. July.

precedent for jurisdictional agencies to limit noise levels for activities that have the potential for adversely affect special-status species.

RESPONSE 68-42: The CEQA significance criterion applied to **Impact N-2** is, "A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project." If an existing use, whether it is a recreational activity or an office use, cannot continue to operate because noise levels are too high, this is considered a significant, temporary impact. Whether or not the receptor is a sensitive noise receptor is irrelevant to this impact.

The EIR consultant (Geier & Geier Consulting) concurs that it may not always be possible to limit construction noise to 72 dBA (Leq) at 100 feet.

In response to this comment, the following text has been added at the end of the text in the second bullet in **Mitigation Measure N-2** (DEIR pages 2- 34 and 12-24):

> "If such equipment noise levels cannot be achieved, the Project sponsor shall coordinate operation of heavy equipment to avoid hours when the closest (southernmost) softball field is being used for practices or games to the maximum extent feasible."

It should also be noted that under the third and fourth bulleted measures of **MM N-2** and under **MM N-3**, the term "to be maximum extent feasible" has been included wherever full compliance may not always be possible. However, the Project contractor should demonstrate that all efforts were made to minimize impacts on identified receptors.

Comments from attached letter from Jeff Dreier, Senior Wildlife Ecologist, WRA, May 8, 2009

RESPONSE 68-43: As indicated in MASTER RESPONSE BIO-4, above, the presence of California clapper rail in the vicinity of the Project site indicates that they have been able to adapt to the presence of humans and their activities, including the noise associated with nearby aircraft operations and noise associated with sporting events at nearby McInnis Park. Potential Project-related noise effects on the California clapper rail and California black rail are addressed on DEIR pages 7-63 through 7-69. However, as indicated in RESPONSE 68-7, above, WRA believes that development and use of the Project site as proposed would have no potentially significant environmental impacts on California clapper rail and California black rail, while Monk & Associates (the biological resources consultants for the preparation of the DEIR) believes that indirect Project-related impacts to these two species (particularly noise associated with pile driving during construction) could be potentially significant unless mitigated. Heavy construction equipment is not in routine use at the Project site, and could be expected to temporarily generate noise levels above those currently experienced at the Project site and in the immediate vicinity. Implementation of **Mitigation Measure Bio-2d** [as modified] (California Clapper Rail and California Black Rail - Avoidance Measures – as

modified) and **Mitigation Measure Bio-2e** (California Clapper Rail and California Black Rail – Event Curfew – as modified), as well as **Mitigation Measure N-3** (which requires that quiet pile-driving procedures be implemented) would reduce potential noise impacts to these two species to a level considered less than significant.

RESPONSE 68-44: Comment indicating that the height of the levees provides a visual buffer between the Project site and rail habitat areas, and is likely to deflect and absorb noise to some extent, is acknowledged.

RESPONSE 68-45: Comment regarding the ability of California clapper rail to adapt to heavy human disturbance in the vicinity of the Project site is acknowledged (see MASTER RESPONSE BIO-2, above).

RESPONSE 68-46: Observation that disking discourages ground squirrels, and no burrowing owls have been observed on or adjacent to the Project site in biological surveys (see DEIR page 7-45) is noted.

RESPONSE 68-47: See MASTER RESPONSE BIO-4, above, which addresses the extent to which California clapper rail have adapted to the presence of humans in the vicinity of the Project site.

RESPONSE 68-48: See MASTER RESPONSE BIO-1, above, which notes that the protective buffers established between the top of the levee along the south bank of the North Fork of Gallinas Creek and the Project development envelope (between 130 feet and over 250 feet) far exceed the distance between the pedestrian pathway on the north side of the creek and the marsh habitat. This pathway is virtually at the top-of-bank of this creek, and yet the California clapper rails not only use the north side of the creek, but likely nest on the north side of the creek. Disturbance on the Project development envelope will remain at a minimum 130 feet away from the top-of-bank of the south bank of this creek.

RESPONSE 68-49: See RESPONSE 68-7, above.

RESPONSE 68-50: Recommendation that no seasonal restriction be placed on maintenance activities is noted.

RESPONSE 68-51: Opinion regarding the need to revise **Mitigation Measure Bio-2c** is noted.

RESPONSE 68-52: Recommendation that construction noise restrictions proposed as mitigation in the DEIR be removed is noted.

RESPONSE 68-53: See RESPONSE 68-12, above, which shows revisions to **Mitigation Measure Bio-2d**.

RESPONSE 68-54: Opinions regarding the accuracy of **Impact Bio 3** and adequacy of Mitigation Measures identified to reduce **Impact Bio-3** to a level of less than significant are noted.

RESPONSE 68-55: Opinions regarding the accuracy of **Impact Bio 4** and adequacy of **Mitigation Measure Bio-4a** are noted.

RESPONSE 68-56: See RESPONSE 68-14, above, which shows revisions to **Mitigation Measure Bio-4c**.

RESPONSE 68-57: Opinion regarding the need to revise Impact Bio-5 is noted. See RESPONSE 68-14, above, which shows revisions to **Mitigation Measure Bio-5a**.

RESPONSE 68-58: Opinion regarding the need to revise **Impact Bio-6** and **Mitigation Measure Bio-6a** is noted. See RESPONSE 68-15, above, which shows revisions to **Mitigation Measure Bio-6b** and **Mitigation Measure Bio-6c**.

RESPONSE 68-59: Opinion suggesting the elimination of seasonal restrictions on construction noise is noted.

RESPONSE 68-60: Opinion regarding the extent to which the Mitigation Measures identified in the DEIR are overly conservative and require revision is noted.

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E-mail: Greg@KHE-Inc.com

May 12, 2009

Mr. Kraig Tambornini, Sr. Planner
City of San Rafael, Community Development
1400 Fifth Avenue, 3rd Flood
San Rafael, CA 94901
Kraig.tambornini@cityofsanrafael.org

Subject: San Rafael Airport Recreation Facility DEIR

Dear Mr. Tambornini:

I am a hydrologist with over twenty years of technical and consulting experience in the fields of geology and hydrology. I have a Master's of Science degree in Geology received from Miami University (Oxford, Ohio) in 1989 and I am a California Professional Geologist and Certified Hydrogeologist. I have been providing professional hydrology services in California since 1991 and routinely manage projects in the areas of flood hydrology, stream and tidal wetland hydraulics and integrated water-land resources management. Most of my work is located in the San Francisco Bay and Coast Range watersheds of California, including the Northern San Francisco Bay Counties. My areas of expertise include: characterizing and modeling watershed-scale and tidal hydrologic and geomorphic processes; evaluating water resource and environmental impacts associated development projects; assessing hydrologic, geomorphic, and water quality responses to land-use changes and causes of stream channel instability. I also teach an annual course on hydrology and geomorphology through the University of California Extension (Berkeley) and provide technical presentations and lectures to public/community and non-profit groups. I co-own and manage the hydrology and engineering consulting firm Kamman Hydrology & Engineering, Inc. in San Rafael, California (established in 1997).

I have worked professionally on a number of wetland restoration and flood control projects within stream and tidal interfaces throughout coastal California and San Pablo, San Francisco, Richardson, Suisun and Tomales Bays. These projects rely on levees to provide adequate levels of flood protection from both creeks and tidal bay waters and I have been responsible for assessing the adequacy of these structures in addressing and/or reducing flood hazards.

I have reviewed the San Rafael Airport Recreational Facility project's DEIR and supporting technical appendices. Based on my review and technical experience it is my opinion that the DEIR does not adequately characterize and quantify potential project-induced impacts associated with flood hazards for the following reasons. The project is located in the 100-year floodplain, exposing people and structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. The DEIR geology appendix corroborates this by stating, "The project would need to be designed to be flood proofed." Yet, there is no defensible geotechnical assessment of the condition of the levee, which evaluates levee height (relative to existing tide and flood levels), structural stability and the overall suitability for providing protection from a 100-year flood. Therefore, the potential for an adverse project impact still exists due to failure risks associated with the likely substandard levees surrounding the project. These levees are relied upon to provide adequate levels of flood protection. A flood-proof building only protects people inside the building, not people and private property potentially trapped outside. **69-1**

Replacement or upgrade of these levees, an anticipated consequence of the project, would entail substantial impact to the adjacent tidal marshlands. The wetland impacts associated with levee repair or **69-2**

replacement are also wrongly omitted from the DEIR. The adjacent habitat is home to California Clapper Rail and Salt Marsh Harvest Mouse among other documented special status species in the area. The associated levee construction and maintenance costs should also be defined, because they may balance or out-weigh the revenue generating potential of the facility leaving the City, County and taxpayers with an increased financial burden.

The project also fails to address cumulative impacts associated with sea level rise. Based on my review of the current scientific literature and reports, there is a global and local consensus that sea levels are rising. The rate of rise is constantly debated, but there seems to be a trend in higher and higher predicted rates of sea level rise associated with the most recent studies. The Pacific Institute study[1] presents a range of 1.0- to 1.4-meters (approximately 3.3- to 4.6-feet) by the year 2100. Regardless of the rate of sea level rise, flood and tidal water levels are increasing and the project site will be susceptible to flooding on a significantly higher frequency. This cumulative impact is not addressed in the DEIR and increases the frequency of existing potential adverse impacts. Who will be responsible for damages to levees when they overtop and undoubtedly erode? How can construction of project infrastructure be undertaken in a location (flood zone) which exposes people and their property to existing flooding and, more importantly, one that will experience more frequent flooding in the future? What will be the financial impacts associated with maintenance and repair? This project is completely contradictory to the big-picture planning efforts being espoused by the Bay Conservation and Development District and Association of Bay Area Governments for properties in tidal regions, susceptible to sea-level rise. **69-3**

In closing, it is my opinion that the potential significant impacts have not been adequately assessed and there is a real potential for project-induced adverse impacts. Until potential impacts are assessed, I recommend that the City does not authorize the San Rafael Recreation Facility DEIR or project. At the very least, the County should require that the project proponents address the deficiencies outline in this letter prior to authorizing the project to proceed. **69-4**

If you have any questions or concerns, please call me.

Sincerely,

Greg Kamman, P.G., R.HG.
Principal Hydrologist

Attachment: San Rafael Airport Recreational Facility DEIR – Notice and maps

Cc: Farhad Mansourian, Director Public Works, Marin County
Marla Lafer, San Francisco Bay RWQCB
John Klochak, Coastal Program Manager, San Francisco Bay Area, USFWS
Steve Goldbeck, Deputy Director for Climate Change and Legislation, BCDC
Katherine Schaefer, FEMA, Region IX
Tom Kendall, Chief of Planning, San Francisco Corps

[1] Pacific Institute, 2009, The impacts of sea-level rise on the California coast. Paper from the California Climate Change Center, March.

San Rafael

NOTICE OF COMPLETION & AVAILABILITY - ENVIRONMENTAL IMPACT REPORT

You are invited to comment on the DRAFT EIR for the following proposed project:

PROJECT: 397-400 Smith Ranch Road (San Rafael Airport Recreational Facility) – The City of San Rafael has completed a Draft Environmental Impact Report (DEIR) (SCH#2006-012-125) for the San Rafael Airport Recreational Facility project, proposing a new private recreational facility on 9.1-acres of the 119.52-acre airport site. The new facility would consist of a 38-foot tall, total 85,700-square-foot metal recreational building housing indoor fields and courts, a 14,400-square-foot mezzanine level with spectator seating, offices, food and beverage service, arcade and meeting rooms, and two outdoor fields with exterior lighting, landscaping, parking, and fencing improvements. The use proposes to operate daily with its longest hours occurring from 9:00 a.m. to Midnight. Site work includes extension of an existing paved access driveway off Smith Ranch Road to a new 184 space paved parking lot, replacement of an existing bridge deck, and grading to raise site elevations two-feet achieving 1.0- and 2.0-foot grade elevations for the building and fields; APNs: 155-230-10, 11, 12, 13;14, 15 and 16; Zoning District: Planned Development – Wetland Overlay (PD1764-WO) District; Applicant/Owners: Bob Herbst/San Rafael Airport, LLC, File No's.: ZC05-01/UP05-08/ED05-15.

ENVIRONMENTAL REVIEW: As required by State law, potential environmental impacts of this project have been studied and assessed in the DEIR, which meets the provisions of the California Environmental Quality Act (CEQA). The project has been found to have potential significant environmental effects on Aesthetics, Air Quality, Biological Resources, Cultural Resources, Geology and Soils, Hazards, Hydrology and Water Quality and Noise impact categories.

WHERE TO VIEW OR OBTAIN A COPY OF THE DEIR: The DEIR and supporting reports and studies are available for review at the following locations:

- City of San Rafael, Community Development Department, Planning Division, 1400 Fifth Avenue, third floor, San Rafael
- San Rafael Library, 1100 E Street, San Rafael
- Online at www.cityofsanrafael.org/Government/Community_Development.htm. Under "What's New?"

Computer discs (CDs) of both documents may be purchased, and a minimum number of loaner hardcopies are available at the Planning Division.

PUBLIC REVIEW PERIOD: A mandatory, minimum 45-day public review and comment period on the DEIR commences on Wednesday, March 11, 2009. Written comments on the DEIR will be received until Tuesday, April 28, 2009.

SCHEDULED HEARING: The Planning Commission will also hold at public hearing to receive comments on the DEIR on **Tuesday April 28, 2009 at 7:00 PM in San Rafael City Hall, Council Chambers, 1400 Fifth Avenue, San Rafael, Marin County, CA**

WHAT WILL HAPPEN: *You can comment on the DEIR. The Planning Commission will consider all public testimony and comments on the DEIR only. Public testimony on the merits of the project will not be accepted at this hearing. A separate public hearing on the merits of the project will be noticed and held at a future date. After the hearing, comments received on environmental issues shall be reviewed, responses prepared and a Final EIR completed for review by the Planning Commission and certification by the City Council.*

FOR MORE INFORMATION Contact **Kraig Tambornini,** Senior Planner, at **(415) 485-3092** or email **kraig.tambornini@cityofsanrafael.org,** or come to City Hall, 1400 Fifth Avenue, to look at the file for the proposed project. The office is open from 8:30 AM to 5:00 PM, weekdays

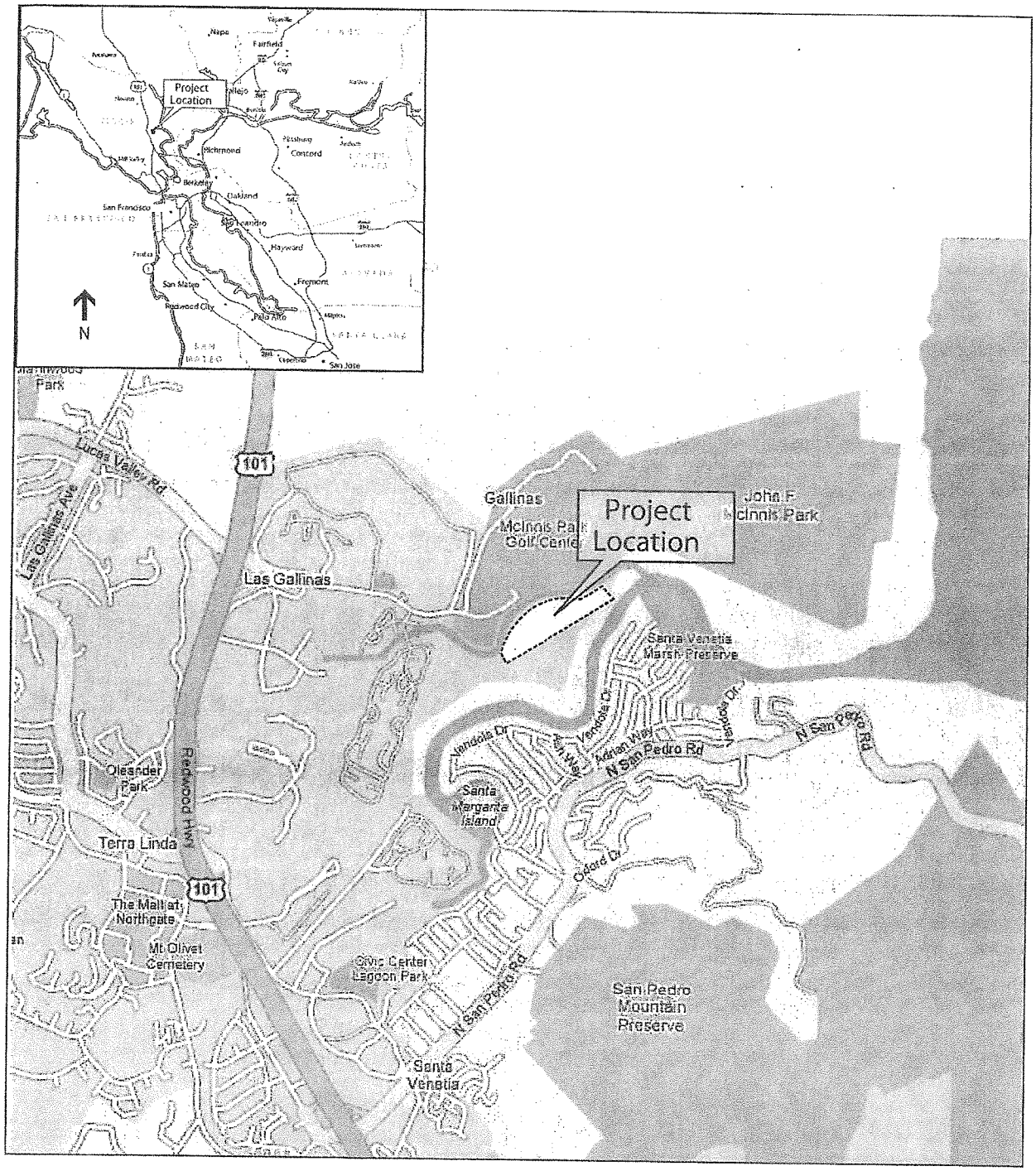
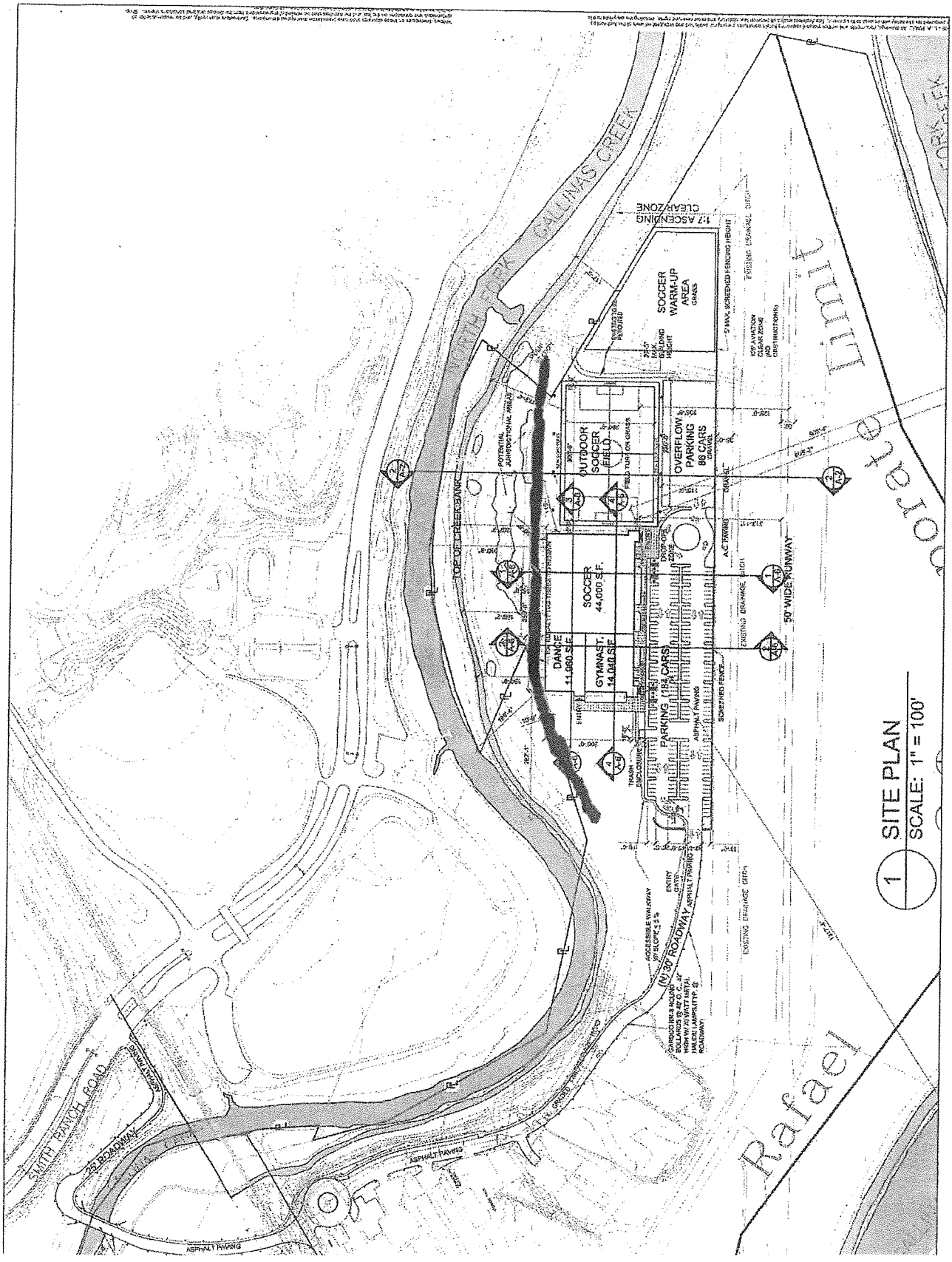


Figure 3-1
Project Location and Vicinity

Source: Google



Source: L. A. Paul & Associates, 3-28-08

LETTER 69: Greg. Kamman, P.G., R.HG., Principal Hydrologist, Kamman Hydrology & Engineering, Inc., May 12, 2009

RESPONSE 69-1: Opinion regarding the adequacy of the DEIR's evaluation of Project-related flood hazards is noted. See MASTER RESPONSE HYD-1, above, which addresses issues related to datum used in the DEIR analysis of potential flooding impacts, MASTER RESPONSE HYD-2, above, which addresses the existing condition of the levees, and MASTER RESPONSE HYD-3, above, which addresses issues related to a levee breach at the Project site. As indicated on DEIR page 11-31, the Oberkamper levee breach analysis determined that people at the facility during the time of a 100-year storm-induced levee breach would have enough time to safely leave before the depth of water presents a hazard.

RESPONSE 69-2: No replacement or upgrade of the existing levees is identified as part of description of the Project as currently proposed. In the absence of Project-related levee replacement or upgrades, there would be no associated Project-related impacts to wetlands or other habitats in the vicinity. The DEIR evaluates the physical changes in the environment which would result from development of the Project site as proposed, but it is beyond the scope of the environmental review document to address economic factors such as costs associated with levee construction and maintenance, revenue generated by the proposed recreational facility, or financial burdens on taxpayers.

RESPONSE 69-3: See MASTER RESPONSE HYD-4, above, which addresses issues related to anticipated increases in sea level. As indicated in MASTER RESPONSE HYD-2, above, maintenance costs for all but a relatively small portion of the levees which protect the airport site are borne by the property owner rather than the County of Marin (which is responsible for a limited portion of the levee along the tip of the airport peninsula) or the City of San Rafael. Development of the infrastructure proposed at the Project site can be undertaken, if approved by the City and in compliance with all applicable regulations and/or conditions of approval. The DEIR evaluates the physical changes in the environment which would result from development of the Project site as proposed, but it is beyond the scope of the environmental review document to address economic factors such as financial impacts associated with levee maintenance and repair. Opinion regarding the extent to which development of the Project site as proposed would be consistent with the "big picture planning efforts being espoused by the Bay Conservation and Development District (sic) and Association of Bay Area Governments" is noted.

RESPONSE 69-4: Opinion regarding the adequacy of the DEIR's evaluation of potentially significant Project-related impacts is noted. Recommendation that the City not certify the DEIR or approve the Project is noted. Request that Marin County require the Project proponents to address issues presented in this comment letter on the DEIR is noted.

Kraig Tambornini

From: Cynthia Landecker [clandecker@saber.net]
Sent: Tuesday, May 12, 2009 10:45 AM
To: Kraig Tambornini
Subject: Airport/Soccer field DEIR input

If FEMA forecasts are correct there might be a major construction flaw.
I estimate that a structure of the type they are proposing has an average weight of 60 pounds per square foot. The DEIR requires flood walls and flood doors to be installed I am not sure how the building will be secured, but usually a building of this type uses a slab and all construction goes up from there. If they use pilings then the slab will simply rest on top of the pilings. The required height of the flood walls offers about 6 feet of buoyancy. Each square foot of floor area creates about 375 pounds of buoyancy. As you can see this could result in a floating barge. Construction techniques and engineering need to take this into account. **70-1**

Along the same line. Does anyone remember the 1964 Alaskan earthquake and the resulting tsunami? There was over $1M in damage at Loc Lomond Marina alone. Not sure what a tsunamii will do in Galinas Creek. **70-2**
This needs to be taken into consideration for building design.

Designers need to take a second look at the proposed parking scheme. **70-3**
The DEIR proposes money making sporting events. This equates to a need for more parking than provided.

Hugo Landecker

LETTER 70: Hugo Landecker, May 12, 2009

RESPONSE 70-1: Opinion regarding the extent to which development of the Project site as proposed would result in creation of a large floating barge is noted. Opinion that the potential for development of a buoyant structure at the Project site requires that construction techniques and engineering take these concerns into account is noted.

RESPONSE 70-2: As indicated on DEIR page 11-35, given the distance of the Project site from the western shoreline of the Bay and the presence of wetlands and shallow mud flat east of the site, tsunami waves do not present a significant threat to the site.

RESPONSE 70-3: Opinion regarding the adequacy of the parking space to be provided at the Project site with development as proposed is noted. Although there will be fees charged for use of the proposed recreational facility, it is not likely to host "money making sporting events" in the sense that large numbers of spectators would not be charged admission to view soccer games, dance events or gymnastic competitions at the site.

LETTER 71

Kraig Tambornini

From: Carolyn Lenert [CarolynRealEstate@msn.com]
Sent: Tuesday, May 12, 2009 9:32 AM
To: Kraig Tambornini
Subject: Airport/Soccer DEIR

Dear Planning Commission:

The proposed soccer facility is the right idea in the wrong place. Intensive use of this area was already granted to this area: large hotel, large commercial office spaces, large parking lots, and multiple housing developments, large apartment complex, etc. **71-1**

Those developments did not mitigate their uses through exactions such as funding or providing recreational facilities open to the public. There is not even safe pedestrian/biking access to McInnis Park!

And one day there will be an active railroad running right through wetlands! Further intensive uses are not appropriate. **71-2**

Can't a trade and/or land trust arrangement be brokered by the City? Let's think about the long-term and think creatively! Please make this a win-win-win: Applicant-Public-Wildlife. **71-3**

Thank you for your thoughtful consideration and long service to the community.
Sincerely,
Carolyn Lenert

P.S. A great location for indoor soccer would be Kerner & Bellam in the old Dodge car dealership. **71-4**
PPS. The DEIR lacks thorough historical context/understanding of the area's uses. **71-5**

LETTER 71: Carolyn Lenert, May 12, 2009

RESPONSE 71-1: Statement regarding support for the idea of a recreational facility, but opposition to the location of such a facility at the Project site is noted. Opinion regarding the extent to which previous development projects in the vicinity of the Project site have effectively mitigated impacts associated with that development is noted. Opinion regarding the safety of pedestrian/bicycle access to McInnis Park is noted.

RESPONSE 71-2: See MASTER RESPONSE TRA-3, above, which addresses issues related to SMART operations. The SMART trains will run along the existing rail line in the vicinity of the Project site, and will not require new construction in nearby areas which support wetlands. Opinion regarding the appropriateness of additional development on an in the vicinity of the Project site is noted.

RESPONSE 71-3: Suggestion that a trade and/or land trust arrangement be brokered by the City is noted. Such a suggestion is beyond the scope of this EIR.

RESPONSE 71-4: Opinion that the Dodge dealership would provide a suitable location for indoor soccer is noted. As noted in this Response to Comments document, the EIR has provided an adequate Alternative Site Analysis for this Project, as required under CEQA to assess potential impacts of the Project and its feasible alternatives, in DEIR Chapter 16.

RESPONSE 71-5: Opinion that the DEIR lacks thorough historical context and an understanding of the area's uses is noted. The DEIR provides the historical context and setting in DEIR Chapter 4 (Land Use), which is thorough and adequate for purposes of assessing environmental impacts as required by CEQA.

LETTER 72

Kraig Tambornini

From: Steve Moore [s.moore@nute-engr.com]
Sent: Tuesday, May 12, 2009 9:29 AM
To: Kraig Tambornini
Subject: San Rafael Airport Recreational Facility DEIR Comments

Dear Mr. Tambornini:

Thank you for the opportunity to comment on the Draft Environmental Impact Report for the San Rafael Airport Recreational Facility proposed project.

I have serious concerns about the sustainability of any proposed new development on the San Rafael Airport parcel. **72-1**

The DEIR fails to identify the site as a prime candidate for tidal salt marsh wetland restoration, consistent with the Baylands Ecosystem Habitat Goals Report (Goals Report, 1999), a multi-agency and scientist-authored effort published by the San Francisco Estuary Project in 1999 to prioritize specific sites around the estuary for restoration to tidal wetlands. At the confluence of the north and south forks of Gallinas Creek, the site is part of a narrow peninsula surrounded by tidal waters that elevates it as a prime candidate for wetland restoration without commensurate flood risk to adjacent development. The site is historic, diked baylands, and wetlands delineations that designate the land as grassland are misleading from the standpoint of its powerful ecological potential. **72-2**

Restoration of historic baylands to tidal salt marsh, when feasible, represent the most efficient action that cities, counties and private landowners can take to meet the multiple goals of (1) recovering endangered species, (2) reducing carbon dioxide in the atmosphere and decreasing global warming, (3) increasing the capacity of water conveyance systems to absorb flood waters, (4) significantly improving water quality, (5) increasing fish and wildlife habitat, and (6) enriching the San Francisco Estuary with biological production that can lead to increased ocean seafood sources for people, and estuarine food sources for migratory birds of the Pacific Flyway. These restoration projects always enhance the community in which they occur, creating recreational and educational opportunities that connect the population to its exceptional water resources.

Installation of infrastructure to support new development on historic baylands is a significant construction and ongoing maintenance challenge that includes pumping costs that disproportionately consume energy, and entails construction and maintenance in notoriously difficult bay muds. Communities that ring the Bay are preparing for climate change and sea level rise, and new developments in historic baylands run counter to the regional collective wisdom, especially where alternative sites for the proposed land uses readily exist. **72-3**

By approving this proposal, the City of San Rafael would ignore the future potential of the San Rafael Airport site to abate urban runoff pollution. Acquiring and restoring this tidal wetlands site would position the City to receive regulatory credit for urban runoff pollution reduction. The City should always keep this ongoing need in mind as it weighs such specific locations of development proposals in floodplains. **72-4**

The EIR in its narrow focus ignores the regional significance of historic baylands, and particularly the special restoration potential of this peninsula at the fork of two tidal creeks, where demand for airport services is dwindling. Restoration of tidal salt marsh is one of the most powerful decisions a local government can make to think globally and act locally. Since San Francisco Bay is by far the largest estuary on the North American west coast, and tidal salt marsh is one of the most efficient ecosystems on the planet for fixing carbon from the atmosphere (on par with tropical forest), the baylands need to be used as a tool for reducing atmospheric carbon dioxide where feasible, as well as a filter for urban runoff pollution and a nursery for species of fish and shellfish that Bay Area residents consume. Many large scale salt marsh restoration efforts are underway in Eastern Marin, and this parcel is contiguous with these efforts, adding to its restoration potential. Restoring the airport site to tidal wetlands after airport services cease is an option that deserves significant consideration and discussion. The proposed project pre-empts this valuable discussion that has regional and even global implications. **72-5**

LETTER 72 (continued)

Respectfully,

Steve Moore, P.E.
311 South St.
Sausalito, CA 94965
Ph. (415) 453-4480 x202
Fax (415) 453-0343
s.moore@nute-engr.com

LETTER 72: Steve Moore, May 12, 2009

RESPONSE 72-1: Statement of concern regarding the sustainability of the Project is noted.

RESPONSE 72-2: Although the Project site may be considered by some as a potential candidate for wetlands restoration, the DEIR evaluates the environmental effects associated with development of the Project site as proposed. While proposed development at the Project site would not disturb any delineated jurisdictional wetlands, no wetlands restoration is proposed as part of the Project, and wetlands restoration at the project site has not been evaluated in the DEIR. This evaluation of the site as a potential candidate for wetlands restoration is not required.

RESPONSE 72-3: Opinion regarding the wisdom of installing the infrastructure necessary to support the proposed development of the Project site is noted. Opinion regarding the availability of suitable alternative sites for the proposed Project is noted.

RESPONSE 72-4: Opinion regarding the possible approval of the Project as proposed representing the City's ignoring of the Project site's potential to abate urban runoff pollution is noted. The DEIR evaluates the environmental effects associated with development of the Project site as proposed. The Project as proposed does not envision use of the Project site as a restored tidal wetlands that could be used to receive regulatory credit for urban runoff pollution reduction. Therefore, an analysis of this potential use has not been established as being warranted nor required. Rather, the Project's potential urban runoff impacts have been assessed, as required under CEQA, and mitigation measures have been identified in the DEIR which would enable development of the Project site to reduce potential water pollution impacts to a level considered less than significant.

RESPONSE 72-5: Opinion that the DEIR ignores the regional significance of historic baylands is noted. As indicated above, the DEIR evaluates the environmental effects associated with development of the Project site as proposed, and the current proposal does not include the restoration of tidal wetlands at the Project site. Opinion regarding the possibility of wetlands restoration following cessation of aircraft operations at the airport site at some undefined point in the future is noted. Opinion that development of the Project site as proposed pre-empts the possibility of future on-site tidal wetlands restoration, with regional and global implications, is noted.

R. R. Moezzi, San Rafael
415-479-2765

May 12, 2009

City of San Rafael
Community Development Department
Planning Division
P.O. Box 151560
San Rafael, CA 94915-151560

Attention: Kraig Tambornini, Senior Planner

Re: San Rafael Airport Recreational Facility

Dear Mr. Tambornini:

Chapter 4, Land Use and Planning, Page 4-6, Declaration of Restrictions

The deed restrictions are listed, but the history behind them has been omitted. The restrictions cannot be understood and accurately interpreted without presenting the reasons they were developed. Please include in this section discussions of the following: **73-1**

- why the deed restrictions were developed
- the intent of the deed restrictions
- the community's understanding of the deed restrictions
- if the deed restrictions were challenged in the court and upheld
- that there is no statute of limitations for expiration on the deed restrictions

Here are a few of the points your discussion should include:

Open space exchange. The deed restrictions on the San Rafael Airport area were designed to serve as an "exchange" in wetland-and-open-space for the City of San Rafael's allowing the construction of so many large buildings and high-density developments on the wetlands areas near the Marin Veterans Auditorium. These large buildings and high-density developments (hotel, residential, and office – many now largely vacant) are listed on Page 4-2 (DEIR).

Low-impact recreational uses. Common sense would dictate that "private and public recreational uses" on a wetlands area that is deed-restricted to limit development in order **73-2**

to counter-balance heavy development of the wetlands areas near the Marin Veteran's Auditorium would be such low-impact activities as walking and bird-watching, and would preclude a high-impact, permanent, huge, 86,000 square-foot commercial building/complex, including visits by hundreds of cars and yelling people per day along with multiple, contemporaneous soccer games, dance and gymnastics classes, bar patronage, etc. Also, please note in the EIR what the public understanding of "private and public recreational uses" on a wetlands area was when the deed restrictions were developed.

Intent to minimize development. Limiting site uses to "open space, existing uses of airport and related uses, airport and airport-related uses, future utility uses, roadways, and private and public recreational uses" was clearly intended to minimize development of the wetlands area. Please note in the EIR that the huge commercial building/complex proposed for the San Rafael Airport does not comply with the intent of the deed restrictions to minimize construction, development, and heavy-use activities on the wetland and former wetland areas at the Airport. **73-3**

Page 4-6. The DEIR states that in 1983, the deed restrictions were entered into by the City of SR, the County of Marin, and the property owner (First National State Bank of New Jersey). It is my understanding that Joe Shekou bought the property in 1984. Please clarify if Mr. Shekou was aware of and understood the deed restrictions when he bought the property. **73-4**

Page 4-7. The section on Use Permits implies that the "12 non-aviation, light industrial uses" were illegally operating for some time at the San Rafael Airport, and only approved after the fact. Please clarify in the EIR if all "light industrial uses" at the San Rafael Airport were approved prior to their being at the airport. Also, please clarify how it was that these "light industrial uses" were allowed under the deed restrictions if they are non-aviation uses and were not "existing airport uses" in 1984. **73-5**

Page 4-15. The City's supposition that the proposed recreational facility complies with the intent of the deed restrictions to limit the development of high-impact, high-use, huge building/complexes on the Airport - restrictions developed as an "exchange" for massive developments on the wetland and former wetland areas near the Veterans Auditorium - is outrageous. The City's supposition that the "proposed recreational facility" (or "massive commercial building indoor/outdoor complex") complies with the intent of the deed restrictions to limit "recreational use" to such low-impact uses as walking and nature study is likewise outrageous. It is ridiculous to have the City try to use an obviously illegal stratagem to build on an ecologically important wetlands area that the City used as an open space exchange for massive development on nearby wetlands. **73-6**

As the proposed recreational facility appears to be illegal and in violation of the deed restrictions in regards to (1) open space preservation; (2) the intended definition of recreational use; and (3) limiting high density/high use development, please state whether the City Attorney has reviewed the proposal, and the findings of the legal review. **73-7**

Chapter 12. Noise. The main noise generated by the airport on the eastern side (the project side) of the Airport appears to primarily be composed of airplane take-offs and landscape maintenance. Please compare how many hours a week the Airport generates noise from take-offs and landscape maintenance on its eastern side, and compare this time to the hours of noise that will be generated by cars, people, soccer games, music, etc., by the project. **73-8**

Chapter 7, Biological Resources. Some of the birds noted in this section are commonly seen at the nearby sewage treatment ponds, which are much closer than the distance noted for the birds' "records" in the DEIR. Please define what you mean by "record." Also, were the bird lists from the sewage treatment ponds consulted in the preparation of this section? **73-9**

Page 7-39. M&A biologists quote Jules Evens of Avocet Research Associates statement that "..clapper rails that live in areas with heavy disturbances tend to become more habituated and less elusive..." I do not believe that this quote gives an accurate portrayal of the opinion of either Jules Evens or other Bay Area biologists. It would be more accurate to state that biologists believe that some individual clapper rails at some marshes can become habituated to disturbances, while other clapper rails do not become habituated and vacate the site. Please include in the report that disturbed clapper rails may vacate the site if disturbed. **73-10**

Page 7-37, California Clapper Rail. This section is inadequate, considering that the clapper rail is an endangered species. This section does not note the reason why clapper rails were federally listed in 1970 as endangered species throughout its entire range. Please include in the EIR that the clapper rails were listed as endangered primarily due to habitat destruction. **73-11**

Also, this section does not discuss historic population trends of clapper rails in the marshes of San Francisco Bay. The wetland areas that exist and used to exist at the project site and surrounding areas used to support a large population of clapper rails. Las Gallinas Creek ("Chicken Creek"), which flows on both sides of the airport, was actually named for the clapper rails. Per the Audubon society, the once robust population declined to less than 400 individuals in the San Francisco Bay area in 1992. (Note that the population of California condors reached a low of just 27 birds in 1980.) Please include in the report a discussion of the number of clapper rails living in San Francisco North Bay marshes, including the reasons the population has declined. Also, please note that today - unlike in the late 1800s/early 1900s - scientists, the public, and the City of San Rafael understand the many reasons why wetlands are important. **73-12**

Page 7-38. The DEIR states that clapper rail "...distribution in the North Bay is patchy and discontinuous, primarily in small, isolated habitat fragments." No mention is made in the DEIR of past, present, and future marsh restoration efforts in the North Bay, and efforts to stem the decline of clapper rail populations. Please include in the EIR a discussion of past and present marsh restoration and clapper rail efforts in the North Bay **73-13**

(including the wetlands at China Camp to the south and Hamilton to the north of the Airport), as well as future plans. Also, please note in the EIR that if current habitat in the North Bay for the endangered clapper rail is in "small, isolated habitat fragments," then it is especially critical that these endangered populations and habitat fragments are preserved, encouraged, and "unfragmented."

Page 7-39. The DEIR states that "while the uplands along the levees...may provide some refuge for clapper rails during extreme high tide events, these upland areas provide sub-optimal habitat due to the abrupt transition from the marsh vegetation to the levee weedy habitats. Furthermore, the levees are subject to frequent mowing and on-going maintenance activities, and therefore, provide virtually no escape cover for clapper rails." Please note in the report that refuge from extreme high tides – such as is provided by the uplands along the levees – is absolutely critical to the survival of endangered clapper rails, and note the reasons why this is so. **73-14**

Page 7-66. The ban on pile–driving should be extended to entirely encompass the raising of double-clutches by endangered clapper rails. **73-15**

Safety. Common sense would dictate that the maximum density of persons per acre allowed near airport runways is intended to limit injuries and deaths from the inevitable small plane crashes to 2-3 people on the ground. Please explain why the City of San Rafael is choosing to use mathematical shenanigans (dividing the number of people by the total land area) to attempt to get around the density limit, thus risking public safety and increasing the likelihood that each small plane crash would injure and kill dozens of people at once by hitting soccer players and spectators on the sidelines or bleachers. Please clarify if the City Attorney has reviewed and agrees with the City's unique and illegal interpretation of public safety requirements. Also, please include in the EIR an estimate of how many adults and children might be killed each time a small plane crashed on the playing field, sidelines and bleachers of an outdoor soccer field. **73-16**

General comments:

Soccer, dancing, and gymnastics are all great, but an airport runway on a wetlands area that is a favorite habitat of endangered clapper rails and that was used decades ago for an open-space exchange is not the right place for them. It is hard to understand why the City is bothering to pursue this project when it is clearly illegal on at least two counts (deed restrictions, public safety) and unwise (destruction and degradation of wetland areas and clapper rail habitat). These things cannot be mitigated. **73-17**

The DEIR clearly underestimates the amount of noise, traffic, pollution, habitat degradation, etc. that the proposed project will bring to the open space/wetlands area. For example, note the traffic and parking problems associated with the JCC on North San Pedro Ave, problems that were grossly underestimated in the planning documents. Please present more realistic, practical, and thoughtful statistics in the EIR. **73-18**

The City of San Rafael should try to find an alternative and safer site for soccer, dancing, gymnastics, and bars, preferably by refurbishing an existing building, playing field, schoolyard, or gym. Also, it would be a good idea to locate the project in another, recreationally underserved area - note that McInnis Park near the project site already has two soccer fields, two softball fields, a mini-golf course, a 9-hole golf course, four tennis courts, a skate park, picnic and barbeque areas, a kayak/canoe launch, a movie theater, a recreational airport, and walking paths, not to mention tennis courts, playgrounds, and dance classes in nearby Marinwood; gymnastics classes in the nearby industrial park; and the YMCA just on the other side of the highway. **73-19**

Thank you,

R. R. Moezzi

LETTER 73: R.R. Moezzi, May 12, 2009 (*NOTE: This letter was received following the close of the public review period for the DEIR.*)

RESPONSE 73-1: See MASTER RESPONSE PD-2, above, which addresses issues associated with the Declaration of Restrictions. Opinion regarding the intent of the Declaration of Restrictions is noted. The Declaration of Restrictions does not address any "exchange", but rather identifies the permitted uses at the portion of the airport site identified as "Parcel B".

RESPONSE 73-2: Opinion regarding the intent of the Declaration of Restrictions with respect to minimizing development of wetlands by permitting "private and public recreational uses" is noted. Opinion regarding intent of the Declaration of Restrictions to preclude development of the Project site as proposed is noted. The "public understanding" of the term "private and public recreational uses" as it appears in the Declaration of Restrictions may be subject to differing interpretations, and even if it could be clearly defined, this would not alter the text of the Declaration of Restrictions.

RESPONSE 73-3: Opinion regarding the intent of the Declaration of Restrictions with respect to minimizing development of wetlands areas is noted. As indicated in the DEIR, although jurisdictional wetlands have been delineated at the Project site, no Project-related development is proposed in any delineated jurisdictional wetlands.

RESPONSE 73-4: It is not known whether or not the provisions of the Declaration of Restrictions were clearly understood by the current property owner at the time of acquisition of the airport site. It is beyond the scope of the DEIR to speculate on the extent to which the property owner may or may not have been aware of the provisions of the Declaration of Restrictions.

RESPONSE 73-5: Operations which this comment might characterize as "illegal" would not be a California Environmental Quality Act (CEQA) issue, as the activities in question would be existing and within the baseline for the environmental analysis. However, the City conducted a thorough review of airport uses and adopted a Master Use Permit in 2001, through an extensive public process which has established the current baseline for existing and permitted uses which is the same as used for this EIR. Following issuance of the current Master Use Permit UP99-9 (approved on March 19, 2001 by City Council Resolution No. 10795), and annual reviews that have been conducted through year 2005, there are no illegal operations currently known or identified at the airport site. Concerns regarding uses established after the use permit approval have been deemed resolved by the City. The airport site has completed all improvements and established permitted uses as allowed under MUP 99-9.

RESPONSE 73-6: Opinions regarding the City of San Rafael's understanding of the intent of the Declaration of Restrictions, and the legality of allowing development of the Project site

as proposed, are noted. See MASTER RESPONSE PD-2, above, which addresses issues associated with the Declaration of Restrictions. As indicated in the DEIR, although there are portions of the Project site which have been identified as jurisdictional wetlands, no Project-related development is proposed on any identified jurisdictional wetlands at the Project site.

RESPONSE 73-7: Opinion that the development of the Project site as proposed is illegal and violates deed restrictions is noted. The City Attorney has reviewed the Project and DEIR, and the Declaration of Restrictions has been subject to prior legal challenge and deemed enforceable. The General Plan land use restriction implements the Declaration of Restrictions. The City Attorney has advised that the Applicant may pursue the current application request under the terms of the restrictions contained within the Declaration of Restrictions.

RESPONSE 73-8: As indicated on DEIR page 12-2, two noise descriptors are L_{eq} (the energy-equivalent noise level) and L_{dn} (a 24-hour noise descriptor that adds a 10-dBA penalty to nighttime noise levels [10:00 PM to 7:00 AM] to account for people's increases noise sensitivity during the night). Although noise levels associated with individual aircraft taking off or landing would range from 70 dBA to 100 dBA (L_{max}), over the course of a 24-hour day the existing noise level at the Project site with aircraft operations taken into account ranged from 53 dBA to 58 dBA (L_{dn}). Instead of the isolated effects associated with a relatively small number of aircraft takeoffs and landings during a typical day (which contribute in large part to the relatively high existing 24-hour ambient noise levels), noise associated with operations at the Project site would be heard nearly continuously between 9:00 AM and either 10:00 PM or midnight (depending on the day of the week). However, as indicated on DEIR page 12-16: "When the Project's impact on ambient noise levels is considered on a 24-hour basis, the Project's estimated soccer field-related noise levels would not raise existing ambient noise levels (49 dBA to 54 dBA L_{dn} at the nearest residences) by more than 3 dBA (L_{dn}) or create noise impacts that would increase noise levels more than 60 dBA (L_{dn}) at the nearest residences."

RESPONSE 73-9: Observations regarding the sightings of birds in the vicinity of the Project site are noted. The DEIR and the supporting biology report discuss the closest known California Natural Diversity Data Base (CNDDB) records for various special-status species. This data base is maintained by the California Department of Fish and Game; it does not provide records for common species. The records that were reported in the DEIR are from CDFG's RareFind 3.1 application (CNDDB 2007). Bird lists from sewage treatment ponds were not consulted as part of the background research for the Biological Resources Section of the DEIR and the supporting biology report, since the bird species found on or near the Project site and the adjacent marsh habitats would be different than those found near sewage treatment ponds.

RESPONSE 73-10: Opinion regarding the accuracy of the portrayal of current biological opinion related to the views expressed by Jules Evens on DEIR page 7-39 is noted. As

indicated in this comment, California clapper rails are mobile, and can move from one area to another for any number of reasons, including disturbance. As indicated on DEIR page 7-39, during the USFWS-approved protocol surveys, California clapper rails were observed in the tidally influenced portion of the marsh along the North Fork of Gallinas Creek, but none were observed on the levees on the Project site. See MASTER RESPONSE BIO-1, RESPONSES to LETTER 39, and RESPONSES to LETTER 40, above, which address Project-related effects on California Clapper Rail and other wildlife.

RESPONSE 73-11: Opinion regarding the adequacy of the DEIR's discussion of California clapper rail and their current presence in the vicinity of the Project site is noted. Opinion that California clapper rail has been listed as an endangered species due primarily to habitat loss is noted. According to the *Baylands Ecosystem Species and Community Profiles* (Goals Project 2000)[21], the primary causes for the decline in California clapper rail populations include habitat loss, hunting, and predation by the introduced red fox (*Vulpes vulpes*).

RESPONSE 73-12: The DEIR addresses historic California clapper rail habitat loss on DEIR page 7-38, although it does not speculate on historic or current population levels of that species. As indicated in this comment, many believe that there is generally a better understanding of the relative importance of wetlands today than there may have been in the past. Please note that the California Environmental Quality Act (CEQA) only requires analysis of the existing (current) condition of a project site at the time the application is filed with the CEQA lead agency (i.e., in this case the City of San Rafael). Population trends are not typically discussed in DEIR documents, unless a project would have a significant adverse effect to a population. The presence of clapper rails in Gallinas Creek is acknowledged in the DEIR, and the potential Project-related impacts to this species are evaluated. The DEIR indicates that the proposed Project will not have a significant effect on the California clapper rail population. In fact, the Project has been planned carefully to avoid impacting this species. See MASTER RESPONSE BIO-1 and RESPONSES to LETTER 40, above, which address Project-related effects on California clapper rail and other wildlife.

RESPONSE 73-13: See RESPONSE 73-12, above, regarding Project-related effects on California clapper rail. The DEIR evaluates the environmental effects associated with the development of the Project site as proposed. Since no marsh restoration is proposed at the Project site, and no marsh restoration is necessary to mitigate any Project-related impacts, it is beyond the scope of the DEIR to evaluate the effectiveness of marsh restoration projects throughout the North Bay in addressing the decline in California clapper rail populations. The Project Applicant would not be required to implement any marsh restoration projects since the proposed Project will not result in any impacts to marsh habitats. The marsh

[21] Goals Project. 2000. Baylands ecosystem species and community profiles: Life histories and environmental requirements of key plants, fish and wildlife. Prepared by the San Francisco Bay Area wetlands ecosystem goals project. P.R. Olofson, editor. San Francisco Bay regional water quality control board, Oakland, CA

habitats adjacent to the Project site will be completely avoided by the proposed Project. The Project site is a poor candidate for marsh restoration since it is already developed (i.e., is an airport with hangars, warehouses, and infrastructure) and it is a relatively small site. Opinion regarding the importance of preserving "unfragmented" California clapper rail habitat is noted.

RESPONSE 73-14: As indicated on DEIR page 7-39, while the uplands along the levees on both sides of the North Fork of Gallinas Creek may provide some refuge for California clapper rail during extreme high tide events, these upland areas provide sub-optimal habitat due to the abrupt transition from the marsh vegetation to the levee weedy habitats. The proposed Project will not impact the levee along the North Fork of Gallinas Creek. M&A recognizes that clapper rails must occasionally seek refuge in the uplands immediately adjacent to the channel, but it is unlikely that a clapper rail would ever venture beyond the top of the levee along the channel or onto the proposed Project site area due to the absence of suitable habitat (no dense marsh vegetation, no foraging habitat, and no escape cover). Please note that there is an absence of sufficient escape cover beyond the top of the levee as this area is frequently mowed by the airport for fire suppression. This means that the uplands along the levees adjacent to the Project site do not provide California clapper rail with suitable refuge from extreme high tides (as suggested in this comment). Regardless, a 100+-foot development set-back area (creek buffer zone) will be preserved along this channel to provide the clapper rail with this important buffer zone adjacent to the channel. The proposed buffer between the Project site development envelope and the top of the levee varies between 130 feet and over 250 feet. Opinion regarding the importance of suitable refuge areas to the survival of the California clapper rail is noted.

RESPONSE 73-15: Opinion on the need to extend the proposed limitations on pile-driving at the Project site to allow California clapper rail to raise double clutches is noted. The bridge pile-driving dates will be restricted to September 1 and October 15. This "avoidance window" is outside of the California clapper rail, California black rail, and other special-status birds breeding seasons, thereby eliminating the potential that bridge pile driving activities would disrupt breeding attempts.

RESPONSE 73-16: Opinion regarding the need to limit the intensity of use of areas near an active airport to a total of two or three people is noted. Although the DEIR does not speculate on the possible number of casualties in the event of an aircraft accident at the Project site, the methodology utilized to calculate the single-acre intensity use at the Project site (DEIR pages 10-18 through 10-20) was used by Mead & Hunt to evaluate the level of risk associated with the proposed use of the Project site in relation to the single-acre concentration thresholds established in the California Airport Land Use Planning Handbook. Opinion that the methodology employed to estimate the single-acre intensity use at the Project site represents "mathematical shenanigans" is noted. See MASTER RESPONSE PD-1, above, for further clarification on how this assessment has been conducted.

RESPONSE 73-17: Opinion regarding the appropriateness of the Project as proposed being located at the Project site is noted. As indicated in the DEIR, although jurisdictional wetlands have been delineated at the Project site, no project-related development would take place in any delineated jurisdictional wetlands. As indicated in the DEIR, the Project site does not provide habitat for the California Clapper Rail, and no California Clapper Rail were observed at the Project site during the USFWS-approved protocol surveys. Opinion regarding the legality of approving the Project as proposed is noted. Opinion regarding the wisdom of going forward with the Project as proposed is noted. Opinion regarding the extent to which implementation of the mitigation measures identified in the DEIR can effectively reduce potentially significant Project-related environmental impacts to a level considered less than significant is noted.

RESPONSE 73-18: Opinion regarding the accuracy of the DEIR's evaluation of Project-related noise, traffic, pollution and habitat effects is noted. As indicated in the DEIR, although jurisdictional wetlands have been delineated at the Project site, no project-related development would take place in any delineated jurisdictional wetlands. Observations regarding traffic and parking problems associated with other projects in the San Rafael area, and the extent to which those were accurately addressed in associated planning documents, are noted. Request for presentation of "more realistic, practical and thoughtful statistics" in the DEIR is noted.

RESPONSE 73-19: Opinion that the City of San Rafael should locate an appropriate alternative site or structure for the proposed Project (preferably in an area currently underserved by recreational facilities) is noted.

Kraig Tambornini

From: peterbnewman [peterbnewman@marincounty.net]
Sent: Tuesday, May 12, 2009 2:09 PM
To: Kraig Tambornini
Subject: San Rafael Airport/Recreation Facility DEIR hearing

Dear Mr. Tambornini --

I have not written you before re the San Rafael Airport, but I am a member of the SVNA and I have been paying attention over the years to the proposed project.

I only today learned that there will be a meeting tonight at City Hall (re the DEIR) -- which I cannot attend -- so I am writing you directly.

I now live on the hill above Santa Venetia, but my previous residence was at the Deer Valley Apt. complex off of Smith Ranch Rd., so I am intimately familiar with Las Galinas Valley from both sides of the airport, have been a resident on both sides of the airport, hike all over the hills and wetlands in this valley, have decided to live and retire here...

PLEASE COUNT ME AS A CITIZEN WHO IS OPPOSED TO THE CONTEMPLATED AIRPORT EXPANSION. **74-1**

I bought a house here specifically because of the character of this neighborhood, specifically because of the peace and quiet, specifically because of the relatively healthy state of Mother Nature here.

The proposed expansion of the airport will negatively affect my peaceful enjoyment of my property, will negatively affect the wetlands the airport is located in, will negatively affect the traffic loads and noise levels.

Please do not accept the development as currently proposed.

Sincerely,

Peter B. Newman
245 Bayhills Dr.
San Rafael CA 94903
peterbnewman@marincounty.net

LETTER 74: Peter B. Newman, May 12, 2009

RESPONSE 74-1: Opposition to the proposed Project is noted. Opinion regarding the extent to which the proposed development of the Project site as proposed would negatively affect the enjoyment of property near the Project site is noted. As indicated in the DEIR, although jurisdictional wetlands have been delineated at the Project site, no project-related development would take place in any delineated jurisdictional wetlands. Although the DEIR identified potentially significant noise impacts associated with the proposed Project, these could be reduced to a level considered less than significant through the implementation of the related mitigation measures identified in the DEIR. No significant Project-related traffic impacts have been identified in the DEIR, although an impact associated with access to the project site was identified as potentially significant if the existing bridge were to remain in place (this potentially significant access impact could be reduced to a level of less than significant through construction of a two-lane surface within the existing bridge right-of-way). Request that the City not accept the development of the Project site as currently proposed is noted.

May 12, 2009

Kraig Tambornini, Senior Planner
Community Development Department
City of San Rafael

RE: San Rafael Airport Recreational Facility Draft Environmental Impact Report

Dear Mr. Tambornini,

This letter expresses my concerns that the Draft Environmental Impact Report (DEIR) fails to adequately address potential flood issues and levee safety issues. 75-1

Levee ownership, legal, financial responsibility: 75-2

The DEIR states that "the 119.5 .acre airport property includes over 12,000 linear feet of perimeter levees along the North and South Forks of Gallinas Creek." (Chapter 3 and elsewhere)

However Figure 10.1 and Parcel figure on P23 of Environmental Checklist reveal a large portion of the perimeter levee located outside of limits of the airport property. .

➔ ***The City should require the DEIR to reveal details of levee ownership and discuss legal and financial implications in regards to public safety and potential economic loss in regards to levee maintenance, repair, overtopping, breach, and / or catastrophic failure.***

Elevations:

75-3

The DEIR (Chapter 3 and elsewhere) states that: "The land within the levees is situated at 0 – 3 feet elevation above mean sea level and the perimeter levees are 9 feet above mean sea level." However, grading maps (Chapter 3) show elevations inside levees ranging from 2 feet below to over 4 ft above msl and elevation on portions of levee included in grading maps is 8 ft. Casual visual inspection rreveals definite variances in levee height including areas that appear well below 8 or 9 ft. possibly due to erosion and subsidence.

➔ ***Knowledge of levee elevations is critical in considering the effects of sea level rise and potential for levee overtopping and levees are only as safe as their weakest link. Therefore the City should require the DEIR include a current survey of the entire levee with maximum one ft elevation contours.***

DEIR Flood Proofing Discussion:

75-4

The DEIR discussion of floodproofing is convoluted, contradictory, and unintelligible. See Attachment containing excerpts from DEIR

➔ ***City should require DEIR to be re-written to remove flood-proofing contradictions discrepancies. The decision makers and public need to know if the DEIR is specifying Wet or Dry Floodproofing.***

Wet Flood Proofing:

Excerpts from: FEMA Technical Bulletin (TB) 7-93: Wet Floodproofing Requirements which I am including as Attachment Two: (note: emphasis exactly as shown in TB 7-93)

"The basic characteristic that distinguishes wet floodproofing from dry floodproofing is the internal flooding of a structure as opposed to providing essentially watertight protection." (Page 1.)

"..residential structures in A zones must be constructed with their lowest floors elevated to or above the BFE. Non-residential structures constructed in A zones must either have their lowest floors elevated to or above the BFE or be dry floodproofed (made watertight to or above the BFE. Measures to accomplish dry floodproofing of non-residential structures must not only provide watertight protection but also must be designed to withstand hydrostatic, hydrodynamic, and impact forces produced by flooding. The intent is to provide complete protection at least up to the floodproofing design level which must, at a minimum, be at the BFE.. . .

In accordance with the NFIP, there are limited enclosed areas . . .where the community may allow wet floodproofing without a variance . . . These are limited to:

"..New construction . . .of residential and not-residential structures whose lowest floors have been constructed at or above the BFE may be constructed with enclosed areas below the BFE. These areas must: (1) be used solely for parking, building access, or limited storage, be designed to allow for the automatic entry and exit of flood waters through the use of openings, and (3) be constructed of flood resistant materials." (Page 2)

The above excerpts, and NFIP regulations, and planning and engineering considerations contained in TB 7-93 clearly indicate that Wet floodproofing is only allowable without a variance solely for 3 uses: parking, limited storage, and entry and therefore not under the discretionary authority of Public Works to authorize for use on the proposed project.

➔ ***The City should require the DEIR to include TB-7-93 if wet floodproofing is discussed. If wet floodproofing is being recommended for the proposed project, the DEIR should cite the statutory authority permitting Public Works override Federal NFIP regulations and San Rafael Title 18.***

Dry Floodproofing

The NFIP underwrites flood insurance coverage only in those communities that adopt and enforce floodplain regulations that **meet or exceed** NFIP criteria:

"*Any community may exceed the minimum criteria under this part by adopting more comprehensive flood plain management regulations . . . In some instances, community officials may have access to information or knowledge of conditions that require, particularly for human safety, higher standards than the minimum criteria . . . Therefore, any flood plain management regulations adopted by a State or a community which*

are more restrictive than the criteria set forth in this part are encouraged and shall take precedence." (Title 44, Chapter 1, Section, 60.1) (emphasis added)

NFIP and Title 18 require a decision be made in the case of non-residential development:

*"Require that all new construction . . of nonresidential structures . . (i) have the lowest floor . . .**elevated to or above the base flood level** **or**, (ii) . . . be designed so that **below the base flood level the structure is watertight;**"*

NFIP and Title 18 regulations caution against permitting that new development that will be not be protected from the flood levels shown on the FIRM or would subject the community to future danger, costs and suffering. i.e:

*"Methods of reducing flood losses. - In order to accomplish its purposes, this title includes methods and provisions to: A. **Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards**, or which result in damaging increases in erosion or flood heights or velocities; B. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction; (18.10.040)*

***'Buildings that are permitted to be constructed below the base flood elevation are subject during all those years to increased risk of damage from floods, while** future owners of the property and **the community as a whole are subject to all the costs, inconvenience, danger, and suffering that those increased flood damages bring.** (18.20.010)*

The NFIP provides the maps and regulatory basis for local floodplain management. The success of the NFIP depends on the people responsible for administering its mapping, regulatory and insurance aspects and the local officials responsible for administering and enforcing local floodplain management regulations.

➔ ***The DEIR fails to provide decision makers and the public with the information of necessary to determine if site conditions require, particularly for human safety, higher standards than the minimum criteria. If the DEIR is recommending Dry Flood proofing for the proposed project, it should discuss in detail how the proposed project will provide the minimum Planning Considerations outlined in pages 3-5 of FEMA TB 3-93, included in DEIR Appendix I .***

ADA and egress safety

75-5

"Like all construction that falls under the NFIP regulations, the building must meet the requirements of all applicable portions of local and State building codes, including the provisions of the Americans with Disabilities Act; life-safety codes for ingress, egress, and clearing" (FEMA TB 3-93, Page 9 included in DEIR as Appendix I)

➔ ***The City should require the DEIR to detail what measures the proposed project would take to ensure ADA compliancy and to provide for safe public egress.***

2

Levee Safety

75-6

The proposed project site at 6 feet below Base Flood Elevation is only as safe as the safety of the perimeter levee surrounding the site.

DEIR states at Page 11-35: "All portions of the proposed building will be wet floodproofed . .(and) .. the site is protected by nine-foot levees. If a 0.5-foot rise in the Bay were to occur by 2050, inundation would not occur on the Project site."

However the DEIR has failed to provide substantiation for the above statement and has failed to prove that the levees are sufficiently safe. Any rise in sea level will provide more hydrostatic pressure on a levee that has not been shown to be structurally sound.

1) Levee Certification:
In order for FEMA to certify that a levee is capable of providing protection during a 100-year flood, the system must be able to meet the standards outlined in Section 65.10 of 44 Code of Federal Regulations. Certification for existing levees includes, but is not limited to, an evaluation of the levee's freeboard, design criteria, embankment protection, interior drainage, and its operations and maintenance plan..

If the flood hazard map (Flood Insurance Rate Map or FIRM) shows the area behind a levee as a **moderate risk zone**, this is an indication that the flood protection structure has either been evaluated and found to meet all of the NFIP requirements for flood control structures, or has been certified by a Federal agency with levee design responsibility as having been adequately designed and constructed to provide protection from the 100-year flood.

A levee that provides a lower level of protection, and that is not certified or does not meet the requirements for levees, is shown on the FIRM as **a high-risk area, or Special Flood Hazard Area ,** and flood elevations are computed as if the levee did not exist. The airport site is shown on the FIRM as Zone A1 Special Flood Hazard Area.

→The levee is not certified and does not meet NFIP requirements to define the area behind the levees as a moderate risk zone.

DEIR provided levee related information provided in the immediate area of the proposed site indicates the levee is potentially unsafe. 75-7

2) Levee seepage:
The Biological Study states: "There are several wetland areas located immediately north of the proposed Project site. . .Some of these wetland areas appear to have developed as a result of seepage from the levee along the North Fork of Gallinas Creek; during high tide events these areas become saturated. (DEIR Page 7-24 and Figure 7-1)

The only area studied and therefore the only seepage identified was in the immediate vicinity of the proposed project site. The DEIR failed to address this so it is unknown

how extensive this potentially dangerous situation is along the inside perimeter of the 1200 ft levee system.

➔ ***Seepage, which is movement of water through the levee from the creek side to the dry side, can cause levee material to wash away, undermining the stability of the levee and leading to eventual overall levee failure.***

3) Levee slope and elevation: **75-8**

DEIR Figure 3-15, Grading and Drainage 5, shows the levee within 200 feet or so of the project to have **extremely steep slope** with elevations at the top of the levee at 8 ft and elevations in the area between the project site and the levee at 1 to 2 feet below msl.

Katrina and the June 2004 Jones Tract levee breech dramatically illustrated that **elevation alone does not provide security.** In fact it may have the opposite effect of fostering complacency and a false perception of security. Among the many factors any levee assessment must take into account is the **structural stability** of the levee to contain floodwaters.

➔ ***Excessively steep levee slope near proposed project site indicates lack of structural soundness.***

4) Rising Sea Levels: **75-9**

The weight of water applies hydrostatic pressure on the levee.. The deeper the water, the more it weighs and the greater the hydrostatic pressure. Because water is fluid, it exerts the same amount of pressure sideways (lateral pressure) as it does downward. As water gets deeper, it exerts more lateral pressure.

Each additional foot of water depth exerts an additional 62.4 pounds per square inch of pressure on the levee. At current Base Flood Elevation there is about 375 pounds per square foot of lateral pressure which would increase to 405 pounds of pressure with only a half foot increase in water depth. (Hydrostatic Flood Force: DEIR Appendix I, FEMA Tech. Bulletin 3-93, pages 6,7)

Levees can and do decay over time, and maintenance can become a serious challenge. Many things can weaken levees and when they fail, they often fail catastrophically.

➔ ***Rising sea levels will cause increased hydrostatic pressue which could cause the levee to fail if it is not structurally sound.*** .

➔ ***The City should require the DEIR to study and describe the structural stability of the levee including existing problems of seepage, unstable slope, and other potential problems that occur in earthen levees. The DEIR should describe the levee design criteria, the operation and maintenance plan, and the levee's ability to withstand increased hydrostatic pressure caused by sea level rise.*** **75-10**

Inadequate Geotechnical Information 75-11

The DEIR includes a Geotechnical Investigation Report prepared by John Hom and reviewed by Kleinfelder, Inc., with response by Hom (DEIR Appendix H)

Kleinfelder's Peer Review states in part: (emphasis mine)
"Our **principal comment is that the building site appears to be six feet or so below the 100 – year flood elevation.** **The geotechnical report does not address this fact** . .The flood insurance rate map . . . indicates the proposed site is located in Zone A1, . . with a 100-year flood elevation of +6. . . . .the geotechnical report should discuss flood hazards at the site. We suggest that the geotechnical report should also state both existing and proposed elevations. . . **Is it proposed that the finished floor elevation will be several feet below the 100 year flood elevation?"**

Hom's reply : "As a result of a meeting with the Project Civil Engineer, City of San Rafael, and Department of Homeland Security, the project needs to be **floodproofed"**

It appears Mr. Hom did not notice the proposed site was in a flood plain or did not think it was important. Neither Hom nor Kleinfelder mentioned the "protective levee." Therefore the Geotechnical report did not address the issue of the structural integrity of the levee that protects the entire Airport and proposed project site.

DEIR Chapter 9, Page 25 lists San Rafael General Plan 202 Safe Community Goal 28 and relevant Policies. Policy S-4 and S-4a describe required Geotechnical Review:

The Geotechnical Report included in the DEIR fails to fulfill the requirements outlined in San Rafael General Plan Appendix F Geotechnical Review.

➔ Page 402 states "Geo-seismic hazards include . . flooding" and identifies Bay Mud as Hazard Zone 4
➔ Page 403 states "It is the City's policy to evaluate not only the development site and its effect on adjacent properties, but also adjacent properties that may affect the site"
➔ Page 403 also states that "the content of each level of report should include, but may not be limited to the items listed below."
➔ Item 8 on Page 403: "Preparation of a written report which includes the following information: . . . f) A discussion of the engineering aspects of the site. . .The discussion should address . . .stability of . . constructed embankments."
➔ Item 9 of Geotechnical Investigation Report on Page 404: A slope stability analysis for embankments constructed on Bay Mud.."
➔ Page 408 Glossary: "embankment – a linear structure, usually of earth … constructed so as to extend above the natural ground surface and designed to hold back water from overflowing a level tract of land . . e.g. a dike, . . .

➔ ***The City should require the Geotechnical report to include the minimum requirements of General Plan 2020 Geotechnical Review including a slope stability analysis of the entire 1200 linear foot levee that "provides protection."***

Note: The Obercamper levee breach scenario is just that . . a scenario and not a geotechnical report. It does not contain an engineering professional stamp, does not provide formulas fpr calculations of velocities used, and most importantly looks at only one, highly improbable scenario . . that the levee would only breach down to 3 ft msl which is about the equivalent elevation of a 6 ft mllw high tide. Given the land elevations inside the levees of < 0 msl, it is more likely that the levee, once breached would breach down much further. 75-12

Therefore the Obercamper levee breach scenario does not prove anything and certainly does not replace the necessity of a slope stability and structural integrity analysis of the levee.

Impacts on Levees of Pile Driving Vibrations:

75-13

The DEIR addressed possible impacts of Pile Driving vibrations on adjacent properties: (DEIR Page 9-32) "the geotechnical investigation . . recognized that pile driving could cause vibration resulting in cosmetic damage to adjacent properties. . . analysis determined that the estimated construction vibration would be less than 0.1 in/sec PPV at 200 feet " . However it does not address the possible impacts on the Levee structure.

➔ ***Because the top of the levee is only 160 feet from the proposed structure, the City should require the Geotechnical Report to include analysis of pile driving vibrations on the stability of the levee.***

Sincerely,

Frances Nunez
209 Vendola Dr.
San Rafael, Ca 94903

Attachment One: **Flood Proofing Discussion - DEIR Excerpts**
Attachment Two: **NFIP Technical Bulletin 7-93 – WET Floodproofing**
Attachment Three: **SR General Plan 202 Appendix F – Geotechnical Review**

Attachments 1-3
Frances Nunez 5/12/2009
DEIR comment letter

ATTACHMENT ONE – FLOOD PROOFING DISCUSSION – DEIR EXERPTS

(What follows is only a portion of Flood Proofing discussion in DEIR. Emphasis added)

Chapter 2 – Executive Summary – P. 2-31

Impact Hyd-2: Flooding as a result of Levee Failure . . Unless FEMA-established wet flood-proofing standards are implemented to protect the buildings in the event of flooding, this impact is considered potentially significant **–Recommended Mitigation Measures - MM Hyd-2a: Wet Flood-proofing**

Chapter 3 – Project Description - P. 3-19,:

FEMA has advised that in order to satisfy their flood control requirements, the building will need to be dry flood-proofed to an elevation of 7 feet NGVD. This means that the **building walls must be substantially impermeable to the passage of water.**

Chapter 11 – Hydrology P 11- 32

The **Public Works Department, in consultation with FEMA, has determined** that this proposed recreational use would be similar to the types of uses that are allowed to be built under the +7 feet standard as long as the portion of the building below +7 feet is flood-proofed. In order to ensure compliance with the non-residential **flood-proofing standards** established by FEMA, the following mitigation measures are recommended: **MM Hyd-2a Floodproofing. ...** portions of the building below +7.0 NGVD shall be flood proofed according to . . . FEMA ***Technical Bulletin 3-93*** (see Appendix I): • The building must be **watertight** to the floodproof design elevation of +7 NGVD. The **building's walls must be "substantially impermeable to the passage of water**

Appendix – Project Consistency with the SR General Plan – Page 15

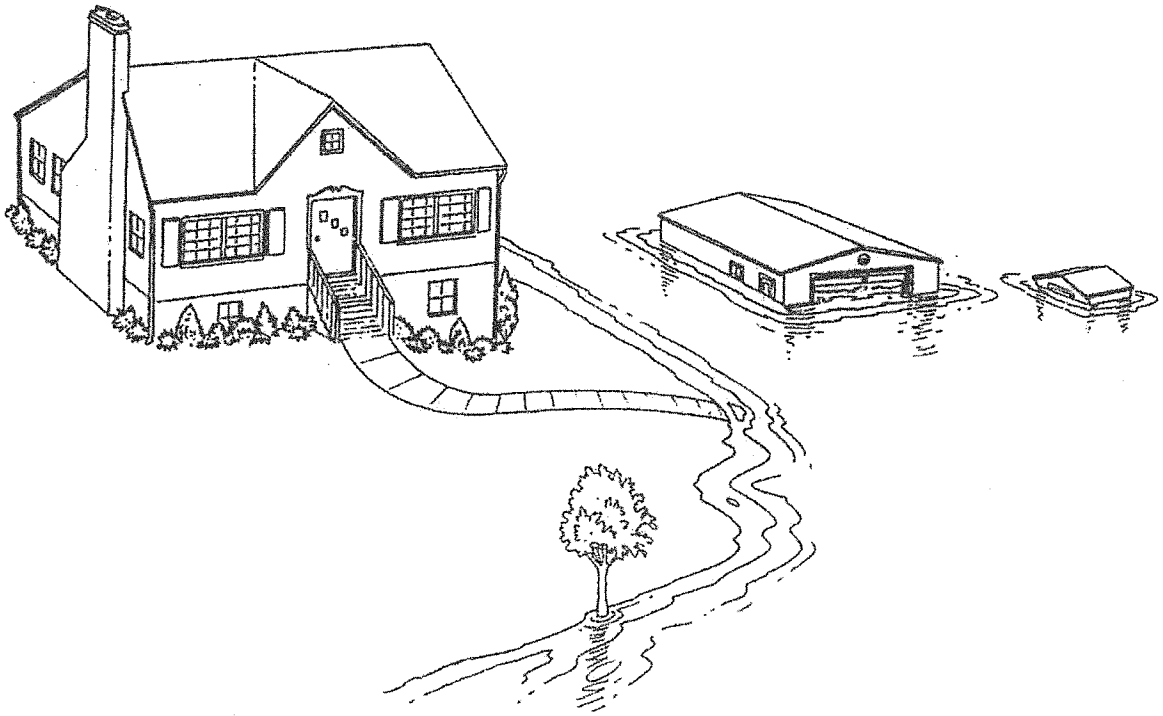
S-17. Flood Protection of New Development. . . . The **Public Works Department, with consultation with FEMA**, has determined that this proposed recreational use would be similar to the types of uses that are allowed to built under the +7' standard as long as the portion of the building below +7' is **flood-proofed**. In order to ensure compliance with the **wet flood-proofing** standards established by FEMA, mitigation measures have been identified in the EIR.

. . . there has been concern a potential breech in the levee may pose a safety impact due to water rushing into the site. . . . **Public Works Department and FEMA re-evaluated** the flood zone requirements and mitigation measures identified in the Initial Study. **Based on this further reevaluation,** the project would be required to be **dry flood-proofed, rather than wet flood-proofed,** and has proposed this as part of the project. **Dry flood proofing means** that the structure would be built in accordance with standards to ensure that it is **impenetrable to flood waters**

Technical Bulletin 7-93

Wet Floodproofing Requirements

for Structures Located in Special Flood Hazard Areas in accordance with the National Flood Insurance Program



FEDERAL EMERGENCY MANAGEMENT AGENCY
MITIGATION DIRECTORATE
FEDERAL INSURANCE ADMINISTRATION

FIA-TB-7
12/93

Key Word/Subject Index:

This index allows the user to locate key words and subjects in this Technical Bulletin. The Technical Bulletin User's Guide (printed separately) provides references to key words and subjects throughout the Technical Bulletins. For definitions of selected terms, refer to the Glossary at the end of this bulletin.

Any comments in the Technical Bulletins should be directed to:

FEMA/Mitigation Directorate
Program Development Branch
500 C St., S.W.
Washington, D.C. 20472

Technical Bulletin 7-93 replaces Technical Bulletin 85-1 (draft) "Wet Floodproofing"

Graphic design based on the Japanese print *The Great Wave Off Kanagawa*, by Katsushika Hokusi (1760-1849), Asiatic collection, Museum of Fine Arts, Boston.

TECHNICAL BULLETIN 7-93

Wet Floodproofing Requirements for Buildings Located in Special Flood Hazard Areas in Accordance with the National Flood Insurance Program

INTRODUCTION

This bulletin describes planning, design, and construction requirements for wet floodproofing certain types of structures and their uses under the National Flood Insurance Program (NFIP). The basic characteristic that distinguishes wet floodproofing from dry floodproofing is the internal flooding of a structure as opposed to providing essentially watertight protection. Specifically, wet floodproofing can be defined as:

> Permanent or contingent measures applied to a structure and/or its contents that prevent or provide resistance to damage from flooding by allowing flood waters to enter the structure.

Flooding of a structure's interior is intended to counteract hydrostatic pressure on the walls, surfaces, and supports of the structure by equalizing interior and exterior water levels during a flood. Inundation also reduces the danger of buoyancy from hydrostatic uplift forces. Such measures may require alteration of a structure's design and construction, use of flood-resistant materials, adjustment of building operation and maintenance procedures, relocation and treatment of equipment and contents, and emergency preparedness for actions that require human intervention.

In accordance with the NFIP, Wet Floodproofing is allowed in only limited situations

Application of wet floodproofing as a flood protection technique under the NFIP is limited to specific situations in A Zones (including A, AE, A1-30, AH, AO, AR zones). For certain uses and types of structures described in this bulletin, communities may allow wet floodproofing only through the issuance of a variance from certain floodplain management requirements. The situations and conditions in which a community may allow wet floodproofing are described in detail in the section entitled **Applicability**.

For structures in V zones (includes V, VE, V1-30 zones), more stringent design and construction requirements have been established for the portion of a structure below the Base Flood Elevation (BFE). For information on V-zone design and construction requirements, refer to the NFIP regulations under 44 CFR Section 60.3, the Technical Bulletin series, and FEMA's "Coastal Construction Manual" (FEMA 55).

APPLICABILITY

New Construction and Substantial Improvements of Residential and Non-Residential Structures

An important objective of the NFIP is to protect structures constructed in floodplains from flood-induced damage. In support of this objective, the NFIP regulations include building design and construction criteria that apply to new construction and substantial improvements (including structures which have incurred substantial damage) of existing structures in Special Flood Hazard Areas (SFHA). According to these criteria, residential structures in A zones must be constructed with their lowest floors elevated to or above the BFE. Non-residential structures constructed in A zones must either have their lowest floors elevated to or above the BFE or be dry floodproofed (made watertight) to or above the BFE. Measures to accomplish dry floodproofing of non-residential structures must not only provide watertight protection but also must be designed to withstand hydrostatic, hydrodynamic, and impact forces produced by flooding. The intent is to provide complete protection at least up to the floodproofing design level which must, at a minimum, be at the BFE.

Note: To receive a flood insurance rate based on 100 year flood protection, the structure must be dry floodproofed to an elevation at least 1 foot above the BFE. (i.e. 1 foot of freeboard)

In accordance with the NFIP, there are limited enclosed areas within newly constructed and substantially improved residential and non-residential structures where the community may allow wet floodproofing without a variance as a flood protection technique. These are limited to:

Enclosed areas below the BFE that are used solely for parking, building access, or limited storage. New construction and the substantial improvement of residential and non-residential structures whose lowest floors have been constructed at or above the BFE may be constructed with enclosed areas below the BFE. These areas must; (1) be used solely for parking, building access, or limited storage, (2) be designed to allow for the automatic entry and exit of flood waters through the use of openings, and (3) be constructed of flood resistant materials.

Attached garages. A garage attached to a residential structure, constructed with the garage floor slab below the BFE, must be designed to allow for the automatic entry of flood waters. Openings are required in the exterior walls of the garage or in the garage doors. In addition to allowing the automatic entry of flood waters, the areas of the garage below the BFE must be constructed with flood resistant materials. Garages attached to non-residential structures must meet the aforementioned requirements or be dry floodproofed. For guidance on below-grade parking areas refer to Technical Bulletin 6, "Below-Grade Parking Requirements".

Certain categories of structures where FEMA has advised communities that variances to allow wet floodproofing may be issued.

Communities must determine whether a variance from local floodplain management regulations may be issued to allow wet floodproofing for the categories of structures described in this section. To make such a determination, the community must, at a minimum, apply the NFIP variance criteria set forth in the 44 CFR Section 60.6. Included in these criteria is the requirement that the variance be the minimum necessary to afford relief, considering the flooding conditions at the site. This means that when a community issues a variance from elevation or dry floodproofing requirements, the structure must still be protected to the maximum extent possible using an appropriate alternative flood protection technique, such as wet floodproofing. To properly administer the granting of a variance for wet floodproofing, communities should have variance review procedures in place. These variance procedures must be within the bounds of State enabling law and meet the minimum requirements of the NFIP.

Variances to allow wet floodproofing may be issued for the following categories of structures. **These structures must comply with floodway encroachment provisions of the NFIP Regulations in accordance with section 60.6(a)(1).**

Structures Functionally Dependent On Close Proximity to Water: Certain structures that must be located near water are functionally dependent uses, as defined in section 59.1, and are permitted to be wet floodproofed after the issuance of a variance from NFIP elevation and dry floodproofing requirements. These structures may include certain types of docking, seafood processing, and port facilities associated with marine activities. Specific criteria for issuing a variance for functionally dependent uses are established in section 60.6(a)(7). These include the requirement that the structure or other development be protected by methods that minimize flood damage and create no additional threat to public safety.

Historic Buildings: Under section 60.6, variances may be issued for the repair and rehabilitation of historic structures, as defined in Section 59.1, upon the determination that the proposed repair or rehabilitation will not preclude the structure's continued designation of a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.

Accessory structures, used solely for parking (two-car detached garages or smaller) or limited storage (small, low-cost sheds): If a community wishes to allow a non-elevated/non-dry floodproofed accessory structures, the community must establish the meaning of low-cost and small accessory structures. Communities may allow wet floodproofing of these structures provided that they represent a minimal investment and are designed to have a low damage potential with respect to the structure and contents.

The following requirements, at a minimum, must be attached to the variance for an accessory structure:

1) it must be anchored to resist flotation, collapse, and lateral movement;

2) the portions of these structures located below the BFE must be constructed of flood-resistant materials;

3) it must be designed to allow for the automatic entry of flood waters;

4) mechanical and utility equipment must be elevated or floodproofed to or above the BFE;

5) it must comply with the floodway encroachment provisions of the NFIP Regulations; and

6) its use must be limited to parking and/or limited storage.

Some communities have included provisions in their floodplain management ordinance for permitting the construction of these low-cost, small detached accessory structures. Communities wishing to regulate the placement of such structures in this manner should contact their FEMA Regional Office for guidance and assistance.

Certain Agricultural Structures: FEMA recognizes that wet floodproofing may be appropriate for certain types of agricultural structures located in wide, expansive floodplains. A variance may be issued only if the structure is used solely for agricultural purposes in which the use is exclusively in connection with the production, harvesting, storage, drying, or raising of agricultural commodities, including the raising of livestock. Only in circumstances when it can be demonstrated that agricultural structures can be designed in such a manner that results in minimal damage to the structure and its contents and will create no additional threats to public safety, may a variance be issued. Because the wet floodproofing of a new agricultural structure with the lowest floor below the BFE is not in conformance with NFIP requirements, any variance issued must address both the nonconforming flood protection technique and the restriction of use to the above-described agricultural purposes. Types of agricultural structures that may be wet floodproofed following the issuance of a variance are:

- **Farm Storage Structures** used exclusively for the storage of farm machinery and equipment (e.g., pole and pre-fabricated metal frame structures with open or closed sides).

- **Grain bins.**

- **Corn cribs.**

- **General purpose barns** for the temporary feeding of livestock, provided they remain open on at least one side.

In addition to the variance requirements 1-5 under the Accessory Structure category presented above, a variance for an agricultural structure must also be limited to agricultural purposes.

Existing (Pre-FIRM) Structures That Are Not Substantially Improved or Substantially Damaged

For existing structures that are not being substantially improved or that have not been substantially damaged, the NFIP elevation and dry floodproofing regulations do not apply. Owners may voluntarily choose to wet floodproof such a particular structure to reduce potential flood damage. Many existing structures are constructed of materials that are generally permeable to flood waters, difficult to make watertight, or unsuitable for flood protection techniques other than elevation or relocation. Although it may be technically feasible to retrofit some older structures by sealing the perimeter walls and creating a watertight structure, it is often unadvisable to do so because of high probability that the dry floodproofing will fail due to some unforeseen factor in these usually non-engineered, older structures. In these cases, wet floodproofing and flood protection through either relocation or elevation of structures may offer the only technically viable flood-damage reduction alternatives. In some situations, wet floodproofing may be the only realistic economic alternative for existing structures that are not substantially improved or damaged.

INSURANCE IMPLICATION

It must be emphasized that variances are granted with respect to floodplain management requirements and do not affect flood insurance rates. The Federal Insurance Administration, by statute, must charge insurance rates commensurate with the risk to which a building is exposed. Insurance rates for buildings constructed under variances are generally higher than rates for a comparable structure that is fully compliant. In some instances the additional costs of insuring these buildings, if they are not elevated or floodproofed in accordance with the NFIP requirements, would approach or even exceed the costs of meeting NFIP elevation or dry floodproofing requirements, and the structure would still be exposed to flood damages.

In accordance with the NFIP regulations, communities must notify the applicant in writing that the issuance of a variance will result in increased premium rates for flood insurance and that such construction below the BFE increases risks to life and property [44 CFR 60.6(a)(5)].

NFIP Regulations

44 CFR Section 60.3 (a)(3) of the NFIP regulations requires that the community must:

> ***"Review all permit applications to determine whether proposed building sites will be reasonably safe from flooding. If a proposed building site is in a flood-prone area, all new construction and substantial improvements shall (i) be designed (or modified) and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, (ii) be constructed with materials resistant to flood damage, (iii) be constructed by methods and practices that minimize flood damages, and (iv) be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding."***

NFIP regulations require that all enclosures below the BFE in A Zones must either be designed to allow for the equalization of hydrostatic forces during a flood event or be floodproofed. When water is allowed to enter, section 60.3(c)(5) of the NFIP regulations states that a community shall:

> ***"Require for all new construction and substantial improvements, that fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access, or storage in an area other than a basement and which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of flood waters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria: A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding is provided. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of flood waters."***

Section 60.3(d)(3) places further restrictions on construction in floodways by stating that a community shall:

> ***"Prohibit encroachments, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base flood discharge."***

Concerning the issuance of variances, section 60.6(a)(3) states:

> ***"Variances shall only be issued by a community upon (i) a showing of good and sufficient cause, (ii) a determination that failure to grant a variance would result in exceptional hardship to the applicant, and (iii) a determination that granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances;"***

And section 60.6(a)(4) states that

> ***"Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief;"***

Concerning functionally dependent uses under the NFIP variance criteria, "Functionally dependent use" is defined in section 59.1 as:

> ***"Functionally dependent use means a use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo and passengers, and ship building and ship repair facilities, but does not include long-term storage or related manufacturing facilities."***

Section 60.6(a)(7) states that:

> ***"Variances may be issued by a community for new construction and substantial improvements and for other development necessary for the conduct of a functionally dependent use provided that (i) the criteria of paragraphs (a)(1) through (a)(4) of this section are met, and (ii) the structure or other development is protected by methods that minimize flood damage during the base flood and create no additional threats to public safety."***

Concerning granting variances for historic structures under the NFIP variance criteria, section §60.6(a) states that:

> ***"...Variances may be issued for the repair and rehabilitation of historic structures upon the determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure."***

Lastly, concerning granting variances in designated floodways, section 60.6(a)(1) states that:

> ***"Variances shall not be issued by a community within any designated regulatory floodway if any increase in flood levels during the base flood discharge would result;"***

Note: Readers are strongly advised to become familiar with all provisions of section 60.6.

It should be noted that Technical Bulletins provide guidance on the minimum requirements of the NFIP regulations. Community or State requirements that exceed those of the NFIP take precedence. Those contemplating wet floodproofing a structure should contact the community to determine whether more restrictive local or State regulations apply to the structure or site in question. All applicable standards of the State or local building code must also be met for any structure in a special flood hazard area.

Planning Considerations

A review of the following factors for the site in question will assist in determining whether wet floodproofing is appropriate. For example, if a site will be subject to rapidly rising, high-velocity flood waters during a flood, and the available warning time is short, then the site is unsuitable for a wet floodproofed structure. In this situation, elevation or relocation of the building outside the floodplain would be the preferred alternatives.

Warning Time

The rate-of-rise of flood waters for the site in question, the established flood warning system (if any), the flood warning time available, and the reliability of the flood warning must be reviewed to determine appropriate wet floodproof design elements. The rate-of-rise or the flood warning time available through an existing reliable (community-based or regionally-based) flood warning system must be adequate to provide sufficient lead time to evacuate a flood prone structure when flooding threatens. In addition, sufficient warning time must exist to successfully implement a plan that requires human intervention which would include such items as the removal of equipment or contents, or the elevation of contents within the structure. Wet or dry floodproofed structures are not appropriate for any site in a flash flood area, because of the potentially short warning time.

Safety and Access

Safe access to a wet floodproofed structure may be a critical factor in the determination of whether wet floodproofing is an appropriate design alternative. It is anticipated that most wet floodproofed structures will not need to be accessed during flooding. In situations where there is a need to access the structure during conditions of flooding, safe access shall be considered. In 1987, Colorado State University conducted a study of human stability in flood flow conditions based on the product number of depth of flow multiplied by the floodwater velocity. Results of this study indicated that any floodplain location with a product number of 4 or greater (depth in feet multiplied by velocity in feet per second) will create a hazard for anyone attempting to escape from or gain access to the site. Such sites are only acceptable for wet floodproofed structures if modifications are made to the site to reduce the flood hazard and sufficient warning time is available to safely evacuate the site.

Other flood characteristics that must be considered include:

Floodway Encroachment: Encroachments, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway are prohibited under the NFIP unless it has been demonstrated, through hydrologic and hydraulic analysis performed in accordance with standard engineering practice, that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base flood discharge. Floodways are usually the most dangerous portion of the floodplain, containing the highest velocity and debris-laden flood flows. Extreme caution must be used in the placement of any structure in a floodway.

Duration: The amount of time a structure's interior is flooded presents two major concerns. First, damage due to the deterioration of structural components, interior finishes, equipment/machinery, and contents generally increases with prolonged inundation. The other concern is the financial loss due to business interruption, determined by both the length of time inundated and time to clean-up. Financial losses due to disruption can be extreme.

Flood-Borne Contaminants: Flood waters may contain numerous contaminants and are often caustic and toxic. In urbanized and industrialized areas, floodwater can contain higher amounts of salts, alkalis, oils, wastes, chemicals, and debris. In agricultural areas flood water often contains, herbicides, pesticides, and fertilizers. Based on flooding characteristics, some flooding sources will contain higher concentrates of suspended solids than others. Due to the action of "dirty" floodwater, inundated materials can absorb and surfaces can become coated with mud, debris, and grime, exposing contents and building components to corrosive salts and chemicals. This often leads to residual deposits and odors after flood waters recede. These deposits and odors can render a structure unsafe and non-occupiable for an extended period of time after the flood waters recede.

Frequency: Frequent flooding may render a wet floodproofing strategy infeasible. Detriments that must be assessed include cumulative "wear and tear" effects of recurring inundation and the costs associated with repeated business interruption, frequent remove of contents, and frequent clean-up activities.

Depth: It is difficult to establish a safe range of flood depths for the use of wet floodproofing, and perhaps inappropriate to attempt to do so. It is somewhat more applicable to evaluate limiting factors. Many wet floodproofing actions involve some degree of either permanent or contingent elevation of contents, equipment, and machinery. A maximum depth may be established as the depth that would preclude the use of wet floodproofing procedures that can effectively protect the structure and its contents.

Water Temperature: In very cold weather, ice may pose significant problems in implementing wet floodproofing. The impact of large, water-borne, chunks of ice can damage or destroy a structure, and water that freezes inside of a structure can result

in strong expansive forces that can damage both structural and non-structural building components.

Operational Procedures

The operational procedures aspect of applying wet floodproofing techniques involves both the structure's functional requirements for daily use and the allocation of space, with consideration of each function's potential for flood damage. Daily operations and space use can be organized and modified to greatly reduce the structure and contents vulnerability to damage. The goals are to minimize damage caused by floodwater and to minimize economic losses due to business interruption. The following describes the various operations concerns involved in an effective wet floodproofing concept:

Flood Warning System . Because wet floodproofing will, in most cases, require some human intervention when a flood is imminent, it is extremely important that there be adequate time to execute such actions. Specific time required is a function of the type and degree of actions necessary in addition to the resources available for their implementation. In some areas, it may be possible to benefit from the use of an existing flood warning system. In other cases, however, it will be necessary to independently develop a system. Such a system may be as simple as a weather band radio that operates on a tone alarm from the National Weather Service for smaller watersheds and monitoring river forecast levels for larger watersheds.

Inspection and Maintenance Plan Every wet floodproofing design requires some degree of periodic maintenance and inspection to ensure that all components will operate properly under flood conditions. The necessary inspection and maintenance activities, including inspection intervals and repair requirements, must be described in the Inspection and Maintenance Plan. Components that should be inspected as part of an annual (as a minimum) maintenance and inspection program include opening covers and valves intended to equalize hydrostatic pressure.

Flood Emergency Operation Plan. A Flood Emergency Operation Plan is an integral part of any structure's floodproofing design and is critical when the floodproofing requires human intervention such as adjustments to, or relocation of contents and utilities. While such a plan is recommended for existing structures, it is a requirement for all new structures where human intervention is critical to the proper operation of the floodproofing. An adequate plan for the type of structures discussed in this bulletin shall include a list of specific duties to ensure that all wet floodproofing measures requiring human intervention are addressed. The locations of materials necessary to properly install all floodproofing components must be included in the list.

A pre-determination of the flood stages at which floodwater enters each wet floodproofed structure must be made, along with a pre-determination of the amount of warning time available. Based upon these elements, contingency actions should be

prioritized, particularly any evacuation that will be involved. The plan should be completely tested to ascertain its practicality, and also should be reviewed and updated following a flood event.

Other Considerations

Having considered all of the above, a community may choose to:

limit the size and number of structures that may be wet floodproofed,

restrict the location of wet floodproofed structures to areas where the depth of flooding and/or floodwater velocity will not result in damage to structure or its contents, and/or

consider the possibility of combining elevation and dry floodproofing with wet floodproofing where the level of risk warrants such action.

Engineering Considerations

There are three main components to wet floodproofing a structure; design elements, flood resistant materials, and protection of contents. As with the application of dry floodproofing techniques, developing a wet floodproofing strategy requires site-specific evaluations that may necessitate the services of a design professional.

Protection of the Structure

Hydrostatic forces must be counteracted to prevent wall collapse and flood-induced uplift. This is achieved through the use of wall openings that allow water to enter the structure, thereby equalizing the hydrostatic pressure. The NFIP requirements concerning openings are discussed in Technical Bulletin 1, "Openings in Foundation Walls." In addition, provisions must be made to prevent air trapped within the structure during periods of inundation from becoming pressurized and damaging on the exterior walls and roof. Because structures may become buoyant in the presence of flood water, superstructures need to be designed to prevent separation from the foundation. All structural and non-structural components must be constructed of materials that are durable, resistant to flood forces, and resistant to deterioration caused by repeated inundation by floodwater. Components not inundated with flood water must be able to resistant damage as a result of excessive humidity associated with flooding and post-flood conditions. Technical Bulletin 2 "Flood Resistant Materials" provides specific guidance on which materials are acceptable under the NFIP.

Foundations: The failure of foundations in structures subjected to inundation is a major cause of structural damage. Foundation design is a site-specific process that must take into account local soils and building load conditions. Included in the site analysis should be the influence of hydrologic and hydraulic conditions (velocity of

flow, rate-of-rise, depth, flood-borne constituents, and duration) on the foundation design. The ability of floodwater to adversely affect the integrity of structure foundations by eroding supporting soil, scouring foundation material, and undermining footings necessitates careful examination of foundation designs.

An extremely important consideration is that the structure be adequately anchored to the foundation. Uplift forces during a flood event are often great enough to separate an improperly anchored structure from its foundation.

Cavity Wall Construction: Wet floodproofing equalizes hydrostatic pressure throughout the structure by allowing floodwater to fill in all spaces and equalize internal and external hydrostatic pressure. Thus, any attempt to seal internal air spaces within the wall system is not only technically difficult, but also contrary to the wet floodproofing approach. Provisions must be made so that the cavity space fills with water and drains at a rate approximately equal to the floodwater rate-of-rise and fall.

If the cavity wall air space is filled with insulation, it should be a type that is not subject to damage from inundation. Batt and blanket types such as spun mineral fiber or fiberglass bat insulation are not acceptable as they retain water and contaminants within their voids. Foam and closed cell type insulation have characteristics that can withstand a certain level of inundation. These include polystyrene, expanded foam, and thermal glass.

The air space within the cavity wall will also be inundated by floodwater and the contaminants it carries. Silt, chemicals, and organic materials, will remain in the cavity space after the floodwater has receded. Such contaminants can be hazardous to the structure and the occupants; caustic chemicals can deteriorate building materials and debris that harbors organic growth can be have associated bacterial problems and odors. If a cavity wall is used, the cavity wall should have "clean-out" access panels that allow the internal air space to be flushed with water or other cleaning agents and fresh air to circulate within the cavity. Refer to FEMA 234, "Repairing Your Flooded Home" for further guidance on cleaning wall cavities.

Solid Wall Construction: Wall systems without internal air spaces are considered solid wall construction, which includes cast-in-place concrete, fully grouted cell masonry, pressure treated wood- or metal-frame shell. Solid walls are designed without internal spaces that could retain floodwater. Because these walls can be somewhat porous, they can absorb moisture, and to a limited degree, associated contaminants. Such porous wall systems that permit the intrusion of moisture into the wall could cause internal damage especially in a cold (freeze-thaw) climate. Solid walls made of non-porous materials are preferred over cavity walls. But in those cases where solid wall construction made of porous material is being considered, the use of both exterior and interior cladding with properties as described above for cavity wall systems is more desirable.

Wall Finishes: The exterior cladding of a structure subject to flooding should be nonporous, resistant to chemical corrosion or debris deposits, and conducive to easy cleaning. Relatively impervious cladding such as hard brick, pressure-treated wood, metal, and concrete are some of the acceptable materials.

As with exterior surfaces, interior cladding should be easy to clean and not susceptible to damage from inundation. Materials that are solid and relatively impervious such as concrete, hard brick, plastic, and pressure-treated wood, are most suitable.

Metal-clad structures such as those found in many agricultural operations should be constructed of corrosion-resistant materials. Framing and cladding must meet the same flood-resistant requirements as all other materials. Metal fasteners used with metal panel cladding systems are susceptible to corrosion and should be a corrosion-resistant type, such as hot dipped galvanized or stainless steel.

Where interior wall finishes are present, they shall meet the same flood resistant standards as all other materials located below the BFE.

Floors: Subfloor systems in wet floodproofed structures are normally concrete or gravel. Materials that are attached to the concrete subfloor, such as tile, paint, or wood, and the attachment mechanism (adhesives, nails, screws, etc.) that secures the finish material to the subfloor structure, should be able to withstand inundation associated with a base flood event without damage or alteration.

Ceilings and Roofs. When it is anticipated that flood levels will come in contact with the ceiling, flood resistant material requirements apply for ceiling materials and attachment mechanisms (hangers, adhesives, screws). To protect the ceilings and roofs from the pressure of entrapped air or water, pressure relief vents should be used. Even in those cases where flood waters are expected to be below ceiling levels, ceilings materials including attachment mechanisms should be able to withstand prolonged exposure to moisture and humidity associated with flood and post-flood conditions.

Building Envelope Openings. Openings in a structure's floors, walls, ceilings, and roofs are often enclosed by architectural components such doors, windows, louvers, vents, skylights, etc. These components include fasteners, gaskets, seals, glazing, locks, and finishes. Again, even those items not expected to be inundated must be resistant to humidity and moisture damage. NFIP flood resistant material requirements apply to all architectural components that are to be exposed to flooding or resulting excessive moisture. All materials shall be capable of resisting damage associated with a base flood event. Door systems include frame, hinges, threshold, and panels. Since solid wood, wood laminate, or hollow core wood door panels may warp, swell and/or rot, sealed metals are preferable.

Windows are susceptible to damage from debris carried by floodwater. The use of glass blocks, sealed unbreakable panes, and wire-reinforced glass will resist flood

damage. Protective screens may also be successful in preventing debris impact. The use of tempered glass or impact-resistant plastic (acrylic or polycarbonate) is recommended for large window areas of 20 square feet or more.

Protection of Mechanical and Electrical Systems: While the NFIP regulations do not prohibit the placement of mechanical and electrical components below the BFE, they are required to be designed and/or located so as to prevent flood water from entering or accumulating within them. The preferred method of meeting this requirement is to locate flood-threatened components above the expected flood level. Other options that may meet the NFIP requirements for electrical systems that can not be elevated involve emergency operation and maintenance procedures, including disconnecting and elevating or relocating electrically controlled equipment, installing elevated control panels for cutoff of electricity, or enclosing service equipment in waterproof utility enclosure areas. Mechanical systems that must be located below the design flood level should be provided with waterproofed enclosures to protect bearings, seals, gears clutches, valves, or controls that will not withstand immersion, silt damage, or water pressure.

Electrical System. Electricity is a primary source of energy for many vital building operations. Wet floodproofing an electrical system primarily involves preventing vulnerable components from coming in contact with water. Elevation of all electrical components except the minimum necessary to operate the structure (minimal number of light switches and receptacles) is required. Where switches and receptacles must be located below the BFE, sealed or capped moisture-resistant components are required. Ground Fault Circuit Interrupters shall be utilized for all electrical circuits that serve areas below the BFE. Key system components for which elevation above floodwater is desirable include transformers, switchboards, and branch panels. A possible alternative may be to enclose these elements with a waterproof protective barrier. In circumstances which dictate that it is not practicable to safely maintain power during inundation, complete cutoff must be utilized. This of course presents the need for inspections and actions to ensure complete drying of electrical components prior to power restoration.

Electrical service provided to a structure from poles or other overhead sources should enter the structure at a point above the expected flood level. Underground service cables may be feasible provided that they are waterproofed and not exposed to direct contact with flood water.

Heating and Ventilating In general, heating and ventilating equipment is not designed to withstand inundation and is prone to severe floodwater damage. Thus, elevating is recommended to preclude inundation of system components. In situations where elevation is not practical, quick release/disconnect mechanisms should be incorporated into the design. One example is fan motor components for grain bin aeration systems which are configured to be easily removed and relocated prior to flooding.

Liquid Storage Containers Liquid and gas containers are subject to extreme hydrostatic pressure during inundation. Where possible, such containers should be elevated to or above the BFE or located outside the floodplain. If a newly constructed container will be subject to inundation, it is required under the NFIP to be anchored to withstand a buoyant force acting upon it in its empty state. Containers should have watertight fill caps and vents that extend above the expected flood level, and should be labelled according to contents. Labeling will allow emergency personnel to identify the contents in the event the tanks breaks loose and floats away. It is important to note that underground tanks are also subject to uplift forces. Empty tanks, both above and below ground, should be filled with potable water prior to the arrival of floodwater. The post-flood disposal of this possibly contaminated water must be in accordance with all applicable federal, state and local regulations.

Flood Resistant Materials

In accordance with the NFIP, all materials exposed to floodwater must be durable, resistant to flood forces, and retardant to deterioration caused by repeated exposure to flood water. Generally, these performance requirements result in masonry construction being the most suited to wet floodproofing in terms of damage resistance. In some cases wood or steel structures may be candidates, provided that the wood is pressure treated or naturally decay resistant and steel is galvanized or protected with rust-retardant paint. Detailed guidance is provided in Technical Bulletin #2 "Flood-Resistant Material Requirements."

Protection of Contents and Equipment

Isolation from Floodwater. Consideration should be given to preventing, to the maximum extent possible, the contact of floodwater with damage-susceptible items. This can be accomplished through relocation prior to flooding, elevation, or in-place protection of flood-damageable items.

Relocation: The most effective method of protection for equipment and contents is to relocate threatened items out of harm's way. The interior of the structure must be organized in a way that ensures easy access and facilitates relocation. Aisles, doors, and corridors shall be wide enough and equipment size should be evaluated to allow any planned relocation or removal. Where structures are used to store bulk materials, such as grain, provisions must be made for the orderly removal and relocation of the contents to an area outside the floodplain.

Elevation: Within the flood-prone structure, elevation of key items could be achieved through the use of existing or specially constructed platforms or pedestals. Contingent elevation can be accomplished by the use of hoists or some type of overhead suspension system. Elevation techniques can be applied to a wide range of objects--machinery, utility system components (particularly electrical equipment), fuel and storage containers, and contents.

In-Place Protection: Some items can be protected, in-place, through a variety of options. Protective waterproof enclosures may be feasible for items that are difficult to move or relocate. Anchors and tie-downs, shall be used where appropriate to prevent flotation and movement, especially in the case of storage containers. Depending on flood characteristics, such enclosures may not have to be inconveniently high or completely permanent. Low barriers or flood shields may supply the necessary protection. Also, steps or ramps can be incorporated into the design to further maintain easy access.

Protective coatings can be applied to equipment to reduce inundation damage. Petroleum based greases, hot dip plastics, spray or cold plastics can all be applied to oily surfaces. If they are applied to painted surfaces they must be non-migratory and not applied to threaded surfaces. Coatings can provide protection and enhance cleanup ease.

The use of "quick-disconnect" type plug and receptacle sets on standard electrical motors and other electrical connections provides several advantages. This allows for rapid shutdown, eliminates the need for an electrician, simplifies removal operations, and enables rapid reinstallation and restart. Similarly, motor-pump type units can be equipped with quick disconnect fittings on both suction and discharge lines in addition to electrical power lines. These actions also provide the added benefit of facilitating routine maintenance and relocation of equipment.

Mounting equipment and inventory on skids or pallets contributes greatly to contingent relocation, elevation, and removal actions using a fork lift. Large items that can be lifted from overhead should be permanently fitted with lifting bars or lugs. This eliminates time for rigging and benefits routine procedures. Any accessory items required, such as motor mount shims or necessary tools, should be stored nearby.

Technical Bulletins

This is one of a series of Technical Bulletins FEMA has produced to provide guidance concerning the building performance standards of the NFIP. These standards are contained in Title 44 of the U.S. Code of Federal Regulations at Section 60.3. The bulletins are intended for use primarily by State and local officials responsible for interpreting and enforcing NFIP regulations and by members of the development community, such as design professionals and builders. New bulletins, as well as updates of existing bulletins, are issued periodically, as necessary. The bulletins do not create regulations; rather they provide specific guidance for complying with the minimum requirements of existing NFIP regulations. Users of the Technical Bulletins who need additional guidance concerning NFIP regulatory requirements should contact the Mitigation Division of the appropriate FEMA regional office. The User's Guide to Technical Bulletins lists the bulletins issued to date and provides a key word/subject index for the entire series.

Ordering Information

Copies of the Technical Bulletins can be obtained from the appropriate FEMA regional office. Technical Bulletins can also be ordered from the FEMA publications warehouse. Use of FEMA Form 60-8 will result in a more timely delivery from the warehouse. The form can be obtained from FEMA regional offices and your state's Office of Emergency Management. Send publication requests to FEMA Publications, P.O. Box 70274, Washington, D.C. 20024.

Further Information

The following publications provide further information concerning non-residential floodproofing:

1. "Answers to Questions About Substantially Damaged Buildings," FEMA, May 1991, FEMA-213.

2 "Commercial-Industrial Flood Audit," New England District, U.S. Army Corps of Engineers, n.d.

3. "Cooperative Flood Loss Reduction," A Technical Manual for Communities and Industries, Flood Loss Reduction Associates, 1981.

4. "Design Manual for Retrofitting Flood-Prone Residential Structures," FEMA, September 1986, FEMA-114.

5. "Floodproofing Non-Residential Structures," FEMA, May 1986, FEMA-102.

6. "Flood Proofing Regulations, U.S. Army Corps of Engineers," March 1992, EP 1165-2-314.

7. "Human Stability in a High Flood Hazard Zone," S.R. Abt, R.J. Whittlen, A. Taylor, and D.J. Love, Water Resource Bulletin, August 1989.

8. "Repairing Your Flooded Home," FEMA, August 1992, FEMA-234.

9. "Sealants, Part 1," John P. Cook, Progressive Architecture, December 1974.

10. "Sealants, Part 2," John P. Cook, Progressive Architecture, February 1975.

11. "Tests of Brick-Veneer Walls and Enclosures for Resistance to Flood Waters," Carl E. Pace, U.S. Army Corps of Engineers, Lower Mississippi Division, Vicksburg, Mississippi, 1978.

Glossary

Base flood The flood that has a 1-percent probability of being equaled or exceeded in any given year (also referred to as the 100-year flood).

Base Flood Elevation (BFE) The height of the base flood, usually in feet, in relation to the National Geodetic Vertical Datum of 1929 or other datum as specified.

Basement Any area of a structure having its floor subgrade (below ground level) on all sides.

Coastal High Hazard Area An area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high-velocity wave action from storms or seismic sources. These areas are identified as V zones.

Existing Construction/Structure For floodplain management purposes, existing construction means structures for which the start of construction commences before the effective date of a floodplain management regulation adopted by a community. These structures are often referred to as "Pre-FIRM" structures.

Federal Emergency Management Agency (FEMA) The independent federal agency that, in addition to carrying out other activities, oversees the administration of the NFIP.

Federal Insurance Administration (FIA) The component of FEMA directly responsible for administering the flood insurance aspects of the National Flood Insurance Program.

Flood Insurance Rate Map (FIRM) The insurance and floodplain management map issued by FEMA that identifies, on the basis of detailed or approximate analyses, areas of 100-year flood hazard in a community.

Flood Prone Area Any land area susceptible to being inundated by floodwater from any source.

Lowest Floor The lowest floor of the lowest enclosed area of a structure, including a basement. Any NFIP-compliant unfinished or flood-resistant enclosure useable solely for parking of vehicles, building access, or storage (in an area other than a basement) is not considered a structure's lowest floor.

Mitigation Directorate The component of FEMA directly responsible for administering the floodplain management aspects of the National Flood Insurance Program.

New Construction/Structure For floodplain management purposes, new construction means structures for which the start of construction commences on or after the effective date of a floodplain management regulation adopted by a community and includes all subsequent improvements to the structure. These structures are often referred to as "Post-FIRM" structures.

Special Flood Hazard Area (SFHA) Area delineated on a Flood Insurance Rate Map as being subject to inundation by the base flood and designated as Zone A, AE, A1-A30, AR, A0, AH, V, VE, or V1-V30.

Substantial Damage Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

Substantial Improvement Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures that have incurred "substantial damage," regardless of the actual repair work performed.

Wet Floodproofing Permanent or contingent measures applied to a structure and/or it contents that prevent or provide resistance to damage from flooding by allowing water to enter the structure.

Appendix F

GEOTECHNICAL REVIEW

GEOTECHNICAL REVIEW INTRODUCTION

Geotechnical review is an important part of City project review. Applications for master plan zoning, subdivision, use permit/grading permit, design review, or conditional certificates of compliance require geotechnical studies. If the site is rated 3 or 4 (most hazardous) on the General Plan Geoseismic or Slope Stability Maps, a Geotechnical Investigation Report will be required for projects to be deemed complete. If the site is rated 1 or 2, a preliminary Geologic Report will be required. A Geotechnical Investigation may also be required on a more stable site if the use is a defined "critical use" or if the site is downslope of possible debris flow avalanche areas.

Additionally, for use permits, subdivisions except lot line adjustments, design review permits and master plan zonings located on artificial fill or on land which has been used by businesses, the preliminary Geotechnical Report would include a preliminary hazardous materials evaluation. If the preliminary evaluation identifies evidence of hazardous materials, a Hazardous Waste Investigation Report will be required.

The contents of the Preliminary Geologic Report, the Geotechnical Investigation Report and Hazardous Waste Investigation Report are identified in the attached Geotechnical Review Matrix.

GEOTECHNICAL REVIEW MATRIX CONTENTS

EXPLANATION OF GEOTECHNICAL REVIEW MATRIX FOR SAN RAFAEL GENERAL PLAN 2000

The Geotechnical Review Matrix (Exhibit 1) summarizes the geotechnical requirements for various types of land use projects during different stages of government processing. The level of investigation for each project is related to public safety and the geologic risks associated with the site. Projects which have the greatest potential impact on public safety and that are proposed on lands with high geologic risk have the strictest requirements.

It is the intent of the matrix to help members of the community to plan and organize for projects presented to the City. It is also intended that the matrix will recognize a standard of practice pursued by geotechnical consultants. The main purpose of the matrix is to require a level of effort that is prudent and economically fair to developers and that adequately reduces the community's risks associated with geologic hazards. Another purpose of the matrix is to reduce the time needed by the City to make decisions by providing a means of objectively reviewing projects.

The governmental approval processes affecting land use projects are listed in the left-hand column of the matrix. The four land use categories listed across the top of the matrix are defined below:

Critical Use: Hospitals and related care centers, schools, auditoriums, churches and theaters, fire and police stations, transportation centers and facilities, major utilities, and communication facilities.

High Occupancy: Residential (single-family, apartments and PUDs); commercial (office buildings, restaurants and retail stores); and light and heavy manufacturing and assembling.

Low Occupancy: Warehouses, storage facilities and distribution centers.

Parks/Open-Space: Parks, marinas, and public and private open-space.

The relative slope stability and geo-seismic hazard zones are indicated by the numbers 1, 2, 3 and 4. The relative slope stability zones are based on the slope stability maps of San Rafael and other portions of eastern Marin County prepared by the California Division of Mines and Geology in 1976. The slope stability zones used by the California Division of Mines and Geology are defined as follows:

Zone 1 - The most stable category. This zone includes resistant rock that is either exposed or is covered only by shallow colluvium or soil. Also included in this zone are broad, relatively level areas along the tops of ridges or in valley bottoms that may be underlain by material that is quite weak (such as Franciscan melange and alluvium) but occupies a relatively stable position.

Zone 2 - Includes narrow ridge and spur crests that are underlain by relatively competent bedrock, but are flanked by steep, potentially unstable slopes.

Zone 3 - Areas where the steepness of the slopes approaches the stability limits of the underlying geological materials. Some landslide deposits that appear to have relatively more stable positions than those classified within Zone 4 are also shown here.

Zone 4 - The least stable category. This includes most landslide deposits in upslope areas, whether presently active or not, and slopes where there is substantial evidence of downslope creep of the surface materials. These areas should be considered naturally unstable, subject to potential failure even in the absence of man's activities and influences. Banks along deeply incised streams are also included in Zone 4.

These judgments are interpretive, and generally apply to large areas. Within each area conditions may range locally in detail through all stability categories. Hence, an area designated 1 may locally contain unmapped landslides, and an area designated 4 may locally contain relatively stable sites." Debris-avalanche landslides move rapidly downslope and may travel thousands of feet crossing over areas zoned 1 through 3 as well as Zone 4 areas. Areas in Zones 1 through 3 that may be affected by such landslides, in the judgment of a Certified Engineering Geologist, shall be downgraded to Zone 4 areas. In general, slope stability zones should be re-evaluated by a Certified Engineering Geologist during site-specific investigations. Based on such investigations, the City may upgrade or downgrade the mapped slope stability in some areas.

The relative geo-seismic hazard zones are based primarily on a rating system that assigns a geo-seismic hazard rating for each of the geologic units in the planning area. The system rates from 1 to 4 the geo-seismic hazard associated with each geologic unit shown on the California Division of Mines and Geology Maps of the San Rafael Vicinity prepared in 1976. Geologic units are defined on the State maps. Geo-seismic hazards include, but are not limited to, landslides, soil creep, expansive soil, seismic shaking, seismically induced ground failure, surface fault rupture, tsunamis, flooding, and high ground water table. Units rated as Zone 1 are the least hazardous. The hazard rating assigned to each geologic unit is derived from the work of the California Division of Mines and Geology. These ratings with some modifications are indicated on the following table:

GEOLOGIC UNIT	GEOSEISMIC HAZARD ZONES
Qaf (Fill) Fill is assumed to be 4. If investigation shows fill to be engineered, the fill will be assigned the number of the underlying geologic unit.	
Landslides	4
Qm (Bay mud)	4
Qa (Alluvium)	2
Qc (Colluvium)	Slope stability 1 or 2 = 2 Slope stability 3 or 4 = 4
Tv (Volcanic Rocks)	1
Ks (Arkosic Sandstone and Shale)	1
Kjs (Graywacke Sandstone and Shale)	1
Kjch (Chert)	1
Kjg (Basaltic Volcanic Rocks)	1
Kjsch (Metamorphic Rocks)	Slope Stability 1 or 2 = 2 Slope Stability 3 or 4 = 4
Fm (Franciscan Melange)	3
Fm (Creeping)	4

The capital letters A through D in each geologic risk zone column of the Matrix indicate the levels of report required for a particular land use project in a specific risk zone at a particular stage of governmental process.

REPORT DOCUMENTATION GUIDELINES

This section provides guidelines for the content of various geotechnical reports submitted to the city at different stages of project review. The content of each level of report should include, but may not be limited to the items listed below. Since different physical conditions demand differing reports, the content indicated for each report should be flexible. The city, however, may not accept reports that omit content guidelines without the City's prior approval. Geologic reports shall be prepared by a Certified Engineering Geologist (CEG) and soil engineering reports shall be prepared by a Registered Geotechnical Engineer (RGE). When reports require input from both disciplines, the reports shall be jointly prepared by a CEG and a RGE. It is the City's policy to evaluate not only the development site and its effect on adjacent properties, but also adjacent properties that may affect the site.

A. PRELIMINARY GEOLOGIC REPORT

This report is intended as an overview of site conditions. Its purpose is to identify obvious geologic hazards and geotechnical problems and considerations, and to provide a preliminary assessment of the suitability of the site for the project. The level of effort may vary depending on the site conditions.

The study should include:

1. A review of the site history and previous geologic/soils maps, literature and reports.

2. Consultation with prior geotechnical investigators as judged necessary.

3. Interpretation of stereopaired aerial photographs as conditions warrant.

4. A field reconnaissance of the site and vicinity.

5. Subsurface exploration if judged necessary to assess unclear geologic conditions.

6. Review of the engineering aspects of the proposed site including size and type of structures, and magnitude and extent of grading.

7. Review of historical land uses, nature of fill and site characteristics for evidence/potential of hazardous materials. (Refer to General Plan Exhibit 27, Geology and Stability for preliminary mapping of areas of concern).

8. Preparation of a written report which includes the following information:

   a) A description of the proposed project and its location.
   b) The general setting of the area being investigated including the location, size, history, topography, drainage and general soil/geologic conditions.
   c) A detailed geologic map of the site (exceptions are discussed under the heading Geologic Maps in the Report Documentation section).
   d) A discussion of Geologic hazards.
   e) The geotechnical feasibility of the proposed project, basic geotechnical problems, and generalized mitigation measures to be considered.
   f) A discussion of the engineering aspects of the site and proposed project. The discussion should address foundation types for proposed structures, retaining systems, grading considerations, stability of cut slopes and constructed embankments, settlement of the site and adjacent sites due to existing conditions, proposed construction, and proposed surface and subsurface drainage facilities.
   g) A bibliography of all references used.

B. GEOTECHNICAL INVESTIGATION REPORT

This report stage is intended to define the subsurface conditions, and provide geotechnical conclusions and recommendations for design and construction of the project. The investigation should include the scope of the Level A report as well as the following:

1. Subsurface exploration by test pits or borings. Representative disturbed and undisturbed samples should be taken for laboratory testing. Geophysical instrumentation may be used to provide supplemental information.

2. Laboratory testing of representative samples of soil and bedrock.

3. New (or revised) geologic mapping to reflect data obtained from the subsurface investigation.

4. Analysis of field and laboratory test results.

5. An evaluation of soil and geologic conditions and their effect on the proposed project.

6. A settlement analysis if the site is underlain by Bay Mud or other compressible soils; including assessment of site grades and settlement to account for 30-year elevation of +6 feet MSL or other criteria as determined by the City.

7. An evaluation of soils for liquefaction potential.

8. A site-specific assessment of seismic ground motion for critical use and high hazard zones, particularly Bay Mud sites.

9. A slope stability analysis for embankments constructed on Bay Mud, and for excavation in Bay Mud. A slope stability analysis may also be needed where unretained slopes steeper than 2:1 in soil or 1-1/2:1 in rock are planned or present.

10. Preparation of a written geotechnical investigation report which includes the following information:
    a) A description of the subsurface conditions encountered.
    b) Logs of subsurface explorations and laboratory test results.
    c) A revised geologic map (needed only if geologic conditions differ from the original map).
    d) Subsurface cross-sections, when appropriate.
    e) A discussion of potential geologic hazards and recommended mitigation measures.
    f) Geotechnical recommendations for design and construction of the project which include the following information when appropriate:
        i. foundation support of structures.
        ii. lateral pressures for retaining structures.
        iii. estimated settlement behavior including performance of structures, estimated final grades to achieve 30-year settlement elevations; and discussion of settlement on gravity flow utilities and subsurface drainage.
        iv. site grading including criteria for cut slopes and embankments on soft soils
        v. site dynamic response spectra.
        vi. pavement design criteria.
        vii. erosion control and winterization measures.
    g) Items recommended to be observed by geotechnical consultant during construction.

Prior to issuance of a building permit and start of construction, the geotechnical consultant should review the construction plans and submit a letter indicating conformance of the plans with the intent of the geotechnical report recommendations. Plan changes may be recommended before plans are approved and a construction permit is issued. Report and plan reviews are performed at the applicants expense.

C. CONSTRUCTION OBSERVATION REPORT

This report documents the geotechnical field observation and testing during construction. Interim or periodic progress reports may be required on larger projects. The report should include:

1. A description of the grading, foundation excavations, subsurface drainage, and hazard mitigation measures performed.

2. A summary of items observed and tested.

3. Unanticipated conditions encountered during grading or construction, and any field changes implemented that differ from the approved grading and construction plans.

4. A statement regarding the conformance or nonconformance of construction to the geotechnical recommendations, and any items not observed or tested during construction.

D. GEOTECHNICAL REVIEW

Prior to acceptance, geotechnical reports are subject to review by the City of San Rafael Geotechnical Review Consultant. The reports are only reviewed for conformance with the geotechnical requirements of the general plan and this document. Additional work, including exploration, testing, and analysis may be recommended if judged necessary by the reviewer. The geotechnical review will usually require a response by the geotechnical consultants.

E. HAZARDOUS WASTE INVESTIGATION REPORT

This report shall be submitted for: sites where hazardous contamination is suspected or encountered, and for investigations of existing or proposed waste dumps sites.

Tasks should include the following:

1. Installation of ground water and/or vadose zone monitoring wells.

2. Laboratory analysis of fills, unconsolidated deposits, water samples and/or gas samples for hazardous waste contamination.

3. Periodic monitoring of gases and/or water samples.

4. Preparation of a written report which includes the following as judged necessary by the geotechnical consultant:
   a) Chemical analysis results of soil ground water, and/or gas samples. (Include values for normal or allowable ranges.)
   b) Boring logs with a description of subsurface materials.
   c) Subsurface permeability test results.
   d) Potentiometric map of ground water in site vicinity.
   e) A map showing the concentrations, lateral extent, and thickness of the contamination zone if ground contamination exists.
   f) A discussion about water supplies that may be affected by contaminated sites.
   g) Recommended mitigation measures for contaminated sites.
   h) Suitability assessment of existing or proposed waste dump sites.

REPORT DOCUMENTATION

Landslide Information

Landslides are one of the most common and serious geologic hazards that affect the San Rafael area, and therefore, should be given special attention by the geotechnical consultant.

A landslide is defined here as the downslope movement of soil and rock material en masse under the influence of gravity. Where landslides affect a site, the consultant should describe, as a minimum, the landslide geometry, mechanics of movement, amount of movement, age of movement, failure surface, ground water conditions, cause(s) of original movement, change in conditions since the last movement, and the degree of present and anticipated future stability. The landslides to be considered include not only landslides on a site, but landslides on adjacent properties that may affect a site. If it appears that a site is not affected by landslides, the consultant should make such a statement in his report.

The above information should be documented by existing literature and observations that may require detailed topographic and geologic mapping, interpretation of aerial photographs, subsurface exploration, sampling and laboratory testing of soil and bedrock, water table measurements, survey measurements to detect movement, slope stability analysis, and the preparation of subsurface cross-sections.

Conclusions and Recommendations

Since conclusions and recommendations are normally the most important portions of a report, they should be described in a separate section. The section should address the following: (1) the effects of the geologic conditions on the proposed land use (2) the effects of the proposed land use on future geologic processes, and (3) the effects of the geologic conditions and proposed land use on surrounding properties.

Geologic Maps

Geologic maps are required with geologic reports with two exceptions:

1. A geologic map may not be necessary for small parcels if the geologic conditions can be completely described in writing or with the aid of geologic sketches to the satisfaction of the City;

2. If a geologic map was included in a previous report a geologic map may be omitted from supplemental reports if the supplemental information does not change the original mapping of geologic conditions.

The base used for geologic maps should be the most recent and legible site plan submitted to the City, and it should be at a scale that is large enough to show pertinent geologic features. The base map should include but not be limited to a bar scale, a north arrow, the source and date, revision dates, the contour interval, and a legend of the engineering and geologic symbols used. If such information is available, the proposed construction areas and proposed grading indicated by contour lines should also be included on the base map.

The geologic map should be of sufficient detail to accurately depict the geologic conditions affecting the study area. The map should include (as is appropriate) geologic formations or other mappable lithologic units; geologic structures; and surficial features in accordance with generally accepted standards and nomenclature. The map should clearly show the geologic features necessary for a complete and accurate evaluation of the feasibility and design of the proposed development. The map should also include the locations of subsurface explorations and geologic sections, if applicable.

Geologic Sections, Subsurface Logs, and Tabulations

Subsurface explorations such as test borings, test pits, geophysical instrumentation, or ground water monitoring wells are needed to accurately identify subsurface conditions. When subsurface work is performed, the information obtained should be documented in reports by use of graphic logs and descriptions. Graphic representations of the logs may be omitted if the subsurface conditions can be described in writing in sufficient detail to satisfy the City.

To fully understand the soil and geologic relationships of subsurface explorations, it may be necessary to prepare a geologic section (subsurface profile) drawing across the site.

Laboratory test results should be included on logs or presented on a summary table. Where curves are plotted to analyze laboratory test results, the graphic representation of such curves should be presented in the geotechnical report.

GLOSSARY

bedrock - A general term for the rock, usually solid, that underlies soil or other unconsolidated, superficial material.

boring - A hole made while drilling, such as for oil or soil samples.

compaction - The densification of soil by means of mechanical manipulation.

contour line - A line connecting points of equal value (generally elevation) above or below some reference value such as a datum plane. Contour lines are commonly used to depict topographic or structural shapes.

cross-section - A diagram or drawing that shows geologic features transected by a given vertical plane.

debris avalanche - The very rapid and usually sudden sliding and flowage of incoherent, unsorted mixtures of soil and weathered bedrock.

dynamic response - A site specific assessment of seismic ground motions indicating the nature and severity of motions which can cause shaking of a structure. It is usually performed for critical use facilities and sites with potentially hazardous conditions such as bay mud, loose saturated sands, and sanitary landfill.

earthquake - Groups of elastic waves propagating in the earth, set up by a transient disturbance of the elastic equilibrium of a portion of the earth.

embankment - A linear structure, usually of earth or gravel, constructed so as to extend above the natural ground surface and designed to hold back water from overflowing a level tract of land, to retain water in a reservoir, tailings in a pond, or a stream in its channel, or to carry a roadway or railroad; e.g., a dike, seawall, or fill.

erosion - The wearing away of soil and rock as a result of the movement of wind, water, and/or soil.

expansive soil - A soil usually of clayey character, which changes volume with changes in moisture content. As the moisture of the soil increases, the soil swells or expands, as the moisture content decreases, the soil shrinks.

fault - a fracture in the earth's crust along which there has been displacement.

fill - Man-made deposits of soil and/or waste material.

formation - A persistent body of igneous, sedimentary, or metamorphic rock, having easily recognizable boundaries that can be traced in the field without recourse to detailed paleontologic or petrologic analysis, and large enough to be represented on a geologic map as a practical or convenient unit for mapping and description.

geophysical exploration - An indirect method of determining structure and composition of underground geological formations. The principle involved includes the use of electric, gravity, magnetic, seismic, or thermal instrumentation.

ground failure - A permanent differential ground movement capable of damaging or seriously endangering a structure.

groundwater level - The elevation of the water table or another potentiometric surface at a particular place or in a particular area, as represented by the level of water in wells or other natural or artificial openings or depressions communicating with the zone of saturation.

grading - The removal or placement of earth material by mechanical means during preparation of construction sites.

landslide - The downslope movement of soil and rock material en masse under the influence of gravity.

liquefaction - In cohesionless soil, the transformation from a solid to a liquid state as a result of increased pore pressure and reduced effective stress.

permeability - The property or capacity of a porous rock sediment, or soil for transmitting a fluid; it is a measure of the relative ease of fluid flow under unequal pressure.

potentiometric surface - An imaginary surface representing the total head of ground water and defined by the level to which water will rise in a well. The water table is a particular potentiometric surface.

seismic shaking - Earthquake shaking.

settlement - The reduction of surface elevation due to the compressibility of underlying soils.

slope - An inclined ground surface, the inclination of which is expressed as a horizontal distance to a vertical distance. A 2:1 slope indicates distances of 2 horizontal to 1 vertical.

slope stability - The resistance of a natural or artificial slope or other inclined surface to failure by landsliding.

stereopaired - An overlapping pair of photographs that, when properly oriented and used with a stereoscope, gives a three-dimensional view of the area of overlap.

test pits or test trenches - subsurface excavations other than borings that are usually large enough for a man to enter for the purpose of visual observation, sampling, and mapping.

tsunami - A gravitational sea wave produced by any large-scale, short duration disturbance of the ocean floor, principally by a shallow submarine earthquake, but also by submarine earth movement, subsidence, or volcanic eruption and may pile up to heights of 30 m or more and cause much damage on entering shallow water along an exposed coast.

vadose zone - A subsurface zone containing water under pressure less than that of the atmosphere, including water held by capillarity; and containing air or gases generally under atmospheric pressure. This zone is limited above by the land surface and below by the surface of the zone of saturation.

unconsolidated material - (a) A sediment that is loosely arranged or unstratified, or whose particles are not cemented together, occurring either at the surface or at depth; (b) soil material that is in a loosely aggregated form.

water table - groundwater level.

Exhibit HH:
GEOTECHNICAL REVIEW MATRIX

	SLOPE STABILITY & GEO-SEISMIC HAZARD ZONES 1, 2, 3 & 4															
	LAND USE CATEGORY (1)															
	CRITICAL				HIGH OCCUPANCY				LOW OCCUPANCY				PARKS/OPEN SPACE			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Rezoning, Master Plan	A	A	B/D	B/D	A	A	B/D	B/D	A	A	A	A	N/A	N/A	N/A	N/A
Subdivision – Tentative Map, Parcel Map, Conditional Certification of Compliance Design Review	B/D	B/D	B/D	B/D	B	B	B/D	B/D	A	A	B/D	B/D	A	A	B/D	B/D
Use Permit, Grading Permit, Building Permit	B/D	B/D	B/D	B/D	B	B	B/D	B/D	B	B	B/D	B/D	A	A	B/D	B/D
Occupancy Permit, Notice of Completion	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C

Requirements for the following to be determined on a case-by-case basis, dependent upon the specificity of proposal:
- General Plan Amendment
- Annexation
- Rezoning-General
- Subdivision-Other
- Variance
- Open Space Acceptance
- Pre-Application Feasibility

(1) Land Use Categories
Critical Use: Hospitals and related care centers, schools, auditoriums, churches and theaters, fire and police stations, transportation centers and facilities, major utilities, and communication facilities.
High Occupancy: Residential (single-family, apartments and PUDs); commercial (office buildings, restaurants and retail stores); and light and heavy manufacturing and assembling.
Low Occupancy: Warehouses, storage facilities and distribution centers.
Park/Open Space: Parks, marinas, and public and private open-space.

Report type
A Preliminary Geologic Report
B Geotechnical Investigation Report
C Construction Observation Report
D Geotechnical Review

NOTE: A hazardous waste investigation report (E) shall be submitted for sites where contamination is suspected, and for investigations of existing or proposed waste dumpsites.

LETTER 75: Frances Nunez, May 12, 2009

RESPONSE 75-1: Opinion regarding the adequacy of the DEIR's evaluation of Project-related flooding and levee safety issues is noted.

RESPONSE 75-2: See MASTER RESPONSE HYD-2, above regarding the existing condition and ownership of levees at the airport site. As the DEIR is tasked with evaluating environmental impacts under CEQA, it is beyond the scope of the DEIR to evaluate the legal and financial implications associated with levee maintenance and a possible levee failure at the Project site.

RESPONSE 75-3: Opinion regarding the accuracy of the DEIR's characterization of the existing levees is noted. See MASTER RESPONSE HYD-2, above, regarding the existing condition of the levees. Opinion regarding the need to survey the entire levee system at the airport site is noted.

RESPONSE 75-4: In response to this comment, the text of **MM Hyd-2a** on DEIR pages 2-31 and 2-32 has been modified as follows to be consistent with **MM Hyd-2a** on DEIR pages 11-32 and 11-33:

"**MM Hyd-2a** **Floodproofing.** In order to provide for one foot of freeboard elevation above the base 100-year flood elevation of +6.0 NGVD (+8.67 NAVD), the portions of the building below +7.0 NGVD (+9.67 NAVD) shall be flood proofed according to the following specifications per FEMA *Technical Bulletin 3-93* (see **Appendix I**):

- The building must be watertight to the floodproof design elevation of +7 NGVD (+9.67 NAVD). Floodproofing to any elevation less than 1 foot above the BFE will have a serious negative impact on the flood insurance rating for the building. Generally a minimum of 1 foot of freeboard is recommended. Additional freeboard is warranted for sites where predicted flood depths may be inaccurate, such as sites within large drainage areas and rapidly urbanizing areas.

- The building's walls must be "substantially impermeable to the passage of water." FEMA has adopted the U.S. Army Corps of Engineers (ACOE) definition of substantially impermeable from the ACOE publication "Flood Proofing Regulations." This document states that a substantially impermeable wall "shall not permit the accumulation of more than 4 inches of water depth during a 24-hour period if there were no devices provided for its removal. However, sump pumps shall be required to control this seepage." Flood resistant materials, described in Technical Bulletin 2, "Flood-Resistant

Materials Requirements," must be used in all areas where such seepage is likely to occur.

- The building's utilities and sanitary facilities, including heating, air conditioning, electrical, water supply, and sanitary sewage services, must be located above the BFE, completely enclosed within the building's watertight walls, or made watertight and capable of resisting damage during flood conditions.

- All of the building's structural components must be capable of resisting specific flood-related forces. These are the forces that would be exerted upon the building as a result of floodwaters reaching the BFE (at a minimum) or floodproofing design level.

- The construction plans must be signed and stamped by either a registered engineer or architect, certifying that the building and materials are designed to comply with the requirements and guidelines of the flood proofing methods established by FEMA."

RESPONSE 75-5: Development of the Project site as proposed would be required by the City of San Rafael to meet all current Americans with Disabilities Act (ADA) requirements, including the provision of adequate parking for the disabled, as shown on DEIR **Figure 3-5** (page 3-27). As indicated on DEIR page 13-27, City Traffic Engineers and the Fire Department have reviewed the site plan for adequacy regarding safety and emergency access and have determined that there are no potentially significant impacts.

RESPONSE 75-6: See MASTER RESPONSE HYD-2, above, regarding the existing condition of the levees. Although the DEIR evaluates the flooding that would be associated with a levee failure at the Project site (see DEIR pages 11-30 through 11-33), this does not necessarily indicate that the levees in their existing condition are "unsafe".

RESPONSE 75-7: See MASTER RESPONSE HYD-2, above, regarding the existing condition of the levees. Opinion regarding the extent to which seepage from the levee observed along the North Fork of Gallinas Creek may represent a potentially dangerous situation is noted.

RESPONSE 75-8: Opinion regarding levee slope as an indication of structural integrity is noted. See MASTER RESPONSE HYD-2, above, regarding the existing condition of the levees.

RESPONSE 75-9: Observations regarding the effects associated with hydrostatic pressure and the need for ongoing maintenance to prevent levee failure are noted.

RESPONSE 75-10: Request that the City of San Rafael require a study of the structural stability of the levee, establish levee design criteria and operation/maintenance requirements is noted. See MASTER RESPONSE HYD-2, above, which addresses the existing condition of the levees and levee maintenance practices at the airport site.

RESPONSE 75-11: Opinions regarding the adequacy of the DEIR's discussion of geotechnical considerations at the Project site, and the need for the Project-related geotechnical report to include the minimum requirements of the General Plan 2020 Geotechnical Review are noted. Request that the entire levee system at the airport site be evaluated for slope stability is noted.

RESPONSE 75-12: Opinion regarding the adequacy of the Oberkamper analysis of potential flooding at the Project site in the event of a levee breach during a 100-year flood event is noted. See MASTER RESPONSE HYD-2, above, which addresses the existing condition of the levees.

RESPONSE 75-13: Request that the City require a study of pile driving effects on levee stability is noted.

May 12, 2009

San Rafael Planning Commission
Kraig Tambornini

RE: DEIR for Airport Stadium complex

Coastal agencies and cities around the world are being confronted with the massive challenge of global warming and the resultant rise in sea levels and what that will do to current housing, roads, sewer systems, commercial buildings, and the environment. With what we know now and with what we are being directed to do, it seems ill-advised at best to pursue any building or any structure within the predicted flood plain (see BCDC map of predicted sea level rise by 2020). It does no service to the community, to city staff or the private owner to entertain the notion that such a project could be allowed within the scope of what we are now facing economically and environmentally. Certainly, in this economic climate, the city can ill afford spending more money on a project that, due to its location and with what the best science is predicting, is now dead on arrival. This is a hard fact for all of us to face, but face it we will, one way or another. It is better to arrive at the hard truths sooner rather than later so that real and effective planning strategies can be given the time and attention they will need. **76-1**

That being said, this is a comment on the DEIR, which is inadequate in a number of significant ways. **76-2**

Specifically, this document does not adequately address:

- Increased Traffic: This facility is not near any good public transportation nor near the population it attempts to serve, which means increased traffic along Smith Ranch Road and 101 north and south at all hours. **76-3**

- Environmental impact of siting a hard roofed commercial building and impermeable parking for 300 cars in a sensitive wetland area behind a private levee. The additional rainwater that cannot be absorbed, captured or filtered onsite creates an energy intensive pumping problem and potential public and environmental hazard. **76-4**

- This facility is a high density use facility. This is inappropriate for the site and does not fulfill the intention of the deed restrictions and promises made to the community for low impact recreational use. **76-5**

- Increased noise, fumes, trash, lighting and increased public presence in a sensitive wetland area negatively affecting federally endangered species and all wildlife in the area of impact. **76-6**

- Increased demand on fire and police for an outlying area. Increased demand on roadways and other infrastructure in an outlying area. This project is much better suited for infill. **76-7**

- Loss of potential for wetland restoration, which would be our best protection against rising sea levels by acting as a buffer. Restoration would also supply additional area for biological diversity and the most efficient method of water filtration as well as carbon dioxide uptake, our best protection against extinction. **76-8**

- County impacts are omitted. Adjacent areas, even if under a different political jurisdiction, are impacted and must be considered within the scope of a project of this size. **76-9**

If the DEIR must go to completion in the final EIR, I trust these points, and the other points so many different groups and agencies have brought up, will be included. But I firmly believe this project is not appropriate and no more time or funds should be spent on its consideration. **76-10**

Sincerely,

Judy Schriebman
3 Poco Paso St.
San Rafael, CA 94903

LETTER 76: Judy Schriebman, May 12, 2009

RESPONSE 76-1: Opinions regarding the advisability of pursuing the Project in light of anticipated climate change is noted.

RESPONSE 76-2: Opinion regarding the adequacy of the DEIR is noted.

RESPONSE 76-3: Observations that the Project site is not well served by good public transportation or located in an area where Project patrons are likely to be living are noted. Although the DEIR identifies a Project-related increase in local traffic volumes, the impact was identified as less than significant under the thresholds of significance used for the DEIR evaluation of environmental impacts.

RESPONSE 76-4: Alterations in existing runoff, stormwater pollution and drainage patterns as a result of development of the Project site as proposed are addressed on DEIR pages 11-21 through 11-28. Implementation of the mitigation measures identified on DEIR pages 11-23 through 11-25 would reduce Project-related effects associated with stormwater pollution and erosion to a level of less than significant. As indicated in the DEIR, development of the Project site as proposed would neither substantially alter the existing drainage pattern of the site or area nor substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site, and the project-related impact would be less than significant. The existing pump house is capable of handling all additional drainage flows from the site to convey them into the creek, and the additional energy required to operate the pump house following development of the Project site as proposed would not be substantially greater than the energy demand for pump operations today, although energy demand will vary from year to year with annual variations in rainfall.

RESPONSE 76-5: Opinion regarding the appropriateness of development of the Project site at the density proposed is noted. See MASTER RESPONSE PD-2, above, which addresses issues related to the Declaration of Restrictions.

RESPONSE 76-6: Opinion regarding the effects associated with development of the Project site as proposed on federally endangered species and other wildlife in the vicinity of the Project site is noted.

RESPONSE 76-7: Project-related effects associated with fire protection and police protection are addressed on DEIR pages 14-4 through 14-6, and were identified as less than significant. As indicated on DEIR pages 14-7 through 14-10, although existing infrastructure can be extended to serve the Project site, development as proposed would not require expansion of existing infrastructure capacities. Opinion that the Project is better suited for an "infill" site is noted.

RESPONSE 76-8: The DEIR evaluates the environmental effects of the Project as proposed, and as currently proposed, the Project does not include a wetlands restoration component.

Observation that development of the Project site as proposed would preclude potential wetlands restoration at the Project site is noted.

RESPONSE 76-9: Although the County of Marin has no jurisdiction over development at the Project site, the DEIR evaluates Project-related impacts in areas of unincorporated Marin County, including the nearby Santa Venetia neighborhood.

RESPONSE 76-10: LETTER 76 and RESPONSES 76-1 through 76-10 are included in the FINAL EIR, as requested. Opinion regarding the appropriateness of the Project as proposed is noted.

5/16/09

Dear Commission,

Please have a more accurate Final EIR 77-1

re: SF Airport Athletic Facility.

1) the analysis of compliance with city's general plan is faulty. Diked Baylands can be easily restored to more productive habitat 77-2

2) the Adverse impacts on the California Clapper Rail are not adequately addressed 77-3

3) the discussion of growth inducing impacts does not adequately address potential for increased development. 77-4

Please Consider these Items! Thank you Linda Moore

LETTER 77: Linda Nicoles, May 16, 2009 (*NOTE: This letter was received following the close of the public review period for the DEIR.*)

RESPONSE 77-1: Opinion regarding the accuracy of the DEIR (and the need for a more accurate FEIR) is noted.

RESPONSE 77-2: Opinion regarding the DEIR's characterization of Project consistency with the City of San Rafael General Plan 2020 is noted. Opinion regarding the ease with which diked baylands can be restored to provide habitat is noted. The DEIR evaluates the environmental effects associated with development of the Project site as proposed, and the current proposal does not include wetlands restoration, nor is wetlands restoration necessary to mitigate any Project-related environmental impacts.

RESPONSE 77-3: Opinion regarding the adequacy of the DEIR's evaluation of Project-related effects on the California Clapper Rail is noted. See MASTER RESPONSE BIO-1, above, which addresses issues related to the California Clapper Rail.

RESPONSE 77-4: Opinion regarding the adequacy of the DEIR's discussion of Project-related growth inducement is noted. See MASTER RESPONSE GI-1, above, which addresses Project-related growth inducement.

PUBLIC HEARING

3. **397-400 Smith Ranch Road (San Rafael Airport Recreational Facility)** – Review of Draft Environmental Impact Report (DEIR) for the proposed San Rafael Airport Recreational facility project. APN: 155-230-10, 11, 12, 13, 14, 15 and 16; Zoning District: Planned Development – Wetland Overlay (PD1764-WO) District; applicant/owners: Bob Herbst/San Rafael Airport, LLC, File Nos.: ZC05-01/UP05-08/ED05-15.
   Environmental Review: Environmental Impact Report
   Project Planner: Kraig Tambornini

Kraig Tambornini, Senior Planner, summarized the staff report and recommended that the Planning Commission take the following action:
1. Accept public comment and testimony on the DEIR.
2. By motion, direct staff to prepare a Final Environmental Impact Report and respond to all comments received.

Joan Lamphier, Consultant, prepared the environmental document and indicated that a number of potential environmental effects have been identified that, with the implementation of mitigation, would result in less-than-significant effects in the following environmental impact categories:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Geology
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Transportation and Traffic

Consultant Lamphier briefly discussed the analysis and mitigation measures for the Commission's consideration and indicated that the DEIR assessed the following three alternatives:

- No Project
- Reduce Development Intensity
- Alternative Location

Consultant Lamphier further noted that CEQA requires that they identify the environmentally superior alternative. In terms of all of the alternatives, the reduced development alternative would have less impact than the proposed project, but with the mitigation measures all of the impacts of the proposed project could be mitigated to a level of less-than significant. In conclusion, there were 22 potentially significant impacts identified, but all could be mitigated to a level of less-than significant and there were no significant unavoidable impacts identified as part of that analysis.

Senior Planner Tambornini noted that following the DEIR hearing tonight, staff would work with the consultant to prepare a response to all comments. The project would be scheduled for a future public hearing before the Planning Commission to consider whether to recommend certification of the FEIR and consider the merits of the project. Staff further added that the Planning Commission would provide their recommendation to the City Council.

Chair Pick opened the public hearing on this item.

Jude Briscoe, Yosemite Rd. resident, expressed concern for the existing storm drain pumps, referenced DEIR page 11-28 noting the applicants engineer prepared the hydrology report and desired an objective independent study by the City, and asked how the City would address this. 78-1

Maryah Laereman, Bryce Canyon Road resident, explained that the Bay Conservation Development Commission is the State authority for all Bay related development and their comments and evaluation of the project must be taken into account in the DEIR. Also, BCDC was not consulted and this would render the DEIR incomplete. She further noted the site is in the –WO district and asked how the DEIR addresses the –WO standards and could mitigate a soccer complex with an 80,000 plus sq. ft building. 78-2

Nicolas Kapas, Aradia Lane resident, noted that levee ownership was not discussed in the levee description of the DEIR, page 3-3, in terms of safety, liability and regulatory issues and that must be addressed in the DEIR. The levee system requires maintenance, DEIR page 11-30 fails to discuss the levees are held in public trust, and 30% is owned by the State of California. The applicant is under no obligation to maintain these levees and a portion of the levees failed in 2006 due to lack of maintenance by the County of Marin. This project would increase taxpayer liabilities and is in conflict with San Rafael policies to not increase taxpayer liability for flood prevention. Also, this could lead to higher flood insurance rates even for Marin County residents outside of San Rafael. He further noted that the water pumping station encroaches on public trust land owned by the State. It is prudent for the City to require that the pumping station be moved to land owned by applicant or require construction of an additional pumping station, which was recommended by Andy Preston, Public Works Director in a document dated February 28, 2006. 78-3

Keith Meloney, Yosemite Road resident, believed the traffic studies are deficient because they failed to properly consider spring, summer and fall traffic caused by users of McInnis Park along with increased traffic by users of the proposed facility. Traffic studies must be conducted during the peak of summer and during the weekends. The traffic study fails to consider the unsignalized intersections of Smith Ranch Road, Yosemite Road, Deer Valley and Cresta Drive, which must be considered in the DEIR. 78-4

Susanne Becker, Dockside Circle resident, expressed concern for the public vantage points, which were not accurate. The story poles are not correct. If properly done it would clearly illustrate the blocked views. She believed the story poles and photomontages are 78-5

inadequate in evaluating the buildings mass on the surrounding area and minimize public view impacts. Measurements and placement must be independently verified by the City and then new photomontages closer to the building are necessary for proper evaluation. The views blocked most are at Gallinas Creek, not the parking lot. She further added that a proper scale is needed as well.

Erin, Keel Court resident, expressed concern for the huge discrepancy in the number of acres described for the proposed project in the DEIR, and should be consistent. The intensity of use overage should trigger the DEIR to require special risk reduction features that include: single story building height; concrete building walls; upgraded roof strength; limited number of windows; no skylights; enhanced fire and sprinkler systems; and increased number of emergency exits. The applicant has a stated intention only for an extensive use of glass in the form of windows in order to add visual interest, metal walls and skylights. This does not adhere to the noted special risk reduction features, which must be corrected. **78-6**

Jane Chang, Wharf Circle resident, submitted a letter dated May 12th noting that the current FEMA map was not included, which changed the datum for floor elevation is 3 feet higher. The first floor must be 7 feet above sea level. FEMA requires that the building wall must be substantially impermeable to the passage of water. The report is not clear. Page 11-32 proposes interior flood proofing system, but exterior metal walls must withstand flood waters. The DEIR must be revised to address the inadequacy of floodproofing. The building should be concrete up to 7 feet. The DEIR is deficient because there is no mention of the SMART Train and the impact on traffic, noise and fumes from idling vehicles must be considered. **78-7**

Shannon Griffin, Captains Cove resident, asked that the entry be moved to avoid light and glare impacts from headlights. A soundwall would impact their views. If a soundwall is built, then it must be maintained and built by the applicant. The best solution is to move the entrance entirely to avoid light impacts. Also, at the intersection of Yosemite and Smith Ranch Road there is an incline and you cannot see oncoming cars more than 50 yards, which will become worse from this facility. She opposed the facility having a bar, which in her view is not equitable because their environment will be greatly impacted along with their home values. She further asked that the scope of the project be made smaller to not severely impact residents. **78-8**

Victor Friedman, Keel Court resident, noted confusion on the number of mitigations. The DEIR is not specific with mitigations, ignores SMART train, and respectfully requested that the Commission not accept the DEIR. **78-9**

Elaine Reichert, Vendola Drive resident, discussed the bizarre noise measurements because noise measurements were only considered for McInnis Park. She lives in Santa Venetia and the entire area is a sound bowl. This facility will cause enormous noise effects on residents of this area, not just McInnis playing fields. She expressed concern for the increased number of airplanes that circle over their homes over the past few years and should factor that noise into the report. She further opposed any kind of outdoor **78-10**

lighting, which will have a major impact on residents, and made reference to a similar facility in Oakland that is very bright.

Art Reichert, Vendola Drive resident/Flood Control Advisory Board, asked the Commission what happens in 20 or 30 years down the road in terms of effects of salt water and ongoing maintenance. It is not a good area to build. The DEIR was not thorough or honest in the project alternative section. Also, there should be mass transit considered for such a project. The City wants infill and the Anderson Drive facility is better suited for this project. He then thanked all those that wrote letters opposing this project, which indicated that North San Rafael feels very strongly about the negative impacts of this project. 78-11

Mary Feller, Santa Venetia Neighborhood Associate, submitted a letter dated May 8th for Commission's consideration. They are very concerned about the cumulative impacts on traffic in addition to all the traffic from McInnis Park. The hydrology analysis was not peer reviewed and pointed out that there were no test borings on the levees. Levees were inspected by visual observation only. This area was mapped as the highest possible level of liquefaction according to ABAG. Page 30 chapter 11 contains no liquefaction analysis and conclusions rest on faulty analysis. Mr. Hom's report notes the levees were constructed in the 1940's and infers the levees are safe because they did not fail during the 1969 or Loma Prieta earthquakes. This is a logical fallacy. ABAG report is not mentioned nor impacts of potential Rogers Creek fault rupture. There are violations of Title 18 as well as FEMA Map changes – high velocity wave run-up, which have implications for construction. The DEIR failed to analyze consistency with Conservation Element No. 5. They also question staff impartiality, are very concerned about consistency with the deed restrictions and levee ownership issues as well. 78-12

Christina Toms, Environmental Engineer with Wetland and Water Resources and Friends of Gallinas Creek, has submitted a letter and expressed concern for levee integrity and sea level rise and neither was addressed in the DEIR. Seepage, overtopping and erosion are more common causes of levee failure and are not addressed. The method used to describe how a levee breach would occur is very surficial analysis. Modeling is a very complex science that requires knowledge of a number of geotechnical parameters none of which are discussed in the DEIR. There is no explanation of how users would exit the property, if levee fails. There is only one bridge proposed for egress and ingress from the site and no evidence given to support these assertions. In terms of sea level rise, the DEIR uses outdated data. The City of San Rafael wants the IPPC estimates to be used from 2007, but 15-year-old estimates were used in the DEIR that cut in half the anticipated sea level rise. This area was mapped by BCDC as a site susceptible to both low and high ranges of sea level rise, a range of 18 to 55-inches within the next century and that has powerful implications about the continued safety and sustainability of this site. 78-13

John Parulis, Friends of Gallinas Creek and Schmidt Lane resident, submitted several DVD's representing four years of filming clapper rails. An IJ article in 2007 called, *"Birds on the Brink"* indicated that birds are in danger of extinction, estimating 3,000 in the North Bay and 40% in the area. This area is littered with clapper rails. The study 78-14

conducted by Mr. Monk is not an extensive study .It is human arrogance to think one can mitigate the clapper rails. This DEIR is pathetic in its scope in understanding the profound effect on species. He urged the Commission to take a serious look at the science and develop a better process. He further recommended that the Commission not accept the DEIR.

Andrew Rowley, representing Sports Facility, asked supporters not to attend tonight out of respect for time, but wanted the Commission to understand that support for the facility is greater than ever in the community. They have several endorsement letters from many different organizations, youth and adult in Marin County for the Commission's consideration. **78-15**

Mary Hanley, Vendola Drive resident, submitted information to the Commission for consideration that focused on Chapter 10 in regard to hazardous materials and aeronautical safety. The only access road to the project is through the aircraft operations maintenance hanger. The airport and hangers should be in good condition regarding hazardous materials, and this should be in the EIR. Regarding airport safety, Mead & Hunt are the experts and wrote the book on airport safety, but they weren't given adequate information and had to use estimated numbers to determine the intensity of use and. They used a parking ordinance, California Building Code and staff report from 2006 which identifies a 10-acre site, and this information is not good enough to complete an adequate analysis. She also noted Map No. 4 provided six safety zones that surround the San Rafael Airport and the DEIR notes the facility is in 3 of 6 safety zones, but it appears it is in 5 out of 6 of the safety zones. The purple shading identifies an obstruction into the safety airspace. It must be kept at 5 ft., so they recommend the first row of parking along with gravel parking be compact parking or require cars to back-in. Also, there are five lighting obstructions that must be addressed. In terms of No. 6, DRB should review the report filed by Mead & Hunt in regard to their mitigation and recommendation to the building structure. She wanted Mead & Hunt to be retained throughout the project and review design plans. She further asked that the San Rafael Fire Department inspect the airport hazardous materials business plans and make sure they are in compliance. **78-16**

Linda Levey, Vendola Drive resident, expressed concern for the deed restrictions. A Pacific Sun article in 1991 indicated that the landowner over-built on portions of his property in exchange to leaving this land undeveloped and left as open space and there are no acceptable mitigation measures for the loss of open space. The owner/operator have yet to fulfill any promises to the community. The community has no recourse. To allow mitigations solely at the discretion of the owner is not appropriate. She further wanted to make sure all green policies are adequately addressed. **78-17**

Tom Andrews, Vendola Drive resident, submitted a letter outlining concerns for lighting and noise levels of the facility on this bird sanctuary watershed. No current sound levels exist, it is dead calm and so dark at night. There is no way that 1,000 people, 188 vehicles and overflow parking will generate only 1 decibel more noise than what exists now. Lighting will be pointing into his windows. He asked what the mitigations are between sunset and 10pm when lights are flooding and parking lots are full along with screaming **78-18**

people. In terms of alternate locations, he believed there are other locations are better suited for this project than this wildlife sanctuary.

Susan Schweit, Dockside Circle resident, desired a master plan and asked how the DEIR can be close to adequate if a master plan for the full airport property is not taken into consideration. It is no secret that the applicant's intention is to shut down the airport operations to make room for additional uses. This soccer complex is just the beginning of development. This DIER is not complete or sufficient when much more is to come. A full master plan is needed and DIER must encompass that full plan. 78-19

Francis Nunez, Vendola Drive resident, submitted written comments to the Commission for their consideration. 78-20

Jerry Frate, Contempo Marin resident, expressed concern for the single acre intensity use formula, Table 10-1. The DEIR does not address total occupancy. This occupancy was divided in half based on vague sources. It is not realistic and contradicts the applicant's intent of having the facility in full use during hours of operation. 364 persons is 45% over the maximum safety limit and requires special risk reduction features as follows: concrete building; single story structure; upgraded roof strength; limited number of windows, no skylights; enhanced fire and sprinkler system; and increased number of emergency exists. The occupancy at the most intensively used acre of the site must be recalculated to reflect true occupancy level that will require stronger mitigations in the building upgrades. 78-21

Michael McCrea, Vendola Drive resident, questioned accuracy of data in terms of the bridge dimensions and agricultural permits. All measurements conducted affect other agencies in terms of evaluating the implications involved, and the bridge is not 25-feet wide and walkways were added. In the DEIR, the minimal use of the California Airport Land Use recommendations were used, where actually it is a single sided traffic pattern model utilized at the San Rafael Airport. That model was not used because it would bring greater danger and affect the safety of this facility. The noise study was completed in February of 2005 and at that time the ground was saturated and there was fog in the area, which are all mitigating factors as far as transmission of noise. He asked the Commission to require an additional study that is more accurate. The DEIR should request of the applicant that no changes be made to take in effect wildlife and other aspects of the project. The Air Quality Board inspected the area due to disking after the DEIR was required, and indicated that the applicant was operating under agriculture permits and did not have to observe normal air quality regulations. 78-22

Roger Roberts, MCL, submitted letter dated May 7th to the Commission for their consideration. He then asked staff to clarify exactly who and how the monitoring will be done in regard to the mitigation measures. He felt that should be an independent monitor selected by the City to ensure that all the mitigations are done properly and in accordance with the final project. 78-23

Rachel Kamman, KHE Inc., civil engineer, submitted letter dated May 7th for the Commission's consideration. She noted that the project boundary was inadequately 78-24

drawn, and must include the pump station and flood risks. Necessary improvements and infrastructure needed to support the project for its design life should be included in the scope, as well cost to maintain those improvements. Wetland impacts and endangered species habitat surrounds the area and DEIR should discuss what happens if they can't improve levees in the future. She encouraged the City to expand the scope of the boundary to include areas of impact that can logically be considered and anticipated with the project.

Allen Scotch, Vendola Drive resident, expressed concern for traffic, parking, vehicles and noise impacts. The traffic report identifies up to 1700 trips which is 850 cars and only 270 parking spaces are proposed. This is inadequate. Noise at the nearest house exceeds 40 decibels. The shortage for fields is for outdoor soccer. The Commission must re-evaluate the alternatives. There are lots of vacancies for outdoor soccer facilities to go. He further believed the project must be toned down. **78-25**

Ulrike Steinbach, San Rafael resident, indicated that all her comments and concerns were discussed and had nothing further to add. **78-26**

There being no further public testimony on this item, the Chair closed the public hearing and brought the matter back to the Commission for discussion and action.

The Commission took a short recess at 8:38pm.

Commissioner Sonnet discussed the piecemeal nature and asked why they are not considering the totality of what has happened or what could happen with the rest of the site. In terms of earth moving and sediment, are there restrictions of earth movement, time of year or further mitigation to help with earth movement. He wanted to know when the erosion control plan will be presented and wanted to be sure it will be sufficient to prevent types of problems discussed in the DEIR. Some mitigations and plans are targeted for after the project is approved and asked if it is a sufficient safety net so the adequate steps are taken to protect the stream. The same goes for storm water prevention and the plan that goes along with that as well. In terms of noise levels, that was done on a piecemeal basis as well. He wanted to know the cumulative impact of all that noise with a number of activities occurring at once. There was some discussion about possibly installing a soundwall and that must be definitive in terms of location and effectiveness. He wanted to review the history that led to the agreement in 1983 that leads to the current situation of the private and public recreation. He believed it is relevant and it seems the project hinges on that agreement, but there is no language that talks about a tradeoff that allowed public and private recreation to be allowed on the site. In terms of the clapper rail, figure 7.5 shows clapper rail sightings seen in the bed of the slough. The sightings are not as depicted in the figure and are not in the embankments, but the report says they are. The report also says clapper rail are acclimated to human activity but the figure does not show that. McInnis is the most intense use there, and no sightings of clapper rail noted in between, so the clapper rail seem to move away from the most intense area of use. He asked for the definition of *"qualified archeologist."* In regard to borings, the second boring does not hit bedrock and asked if that is a problem or not. The airport **78-27**

safety sections talked about two accidents and wanted to know the types of accidents that are common to this particular airport usage. He is unclear on the different safety facets of the building. He could not tell if the bonus points associated with the different construction features were being utilized for this project or not, so that must be clarified or is the project sufficient without utilizing those bonuses. The quality of levees and the extent of the levees that are protecting this property must be addressed, and thoroughly studied. There must be more definitive in terms of mitigations for amplified sound, for instance, if the dance instructor used a microphone music noise could exceed 70 decibels. Is it assumed there would be no amplified sound? This needs to be more definitive. If there is a maximum schedule of games during the day, traffic is based on that schedule. The number of trips is driven by the number of games, then that suggests there is an actual schedule, and if that is the case, are they restricting the use to that schedule used for the traffic analysis? The SMART Train must be considered. They must look at the aesthetics from the creek path. He desired more information as to the alternative locations as to what was reviewed and other alternative locations that might make sense. Regarding the mass of the building, they should have a computer model that showed the mass to get a better understanding of what is being discussed. Headlight shielding must be addressed at the entryway. He is confused by the wording and argument relative to the *"no project alternative."* They must have one alternative that is *"no project."* He desired a comparison between the project and no project and clearly provide benefits of the project and not doing a project as well as alternate locations.

Commissioner Colin appreciated all efforts from staff, various experts and consultants on the DEIR. In general, they are moving in the right direction to assess all the environmental impacts of the project. The deed restriction is beyond the scope of CEQA and this evening, but she wanted more information or analysis to better understand this at their next meeting. She agreed the SMART Train should be included and is curious as to why BCDC was not included. The levees are a major issue and must be properly assessed. She is very concerned about acre intensity. She understands the math, but she must better understand the methodology taken and agrees people in the offices should be included. This is an area that must be flushed out, in terms of traffic patterns and flight paths, and does not want to miss anything. The intensity seemed low and that must be addressed in terms of reality of people in the building. The parking location in the safety zone must be reviewed. In terms of levees, the pump system must be addressed. The new FEMA map information should be included as well. In terms of traffic, studies must be done in regard to peak times, and ensure the study timings include McInnis peak use. The intersections of Yosemite and Smith Ranch Road should be looked at. One letter received talked about possible toxins in the ground and prior uses, so that must be addressed. Light pollution and outdoor lighting is a concern and must be reviewed. She further believed that water usage and ability to use recycled water must be flushed out as well. **78-28**

Commissioner Wise has not had an opportunity to fully digest all contents. She wanted to make sure that the DEIR addresses project impacts, as well as any impacts related to implementation of proposed mitigation measures, such as the soundwall on the south side. **78-29**

78-30

Commissioner Lang has confidence that staff will provide responses to all comments received. She appreciated all the well focused, articulated and detailed comments received tonight. She agreed the SMART Train must be included in the traffic analysis. Addressing the levee issues is very important. The potential for creating additional expense for local governments for maintenance of the levees is troublesome. They must make sure the entities responsible for maintenance of those levees are financially capable of doing that maintenance. Mitigation Measure Bio-2b focused on permanent conservation area in response to clapper rail and black rail, and it focused on creating a conservation area and creating a deed restriction and is not sure how that can occur. There is no transfer or subdivision of property contemplated so she is not sure how they can restrict a deed. They can record in the chain of title, but they have a history of enforcement problems in terms of conservation areas. They must get very serious about beefing this up because this requirement is crucial to the overall mitigation plan. The City needs a proactive way to cure any violations that might occur. She suggested notice to the owner of a violation and demand to cure and right to enter onto property and abate any violation. She also suggested possibly making compliance with the mitigation measure a condition of the use permit, so if they do not comply the facility can be shut down. She is open to any ideas that can make this a more workable and proactive enforcement measure. Mitigation Measure N-2 talks about noise and coordinating construction activities with the soccer schedule, but there are no time limits and it must be done well in advance. She further looked forward to responses to comments.

78-31

Chair Pick thanked staff and all that submitted well thought out letters and verbal comments tonight, which were all well presented. He then reinforced one issue with noise and wanted to make sure the data included in the noise studies are very accurate. Distances and measurements should be relevant to the project. In terms of existing agricultural use permits at the site, Chapter 14.1 should be amended if in fact there is an active agricultural use. Also, zoning is for a wetland overlay, yet they know from the report that this is not actually a wetland, so he does not know if there is some way of making that disconnect less of a disconnect. He suggested some sort of definition of a wetland overlay and how it applies would be helpful.

78-32

Commissioner Sonnet suggested re-circulating the DIER to ensure that the real information and data comes back to the Commission as opposed to a logical explanation as to what they have is adequate. City Attorney Epstein explained that typical practice is for the Community Development Director in conference with the City Attorney to review comments made and make a determination as to whether they can sufficiently respond and recommend certification of the FEIR. Should that occur, this Commission would retain its ability to make its own independent judgment at that time whether or not that document should be certified. Staff asked the Commission for that opportunity to review a lot of information received in a short period of time and make a staff judgment on whether or not it must be redone or sufficient enough to respond to comments. Senior Planner Tambornini agreed with City Attorney Epstein. Based on the volume of information received, the best practice is to allow staff to review with the City Attorney's Office.

Principal Planner Boloyan noted the four areas that CEQA identifies that would trigger re-evaluation of the DEIR:

1. A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.
2. A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.
3. A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the significant environmental impacts of the project, but the project proponents decline to adopt it.
4. The Draft EIR was so fundamentally and basically inaccurate and conclusory in nature that meaningful public review and comment were precluded.

Commissioner Sonnet continued to express concern for the fact that there is no project alternative.

Commissioner Lang stated that the Commission is not in a position right now to conclusively determine that a revised DEIR is required, so they must go through the usual process which is to allow staff to evaluate the comments and make a determination and recommendation to the Commission. The Final EIR comes back to the Commission for adoption, so there is another opportunity to review.

Chair Pick asked for a motion.

Commissioner Lang moved and Commissioner Colin seconded, to direct staff to respond to comments on the DEIR and prepare the Final EIR.

Commissioner Sonnet wanted to know how public review is handled in regard to a Final EIR. Senior Planner Tambornini responded that it is notified and there is a subsequent public hearing. There is not another round of public review and comment. There is a notice of an upcoming public hearing. Principal Planner Boloyan indicated that the document is transmitted to the commenting agencies and it will conclude with a public hearing before the Commission where the Commission will consider Final EIR, responses to comments as well as the project merits for review and recommendation of the Commission. If staff concludes that comments can be addressed without triggering one of the four criteria outlined, then staff along with consultants will prepare response to comments for the DEIR and return with to the Commission with the Final EIR. If during that process, staff recommends that one of these four findings are triggered, then staff would go back and revise the DEIR to clarify the areas that have been impacted by additional comments and analysis and then re-circulate the DEIR in the similar process that has occurred.

Commissioner Sonnet asked staff to repeat the four thresholds that trigger re-circulation of the DEIR: Principal Planner Boloyan reiterated the following triggers:

1. A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.

2. A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.
3. A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the significant environmental impacts of the project, but the project proponents decline to adopt it.
4. The Draft EIR was so fundamentally and basically inaccurate and conclusory in nature that meaningful public review and comment were precluded.

Commissioner Sonnet hoped if there are substantial revisions to some of these areas, such as the alternatives that staff considers strongly whether or not that would trigger a revised DEIR because that is so fundamental to the overall process. He noted that onus is on staff to consider the four CEQA thresholds and urged staff to take a hard look. He believed it is easier to go to the FEIR, but this is not about ease. City Attorney Epstein stated that in an effort to respond to comments and if the judgment from staff's perspective is to respond to comments rather than re-circulate the DEIR that can be quite laborious, so the document will not reflect ease of preparation.

Commissioner Wise explained that a *"yes"* vote does not fundamentally indicate that the Commission agrees with the analysis in the DEIR. A *"yes"* vote simply means that the Commission is directing staff to evaluate the comments received to date and make a determination as to whether staff can adequately address comments or whether a re-circulation is necessary.

Commissioner Lang recommended that the Commission proceed to the next step.

AYES:	**Commissioners:**	**Lang, Colin, Chair Pick, Wise**
NOES:	**Commissioners:**	**Sonnet**
ABSTAIN:	**Commissioners:**	**None**
ABSENT:	**Commissioners:**	**Kirchmann, Paul**

Prepared by Mary Hanley 5/12/09
For Oral Comments Exhibit
In Addition to Written Comments Submitted 5/7/09

10

HAZARDS

INTRODUCTION

The purpose of this section is to provide an analysis of the Project within the context of safety and environmental hazards that may be present on the site and those that the Project may pose to others. The scope of this analysis includes a discussion of the potential for hazardous materials to be present on the Project site. Additionally, due to the proximity of the Project to operations of the San Rafael Airport, the bulk of this section's analysis focuses on hazards that the proposed Project may pose to aeronautical safety

Information in this section is based on site inspections conducted on the site between March and December 2005, the City's hazardous materials database maintained by the San Rafael Fire Department, the City of San Rafael *General Plan 2020*, the City of San Rafael Municipal Code, and the Aeronautical Safety Review report prepared for the Project by Mead & Hunt, Inc.

SETTING

SITE SETTING AND OBSERVED SITE FEATURES

The Project site is located on the site of the San Rafael Airport, an existing privately owned and operated airport. The airport features and activity are described below. The airport is not included on a list of hazardous materials sites maintained by local, state or federal regulatory agencies. The airport site stores, maintains and uses materials considered to be hazardous as part of aircraft maintenance and overall airport operations activities; however, the Project site, which is a portion of the overall airport site, is physically separated from the airport operations activities and does not support any observed hazardous site features.

The airport site has been in operation since the late 1960s and has not been used for agricultural purposes within the last forty years; therefore, no soils contaminated as a result of agricultural practices are present on the site.

California Regional Water Quality Control Board
San Francisco Bay Region

Linda S. Adams
Secretary for Environmental Protection

1515 Clay Street, Suite 1400, Oakland, California 94612
(510) 622-2300 • Fax (510) 622-2460
http://www.waterboards.ca.gov/sanfranciscobay

Arnold Schwarzenegger
Governor

GEO TRACKER

Date: FEB 2 3 2007
File No. 21S0047 (REL)

San Rafael Airport LLC
Attn: Robert Herbst
rherbst@jhsproperties.net
2165 A Francisco Blvd.
San Rafael, CA 94901

SUBJECT: No Further Action for Petroleum Hydrocarbon-Affected Soil & Groundwater Associated With the Former Piping and Fuel Dispensers, San Rafael Airport, Marin County

Dear Mr. Herbst:

This letter confirms the completion of site investigation and remedial actions for pollutant releases with respect to petroleum hydrocarbon-affected soil and groundwater at the subject site. This no further action (NFA) letter and the attached case closure summary address only petroleum hydrocarbon-affected soil and groundwater that were associated with releases from the former piping and dispensers from the aboveground storage tanks. You are required to properly abandon the three existing monitoring wells.

As documented in the *Implementation of a Corrective Action Plan for Hydrocarbon Contaminated Soil and Groundwater* reports, dated October 2002 and November 2003, approximately 130 cubic yards of soil were excavated. All six confirmation soil samples collected from the open excavation showed that hydrocarbon-affected soil was not present at concentrations above the Environmental Screening Levels (ESLs). In addition, of nine soil samples collected during monitoring well installation, only two samples contained hydrocarbons slightly above ESLs. During the last two quarters of groundwater sampling only gasoline range hydrocarbons were detected in samples and at concentrations well below ESLs.

Based upon the available information, including the current land use, and with the provision that the information provided to this agency was accurate and representative of site conditions, no further action related to petroleum impacted soil or groundwater at the subject site is required.

If you have any questions, please contact Ralph Lambert of my staff at (510) 622-2382, or e-mail ralambert@waterboards.ca.gov.

Sincerely,

for Bruce H. Wolfe
Executive Officer

San Rafael Airport Sports Center Aeronautical Safety Review

A Technical Report

Prepared for

Lamphier-Gregory

Prepared by

Mead & Hunt, Inc.

Overview

The proposed San Rafael Airport Sports Center is to be situated on a 16.6-acre site on the northern edge of the San Rafael Airport property in San Rafael, California. The Airport Sports Center is anticipated to include a recreational building of 85,000 square feet, an outdoor soccer field and a warm-up field, as well as an automobile parking lot. The nearest portion of the project site is to be situated 162 feet north of the airport's single runway. Given the proximity of the project to an active runway, an aeronautical safety review was conducted. The objective of the study is to determine if the proposed project exposes people on the ground or occupants of aircraft to undue risk. The evaluation focuses on these two safety objectives:

- *Safety of people on the ground*—The most fundamental safety compatibility component is to provide for the safety of people and property on the ground in the event of an aircraft accident near an airport.
- *Safety for aircraft occupants*—The other important component is to avoid development of land use conditions which, by posing hazards to flight, can increase the risk of an accident occurring.

This safety evaluation relies on the following federal and state aeronautical resources:

- Federal Aviation Administration, Advisory Circular 150/5300-13, Change 11, *Airport Design*
- Federal Aviation Administration, Title 14, Code of Federal Regulations Part 77, *Objects Affecting Navigable Airspace*
- California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook* (January 2002)

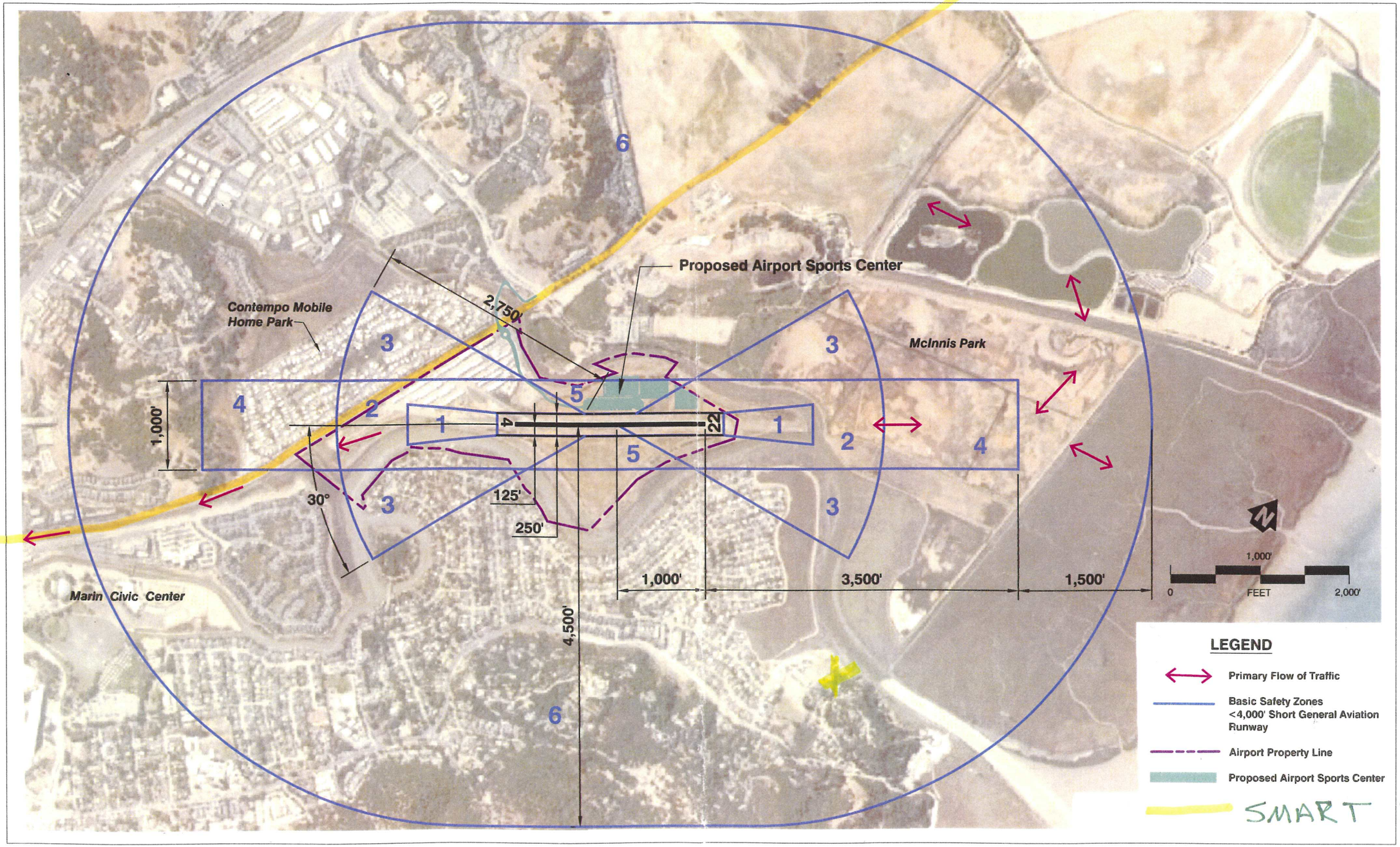


Figure 10-1
San Rafael Airport Basic Safety Zones

Source: Google, California Airport Land Use Planning Manual (2002)

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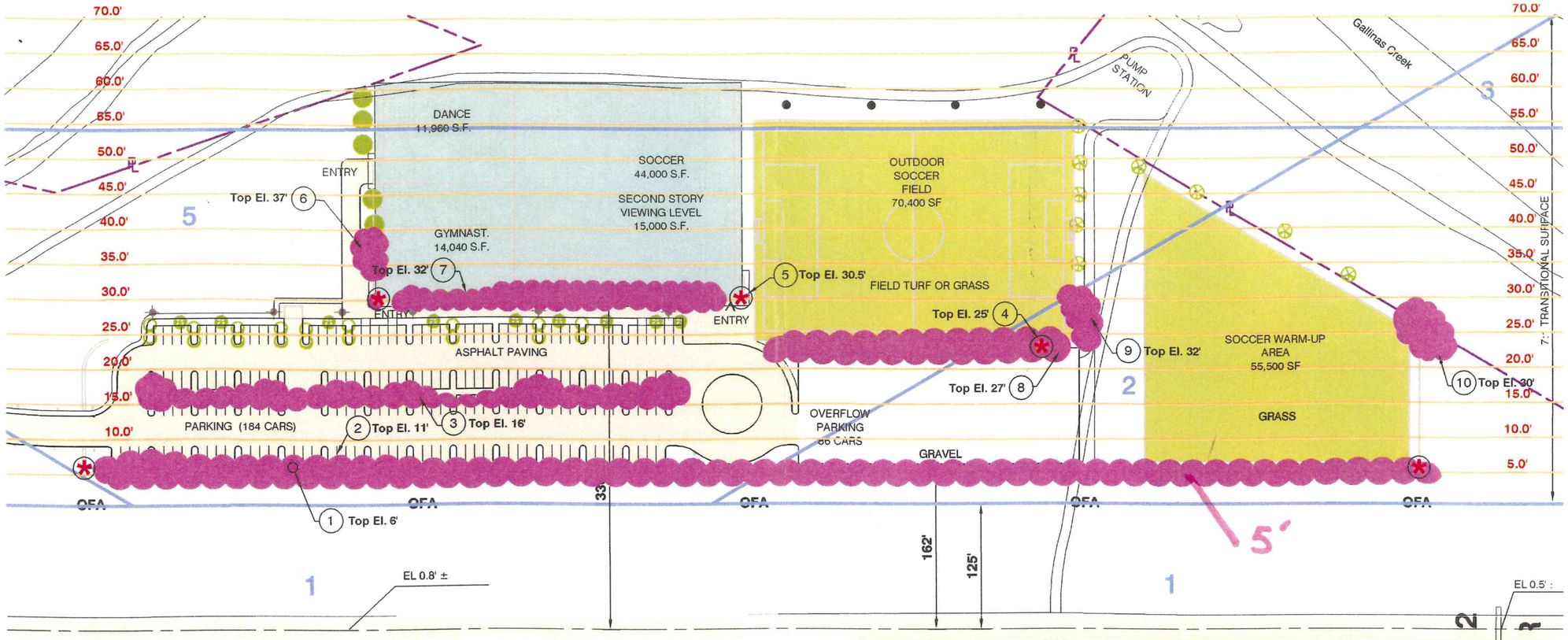

LEGEND

Landscaping Min-Max. Heights:

- Sheoak 20'-35'
- Ceanothus 12'-20'
- Toyon 15' - 25'
- Myrtle 10' - 30'

- Building
- Pavement
- Gravel
- Playing Fields
- Pole Mounted Light
- Field Light
- Obstruction Light

- FAR Part 77 Obstruction Surfaces
- Airport Property Line
- Possible Obstruction (within 1 foot of 7:1 Part 77 airspace surface)
- Safety Zones < 4,000' General Aviation Runway

Sources:

1. *All elevations are in feet above mean sea level (MSL). Building designs, site plan, existing and future elevations and grades supplied by L.A. Paul & Associates, San Francisco. Runway end elevations were interpolated from ground shots in site plan. Elevation rounded to the nearest tenth of a foot.*
2. *FAR Part 77 Obstruction Surfaces: Based on FAR Part 77, Subpart C, which establishes standards for determining obstructions to air navigation.*
3. *Basic safety zones source: California Airport Land Use Planning Handbook (January 2002).*

OBSTRUCTION DATA

OBSTRUCTION NUMBER	DESCRIPTION	MAXIMUM OBJECT HEIGHT	ESTIMATED GROUND ELEVATION	TOP ELEVATION	PART 77 SURFACE HEIGHT	PENETRATION	RECOMMENDED MITIGATION
1	Screened Fencing	5.0	1.5	6.5	6.0	0.5	*Obstruction Light
2	Parking Lot	10.0	1.0	11.0	6.4	4.6	Compact stalls
3	Parking Light	14.0	2.0	16.0	16.2	-0.2	None
4	Field Light	23.0	1.0 - 2.0	24.0 - 25.0	23.3	0.7 - 1.7	*Obstruction Light
5	Building Parapet	29.0	1.5	30.5	30.0	0.5	*Obstruction Light
6	Sheoak Trees	35.0	2.0	37.0	33.5	3.5	Local growing conditions may limit max height of plant species; trim if exceed part 77 surface height.
7	Myrtle Trees	30.0	2.0	32.0	29.0	3.0	
8	Toyon Trees	25.0	2.0	27.0	22.3	4.7	
9	Myrtle Trees	30.0	0.5	30.5	23.3	7.2	
10	Myrtle Trees	30.0	0.0	30.0	21.7	8.3	

100'
0 FEET 200'

Figure 10-2
Project Site Obstruction Data

Source: Mead & Hunt

5

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ALSO TO BE INCLUDED IN THE FEIR:

- Design Review – approve design of building according to the recommendations of Mead & Hunt with regards to "*Special-risk-reduction construction features*." ALSO: Design Review shall/will include consideration of "*Recommended Mitigation Measures*" with regards to "*Hazards to Flight*" on page 10 of the safety review.

- Mead & Hunt, Inc. – approval of/for *Safety of people on the ground and Safety for aircraft occupants* of final proposal.

- Federal Aviation Administration (FAA) – "*Notice of Proposed Construction or Alteration*" (*Form 7460-1*)

- San Rafael Fire Department – approval that the San Rafael Airport operation/maintenance/hangar site and/or property is currently compliant with San Rafael Fire Department's "*Hazardous Material Business Plan*."

REQUIRED PROJECT APPROVALS AND PERMITS

The applicant proposes construction of a new private indoor and outdoor recreational facility at the northeast portion of the 119.52-acre airport site. The 9.1-acre Project site is currently vacant. Applications have been submitted for a Rezoning to revise the Planned Development (PD) zoning, an Environmental and Design Review Permit to allow the construction of the new recreational facility and associated site improvements, and an amendment to the Master Use Permit for the proposed recreational uses. The Project would require additional approvals and permits from local, State and federal agencies.

The Project would require the following zoning entitlements and land use approvals by the City of San Rafael:

- ZC05-01–Rezoning amendment of PD1764 to allow the proposed recreational building and facilities in addition to the existing airport and non-aviation uses.
- UP05-08–Use Permit to amend the Master Use Permit UP99-9 to included the proposed recreational facility uses to the site.
- ED05-15–Environmental and Design Review to approve the design of the building and related improvements including the parking lot, landscaping and lighting.

Additionally, the Project would require permits and approvals from the following public agencies:

- Marin Municipal Water District
- Las Gallinas Valley Sanitary District
- California Regional Water Quality Control Board–San Francisco Bay Area Region
- California Department of Fish & Game
- U.S. Army Corps of Engineers
- California Department of Transportation, Aeronautics Division

PAGE C&R-841

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Submitted by
Susan Schweit

Pacific Sun 11/15/91 See you there!

Fighting city hall

The folks in North San Rafael are mad as hell ...

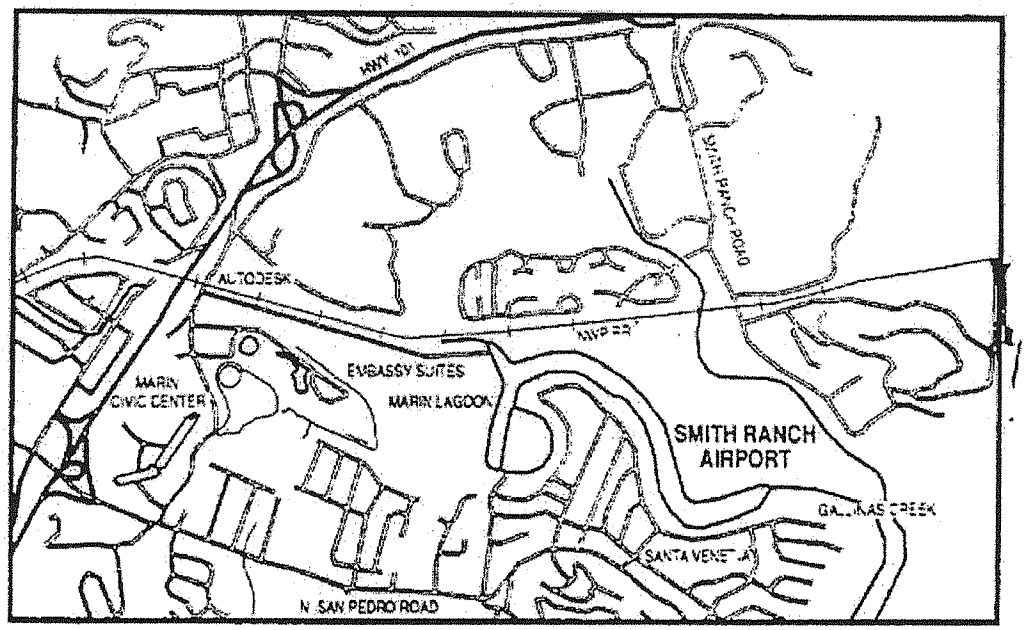
BY JILL KRAMER

Public officials, take warning: the folks in North San Rafael are dead serious about democracy. If they suspect a smoke-filled back room, they'll kick down the door.

Members of this community have fought city hall over a number of development projects in recent years, and they're getting good at it. The next skirmish is set for November 20 at 7:30pm, when a special meeting of the San Rafael Planning Commission will consider whether to renew the use permit for the Smith Ranch Road airport.

A development restriction, now in some jeopardy, was placed on the 120-acre airport property in 1983 when it was part of a parcel that extended westward nearly to Highway 101. The city and county agreed to allow [illegible] development on the flatter land to the west and to keep the more scenic eastern portion free from development.

After that agreement was signed, both parcels were sold to developer Joe Shekou. Because of the development restrictions, the eastern portion with the airport on it sold for a mere $400,000. Shekou then gave former San Rafael city manager Bill Bielser a 10 percent interest in the airport property.



According to county counsel Doug Maloney, Shekou has testified that no money changed hands on that deal; he brought Bielser in, says Maloney, "because he felt Bielser had the political knowhow to get the property approved" for development.

Since then the western parcel has seen considerable development, including the Embassy Suites hotel, the Autodesk complex and the Marin Lagoon condominiums — and there's more to come. The eastern parcel, in addition to serving as an airport, is also used as grazing land for sheep and storage space for contractors. The use permit is worded vaguely, but is understood to limit the property to activities that will pose no threat to the environment.

The neighbors went on the alert in 1988 when, as the City of San Rafael revised its General Plan, city and county officials held private meetings with owners Bielser and Shekou about future development possibilities on the restricted airport property. A recommendation was then written into the final plan calling for 370 houses, a shopping center and a marina or golf course "should the City, County and property owner agree to modify the Declaration of Restrictions."

A storm of protest from the community

LETTER 78 (continued)

LETTER 78: Verbal Comments from Public Hearing

RESPONSE 78-1: Jude Briscoe. Concern regarding the existing storm drain pumping station which serves the Project site is noted. As indicated in RESPONSE 6-5, above, the Project Applicant intends to continue to use the existing sanitary facilities at the airport site, and acknowledges the need to coordinate with the Las Gallinas Valley Sanitary District to perform an engineering study to determine the capacity of the existing sanitary facilities at the airport site. Although the Project Applicant's engineer conducted the evaluation hydrological conditions at the Project site, this evaluation was reviewed by City Staff and determined to be adequate and appropriate for use in the DEIR, and an additional, independent evaluation is not warranted.

RESPONSE 78-2: Maryah Laereman. The Project site is located 1.1 mile from the edge of San Pablo Bay. The confluence of the North and South Fork of Gallinas Creek is 2,200 feet from the levee at the edge of the marsh along San Pablo Bay. San Francisco Bay Conservation and Development Commission (BCDC) jurisdiction does not extend upstream from the confluence of the North and South Fork of Gallinas Creek (personal communication between Ms. Kingma [Monk & Associates} and Mr. LaClaire [BCDC staff] on 12/11/07). Consequently, no permit/authorization from BCDC would be required for this Project. BCDC has not commented on the DEIR. See RESPONSE 18-1, above, which addresses Project consistency with the City's Wetlands Overlay standards.

RESPONSE 78-3: Nicolas Kapas. As indicated in MASTER RESPONSE HYD-2, above, maintenance costs for the majority of the levees which protect the airport site are borne by the property owner rather than the County of Marin (which is responsible for a limited portion of the levee along the tip of the airport peninsula) or the City of San Rafael. Opinion regarding the extent to which poor maintenance of levees at the Project site could raise flood insurance costs is noted. Opinion regarding the prudence of moving of the existing pumping station to land owned by the Project Applicant or requiring the development of an additional pumping station is noted.

RESPONSE 78-4: Keith Meloney. See MASTER RESPONSE TRA-2, above, which addresses the timing of the traffic study. See MASTER RESPONSE TRA-1, above, which addresses Project-related traffic effects at additional intersections.

RESPONSE 78-5: Susanne Becker. Opinion regarding the accuracy of the vantage points selected for evaluation in the DEIR visual analysis is noted. See MASTER RESPONSE AES-1, above, which addresses issues related to the placement of story poles. Opinion regarding the adequacy of the story poles and photomontages in evaluating visual impacts associated with the proposed Project is noted. Requests for independent measurement/verification associated with the placement of story poles, and additional photomontages, are noted. On **Figure 5-1** (DEIR page 5-13), the scale is approximately one inch = 600 feet.

RESPONSE 78-6: Erin. As indicated on DEIR page 3-2, the Project site is an undeveloped 9.1-acre portion of the 16.6-acre parcel identified as APN 155-230-12, which is located within the 119.52-acre airport site. Opinion regarding the "intensity of use overage" proposed at the Project site, and the need for special risk reduction features, are noted. See MASTER RESPONSE PD-1, above, which addresses the maximum number of people who would be anticipated at the site at any given time, and how that relates to the single-acre use calculations in terms of aviation safety risk reduction measures. As indicated on DEIR page 10-11, the special risk reduction construction features include single story height, concrete walls, upgraded roof strength, limited number of windows, no skylights, enhances fire sprinkler system, and an increased number of exits. While these features may each be considered in the design of individual structures as a way to reduce risk, there is no requirement to use any particular listed feature as a means of reducing aviation-related risks. Implementation of **Mitigation Measure Haz-1** (DEIR page 10-20) would (as an alternative to limiting the total number of users to 200 within a single acre) result in the addition of an emergency exit and the installation of an enhanced fire sprinkler system, two of the listed risk-reduction construction features identified on DEIR page 10-11.

RESPONSE 78-7: Jane Chang. Dee MASTER RESPONSE HYD-1, above, which addresses issues related to the datum value used in the DEIR analysis. Opinion regarding the adequacy of implementing **Mitigation Measure Hyd-2a** (DEIR pages 11-32 and 11-33) as a means of effectively floodproofing the proposed structure at the Project site is noted. As indicated in that mitigation measure, the building walls must be "substantially impermeable to the passage of water", even if they are metal walls, as proposed. Recommendation that walls of the proposed structure be made of concrete up to 7 feet is noted. See MASTER RESPONSE TRA-3, above, which addresses the SMART train and related effects associated with development of the Project site as proposed.

RESPONSE 78-8: Shannon Griffin. Request to move the entry to the Project site to avoid possible headlight glare associated with Project-related traffic is noted. See MASTER RESPONSE AES-2, above, which addresses issues related to the anticipated effects of light from the headlights of Project-related vehicles. Opinion regarding the impact of the construction of a soundwall on the views available to residents of Captain's Cove is noted. See discussion under MASTER RESPONSE NOI-1, above, which indicates a noise wall would not be included as part of the Project. Development of the Project site as proposed would not change existing sightlines at the intersection of Yosemite Road and Smith Ranch Road in any way, although as indicated in this comment, there would be increased traffic passing through that intersection as a result of development of the Project site as proposed. Opposition to providing alcoholic beverages for sale at the Project site as proposed is noted. Opinion regarding the effect of the sale of alcoholic beverages at the Project site on the value of homes nearby is noted. Request to reduce the size of the proposed Project in order to reduce impacts on local residents is noted.

RESPONSE 78-9: Victor Friedman. Mitigation Measures are identified in the Executive Summary (DEIR Chapter 2) and in the various DEIR chapters addressing specific environmental areas within the body of the document. The total number of Mitigation Measures identified in the DEIR is 42. See MASTER RESPONSE TRA-3, above, which addresses Project-related issues associated with SMART operations. Request that the Planning Commission not accept the DEIR is noted.

RESPONSE 78-10: Elaine Reichert. Opinion regarding the magnitude of Project-related noise impacts on local residents (due to the perceived character of the area as a "sound bowl") is noted. Concern regarding recent trends in aircraft operations in the vicinity of local homes is noted. Noise associated with aircraft operations was addressed in the DEIR discussion of the existing noise environment on DEIR page 12-2. Opposition to any kind of outdoor lighting, and reference to brightness of outdoor lighting at an Oakland facility, is noted.

RESPONSE 78-11: Art Reichert. The owner of the levees which provide flood protection at the airport site are responsible for ongoing maintenance of those levees to ensure their ability to continue to provide an adequate level of protection, and this will continue to be the case over the next 20 to 30 years, regardless of the future effects of salt water on those levees. Opinion regarding the proposed development of the Project site is noted. Opinion regarding the thoroughness and veracity of the DEIR discussion of alternatives to the proposed project is noted. Opinion regarding the need for mass transit to serve the Project site is noted. Opinion regarding the suitability of the Anderson Drive facility as a replacement for the proposed Project is noted. Statement of appreciation to all who wrote letters opposing the Project (indicated the strong feelings of local residents regarding negative impacts associated with the Project as proposed) is noted.

RESPONSE 78-12: Mary Feller. The May 8, 2009 letter submitted by Mary Feller (Gallinas Creek Watershed Council) is included in the FEIR as LETTER 17, below. Concern regarding an increase in cumulative traffic in the local area resulting from development of the Project site as proposed (in conjunction with existing traffic associated with McInnis Park) is noted. Cumulative traffic impacts associated with the Project are addressed on DEIR pages 13-35 through 13-43, and under the General Plan 2020 conditions (which assumes continued operations at McInnis Park) are determined to be less than significant. Concern regarding the need for peer review of the hydrology analysis and the need for test borings on the levees is noted. The hydrology analysis was reviewed by City Staff before inclusion in the DEIR, and was determined to be appropriate and adequate for this purpose. This comment correctly indicates that the evaluation of the levees presented in the DEIR relied on visual observation of existing levee conditions only. See MASTER RESPONSE HYD-2, above, which provides additional details on the existing condition of the levees and the results of the test borings that have recently been conducted. ABAG mapping of regional liquefaction hazards provides "big picture" identification of areas which may be subject to liquefaction, and indicates that in areas where liquefaction risks mapped by ABAG may be present, site-specific analysis is

appropriate to clarify the actual risk. As indicated on DEIR page 9-22, loose, sandy soils were not encountered in the soil samples obtained from test borings at the Project site, and the geotechnical report indicated that the risk of liquefaction on the Project site is insignificant. Opinion regarding the accuracy of this site-specific analysis is noted. Although the DEIR notes on page 11-31 that the existing levees did not fail in either the 1969 Santa Rosa earthquake or the 1989 Loma Prieta earthquake, this in no way indicates that it is, therefore, impossible that a levee failure could occur in the future, but this levee performance record provides support for identifying the potential for levee failure due to earthquake-induced liquefaction as less than significant. As indicated on DEIR page 9-27, the Healdsburg-Rogers Creek fault is located 9.5 miles northwest of the Project site, and there is not evidence of the presence of any active fault passing through the Project site, so the risk of fault rupture at the Project site is considered less than significant. All development at the Project site will be required to comply with the applicable provisions of San Rafael, California, Code of Ordinances Title 18: Protection of Flood Hazard Areas, as well as all other applicable requirements established in the Code of Ordinances. As indicated in RESPONSE 62-1, above, the DEIR was released for public review in March, 2009 and the revised FIRM was effective on May 4, 2009, after the DEIR was published. As shown on DEIR page 7-12, General Plan Policy CON-5 states: "**Diked Baylands.** Protect seasonal wetlands and associated upland habitat contained within undeveloped diked baylands, or restore to tidal action." The Project as proposed would not interfere with any seasonal wetlands delineated at the Project site, and as indicated on DEIR page 7-2, is currently maintained to deny possible use as habitat in the interests of aviation safety. Concern regarding the impartiality of City Staff is noted. See MASTER RESPONSE PD-2, above, which relates to the Declaration of Restrictions in force at the Project site. As indicated in MASTER RESPONSE HYD-2, above, maintenance costs for the majority of the levees which protect the airport site are borne by the property owner rather than the County of Marin (which is responsible for a limited portion of the levee along the tip of the airport peninsula) or the City of San Rafael.

RESPONSE 78-13: Christina Toms. The letter referred to in this comment is identified as LETTER 67, above. See MASTER RESPONSE HYD-2, above, regarding the existing conditions of the levees, and MASTER RESPONSE HYD-4, above, which addresses issues related to future sea level rise. Opinion regarding the adequacy of the methodology used to evaluate the possibility of levee breach in the DEIR is noted. As indicated on DEIR page 3-14, access to the site would be provided via an existing driveway off Smith Ranch Road through an extension of the existing roadway currently serving the airport property, and this is the site's sole ingress and egress, which would be used in the event of a levee failure. Opinion regarding the validity of data related to projected future increases in sea level is noted. See MASTER RESPONSE HYD-4, above, which addresses issues related to future sea level rise.

RESPONSE 78-14: John Parulis. Receipt of DVDs which show film of California clapper rails in the vicinity of the Project site is acknowledged. Observation that the area is "littered

with clapper rails" is noted. Opinion regarding the adequacy of the California clapper rail study conducted for the DEIR is noted. Opinion regarding the effectiveness of mitigation to reduce potential Project-related impacts to California clapper rail is noted. Opinion regarding the scope of the DEIR and the DEIR presentation of Project-related effects on California clapper rail is noted. Request that the Planning Commission require development of a better process for evaluating the Project-related effects related to California clapper rail is noted. Recommendation that the Planning Commission not accept the DEIR is noted.

RESPONSE 78-15: Andrew Rowley. Observation regarding support for the proposed Project is noted.

RESPONSE 78-16: Mary Hanley (see 6 exhibits submitted during the meeting, included following comment summary, above). As shown on DEIR **Figure 3-3** (page 3-23), the proposed access road to serve the Project site would not pass through any existing aircraft maintenance hangar. Opinion regarding the condition of existing aircraft hangars at the airport site is noted. Development of the Project site as proposed would not affect the existing aircraft hangars at the airport site, and for that reason were not addressed in the DEIR. See MASTER RESPONSE PD-1, above, related to the maximum number of people who would be anticipated to use the Project site at any given time, and related calculations of single-acre intensity of use. Opinion regarding the adequacy of the DEIR analysis of Project-related aviation safety hazards is noted. As shown in DEIR Figure 10-2 (page 10-23) and on DEIR page 10-19, the portions of the Project site to be developed would be located in portions of Zone 2, Zone 5 and Zone 6. As indicated on DEIR Figure 10-2 (page 10-23), the areas shown in purple tint represent "Possible Obstruction (within 1 foot of 7:1 Part 77 airspace surface). These shaded areas represent landscaping which, at maturity, has the potential to penetrate protected airspace, and as indicated on DEIR page 10-22, these features would need to be maintained (trimmed) to ensure that they do not constitute an airspace obstruction. As indicated on DEIR page 10-21, the proposed parking lot lights would not penetrate protected airspace, but they are just below the transitional surface and could potentially become an obstruction if the final grade elevation changes. As shown in DEIR Figure 10-2 (page 10-23), where obstructions (#1 through #10) would penetrate protected airspace, recommendations include the use of obstruction lights, a requirement for compact parking stalls, and trimming of landscape features. Suggestion that the Design Review Board review the Mead & Hunt Report to consider the recommendations for building features is noted. Request that Mead & Hunt be retained throughout the development process to review design plans is noted. Request that San Rafael Fire Department inspect the airport hazardous materials business plans to ensure operational compliance is noted.

RESPONSE 78-17: Linda Levey. See MASTER RESPONSE PD-2, above, which addresses the Declaration of Restrictions as it applies to the proposed development of the Project site. Observation regarding the content of a 1991 article in the Pacific Sun is noted. Opinion regarding the fulfillment of promises on the part of the Project Applicant is noted. In terms of implementation of the Mitigation Measures identified in the DEIR, the City can require the

Project Applicant to implement those selected by City decision-makers as a condition of Project approval, so they would not be implemented at the sole discretion of the Project Applicant if the Project is to be approved. To the extent that unspecific "green policies" are those found within the City's General Plan related to biological resources, these are addressed on DEIR pages 7-12 and 7-13.

RESPONSE 78-18: Tom Andrews. The letter referred to in this comment is presented as LETTER 61, above. The Project site has never been identified as a "bird sanctuary", and is currently actively maintained to discourage its use as a habitat in the interest of aviation safety. The existing noise environment in the vicinity of the Project site is addressed on DEIR page 12-2, and indicates that ambient noise levels currently range from 53 dBA to 58 dBA (L_{dn}), which is considerably noisier than "dead calm", largely due to aircraft activity over the course of a 24-hour day. Opinion regarding the anticipated increase in ambient noise levels as a result of Project development and operations is noted. In the absence of effective mitigation, lighting from the Project site could be expected to affect off-site residents, as indicated on DEIR pages 5-24 through 5-36. **Mitigation Measure Aesth-1a** (DEIR page 5-35), in conjunction with **Mitigation Measure Bio-3a** (DEIR page 7-70), would reduce Project related lighting effects between sunset and 10:00 PM, but Project-related noise levels generated at the site during this time period would not exceed standards established in the City's Noise Ordinance, and no noise mitigation would be required during those hours. Opinion regarding the availability of alternative sites for the proposed Project is noted.

RESPONSE 78-19: Susan Schweit (see copy of Pacific Sun article of 11/15/91 submitted during the meeting, included following comment summary, above). Request for development of a Master Plan for the airport site is noted. Opinion regarding the Project Applicant's intent regarding future development at the airport site is noted. Opinion regarding the adequacy, accuracy and sufficiency of the DEIR in light of possible future unspecified development at the airport site is noted.

RESPONSE 78-20: Francis Nunez. The comments referred to in this comment are presented as LETTER 75, above.

RESPONSE 78-21: Jerry Frate. See MASTER RESPONSE PD-1, above, related to the maximum number of people who would be anticipated to use the Project site at any given time, and related calculations of single-acre intensity of use. Although the special risk-reduction construction features listed on DEIR page 10-11 can be used to reduce aviation-related hazards, there is no requirement that all of them must be incorporated into the design of any structure that is proposed on the site. In fact, some of the risk reduction construction features negate the need for other alternative features. Opinion regarding the need to recalculate the single-acre intensity of use and require stronger mitigations in terms of building construction is noted.

RESPONSE 78-22: Michael McCrea. Although the existing paved road within the bridge is not 25 feet wide, the proposed bridge improvements would result in a bridge that is 25 feet wide (with 2 ten-foot wide vehicular travel lane and one five-foot wide pedestrian/bicycle lane) which would fit within the fully improved width dimension of the existing bridge (see DEIR pages 3-14 and 3-15). Opinion regarding the DEIR use of inappropriate modeling techniques in evaluating aviation hazards associated with San Rafael Airport operations is noted. See MASTER RESPONSE PD-1, above, related to the maximum number of people who would be anticipated to use the Project site at any given time, and related calculations of single-acre intensity of use. Comment regarding the effects of weather conditions as related to noise monitoring in the vicinity of the Project site is noted. Opinion regarding the adequacy of the DEIR noise analysis is noted. Request for an additional noise study is noted. The DEIR identifies Mitigation Measures which would reduce potentially significant impacts on wildlife to a level considered less than significant, but there is no request in the DEIR that the Project Applicant ensure that "no changes be made" which might affect wildlife or other aspects of the Project. Information regarding current operation of the site under agricultural permits, and the Bay Area Air Quality Management District's indication that this meant that current site operations did not need to comply with normal air quality regulations is noted.

RESPONSE 78-23: Roger Roberts. The letter from the Marin Conservation League referred to in this comment was signed by Nona Dennis and is identified as LETTER 44, above. A formal Mitigation Monitoring and Reporting Program has not yet been developed for the proposed Project, although such a Plan will be finalized once the mitigation requirements for the proposed Project have been determined with certainty. That Plan will identify specific monitoring responsibilities for each identified mitigation measure, and although public officials at the City of San Rafael will have ultimate responsibility for monitoring the implementation of the identified mitigation measures, some day-to-day monitoring is likely to become the responsibility of construction contractors, biologists and others at the expense of the Project Applicant. Belief that there should be an independent mitigation monitor selected by the City to ensure hat all mitigations are properly done is noted.

RESPONSE 78-24: Rachel Kamman. The letter referred to is identified as LETTER 53, above. Opinion regarding the adequacy of the boundaries defined for the Project site is noted. Opinion regarding the need to include those infrastructure improvements that may be necessary to support the Project over its design life as part of the Project Description is noted. It is beyond the scope of the DEIR, as an environmental review document, to address cost issues associated with Project implementation, as these represent Project-related economic impacts, rather than impacts associated with physical changes in the environment. Request that the DEIR address issues related to uncertainty regarding future levee maintenance is noted. Since the existing levees which provide flood protection at the Project site have been maintained for many years, and on-going maintenance will continue to be required either with or without Project implementation in order to enable continued operation of the existing airport facilities, it would be speculative to assume that future levee improvements will not

occur as necessary to maintain adequate flood protection at the site. Request that the City expand the boundary of the Project site to include areas beyond the site boundaries identified in the Project Description (DEIR Chapter 3) is noted.

RESPONSE 78-25: Allen Scotch. Concerns related to traffic, parking, vehicles and noise impacts associated with the proposed project are noted. Although the traffic analysis presented in the DEIR indicates that up to 1,701 daily vehicle trips could be anticipated if the Project site were to be developed and operated as proposed (see DEIR **Table 13-3** on page 13-22), the vehicles making those trips would not all be at the Project site at one time, but would be coming and going throughout the day. As indicated on DEIR page 13-29, based on information from the proposed tenants, anecdotal observations and parking codes from other jurisdictions, the Project traffic analysis recommends that 222 parking spaced be provided as part of the proposed Project, and the proposed Project incorporates a total of 270 on-site parking spaces to accommodate any larger than expected demand. Opinion regarding the adequacy of the proposed number of parking spaces to support operations at the Project site is noted. As indicated on DEIR page 12-2, existing noise levels in the residential neighborhood to the south are quieter than at the Project site, ranging from 49 dBA to 54 dBA (L_{dn}) from all noise sources including aircraft noise. Opinion regarding the shortage of fields available for outdoor soccer is noted. Opinion regarding the need for the Planning Commission to reevaluate alternatives to the proposed Project is noted. Opinion regarding additional opportunities to provide facilities for outdoor soccer is noted. Opinion regarding the need to have the Project as currently proposed "toned down" is noted.

RESPONSE 78-26: Ulrike Steinbach. Statement indicating that all personal comments and concerns regarding the Project have been addressed is noted.

RESPONSE 78-27: Commissioner Sonnet. Concern regarding the possible piecemealing of future development at the airport site is noted. The Project Description presented in Chapter 3 of the DEIR identifies development only for that portion of the airport site that has been identified by the Project Applicant as part of this Project Application. No other formal development application for the any other portion of the airport site has been made by the Project Applicant or any other entity at this time. In the absence of a development application for other portions of the airport site, it would be speculative to attempt to predict what portions of the airport site beyond the boundaries of the Project site may be developed in the future, and what uses those areas could ultimately support. It is worth noting that the vacant portion of the site which is south of the airport runway is not easily accessible, lacks suitable connection points with the access road, and the proposed Project would utilize the majority of remaining available sewer capacity per the existing service agreement with LGVSD. Therefore, it is reasonable to anticipate that this area would remain undeveloped vacant lands, suitable for existing grazing and other similar passive activities not requiring additional services or infrastructure.

The Erosion Control Plan would need to be developed by the Project Applicant and approved by the City of San Rafael prior to the start of any site preparation or other construction activity at the Project site, and it would be the City's responsibility in approving any such plan to ensure that it adequately addresses potential impacts associated with earth movement at the site. Review and approval of such Plans by City staff provides the "safety net" necessary to protect streams and stormwater quality.

Opinion regarding the "piecemeal" approach to noise analysis in the DEIR is noted. The noise analysis presented on DEIR pages 12-15 through 12-25 provides an evaluation of the cumulative increase in noise levels in the vicinity of the Project site with the addition of operations at the Project site following development as proposed, as this is the only new development proposed in the vicinity that would be expected to result in a significant increase in ambient noise levels above the standards established in the City's Noise Ordinance (see **Impact N-1** on DEIR page 15). As indicated in **Mitigation Measure N-1** [as modified] on DEIR pages 12-21 and 12-22, as an alternative to restricting the hours of evening operation at the proposed facility, monitoring of noise shall be required to ensure compliance with the City Noise Ordinance, and would effectively reduce anticipated noise levels to a level considered less than significant (see MASTER RESPONSE NOI-1, above, for further discussion of this topic).

See MASTER RESPONSE PD-2, above which addresses the Declaration of Restrictions at the Project site.

Opinion regarding the accuracy the California clapper rail sightings shown in DEIR **Figure 7-5** (page 7-57) is noted. It is not possible for DEIR Figure 7-5 to show the extent to which these birds are "acclimated to human activity", although the proximity of the observations shown to the existing active airport indicates that they have adapted to the human activity to some degree. Opinion regarding the movement of California clapper rail as it relates to activity at McInnis Park is noted.

A "qualified archaeologist" (as per **Mitigation Measure CR-1a** and **Mitigation Measure CR-1b** on DEIR pages 8-14 and 8-15) would be one with the experience level regarded as adequate to evaluate any find of cultural resources during earth disturbance at the Project site, as determined and approved by City staff.

As shown on DEIR **Figure 9-4** and DEIR **Figure 9-6**, Boring 1 extended approximately five feet deeper than did Boring 2, and although Boring 2 did not hit bedrock at 36 feet, Boring 1 hit bedrock at 41 feet, suggesting the depth to bedrock at the site is approximately 40 feet, as indicated on DEIR page 9-9.

According to the California Airport Land Use Planning Handbook (January 2002), the great majority of general aviation aircraft accidents take place on or immediately adjacent to the runway, either during approach/landing (e.g., hard landing, long landing, ground loop, etc.) or during takeoff/departure (engine malfunction during climbout, aborted takeoff, etc.). The

various special risk-reduction construction features identified on DEIR page 10-11 are available for consideration in designing structures, but are not mandatory and do not provide "bonus points" in terms of assessing the relative safety of such structures. Although the proposed structure will be required to meet all current building code requirements, responsibility for determining the relative safety of the proposed structure at the Project site ultimately rests with City of San Rafael decision-makers who will consider any safety-related features of the proposed structure as they deliberate on possible approval of the Project.

See MASTER RESPONSE HYD-2, above, which addresses the existing condition of the levees that provide flood protection at the airport site.

Aside from the proposed limitation on use of the outdoor fields after 9:00 PM Sundays through Thursdays and 10:00 PM on Fridays and Saturdays (identified in **Mitigation Measure N-1**), no mitigations to reduce the effects of amplified sound at the Project site have been identified in the DEIR.

The DEIR traffic projections are based on the highest anticipated use of the proposed complex during the peak hours. DEIR page 13-22 and TIR page 17 notes that the complex would facilitate up to 21 league soccer games on weekdays between 3:30 and 11:00 PM; with 16 games on the indoor fields and up to 5 games on the outdoor field. Peak hours analyzed are worst case scenario for the impacted intersections analyzed. This analysis has been conducted for all proposed activities within the complex during the highest demand in the peak hours, and was used to determine Project vehicle trip generation listed in **Table 13-3** on DEIR page 13-22. Therefore, off peak hours will have much less of an impact, and the data provided to the City did not indicate the Project trip generation would be higher during non-peak hours. Similar sites were specifically studied actual in operation.

See MASTER RESPONSE TRA-3, above, which addresses future SMART operations in the vicinity of the Project site.

As shown on DEIR **Figure 5-1** (page 5-13), public view #3 and public view #4 used in the DEIR visual analysis and simulation modeling were both from the creekside path in McInnis Park. Request for additional computer modeling to better show the mass of the proposed structure is noted. See MASTER RESPONSE AES-1, above, for further discussion on this topic. See MASTER RESPONSE AES-2, above, which addresses issues related to vehicle headlights.

As indicated on DEIR page 16-25, DEIR **Appendix B** provides a listing of he 14 potential alternatives sites in Marin County which where considered by the Project Applicant prior to submitting the development application for the proposed Project. Although there may be additional sites which may provide a feasible alternative to the Project location while meeting Project Objectives, none have been identified, and no alternative sites are currently under the control of the Project Applicant.

Confusion regarding the discussion of the No Project Alternative is noted. As indicated on DEIR pages 16-5 through 16-7, the No Project Alternative assumes that development of the Project site would conform to the existing PD District and Master Use Permit, with uses resembling those of McInnis Park. The No Project Alternative, as described in the DEIR, is not the same as a "status quo" alternative in which the Project site would remain in its current undeveloped state. Desire to evaluate a comparison between the Project and a No Project Alternative which can provide a clear accounting of the benefits of the proposed Project is noted, but is beyond the scope of an environmental review document, which focuses on changes in the physical environment resulting from implementation of the Project as proposed. As indicated above, no feasible alternative locations to the Project site have been identified which would meet the Project Objectives, and no alternative locations have been evaluated in the DEIR.

RESPONSE 78-28: Commissioner Colin. Acknowledgement of efforts on preparing the DEIR, and opinion on the direction of the analysis in the DEIR, is noted. See MASTER RESPONSE PD-1, above, which addresses issues related to the Declaration of Restrictions. See MASTER RESPONSE TRA-3, above, which addresses related to operation of SMART trains in the vicinity of the Project site.

The San Francisco Bay Conservation and Development Commission (BCDC) has jurisdiction over any development activity which takes place within 100 feet of the edge of the shoreline of San Francisco Bay. All development proposed at the Project site would take place outside of BCDC jurisdiction. See MASTER RESPONSE HYD-2, above, regarding the existing condition of the levees which currently provide flood protection at the Project site.

See MASTER RESPONSE PD-1, above, which addresses the maximum number of people anticipated at the Project site at any given time and single-acre use calculations. **Mitigation Measure Haz-2** (DEIR page 10-25) addresses a measure to restrict parking of tall vehicles in proposed parking spaces along the fenceline.

Request to address the pump station is noted. The Project Applicant intends to continue to use of the existing facilities (including the pump station) at the airport site. MASTER RESPONSE HYD-2, above, further addresses the existing ownership and ongoing maintenance responsibilities of the levee and pump station.

Suggestion to provide information from the new FEMA map is noted. Datum values have been changed to reflect the new method of measurement (change from NGVD to NAVD), which does not change the hydrology or FEMA flood proofing requirements.

See MASTER RESPONSE TRA-2, above, which addresses the timing of the traffic studies for use in the DEIR. See MASTER RESPONSE TRA-1, above, related to Project impacts on additional intersections beyond those evaluated in the DEIR.

As indicated on DEIR page 10-15, the fact that the site has not been farmed indicates that there would be no potential impact associated with the exposure of the public to pesticides, contaminated soils or other hazardous farming-related materials, and airport operations are unlikely to have contaminated soils at the adjacent Project site.

Project-related effects associated with outdoor lighting are addressed on DEIR pages 5-24 through 5-36; which result in recommended mitigation **MM Aesth-1a** and **MM Aesth-1b** which ensure project lighting would not adversely affect the surrounding community nor interfere with airport operations. Lighting levels would be maintained at the minimum required for safety, with shielding of fixtures, limit on lighting intensity and duration of use at night.

The possible use of recycled water at the Project site (not currently proposed by the Project Applicant) is addressed on DEIR page 14-9.

Utilities are proposed to be connected to existing supply lines at the site, as indicated on Project plan sheet C-4 'Grading and Drainage Plan' prepared by Oberkamper and Associates 12-14-06.

RESPONSE 78-29: Commissioner Wise. Statement indicating that additional time is necessary to fully digest the contents of the DEIR is noted. Statement that the DEIR must address Project impacts, such as a soundwall on the south side, is noted. As discussed in this Response to Comments document, and **FEIR Chapter 2**, the requirement for a noise wall has been removed from **Mitigation Measure N-1**. Thus, no further discussion regarding impacts associated with construction of a noise wall is necessary. This Response to Comments document has confirmed that the DEIR has adequately addressed all the potential environmental impacts associated with the Project, based on the evidence contained in the public record.

RESPONSE 78-30: Commissioner Lang. Confidence in Staff being able to provide responses to comments on the DEIR is noted. Appreciation of the comments received on the DEIR is noted. See MASTER RESPONSE TRA-3, above, which address issues related to SMART operations in the vicinity of the Project site. See MASTER RESPONSE HYD-2, above, which addresses the existing condition of the levees in the vicinity of the Project site. The DEIR, as an environmental review document focused on evaluating physical changes in the environment related to implementation of the Project as proposed, does not address costs associated with maintenance of the levees, or who will bear those costs. See RESPONSE 4-7, above, which addresses how the deed restriction proposed in **Mitigation Measure Bio-2b** would be implemented. Suggestion that compliance with **Mitigation Measure Bio-2b** be made a condition of Project approval is noted. Observation that coordination of Project construction activity with the soccer schedule at McInnis Park will need to be accomplished well in advance of construction at the Project site is noted. Anticipation of responses to DEIR comments is noted.

RESPONSE 78-31: Chair Pick. Statement of thanks to Staff and to those who submitted comments on the DEIR is noted. Comment regarding the need to make sure accurate data has been provided in the noise studies prepared for the DEIR is noted. The Response to Comments document has confirmed that the noise analysis is appropriate and accurately based on the Project and site conditions. Comment regarding the need to amend Chapter 14 if there are existing active agricultural uses at the Project site is noted. As noted in the DEIR Chapter 14 on pages 14-1 and 14-2, there are no current commercial agricultural uses present on the site, other than activities associated with land maintenance. As indicated in this comment, although the Project site is located within a Wetlands Overlay District (see DEIR pages 4-15 through 4-17), no Project-related development is proposed within any delineated jurisdictional wetlands (see DEIR **Figure 7-1** (page 7-27). This Response to Comments document has further clarified the applicability of the –WO district regulations to the site.

RESPONSE 78-32: Commissioner Sonnet. Suggestion regarding the need to recirculate the DEIR to ensure the accuracy of data presented in the DEIR is noted. Concern regarding the extent to which the DEIR addresses a No Project Alternative (see DEIR pages 16-5 through 16-16) is noted. These responses to comments provided on the DEIR are sufficient to augment and clarify the information presented in the DEIR, which has included responses regarding the accuracy of data presented in the DEIR and augment the alternatives analysis. Therefore, recirculation of the DEIR has not been found required in order to allow the public additional time to evaluate any significantly new information, analysis or mitigation measures that were not previously discussed in the DEIR.

2

REVISIONS OF THE DRAFT EIR

On DEIR pages 2-2 through 2-36, **Table 2-1: Summary of Impacts and Mitigation Measures** has been replaced with **REVISED Table 2-1: Summary of Impacts and Mitigation Measures** to reflect text changes indicated below, beginning on page R-51.

On DEIR page 2-4, revise "MM AQ-1" to "MM AQ-1a".

On DEIR pages 2-6 and 2-7, the text of the fifth bulleted paragraph under **MM Bio-1a** has been modified to read as follows

> "Compliance with Best Management Practices for sediment and erosion control as detailed in the SWPPP and ECP prepared for the project ~~Precautions~~ shall be taken to prevent silt-laden or contaminated runoff from entering the stream. Measures to control runoff from entering the stream could include the placement of fiber rolls and silt fences, containing wastes, dry sweeping instead of washing down impervious surfaces, and providing proper washout areas for the construction contractor."

On DEIR page 2-8, the text of the third bulleted paragraph under **MM Bio-1b** has been modified to read as follows:

> "Since the proposed Project will increase the amount of impervious surface on the Project site, the SWMP shall also address storm water detention and shall ensure that the ~~volume of water discharged~~ volumetric flow rate of water discharged into the North Fork of Gallinas Creek does not exceed the pre-project ~~volumes~~ rate. Treated storm water will continue to be discharged at constant rates up to the existing pump station capacity of 500,000 gallons per hour/18.5 cubic feet per second."

On DEIR page 2-8, the text of the third sentence under **MM Bio-2a: California Clapper Rail and California Black Rail – Perimeter Fence** has been revised to read as follows:

> "The fence will be a minimum of ten-feet tall (which may consist of a standard 6-foot tall cyclone fence with a 4-foot netting extension) for the purpose of preventing balls from the soccer fields from entering the marsh."

On DEIR pages 2-9 and 2-10, the text of **MM Bio-2b: Permanent Conservation Area** has been deleted in its entirety and replaced with the following text:

> "The Project Applicant shall designate the 100-foot upland buffer area on the Project site adjacent to the North Fork of Gallinas Creek as a permanent "conservation area" that will be protected through recordation of a declaration of covenants, conditions and restrictions on the property. A deed restriction shall be recorded that specifies the prohibited and allowed uses of the buffer areas. The allowed uses would include the continued maintenance of the fields and levees, while the prohibited uses would prohibit any future development or land disturbance (outside of that required for routine maintenance and levee repairs) within the 100+-foot creek protection buffer that is designated as a conservation area. The deed restriction will become a condition of Project approval."

On DEIR pages 2-10 and 2-11, the text of **MM Bio-2c: California Clapper Rail and California Black Rail –Levee Maintenance** has been modified to read as follows:

> "Maintenance of the levees along Gallinas Creek must be allowed to continue for airport safety purposes (i.e., aviation safety and flood control). Any scheduled maintenance by the airport operator along the North Fork of Gallinas Creek, other than vegetation control, should occur in August through ~~September~~ January when rails are not expected to be nesting. Mowing of vegetation along levees has occurred for many years pursuant to FAA guidelines, and should continue. To ensure that clapper rails in the area have necessary vegetative cover to escape predators during high tide events, no mowing should be allowed on the slopes of the levees that face the creek."

On DEIR page 2-11, the text of the second and third paragraphs under **MM Bio-2d: California Clapper Rail and California Black Rail – Avoidance Measures** has been modified to read as follows:

> "Pile driving associated with the recreational facility building shall not commence until September 1st and shall be completed by February 1st. Outside of pile driving, exterior construction of the recreational facility shall be allowed between July 1st and February 1st without limitation. Interior work shall be allowed without timing limitations. Construction ~~of the recreational facility~~ shall not commence on the recreational facility Project ~~until~~ on July 1st until a qualified biologist determines that there are no nesting California Clapper Rails or California Black Rails within 200 feet of the Project construction envelope. In the event nesting rails are found within 200 feet of the Project site on or after July 1st, construction shall be delayed until the nesting attempt is completed and the nest is abandoned or a qualified biologist determines that the nesting would not be adversely affected by commencement of the project. If California Clapper Rails or California Black Rails are determined to be nesting between 200 feet and 500 feet from the Project construction envelope on July 1st, the Project may proceed if a

qualified biologist determines that the nesting rails would not be affected by the proposed construction activities. Under all circumstances any nest identified within 500 feet of the Project construction envelope would be monitored by a qualified biologist while construction activities were in progress. The monitoring biologist would have the right to shut down any and all construction activities immediately in the event that such activities were determined to be disturbing the nesting attempt. Nests greater than 500 feet away would not require biologist monitoring ~~when the rails can be expected, in most cases, to have fledged young. Construction of the recreational facility could extend into October, with interior work allowed throughout the year~~.

To account for California clapper rails or black rails, and other special-status birds, that ~~likely~~ occur and nest in the marsh habitats along the creek in the immediate area of the bridge, all work associated with the new bridge, including the demolition of existing bridge deck, installation of the new deck, and other bridge improvements, shall be restricted to August 1 to October 15. The bridge pile-driving dates shall be further restricted to September 1 and October 15 when potentially occurring anadromous fish would not be expected to occur in the channel. This "avoidance window" is outside of the California clapper rail, California black rail, and other special-status birds breeding seasons, thereby eliminating the potential that bridge reconstruction activities would disrupt breeding attempts. This mitigation measure provides conservation measures that are consistent with the ISP Best Management Practices."

On DEIR page 2-13, the text of **MM Bio-3b: Lighting Curfew** has been modified to read as follows:

"The recreational facility shall set a 10:00 p.m. outdoor event lighting restriction. While safety lighting allowing visitors to safely leave the site may be illuminated as late as 12:30 p.m., all outdoor field lighting shall be terminated no later than 10:00 p.m. When there are evening outdoor soccer events, the 10:00 p.m. end time will ensure that light generated from the use of the recreational facility's outdoor fields will not disrupt nocturnal wildlife species' activity patterns, allowing nocturnal migration movements through the project area after that time."

On DEIR page 2-14, the text of the first bulleted paragraph under **Mitigation Measure Bio-4c: Nesting Raptors – Pre-Construction Nesting Surveys** has been modified to read as follows:

"A pre-construction nesting survey shall be conducted ~~in June~~ during the breeding season (February through July) of the year construction of the project will commence. The nesting survey shall be conducted within 30 days prior to commencing of construction work. The raptor nesting surveys shall include examination of all habitats and trees within 500 feet of the entire Project site, including near the bridge, not just eucalyptus trees on the northern boundary of the Project site."

On DEIR page 2-14 (continuing onto page 2-15), the text of the second bulleted paragraph under **Mitigation Measure Bio-4c: Nesting Raptors – Pre-Construction Nesting Surveys** has been modified to read as follows:

> "If a nesting raptor species is identified, a 300-foot radius buffer around any active nest site that is located on or within 300 feet of the Project site shall be fenced with orange construction fencing. If the nest is off the Project site, the Project site shall be fenced where this buffer intersects the project area. This 300-foot buffer may be reduced in size if a qualified raptor biologist determines that the nesting raptors are acclimated to people and disturbance, and/or otherwise would not be adversely affected by construction activities. At a minimum, however, the non-disturbance buffer shall be a radius of 100 feet around the nest site. When construction buffers are reduced from the 300 foot radius, a qualified raptor biologist shall monitor distress levels of the nesting birds until the young fledge from the nest. If at any time the nesting raptors show levels of distress that could cause nest failure or abandonment, the raptor biologist shall have the right to re-implement the full 300-foot buffer. Instances when the buffer could be reduced in size would be if the raptors were well acclimated to disturbance and/or if there were physical barriers between the nest site and the construction project that would reduce disturbance to the nesting raptors."

On DEIR pages 2-16 and 2-17, the text of **Mitigation Measure Bio-5a: Western Burrowing Owl - Nesting Surveys** has been deleted and replaced with the following text:

> "**MM Bio-5a: Western Burrowing Owl – Nesting Surveys.**
>
> - Pre-construction Survey. A preconstruction survey of the Project site shall be conducted within 30 days prior to any ground disturbing activities to confirm the absence or presence of burrowing owls. If more than 30 days lapse between the time of the preconstruction survey and the start of ground-disturbing activities, another preconstruction survey must be completed. This process should be repeated until the Project site habitat is converted to non-habitat (e.g., developed for recreational uses). If western burrowing owls are not present, no further mitigation is required.
>
> - If burrowing owls are found on the Project site during the non-breeding season (September 1 through January 31), impacts to burrowing owls shall be avoided by establishing a fenced 160-foot buffer (50 meters) between the nest site (i.e., the active burrow) and any earth-moving activity or other construction-related disturbance on the Project site.
>
> - If burrowing owls are detected on the site during the breeding season and appear to be engaged in nesting behavior, a fenced 250-foot buffer (75 meters) shall be installed between the nest site (i.e. the active burrows or ground nests) and any earth-moving activity or other disturbance on the Project site. This 250-foot buffer may be removed

once it is determined by a qualified raptor biologist that that young have fledged (that is, left the nest). Typically, the young fledge by August 31st. This fence removal date may be earlier than August 31st, or later, and would have to be determined by a qualified raptor biologist. Once the qualified raptor biologist confirms that there are no owls inside any active burrows, these burrows may be collapsed."

On DEIR pages 2-17, delete **MM Bio-5b**, which is already included as a part of the *first bullet* of Mitigation Measure MM Bio-5a.

~~**MM Bio-5b Western Burrowing Owl: Pre-construction Survey.** A preconstruction survey of the Project site shall be conducted within 30 days prior to ground disturbing activities. If more than 30 days lapse between the time of the preconstruction survey and the start of ground-disturbing activities, another preconstruction survey must be completed. This process should be repeated until the Project site habitat is converted to non-habitat (e.g., developed for recreational uses).~~

On DEIR pages 2-17, modify the text in **MM Bio-5c Western Burrowing Owl – Passive Relocation,** as follows:

"MM Bio-5e~~b~~b Western Burrowing Owl – Passive Relocation. If occupied western burrowing owl burrows are found within 160 feet of the proposed Project work area during the non-breeding season, and may be impacted, passive relocation measures shall be implemented according to the Burrowing Owl Consortium Guidelines (BOC 1993) and ~~as otherwise approved by CDFG~~ as recommended by a qualified biologist. Rather than capturing and transporting burrowing owls to a new location (which may be stressful and prone to failure), passive relocation is a method where the owls are enticed to move on their own accord. ~~Proof that CDFG has approved any passive relocation measures shall be provided to the City of San Rafael prior to commencement of such activities.~~ The biologist shall consult with CDFG prior to initiating passive relocation measures. Passive relocation shall not commence before September 30th and shall be completed prior to February 1st of any given year. After passive relocation, the Project site and vicinity will be monitored by a qualified biologist daily for one week and once per week for an additional two weeks to document where the relocated owls move. A report detailing the results of the monitoring will be submitted to CDFG within two months of the relocation."

On DEIR pages 2-18, modify the text in **MM Bio-5d Western Burrowing Owl – Habitat Delineation,** as follows:

"MM Bio-5~~d~~c Western Burrowing Owl – Habitat Delineation. If burrowing owls are found occupying burrows on the Project site, a qualified raptor biologist shall delineate the extent of burrowing owl habitat on the site. To mitigate for impacts to burrowing

owls, the applicant shall implement mitigation measures ~~required~~ recommended by the CDFG which state that six and a half acres (6.5 acres) of replacement habitat must be set-aside (i.e., protected in perpetuity) for every occupied burrow, pair of burrowing owls, or unpaired resident bird. Protecting burrowing owl habitat in perpetuity will off-set permanent impacts to burrowing owl and their habitat. For example, if two pairs of burrowing owls are found occupying burrows on the Project site, 13 acres of mitigation land must be acquired. Similarly, if one pair and one resident bird are identified, 13 acres of mitigation land must be acquired. The protected lands shall be adjacent to occupied burrowing owl habitat and ~~at a location acceptable to~~ determined to be suitable in consultation with CDFG. Land identified to off-set impacts to burrowing owls must be protected in perpetuity either by a conservation easement or via fee title acquisition. ~~CDFG will likely require that a~~ A detailed mitigation and monitoring plan shall be developed for the burrowing owl mitigation area. This plan shall be prepared by the project biologist ~~and will be subject to~~ in consultation with CDFG ~~approval~~. The applicant will provide an endowment fund to the Grantee of the Conservation Easement for the long-term management of the burrowing owl mitigation lands."

On DEIR page 2-19, the text of **MM Bio-6b: Special-Status Nesting Birds – Nesting Surveys** has been modified to read as follows:

"**MM Bio-6b: Special-Status Nesting Birds – Nesting Surveys.** A nesting survey shall be conducted within 15 days prior to commencing construction work. If special-status birds, such as saltmarsh common yellowthroat and San Pablo song sparrow, are identified nesting near the bridge reconstruction component of the Project, a ~~200~~ 50-foot radius buffer must be established around the nest site by installing bright orange construction fencing. Similarly, if great blue herons, great egrets, snowy egrets, or black-crowned night herons are found nesting near the bridge or near the Project site area, a 200-foot radius around the nest site(s) must be fenced with bright orange construction fencing. If nests are found off the Project site but within ~~200 feet~~ the appropriate buffer, the portion of the ~~200-foot~~ buffer on the Project site shall be fenced with bright orange construction fencing. No construction or earth-moving activity shall occur within a ~~200-foot~~ buffer until it is determined by a qualified biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by August 1. This date may be earlier than August 1, or later, and would have to be determined by a qualified ornithologist."

On DEIR pages 2-19 and 2-20, the text of **MM Bio-6c: Common Nesting Birds – Nesting Surveys** has been modified to read as follows:

"**MM Bio-6c Common Nesting Birds – Nesting Surveys.** If common (that is, not special-status) passerine birds (that is, perching birds such as western scrub jays and northern mockingbird) are identified nesting within the project area or immediately

adjacent to the Project site, a ~~75~~ 50-foot buffer demarcated by orange lath staking installed every 20 feet around the buffer shall be established. No grading/construction activities shall occur in the established buffer until it is determined by a qualified biologist that the young have fledged and have attained sufficient flight skills to leave the area. Typically, most passerine birds can be expected to complete nesting by July 1, with young attaining sufficient flight skills by early July. Swallows species are the exception typically fledging and attaining sufficient flight skills in mid-July."

On DEIR pages 2-28 and 2-29, the text of **MM Hyd-1a Erosion Control Plan** has been modified to read as follows:

"**MM Hyd-1a Erosion Control Plan**. Prior to issuance of a grading permit, a California Registered Civil Engineer retained by the Project Applicant shall prepare and submit a detailed erosion control plan (ECP) and narrative to the Stormwater Program Manager of the City of San Rafael for review and approval. The ECP shall be designed to control and manage erosion and sediment, control and treat runoff, and promote infiltration of runoff from new impervious surfaces ~~mitigate erosion and sedimentation impacts during~~ resulting from construction activities in order to minimize erosion and runoff to the maximum extent feasible. At a minimum, the ECP and written narrative shall include the following:

- A proposed schedule of grading activities, monitoring, and infrastructure milestones in chronological format;

- Identification of critical areas of high erodibility potential and/or unstable slopes; contour and spot elevations indicating runoff patterns before and after grading;

- Identification and description of erosion control measures on slopes, lots, and streets, based on recommendations contained in the *Erosion and Sediment Control Field Manual* published by the San Francisco Regional Water Quality Control Board (RWQCB), the Association of Bay Area Governments' *Manual of Standards for Erosion and Sediment Control*, or equivalent document, as required by the City of San Rafael *General Plan 2020* Policy S-~~19~~22 (Erosion). Measures could include, but are not limited to stabilizing the entrances, using straw wattles, installing silt fences, using erosion control blankets, and covering all exposed soil with straw mulch or a trackifier;

- The location, implementation schedule, and maintenance schedule of all erosion and sediment control measures, including measures to control dust;

- Identification and description of s~~S~~oil stabilization techniques (such as short-term biodegradable erosion control blankets and hydroseeding) to be utilized; ~~and~~

- A description of the location and methods of storage and disposal of construction materials;
- The post-construction inspection of all drainage facilities for accumulated sediment, and the cleaning of these drainage structures of debris and sediment~~.~~;
- The first 3/4 –inch of runoff from the first 1-inch of rainfall must be treated~~.~~; and
- A copy of the City's Best Management Practices sheet included within project plans.

The ECP shall limit the areas of disturbance, designate restricted-entry zones, and provide for revegetation or mulching. The Project Applicant shall ensure that the construction contractor is responsible for securing a source of transportation and deposition of excavated materials. The construction contractor employed by the Project Applicant shall retain a copy of the ECP on-site and shall implement the ECP during all earth-moving activities."

On DEIR page 2-30, amend the text of **MM Hyd-1d Storm Water Management Plan (SWMP)**, as follows:

"MM Hyd-1d Storm Water Management Plan (SWMP). Consistent with the requirements of the City of San Rafael NPDES Permit, prior to issuance of a grading or building permit, whichever comes first, the Project engineer shall prepare a post-construction Storm Water Management Plan (SWMP) and incorporate into the final site plan features that would clean site waters in accordance to RWQCB and MCSTOPPP standards before they enter San Rafael Bay, to the maximum extent feasible. Features that could be used to clean site waters include, but are not limited to, bioswales, filters inserted into the site drainage inlets to filter runoff, and landscaped and unimproved areas that would act as bio-swales to allow microorganisms in the soil to clean and filter site waters before release into Gallinas Creek. In addition, prior to preparation of the SWPPP, the Marin/Sonoma Mosquito & Vector Control District shall be consulted to ensure that the measures do not have the potential to promote mosquito breeding."

On DEIR pages 2-31 and 2-32, the text of **Impact Hyd-2: Flooding as a result of Levee Failure** has been modified to read as follows:

"The Project site is located within a 100-year flood zone. The Project site is protected by nine foot levees on the north, south and east; however, the site itself would be graded to a finished ground elevation of +1.0 feet above mean sea level (MSL). Unless FEMA-established ~~wet~~ flood-proofing standards are implemented to protect the buildings in the event of flooding, this impact is considered ***potentially significant***."

On DEIR pages 2-31 and 2-32, the text of **MM Hyd-2a** has been modified as follows to be consistent with **MM Hyd-2a** on DEIR pages 11-32 and 11-33, which is further revised to convert elevation references from NGVD to NAVD , as follows:

> **"MM Hyd-2a Floodproofing.** In order to provide for one foot of freeboard elevation above the base 100-year flood elevation of +6.0 NGVD (+8.67 NAVD), the portions of the building below +7.0 NGVD (+9.67 NAVD) shall be flood proofed according to the following specifications per FEMA *Technical Bulletin 3-93* (see **Appendix I**):
>
> - The building must be watertight to the floodproof design elevation of +7 NGVD (9.67 NAVD). Floodproofing to any elevation less than 1 foot above the BFE will have a serious negative impact on the flood insurance rating for the building. Generally a minimum of 1 foot of freeboard is recommended. Additional freeboard is warranted for sites where predicted flood depths may be inaccurate, such as sites within large drainage areas and rapidly urbanizing areas.
>
> - The building's walls must be "substantially impermeable to the passage of water." FEMA has adopted the U.S. Army Corps of Engineers (ACOE) definition of substantially impermeable from the ACOE publication "Flood Proofing Regulations." This document states that a substantially impermeable wall "shall not permit the accumulation of more than 4 inches of water depth during a 24-hour period if there were no devices provided for its removal. However, sump pumps shall be required to control this seepage." Flood resistant materials, described in Technical Bulletin 2, "Flood-Resistant Materials Requirements," must be used in all areas where such seepage is likely to occur.
>
> - The building's utilities and sanitary facilities, including heating, air conditioning, electrical, water supply, and sanitary sewage services, must be located above the BFE, completely enclosed within the building's watertight walls, or made watertight and capable of resisting damage during flood conditions.
>
> - All of the building's structural components must be capable of resisting specific flood-related forces. These are the forces that would be exerted upon the building as a result of floodwaters reaching the BFE (at a minimum) or floodproofing design level.
>
> - The construction plans must be signed and stamped by either a registered engineer or architect, certifying that the building and materials are designed to comply with the requirements and guidelines of the flood proofing methods established by FEMA."

On DEIR page 2-32, **MM Hyd-2b** shall be revised to indicate the specific performance-based measures on which the final plans will be prepared, as follows:

"**MM Hyd-2b Finalize Hydrology Report and Grading and Drainage Plans.** A final hydrologic report and final grading and drainage plans shall be prepared by the Applicant and submitted for review and approval by the Building Division and Department of Public Works prior to issuance of permits authorizing grading, construction and installation of on-site improvements. The final construction plans shall be prepared based on the preliminary hydrologic report, grading plan and drainage plans that have been submitted for the project zoning entitlements and which have been reviewed by Building and Public Works for the purpose of identifying their respective requirements that would apply to this project, and confirm that their respective requirements could be satisfied based on the preliminary plans and reports submitted for zoning review. The final plans shall incorporate responses required to address requirements of the Building and Public Works Department; as necessary to assure construction plans and details shall comply with all codes, standards, and requirements currently imposed and enforced by the Building Division and Department of Public Works. This shall include submittal of the following:

- Preliminary drainage calculations shall be verified and confirmed by the project Civil Engineer with plans submitted for final construction documents. The final hydrology report shall contain updated pre- and post-construction runoff calculations to support the final improvement plan details shown on the final construction documents.
- Final grading and drainage plans shall be prepared by a registered engineer and the final building pad/finished floor grade shall be verified and certified by a licensed surveyor to assure the required finish grade and building flood proofing elevations are achieved."

On DEIR page 2-33, the text of **Mitigation Measure N-1: Evening Noise** has been modified to read as follows:

"**MM N-1 Evening Noise.** To address the potential that noise from late evening games becomes an annoyance to neighbors to the south due to the potential of a 1 decibel increase over maximum allowable nighttime noise levels, ~~either of~~ the following measures shall be implemented:

- "~~Close the outdoor fields at 9 p.m., Sundays through Thursdays, and 10 p.m. on Fridays and Saturdays. Alternatively,~~ During the first full year of operations, the project sponsor shall ~~annually~~ monitor noise levels during a minimum of five nighttime games to determine whether the use of outdoor fields and warm-up areas actually causes the 40 dBA (Ldn) nighttime noise threshold to be exceeded at the closest residential property boundary as a result of the outdoor field use. The City shall be consulted in determining which games are to be monitored. This shall include at least 3 mid-week games and 2 weekend games. A copy of the noise consultant's

analysis shall be submitted to the City. If the Noise Ordinance nighttime threshold is exceeded, the outdoor facilities shall close at 9 p.m., Sundays through Thursdays, and 10 p.m. on Fridays and Saturdays. ~~or~~"

- ~~Project sponsor shall revise the site plan to provide sufficient space to accommodate a noise wall along the southern boundary of the parking lot and soccer warm up areas. If noise measurements of nighttime games indicate that the ordinance noise limits are exceeded, the project sponsor could build a noise wall instead of closing the outdoor fields at 9 p.m. If a noise wall is constructed, it shall be subject to the following requirements:~~

  - ~~Pursuant to General Plan Policy S-4, the wall's location shall be subject to a geotechnical investigation, and the wall's design and construction shall proceed in accordance with the recommendations of the geotechnical investigation, as set forth in the City's Geotechnical Review Matrix.~~

  - ~~The design of the sound wall shall be subject to review and approval by the City's Design Review Board.~~

  - ~~The sound wall shall be constructed consistent with Part 77 of the Federal Aviation Regulations, *Objects Affecting Navigable Airspace,* specifically, the 7:1 transitional surface that governs Airport Safety Zone 5 – Sideline Zone, as analyzed by airport hazards safety specialist.~~"

On DEIR page 2-34, the following text has been added at the end of the text in the second bullet in **Mitigation Measure N-2**:

"If such equipment noise levels cannot be achieved, the Project sponsor shall coordinate operation of heavy equipment to avoid hours when the closest (southernmost) softball field is being used for practices or games to the maximum extent feasible."

On DEIR page 2-36, delete the "Transportation and Traffic" section of **Table 2-1**, "**Impact Traf-1: Bridge Access** and **MM Traf-1: Traffic Management Plan.**" in its entirety.

On DEIR page 3-2, the text of the last sentence of the second complete paragraph and the last sentence of the last paragraph on DEIR page 4-2 (continuing on to page 4-3) has been modified to read as follows:

"Through the previous approvals for the airport rehabilitation project, the Airport has received approvals to ~~pave~~ install compacted base rock on the entry and roadway up until the end of the light industrial buildings."

On DEIR page 3-3 the fifth paragraph on DEIR page 3-3 has been modified to read as follows:

"Portions of the airport property contain delineated wetlands under the jurisdiction of the U.S. Army Corps of Engineers (ACOE). Two ACOE delineations were prepared for the airport site. The delineation prepared in 2001 includes areas on the ~~outsides~~ insides of the levees along the southern perimeter of the overall Airport property. The delineation prepared in 2006 includes areas on the ~~outsides~~ insides of the levees along the northern perimeter of the overall Airport property, which is the area under analysis in this EIR. ACOE wetland delineations are valid for five years."

On DEIR page 3-11, the following typographical error has been corrected to the "**USE**" section:

~~"Indoor~~

The proposed recreational facility would be composed of an 85,700-square-foot indoor facility, two outdoor sports fields, two parking lots and associated site improvements. The building would be divided into three primary recreational uses – soccer, dance and gymnastics – and would share the common locker room and restroom facilities. As part of the Master Use Permit, the applicant has requested the flexibility to replace soccer, dance and gymnastics with other recreational uses over time.

Indoor"

On DEIR page 3-11, to correct the spelling error in the third paragraph, change "piint" to "point".

On DEIR page 3-54, the second to last bullet ("U.S. Army Corps of Engineers") has been deleted. Development of the Project site as proposed would not require a permit from the U.S. Army Corps of Engineers.

On DEIR page 4-2, the text of the first complete paragraph has been modified to read as follows:

"The Project site is currently undeveloped and contains maintained grasslands, two drainage swales and ~~un-maintained~~ an unimproved dirt maintenance road. To the north of the Project site, the North Fork of the Gallinas Creek is situated on an adjacent property. To the south of the Project site, the San Rafael Airport runway is located on a separate ~~property that is part~~ portion of the airport site."

On DEIR page 4-2, (continuing on to page 4-3) the last sentence of the last paragraph has been modified to read as follows:

"Through the previous approvals for the airport rehabilitation project, the Airport has received approvals to ~~pave~~ install compacted base rock on the entry and roadway up until the end of the light industrial buildings."

On DEIR page 6-17, revise Table 6-6 Combined Annual Emissions to appropriately indicate the table reflects the combined criteria pollutants annual emissions as follows:

> "Criteria Pollutants (tons/~~day~~year)"

On DEIR page 6-19, revise "**MM AQ-1**" to "**MM AQ-1a**".

On DEIR page 7-3, the text of the fourth sentence in the first complete paragraph has been modified to read as follows:

> "The distance between the proposed recreational facility, including the building and the outdoor fields, and the top of the levee along the North Fork of Gallinas Creek will be a minimum of ~~100~~ 118 feet, as shown on the Project site plan."

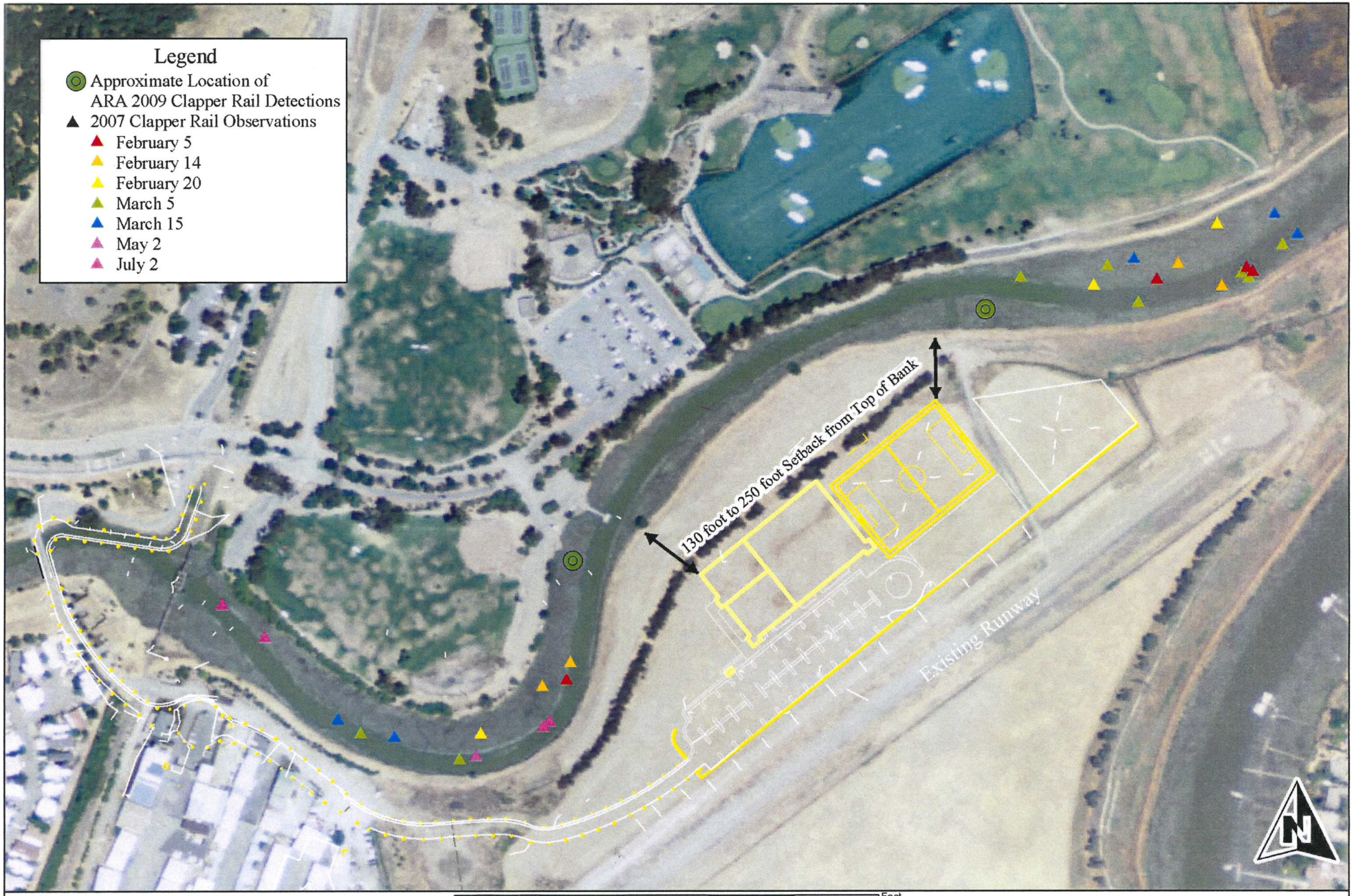
On DEIR page 7-39, the text of the third paragraph has been modified to read as follows:

> "M&A biologists Mr. Monk and Ms. Anderson met with ~~D~~Mr. Jules Evens from Avocet Research Associates on April 10, 2007 to discuss his clapper rail findings in the area and to compare survey results. ~~D~~Mr. Evens has conducted clapper rail surveys throughout the Gallinas Creek watershed for several years and had previously identified two nesting territories near the project area. Monk & Associates survey findings and locations of California clapper rail activity were consistent with data obtained by Avocet Research Associates. ~~D~~Mr. Evens confirmed that the rails are restricted to the "tidal prism" area of the channel. Furthermore, after noting the consistency of M&A's data with that of Avocet Research Associates' data, ~~D~~Mr. Evens was confident that all clapper rails in the area have been detected. ~~D~~Mr. Evens further stated that clapper rails that live in areas with heavy disturbances (similar to the conditions surrounding the Project site) tend to become more habituated and less elusive, such as the Clapper rails are in the vicinity of the Project site."

On DEIR page 7-57, **Figure 7-5** has been replaced by **REVISED Figure 7-5: California Clapper Rail Locations Identified During Protocol Surveys Along the North Fork of Gallinas Creek**, as shown on the following page, below.

On DEIR page 7-62, the text of the first complete paragraph has been modified to read as follows:

> "An increase in shadows on the creek as a result of the Project would also be considered "fill", and consequently, pollution, by the RWQCB. However, the proposed new bridge will be the exact ~~width and~~ length of the existing bridge deck and slightly narrower than the existing bridge deck (see **Figure 3-16** for bridge details) so there would be no increase in shadows on the creek as a result of the bridge replacement; and, therefore, no increase in fill material within the creek as a result of this Project."



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Revised Figure 7-5.
California Clapper Rail Locations Identified During
Protocol Surveys Along the North Fork of Gallinas Creek

County: Marin
Map Revision Date: May 12, 2010
Aerial Photograph Source: http://www.atlas.ca.gov

On DEIR page 7-62, the text of the fifth bulleted paragraph under **MM Bio-1a** has been modified to read as follows

> "Compliance with Best Management Practices for sediment and erosion control as detailed in the SWPPP and ECP prepared for the project ~~Precautions~~ shall be taken to prevent silt-laden or contaminated runoff from entering the stream. Measures to control runoff from entering the stream could include the placement of fiber rolls and silt fences, containing wastes, dry sweeping instead of washing down impervious surfaces, and providing proper washout areas for the construction contractor."

On DEIR page 7-63, the text of the third bulleted paragraph under **MM Bio-1b** has been modified to read as follows:

> "Since the proposed Project will increase the amount of impervious surface on the Project site, the SWMP shall also address storm water detention and shall ensure that the ~~volume of water discharged~~ volumetric flow rate of water discharged into the North Fork of Gallinas Creek does not exceed the pre-project ~~volumes~~ rate. Treated storm water will continue to be discharged at constant rates up to the existing pump station capacity of 500,000 gallons per hour/18.5 cubic feet per second."

On DEIR page 7-64, the following sentence is deleted from the first complete paragraph:

> "~~The nest sites were situated in areas where there is a significantly wider band of tidal marsh vegetation.~~"

On DEIR page 7-64, the text of the second sentence in the third complete paragraph on DEIR page 7-64 has been modified to read as follows:

> "The distance between the proposed recreational facility, including the building and the outdoor fields, and the top of the levee along the North Fork of Gallinas Creek will be 100 feet or greater, as shown on the Project site plan (see **Figure 7-45**)."

On DEIR page 7-66, the text of the third sentence under **MM Bio-2a: California Clapper Rail and California Black Rail – Perimeter Fence** has been modified to read as follows:

> "The fence will be a minimum of ten-feet tall (which may consist of a standard 6-foot tall cyclone fence with a 4-foot netting extension) for the purpose of preventing balls from the soccer fields from entering the marsh."

On DEIR page 7-67, the text of **MM Bio-2b: Permanent Conservation Area** has been deleted and replaced with the following text:

> "The Project Applicant shall designate the 100-foot upland buffer area on the Project site adjacent to the North Fork of Gallinas Creek as a permanent "conservation area" that will be protected through recordation of a declaration of covenants, conditions and restrictions on the property. A deed restriction shall be recorded that specifies the prohibited and allowed uses of the buffer areas. The allowed uses would include the continued maintenance of the fields and levees, while the prohibited uses would prohibit any future development or land disturbance (outside of that required for routine maintenance and levee repairs) within the 100+-foot creek protection buffer that is designated as a conservation area. The deed restriction will become a condition of Project approval."

On DEIR page 7-68, the text of **MM Bio-2c: California Clapper Rail and California Black Rail –Levee Maintenance** has been modified to read as follows:

> "Maintenance of the levees along Gallinas Creek must be allowed to continue for airport safety purposes (i.e., aviation safety and flood control). Any scheduled maintenance by the airport operator along the North Fork of Gallinas Creek, other than vegetation control, should occur in August through ~~September~~ January when rails are not expected to be nesting. Mowing of vegetation along levees has occurred for many years pursuant to FAA guidelines, and should continue. To ensure that clapper rails in the area have necessary vegetative cover to escape predators during high tide events, no mowing should be allowed on the slopes of the levees that face the creek."

On DEIR page 7-68, the text of the first and second bulleted paragraphs under **MM Bio-2d: California Clapper Rail and California Black Rail – Avoidance Measures** has been modified to read as follows:

> "Pile driving associated with the recreational facility building shall not commence until September 1st and shall be completed by February 1st. Outside of pile driving, exterior construction of the recreational facility shall be allowed between July 1st and February 1st without limitation. Interior work shall be allowed without timing limitations. Construction ~~of the recreational facility~~ shall not commence on the recreational facility Project ~~until~~ on July 1st until a qualified biologist determines that there are no nesting California Clapper Rails or California Black Rails within 200 feet of the Project construction envelope. In the event nesting rails are found within 200 feet of the Project site on or after July 1st, construction shall be delayed until the nesting attempt is completed and the nest is abandoned or a qualified biologist determines that the nesting would not be adversely affected by commencement of the project. If California Clapper Rails or California Black Rails are determined to be nesting between 200 feet and 500 feet from the Project construction envelope on July 1st, the Project may proceed if a

qualified biologist determines that the nesting rails would not be affected by the proposed construction activities. Under all circumstances any nest identified within 500 feet of the Project construction envelope would be monitored by a qualified biologist while construction activities were in progress. The monitoring biologist would have the right to shut down any and all construction activities immediately in the event that such activities were determined to be disturbing the nesting attempt. Nests greater than 500 feet away would not require biologist monitoring ~~when the rails can be expected, in most cases, to have fledged young. Construction of the recreational facility could extend into October, with interior work allowed throughout the year~~.

To account for California clapper rails or black rails, and other special-status birds, that ~~likely~~ occur and nest in the marsh habitats along the creek in the immediate area of the bridge, all work associated with the new bridge, including the demolition of existing bridge deck, installation of the new deck, and other bridge improvements, shall be restricted to August 1 to October 15. The bridge pile-driving dates shall be further restricted to September 1 and October 15 when potentially occurring anadromous fish would not be expected to occur in the channel. This "avoidance window" is outside of the California clapper rail, California black rail, and other special-status birds breeding seasons, thereby eliminating the potential that bridge reconstruction activities would disrupt breeding attempts. This mitigation measure provides conservation measures that are consistent with the ISP Best Management Practices."

On DEIR page 7-70, the text of **MM Bio-3b: Lighting Curfew** has been modified to read as follows:

"The recreational facility shall set a 10:00 p.m. outdoor event lighting restriction. While safety lighting allowing visitors to safely leave the site may be illuminated as late as 12:30 p.m., all outdoor field lighting shall be terminated no later than 10:00 p.m. When there are evening outdoor soccer events, the 10:00 p.m. end time will ensure that light generated from the use of the recreational facility's outdoor fields will not disrupt nocturnal wildlife species' activity patterns, allowing nocturnal migration movements through the project area after that time."

On DEIR page 7-72, the text of the first bulleted paragraph under **Mitigation Measure Bio-4c: Nesting Raptors – Pre-Construction Nesting Surveys** has been modified to read as follows:

"A pre-construction nesting survey shall be conducted ~~in June~~ during the breeding season (February through July) of the year construction of the project will commence. The nesting survey shall be conducted within 30 days prior to commencing of construction work. The raptor nesting surveys shall include examination of all habitats and trees within 500 feet of the entire Project site, including near the bridge, not just eucalyptus trees on the northern boundary of the Project site."

On DEIR page 7-72 (continuing onto page 7-73), the text of the second bulleted paragraph under **Mitigation Measure Bio-4c: Nesting Raptors – Pre-Construction Nesting Surveys** has been modified to read as follows:

> "If a nesting raptor species is identified, a 300-foot radius buffer around any active nest site that is located on or within 300 feet of the Project site shall be fenced with orange construction fencing. If the nest is off the Project site, the Project site shall be fenced where this buffer intersects the project area. This 300-foot buffer may be reduced in size if a qualified raptor biologist determines that the nesting raptors are acclimated to people and disturbance, and/or otherwise would not be adversely affected by construction activities. At a minimum, however, the non-disturbance buffer shall be a radius of 100 feet around the nest site. When construction buffers are reduced from the 300 foot radius, a qualified raptor biologist shall monitor distress levels of the nesting birds until the young fledge from the nest. If at any time the nesting raptors show levels of distress that could cause nest failure or abandonment, the raptor biologist shall have the right to re-implement the full 300-foot buffer. Instances when the buffer could be reduced in size would be if the raptors were well acclimated to disturbance and/or if there were physical barriers between the nest site and the construction project that would reduce disturbance to the nesting raptors."

On DEIR page 7-74, the text of **Mitigation Measure Bio-5a: Western Burrowing Owl - Nesting Surveys** has been deleted and replaced with the following text:

> "**MM Bio-5a: Western Burrowing Owl – Nesting Surveys.**
>
> - Pre-construction Survey. A preconstruction survey of the Project site shall be conducted within 30 days prior to any ground disturbing activities to confirm the absence or presence of burrowing owls. If more than 30 days lapse between the time of the preconstruction survey and the start of ground-disturbing activities, another preconstruction survey must be completed. This process should be repeated until the Project site habitat is converted to non-habitat (e.g., developed for recreational uses). If western burrowing owls are not present, no further mitigation is required.
>
> - If burrowing owls are found on the Project site during the non-breeding season (September 1 through January 31), impacts to burrowing owls shall be avoided by establishing a fenced 160-foot buffer (50 meters) between the nest site (i.e., the active burrow) and any earth-moving activity or other construction-related disturbance on the Project site.
>
> - If burrowing owls are detected on the site during the breeding season and appear to be engaged in nesting behavior, a fenced 250-foot buffer (75 meters) shall be installed between the nest site (i.e. the active burrows or ground nests) and any earth-moving activity or other disturbance on the Project site. This 250-foot buffer may be removed

once it is determined by a qualified raptor biologist that that young have fledged (that is, left the nest). Typically, the young fledge by August 31st. This fence removal date may be earlier than August 31st, or later, and would have to be determined by a qualified raptor biologist. Once the qualified raptor biologist confirms there are no owls inside any active burrows, these burrows may be collapsed."

On DEIR pages 7-74, delete **MM Bio-5b**, which is already included as a part of the *first bullet* of **Mitigation Measure MM Bio-5a**.

~~**MM Bio-5b Western Burrowing Owl – Pre-construction Survey.** A preconstruction survey of the Project site shall be conducted within 30 days prior to ground disturbing activities. If more than 30 days lapse between the time of the preconstruction survey and the start of ground-disturbing activities, another preconstruction survey must be completed. This process should be repeated until the Project site habitat is converted to non-habitat (e.g., developed for recreational uses).~~

On DEIR pages 7-74, modify the text in **MM Bio-5c Western Burrowing Owl – Passive Relocation,** as follows:

"MM Bio-5e~~b~~b Western Burrowing Owl – Passive Relocation. If occupied western burrowing owl burrows are found within 160 feet of the proposed Project work area during the non-breeding season, and may be impacted, passive relocation measures shall be implemented according to the Burrowing Owl Consortium Guidelines (BOC 1993) and ~~as otherwise approved by CDFG~~ as recommended by a qualified biologist. Rather than capturing and transporting burrowing owls to a new location (which may be stressful and prone to failure), passive relocation is a method where the owls are enticed to move on their own accord. ~~Proof that CDFG has approved any passive relocation measures shall be provided to the City of San Rafael prior to commencement of such activities~~The biologist shall consult with CDFG prior to initiating passive relocation measures. Passive relocation shall not commence before September 30th and shall be completed prior to February 1st of any given year. After passive relocation, the Project site and vicinity will be monitored by a qualified biologist daily for one week and once per week for an additional two weeks to document where the relocated owls move. A report detailing the results of the monitoring will be submitted to CDFG within two months of the relocation."

On DEIR pages 7-75, modify the text in **MM Bio-5d Western Burrowing Owl – Habitat Delineation,** as follows:

"MM Bio-5~~d~~c Western Burrowing Owl – Habitat Delineation. If burrowing owls are found occupying burrows on the Project site, a qualified raptor biologist shall delineate the extent of burrowing owl habitat on the site. To mitigate for impacts to burrowing

owls, the applicant shall implement mitigation measures ~~required~~ recommended by the CDFG which state that six and a half acres (6.5 acres) of replacement habitat must be set-aside (i.e., protected in perpetuity) for every occupied burrow, pair of burrowing owls, or unpaired resident bird. Protecting burrowing owl habitat in perpetuity will off-set permanent impacts to burrowing owl and their habitat. For example, if two pairs of burrowing owls are found occupying burrows on the Project site, 13 acres of mitigation land must be acquired. Similarly, if one pair and one resident bird are identified, 13 acres of mitigation land must be acquired. The protected lands shall be adjacent to occupied burrowing owl habitat and ~~at a location acceptable to~~ determined to be suitable in consultation with CDFG. Land identified to off-set impacts to burrowing owls must be protected in perpetuity either by a conservation easement or via fee title acquisition. ~~CDFG will likely require that a~~ A detailed mitigation and monitoring plan shall be developed for the burrowing owl mitigation area. This plan shall be prepared by the project biologist ~~and will be subject to~~ in consultation with CDFG ~~approval~~. The applicant will provide an endowment fund to the Grantee of the Conservation Easement for the long-term management of the burrowing owl mitigation lands."

On DEIR pages 7-76 and 7-77, the text of **MM Bio-6b: Special-Status Nesting Birds – Nesting Surveys** has been modified to read as follows:

"**MM Bio-6b: Special-Status Nesting Birds – Nesting Surveys.** A nesting survey shall be conducted within 15 days prior to commencing construction work. If special-status birds, such as saltmarsh common yellowthroat and San Pablo song sparrow, are identified nesting near the bridge reconstruction component of the Project, a ~~200~~ 50-foot radius buffer must be established around the nest site by installing bright orange construction fencing. Similarly, if great blue herons, great egrets, snowy egrets, or black-crowned night herons are found nesting near the bridge or near the Project site area, a 200-foot radius around the nest site(s) must be fenced with bright orange construction fencing. If nests are found off the Project site but within ~~200 feet~~ the appropriate buffer, the portion of the ~~200-foot~~ buffer on the Project site shall be fenced with bright orange construction fencing. No construction or earth-moving activity shall occur within a ~~200-foot~~ buffer until it is determined by a qualified biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by August 1. This date may be earlier than August 1, or later, and would have to be determined by a qualified ornithologist."

On DEIR page 7-77, the text of **MM Bio-6c: Common Nesting Birds – Nesting Surveys** has been modified to read as follows:

"**MM Bio-6c Common Nesting Birds – Nesting Surveys.** If common (that is, not special-status) passerine birds (that is, perching birds such as western scrub jays and northern mockingbird) are identified nesting within the project area or immediately

adjacent to the Project site, a ~~75~~ 50-foot buffer demarcated by orange lath staking installed every 20 feet around the buffer shall be established. No grading/construction activities shall occur in the established buffer until it is determined by a qualified biologist that the young have fledged and have attained sufficient flight skills to leave the area. Typically, most passerine birds can be expected to complete nesting by July 1, with young attaining sufficient flight skills by early July. Swallows species are the exception typically fledging and attaining sufficient flight skills in mid-July."

On DEIR page 7-80, the last sentence in the next to last paragraph has been modified to read as follows:

"The SBAA expires on December 31, ~~2008~~ 2013."

On DEIR page 11-3, the text of the last paragraph has been modified to read as follows:

"The ~~Project~~ airport site is bordered by the North and South Forks of Las Gallinas Creek. The borders with the creeks include a ~~privately~~ maintained perimeter levee system that extends from the southwest corner of the site along the southern perimeter, wrapping back to the west along the northern border of the site. The land within the levees is situated at 0-3 feet elevation above mean sea level (MSL) and the levees are 9 feet above MSL. Since the Project site ranges in elevation from 0-3 feet above MSL, the site is exposed to 100-year tidal flooding at an elevation of 6 feet MSL. In terms of storm event flow rates, the estimated peak 100-year flow from the existing 16.6-acre site is 71.23 cubic feet per second (cfs).[2]"

On DEIR pages 11-23, the text of **MM Hyd-1a Erosion Control Plan** has been modified to read as follows:

"MM Hyd-1a Erosion Control Plan. Prior to issuance of a grading permit, a California Registered Civil Engineer retained by the Project Applicant shall prepare and submit a detailed erosion control plan (ECP) and narrative to the Stormwater Program Manager of the City of San Rafael for review and approval. The ECP shall be designed to control and manage erosion and sediment, control and treat runoff, and promote infiltration of runoff from new impervious surfaces ~~mitigate erosion and sedimentation impacts during~~ resulting from construction activities in order to minimize erosion and runoff to the maximum extent feasible. At a minimum, the ECP and written narrative shall include the following:

- A proposed schedule of grading activities, monitoring, and infrastructure milestones in chronological format;

- Identification of critical areas of high erodibility potential and/or unstable slopes; contour and spot elevations indicating runoff patterns before and after grading;

- Identification and description of erosion control measures on slopes, lots, and streets, based on recommendations contained in the *Erosion and Sediment Control Field Manual* published by the San Francisco Regional Water Quality Control Board (RWQCB), the Association of Bay Area Governments' *Manual of Standards for Erosion and Sediment Control*, or equivalent document, as required by the City of San Rafael *General Plan 2020* Policy S-~~19~~22 (Erosion). Measures could include, but are not limited to stabilizing the entrances, using straw wattles, installing silt fences, using erosion control blankets, and covering all exposed soil with straw mulch or a trackifier;

- The location, implementation schedule, and maintenance schedule of all erosion and sediment control measures, including measures to control dust;

- Identification and description of s~~S~~oil stabilization techniques (such as short-term biodegradable erosion control blankets and hydroseeding) to be utilized; ~~and~~

- A description of the location and methods of storage and disposal of construction materials;

- The post-construction inspection of all drainage facilities for accumulated sediment, and the cleaning of these drainage structures of debris and sediment.

- The first 3/4 –inch of runoff from the first 1-inch of rainfall must be treated.

- A copy of the City's Best Management Practices sheet included within project plans.

The ECP shall limit the areas of disturbance, designate restricted-entry zones, and provide for revegetation or mulching. The Project Applicant shall ensure that the construction contractor is responsible for securing a source of transportation and deposition of excavated materials. The construction contractor employed by the Project Applicant shall retain a copy of the ECP on-site and shall implement the ECP during all earth-moving activities."

On DEIR page 11-24, amend the text of **MM Hyd-1d Storm Water Management Plan (SWMP)**, as follows:

"MM Hyd-1d Storm Water Management Plan (SWMP). Consistent with the requirements of the City of San Rafael NPDES Permit, prior to issuance of a grading or building permit, whichever comes first, the Project engineer shall prepare a post-construction Storm Water Management Plan (SWMP) and incorporate into the final site plan features that would clean site waters in accordance to RWQCB and MCSTOPPP standards before they enter San Rafael Bay, to the maximum extent feasible. Features

that could be used to clean site waters include, but are not limited to, bioswales, filters inserted into the site drainage inlets to filter runoff, and landscaped and unimproved areas that would act as bio-swales to allow microorganisms in the soil to clean and filter site waters before release into Gallinas Creek. In addition, prior to preparation of the SWPPP, the Marin/Sonoma Mosquito & Vector Control District shall be consulted to ensure that the measures do not have the potential to promote mosquito breeding."

On DEIR page 11-30, the text of **Impact Hyd-2: Flooding as a result of Levee Failure** has been modified to read as follows:

"The Project site is located within a 100-year flood zone. The Project site is protected by nine foot levees on the north, south and east; however, the site itself would be graded to a finished ground elevation of +1.0 feet above mean sea level (MSL). Unless FEMA-established ~~wet~~ flood-proofing standards are implemented to protect the buildings in the event of flooding, this impact is considered ***potentially significant***."

On DEIR page 11-32, the *last* sentence in the first paragraph on that page, concluding the discussion of Impact Hyd-2, shall be amended to note that the datum change from NGVD to NAVD, as follows:

"In order to ensure compliance with the non-residential flood-proofing standards established by FEMA, the following mitigation measures are recommended (as amended to reflect the change from the NGVD to the NAVD flood elevation measurement standard):"

On DEIR page 11-32, the text of the *first paragraph* and *first bullet* of **MM Hyd-2a** have been revised to convert elevation references from NGVD to NAVD, as follows:

"**MM Hyd-2a Floodproofing.** In order to provide for one foot of freeboard elevation above the base 100-year flood elevation of +6.0 NGVD (+8.67 NAVD), the portions of the building below +7.0 NGVD (+9.67 NAVD) shall be flood proofed according to the following specifications per FEMA *Technical Bulletin 3-93* (see Appendix I):

- The building must be watertight to the floodproof design elevation of +7 NGVD (+9.67 NAVD). Floodproofing to any elevation less than 1 foot above the BFE will have a serious negative impact on the flood insurance rating for the building. Generally a minimum of 1 foot of freeboard is recommended. Additional freeboard is warranted for sites where predicted flood depths may be inaccurate, such as sites within large drainage areas and rapidly urbanizing areas."

On DEIR page 11-33, **MM Hyd-2b** shall be revised to indicate the specific performance based measures on which the final plans will be prepared, as follows:

"**MM Hyd-2b Finalize Hydrology Report and Grading and Drainage Plans.** A final hydrologic report and final grading and drainage plans shall be prepared by the Applicant and submitted for review and approval by the Building Division and Department of Public Works prior to issuance of permits authorizing grading, construction and installation of on-site improvements. The final construction plans shall be prepared based on the preliminary hydrologic report, grading plan and drainage plans that have been submitted for the project zoning entitlements and which have been reviewed by Building and Public Works for the purpose of identifying their respective requirements that would apply to this project, and confirm that their respective requirements could be satisfied based on the preliminary plans and reports submitted for zoning review. The final plans shall incorporate responses required to address requirements of the Building and Public Works Department; as necessary to assure construction plans and details shall comply with all codes, standards, and requirements currently imposed and enforced by the Building Division and Department of Public Works. This shall include submittal of the following:

- Preliminary drainage calculations shall be verified and confirmed by the project Civil Engineer with plans submitted for final construction documents. The final hydrology report shall contain updated pre- and post-construction runoff calculations to support the final improvement plan details shown on the final construction documents.

- Final grading and drainage plans shall be prepared by a registered engineer and the final building pad/finished floor grade shall be verified and certified by a licensed surveyor to assure the required finish grade and building flood proofing elevations are achieved."

On DEIR page 11-34, the text of the third sentence of the second paragraph has been modified to read as follows:

"However, the entire 119-52-acre airport site, within which the ~~4.2-acre~~ Project site is situated, is surrounded on three sides by nine-foot levees, which would protect the site from flooding during a 100-year storm event, which has a flood elevation of +6 NGVD (+8.67 NAVD)."

On DEIR page 11-34, the text of the fourth sentence in the second paragraph has been modified to read as follows:

"Moreover, MM Hyd-2a requires all portions of the building below +7 NGVD (+9.67 NAVD) to be ~~wet~~ floodproofed, allowing +1 foot of freeboard above the 100-year flood elevation of +6 NGVD (+8.67 NAVD)."

On DEIR page 11-35, the text of the first sentence in the first complete paragraph has been modified to read as follows:

> "All portions of the proposed building will be ~~wet~~ floodproofed below the +7 NGVD (+9.67 NAVD) elevation (thereby providing at least one foot of freeboard above the 100-year flood elevation) and the site is protected by nine-foot levees."

On DEIR page 12-21, the text of **Mitigation Measure N-1: Evening Noise** has been modified to read as follows:

> **"MM N-1 Evening Noise.** To address the potential that noise from late evening games becomes an annoyance to neighbors to the south due to the potential of a 1 decibel increase over maximum allowable nighttime noise levels, ~~either of~~ the following measures shall be implemented:
>
> - ~~Close the outdoor fields at 9 p.m., Sundays through Thursdays, and 10 p.m. on Fridays and Saturdays. Alternatively,~~ During the first year of operations, the project sponsor shall ~~annually~~ monitor noise levels during a minimum of five nighttime games to determine whether the use of outdoor fields and warm-up areas actually causes the 40 dBA (Ldn) nighttime noise threshold to be exceeded at the closest residential property boundary as a result of the outdoor field use. The City shall be consulted in determining the games that are to be monitored. This shall include at least 3 mid-week games and 2 weekend games. A copy of the noise consultant's analysis shall be submitted to the City. If the Noise Ordinance nighttime noise threshold is exceeded, the outdoor facilities shall close at 9 p.m., Sundays through Thursdays, and 10 p.m. on Fridays and Saturdays. ~~or~~
>
> - ~~Project sponsor shall revise the site plan to provide sufficient space to accommodate a noise wall along the southern boundary of the parking lot and soccer warm up areas. If noise measurements of nighttime games indicate that the ordinance noise limits are exceeded, the project sponsor could build a noise wall instead of closing the outdoor fields at 9 p.m. If a noise wall is constructed, it shall be subject to the following requirements:~~
>
> - ~~Pursuant to General Plan Policy S-4, the wall's location shall be subject to a geotechnical investigation, and the wall's design and construction shall proceed in accordance with the recommendations of the geotechnical investigation, as set forth in the City's Geotechnical Review Matrix.~~
>
> - ~~The design of the sound wall shall be subject to review and approval by the City's Design Review Board.~~
>
> - ~~The sound wall shall be constructed consistent with Part 77 of the Federal Aviation Regulations, *Objects Affecting Navigable Airspace,* specifically, the~~

~~7:1 transitional surface that governs Airport Safety Zone 5 – Sideline Zone, as analyzed by airport hazards safety specialist.~~"

On DEIR page 12-13, the third bullet point identifying Thresholds of Significance is erroneously repeated and shall be deleted, as follows:

- ~~"A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;"~~

On DEIR page 12-24, the following text has been added at the end of the text in the second bullet in **Mitigation Measure N-2**:

"If such equipment noise levels cannot be achieved, the Project sponsor shall coordinate operation of heavy equipment to avoid hours when the closest (southernmost) softball field is being used for practices or games to the maximum extent feasible."

On DEIR pages 13-3 and 13-4, revise the first paragraph in the Intersection and Arterial Levels of Service discussion to read as follows:

"Level of Service (LOS) is a tool to measure operation conditions and congestion levels. LOS thresholds are different between intersections and arterial roads. For ~~signalized and unsignalized~~ intersections, LOS is an indication of seconds of delay; for arterial segments, LOS is an indication of travel speed and delay at intersections. In order to ensure an effective roadway network, the City of San Rafael has established traffic LOS standards for A.M peak hour (7:00 a.m. to 9:00 a.m.) and P.M. peak hour (4:00 p.m. to 6:00 p.m.). The San Rafael *General Plan 2020* Circulation Element provides policies that establish thresholds the City utilizes to evaluate traffic impacts with respect to both signalized intersection LOS and arterial segment LOS. These policies are described in detail below under the Regulatory Setting heading. Typically, the City evaluates traffic impacts with respect to intersection LOS; however, when the intersections and roadways in a study area exhibit certain characteristics, the LOS for an arterial segment is the primary method of analysis for traffic impacts. The analysis of the traffic impacts in this chapter of the EIR utilizes both the signalized intersection and arterial segment thresholds to determine the potential level of impact for the proposed project. The *General Plan 2020* Policy C-5A Traffic Level of Service (LOS) Standard establishes signalized intersection operations during the AM and PM peak hours as the City's LOS standard, but no standard or threshold has been established for unsignalized intersections. For this reason, the level of service impacts at unsignalized intersections were not evaluated as part of the traffic analysis."

On DEIR page 13-6, the text under Transit Network has been modified to read as follows:

"Golden Gate Transit is the primary transit ~~provider~~ operator within Marin ~~and Sonoma Counties~~ County. ~~Golden Gate Transit provides extensive bus service to the San Rafael~~

~~Transit Center in Downtown San Rafael from Marin and Sonoma counties, San Francisco, and the Del Norte BART Station in Contra Costa County.~~ Routes 44, 49, 52, 54, 58, 70, 71 and 80 stop at the Lucas Valley Bus Pad. Route 75 stops at the Smith Ranch Park & Ride Lot. These stops are located approximately 0.75 miles from ~~provide service to the area near~~ the Project site.

Routes 49, 52, and 71 provides local service within Marin County. Route 49 operates between Ignacio and San Rafael daily every 60 minutes. Route 52 operates between Novato and San Rafael weekdays only every 60 minutes. Route 71 operates between Novato and Marin City weekdays every 30 to 60 minutes, with limited weekend service.

Routes 44, 54 and 58 provide commute service between Marin County and San Francisco. Combined, these routes operate weekdays only with 11 northbound afternoon trips and 12 southbound morning trips. Route 75 provides ~~Marin County~~ commuter service between ~~the~~ Santa Rosa ~~Transfer Center~~ and ~~the~~ San Rafael ~~Transit Center, with a stop at the Smith Ranch Park & Ride lot, located approximately half a mile from the Project site~~. This ~~bus runs~~ route operates weekdays only with 3 ~~approximately every half hour~~ northbound ~~during evening~~ afternoon trips ~~hours~~ and 3 southbound ~~during~~ morning trips ~~hours from Monday through Friday~~.

Route 70 provides transbay service between Marin County ~~the Santa Rosa Transfer Center~~ and San Francisco. Route 80 provides transbay service between Sonoma and Marin counties and San Francisco. Route 70 operates daily every 30 to 60 minutes, and Route 80 operates daily every 60 minutes. ~~The bus line has regular service running approximately every half-hour to an hour during the weekdays and weekends.~~"

On DEIR page 13-20, correct a typographical error on the bullet point, *third sentence,* revise the word "ration" to "ratio"

On DEIR pages 13-20 to 13-22, under the 'Impact Analysis' and 'Project Impacts and Mitigation Measures' impact analysis for 'Trip Generation, Trip Assignment and Level of Service', the City's EIR consultant included a threshold for unsignalized intersections, in addition to signalized intersections. However, the City's LOS threshold applies to signalized intersections only. DEIR page 13-18 appropriately identifies that the City uses the Intersection LOS standard pursuant to General Plan 2020, policy C-5A. This is the appropriate methodology that has been used in the traffic analysis prepared for the Project. Signalized intersection LOS provides the appropriate analysis of worst case conditions. Therefore, DEIR pages 13-20 through 13-22 have been revised to delete the discussion of thresholds established for *'Roadway and Arterial Segments'* and *'Unsignalized Intersections'*, as follows:

"IMPACT ANALYSIS

THRESHOLDS OF SIGNIFICANCE

The following thresholds of significance for measuring a project's impacts are based upon CEQA Guidelines, the City of San Rafael General Plan 2020, ~~the Highway Capacity Manual (Transportation Research Board, 2000),~~ and generally accepted standards for environmental documents prepared pursuant to CEQA. An impact to transportation and traffic is considered significant if implementation of the proposed Project would result in any of the following:

- The Project would cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ration on roads, or congestion at intersections);
- The Project would exceed, either individually or cumulatively, a level of service standard established by the County Congestion Management Agency;
- The Project would result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety;
- The Project would substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment);
- The Project would result in inadequate emergency access;
- The Project would result in inadequate parking capacity; or
- The Project would conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

PROJECT IMPACTS AND MITIGATION MEASURES

Trip Generation, Trip Assignment and Level of Service

The San Rafael *General Plan 2020* defines the following as significant impacts with respect to signalized intersections~~, and roadway and arterial segments~~:

~~*Signalized*~~

- If a signalized intersection with baseline traffic volumes is operating at an acceptable LOS and deteriorates to an unacceptable operation with the addition of Project traffic.

- If a signalized intersection with baseline traffic volumes is at an unacceptable LOS and Project traffic causes an increase in the delay of five seconds or more.

~~*Roadways and Arterial Segments*~~

- ~~If an arterial with baseline traffic volumes is operating at an acceptable LOS and deteriorates to an unacceptable operation with the addition of Project traffic.~~

- ~~If an arterial with baseline traffic volumes is already at an unacceptable LOS and Project traffic causes a decrease in the calculated average travel speed of five miles per hour or more.~~

~~*Unsignalized Intersections*~~

~~The San Rafael *General Plan 2020* does not provide significance thresholds for unsignalized intersections. Therefore, this analysis utilizes the commonly accepted methodology provided in the *Highway Capacity Manual (2000)* as documented by the Transportation Research Board. For the purposes of this analysis, a significant impact at an unsignalized intersection would be identified based on the following:~~

- ~~If an unsignalized intersection with baseline traffic volumes is operating at an acceptable LOS (LOS A, B, C, D, or E) and deteriorates to an unacceptable operation (LOS F) with the addition of Project traffic.~~

- ~~If an unsignalized intersection with baseline traffic volumes is already operating at LOS F and Project traffic causes an increase in the delay of five seconds or more."~~

On DEIR pages 13-24 and 13-25, under the 'Trip Distribution and Assignment' section, '*Intersection and Arterial Operations'* discussion, the City's EIR consultant included a discussion of arterial segment analysis. As discussed above, this is not the appropriate LOS threshold used for the traffic analysis for this Project, as determined by the City Traffic Engineer in accord with General Plan 2020 Policy C-5A. Therefore, the discussion in this section as been revised identifying that signalized intersection LOS is the sole threshold that is used for this analysis, and to modify or delete references that identify a significance threshold for analysis of arterial segments and unsignalized intersections. This modification is consistent with the Thresholds of Significance identified on DEIR pages 13-18, 13-20 and 13-21 (as corrected), and the traffic analysis in the DEIR, including the Cumulative Impacts - General Plan 2020 discussion on DEIR page 13-35. The corrections to DEIR pages 13-24 and 13-25 are as follows:

"Trip Distribution and Assignment

Figure 13-4 shows the trip distribution and project trip assignment for the Project. The trip distribution assumptions were developed based on Census 2000 Data.

Intersections and Arterial Operations

As described above in the Existing Setting section of this chapter, the City ~~typically~~ evaluates traffic impacts with respect to intersection LOS (pursuant to General Plan 2020, Policy C-5A.~~; however,~~ ~~w~~When the intersections and roadways in a study area exhibit certain characteristics, the LOS for an arterial segment ~~is the~~ may be applied by the City Traffic Engineer as the primary method of analysis for traffic impacts. The analysis provided below utilizes ~~both~~ the intersection ~~and arterial segment~~ thresholds~~s~~ to determine the potential level of impact for the proposed Project. This is the appropriate standard that has been used for analysis of Project traffic impacts, as recommended by the City Traffic Engineer.

Traffic conditions in the study area would remain unchanged during the AM peak period. The proposed Project is a recreational development that would be used after the AM peak period (7:00 to 9:00 AM). The AM peak hour trip generation of the proposed Project is expected to be negligible.

An illustration showing the baseline conditions with Project trips can be seen on **Figure 13-5**. The City's significance thresholds for intersections are provided at the beginning of this analysis. If a signalized ~~or unsignalized~~ intersection with baseline traffic volumes is operating at an acceptable LOS and deteriorates to an unacceptable operation with the addition of Project traffic, then a significant impact would occur. If a signalized ~~or unsignlized~~ intersection with baseline traffic volumes is at an unacceptable LOS and Project traffic causes an increase in the delay of five seconds or more, then a significant impact would occur. The Citywide significance threshold for signalized intersections established by the *San Rafael General Plan 2020* is LOS D. ~~The significance threshold utilized in this analysis for unsignalized intersections, as provided in the *Highway Capacity Manual (20000),* is LOS F.~~

All five Project study intersections are projected to continue to operate at the same LOS as baseline during the PM peak hour with the addition of Project traffic. As shown in **Table 13-4**, none of these study intersections operate at an unacceptable LOS in baseline conditions, and the addition of Project traffic would not reduce the LOS of these intersections to an unacceptable level. Therefore, traffic from the proposed Project would result in a ***less than significant*** impact on the LOS of study intersections.

With the exception of Eastbound Smith Ranch Road, all arterial operations are projected to continue to operate at the same LOS as the baseline conditions during the PM peak hour, as shown in **Table 13-5**. ~~The City's significance thresholds for arterial segments are~~

~~provided at the beginning of this analysis. If an arterial segment with baseline traffic volumes is operating at an acceptable LOS and deteriorates to an unacceptable operation with the addition of Project traffic, then a significant impact would occur. If an arterial segment with baseline traffic volumes is already at an unacceptable LOS and Project traffic causes an increase in the delay of five seconds or more, then a significant impact would occur.~~ The arterial operations at westbound Smith Ranch Road during the PM peak are projected to deteriorate from LOS D to LOS E with the addition of Project traffic. However, the Project would only reduce the overall speed on this arterial segment by 2.8 miles per hour from current baseline conditions, and as discussed above, arterial analysis was not the ~~primary~~ LOS analysis method used to determine Project impacts on roadway performance. The intersections associated with this arterial–Redwood Highway & Smith Ranch Road and US-101 Ramps & Smith Ranch Road–would continue operating at acceptable levels of service; therefore, the impact is deemed less than significant.

At the request of the City, all-way stop and signal warrant analysis was performed at two unsignalized intersections, Silveira Parkway and Smith Ranch Road and Yosemite Road and Smith Ranch Road. Neither met ~~any of the~~ warrants for installation of a traffic signal. The full warrant analysis is presented in the traffic impact analysis in **Appendix K**."

On DEIR pages 13-27 to 13-30, revise the "Design Hazards and Emergency Access" discussion to delete **Impact Traf-1** and resulting mitigation **MM Traf-1** based on the fact that the Project proposal would install a 2-lane bridge deck, thereby negating the potential for impacts associated with a 1-lane bridge, as follows:

"Design Hazards and Emergency Access

~~**Impact Traf-1 Bridge Access.** The analysis of the existing one-lane bridge determined that when groups of vehicles are entering or exiting at similar times, vehicles will need to wait for opposing traffic, resulting in short-term queuing at the bridge just before and after the dance and gymnastics classes. The traffic analysis determined that queuing would be minimal due to the short length of the bridge; however, without proper mitigation, the potential exists for queues to back onto Smith Ranch Road, the public right of way. This is considered a ***potentially significant*** impact.~~

Existing Railroad Crossing

The access approach to the Project site will cross an at-grade railroad crossing of the Sonoma-Marin Railroad right-of-way. The existing crossing is unmarked and shows little evidence of regular use. The existing crossing is considered to be adequate for the

existing traffic. As demonstrated in this traffic analysis, Project traffic would not significantly decrease the LOS at any study intersections or arterial segments and no significant impacts related to trip generation would result. Overall traffic volumes generated by the Project would also be generally low, particularly during peak hours. The Project would not generate any AM peak hour traffic and a significant portion of Project operational traffic would occur between 5 p.m. and 10 p.m. on weekdays, which is later than any potential train would typically travel, therefore, there would be few potential conflicts with train crossings. As discussed below, City Traffic Engineers and the Fire Department have reviewed the site plan for adequacy regarding safety and emergency access and have determined that there are no potentially significant impacts.

Bridge Access

The access road to the recreational facility includes an existing 125 foot long, single lane bridge that crosses the North fork of Gallinas Creek. The City Traffic Engineer and Fire Department have both reviewed the existing facility and the existing and proposed new access to the new recreational facility and found the access to be safe and not pose any hazardous design features. The new roadway extension would provide two travel lanes, one in each direction, with a pedestrian/bicycle lane. The entire stretch of the new roadway was checked for turning movements of single vehicles and single unit trucks and found to be adequate.[2] [3]

~~Although not required by the City, the~~ The Project Description provided in Chapter 3 of this EIR explains that a new 25-foot wide steel truss bridge deck will be installed over the existing bridge that crosses the creek. The resulting bridge would accommodate two 10-foot wide vehicular travel lanes and one five-foot wide pedestrian/bicycle lane.

The Applicant's inclusion of the new bridge deck was not included in the Project description when the traffic analysis prepared for this Project was conducted. Therefore, the Fehr & Peers traffic analysis provided an assessment of whether Project traffic would create bottlenecks at the existing single-lane bridge, including excessive queuing back to the public right-of-way on Smith Ranch Road.

The analysis of the existing one-lane bridge determined that when groups of vehicles are entering or exiting at similar times, vehicles will need to wait for opposing traffic, resulting in short-term queuing at the bridge just before and after the dance and gymnastics classes. The traffic analysis determined that queuing would be minimal (163 ft. max.; approx. seven cars), due to the short length of the bridge (125 feet) but recommended mitigation that would establish the proper right-of-way and give a clear priority to drivers, which would reduce potential confusion and minimize the potential for queues to back onto Smith Ranch Road, the public right of way.

However, as discussed above, the Applicant now proposes to install a new bridge deck with two vehicular travel lanes and a pedestrian/bicycle lane (see **Figure 13-9**). This eliminates the potential access impact identified in the traffic study for a one-lane bridge and negates the need for additional mitigation. ~~If at some point the Applicant decides to eliminate the bridge deck replacement from the overall Project, the effects of allowing the bridge to remain one-lane have been analyzed and can be successfully mitigated to a less than significant level. For the purposes of this analysis, however, the decision to replace the existing bridge is not yet confirmed; therefore, in the event that the Applicant does not replace the bridge,~~ Therefore, this would be considered a ***~~potentially~~ less than significant*** impact ~~that can be mitigated to a less than significant level with the following mitigation measure~~.

~~*Mitigation Measure*~~

~~**MM Traf-1 Traffic Management Plan.** If the proposed two-lane bridge deck is not installed as a part of this Project, the Applicant shall prepare and submit to the City for approval a traffic management plan for events held at the facility in order to ensure adequate queuing and pedestrian safety occurs.~~

~~*Resulting level of significance*~~

~~In the event that the proposed two-lane bridge deck is not installed as part of the Project, implementation of **MM Traf-1** will ensure that the potential impacts resulting from traffic queuing at the existing single-lane bridge remain ***less than significant***.~~"

On DEIR page 13-36, DEIR **Table 13-7** has been modified to be consistent with DEIR **Figure 13-8**, as follows:

ID 4 changes to ID 4A
ID 5 changes to ID 4b
ID 6 changes to ID 5

On DEIR page 13-37, **Figure 13-7: 2020 General Plan Peak Hour Traffic Volumes** has been replaced with **REVISED Figure 13-7: 2020 General Plan Peak Hour Traffic Volumes**.

On DEIR pages 14-10 through 14-14, revise the "Cumulative Impacts" discussion, as follows:

"CUMULATIVE IMPACTS

Cumulative impacts are the result of combining the potential effects of the Project with other planned developments or anticipated community growth. The discussion considers the potentially significant impacts of the relevant environmental issue areas.

California Environmental Quality Act (CEQA) Guidelines section 15335 defines Cumulative Impacts as follows; " "cumulative impacts" refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. (a) The individual effects may be changes resulting from a single project or a number of separate projects. (b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor by collectively significant projects taking place over a period of time."

SETTING

The California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) contain an assessment of the cumulative impacts that could be associated with the proposed project. According to CEQA Guidelines Section 15130(a), "an EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable." "Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. As defined in CEQA Guidelines Section 15355, cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.

Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable. CEQA Guidelines Section 15130(a) also states the following with regard to cumulative impacts that are not significant:

- An EIR is not required to discuss impacts that do not result in part from the project evaluated in the EIR (Section 15130(a)(l)).

- When the combined cumulative impact associated with the project's incremental effect and the effects of other projects is not significant, the EIR shall briefly indicate why the cumulative impact is not significant and is not discussed in further detail in the EIR (Section 15130(a)(2)).

- An EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of mitigation measures designed to alleviate the cumulative impact (Section 15130(a)(3)).

- An EIR may determine that a project's contribution to a significant cumulative impact is de minimus and thus is not significant. A de minimus contribution means that the environmental conditions would essentially be the same whether or not the proposed project is implemented (Section 15130(a)(4)).

CEQA notes that the discussion of cumulative impacts should be guided by standards of practicality and reasonableness (CEQA Guidelines, 15130 (b)). As such, this analysis addresses impacts that might compound or interrelate with those of the proposed project. Thus, the projects listed in **Table 14-1** are located within North San Rafael and nearby communities in Marin County (and within the San Rafael General Plan 2020 planning area) that could have the potential to impact the same intersections, viewsheds, watersheds, etc. as the subject Project. This list addresses all of the reasonably foreseeable future projects in the study area, and there are no other known or reasonably foreseeable projects that have not been included.

The cumulative impacts analysis is based on use of both the long-term buildout projections as outlined in the San Rafael General Plan 2020 (General Plan 2020), and the projects listed in **Table 14-1** (Cumulative Projects Considered) compiled by the City of San Rafael (City). This approach allows for better assessment of cumulative impacts associated with the proposed Project by assessing the cumulative impacts of projects located within the study area that have been recently approved, under construction, built, or for which an application has been filed or is anticipated in the near future. Those projects identified in **Table 14-1** which involve new residential or commercial development are each located approximately 0.75 mile or more away from the Project site, they have been included in the cumulative traffic analysis, but generally would not be associated with any potential Project-related cumulative contribution to possible adverse effects on viewsheds, biological resources, hydrology and other non-traffic types of impacts. In addition, this analysis considers the "build out" scenario analysis in the General Plan 2020 Program EIR, and appends that analysis where necessary.

TABLE 14-1

CUMULATIVE PROJECTS CONSIDERED

Project Location/Name	Jurisdiction	Land Use	Approx. Distance from Project (miles)	Status
Cresta Drive (Marin Lofts)	San Rafael	Residential 15 Condominiums	Approx. 0.6 miles	Built
1600 Los Gamos Drive	San Rafael	Child care facility	Approx. 1.02 miles	Pending
400 Smith Ranch Rd	San Rafael	Multiple Use Permits for tenant changes (as required by Master Use Permit)	Approx 0.17 miles	Pending
280 Smith Ranch Rd	San Rafael	Roof mount wireless antennae facility	Approx 0.46 miles	Proposed
End of Prof Center Parkway (Northview)	San Rafael	28 unit single family subdivision	Approx. 0.75 miles	Built
5800 Northgate Mall Drive (Northgate Mall Renovation)	San Rafael	Renovation of the existing Northgate Mall	Approx. 1.3 miles	Under constructio n
100 Block of Lucas Valley Road (Jaleh Estates)	San Rafael	Four single family homes	Approx 1.15 miles	Proposed
Lucas Valley Road (Oakview)	County	28 res units and 150 senior assisted	Approx. 0.95 miles	Approved
Lucas Valley Road (Oakview Subdivision)	County	22 units	Approx. 1.25 miles	Under Review
St. Vincent's	County	Senior housing	Approx. 0.75 miles	Proposed

Notes: sq. ft = square feet

Sources:

City of San Rafael, Planning Department, Kraig Tambornini, Personal Communications, October 2008; City of San Rafael, Community Development Department, Current Project List, June 11, 2008; City of San Rafael, Website, Major New Development updated June 11 2008, http://www.cityofsanrafael.org/Government/Community_Development/Major_New_Development_Update.htm; County of Marin Prop Dev 43, updated January 1, 2008; City of San Rafael, General Plan 2020 Background Report Land Use Assumptions.

Analysis of cumulative impacts requires estimation in many cases, because specific quantification of impacts is not always possible, due to variations in the status and timing of projects and environmental conditions that may exist when cumulative projects are developed. While specific impacts of the following projects were not quantified, the General Plan 2020 EIR, which identified impacts of the buildout of the City, was prepared and certified as a Program EIR.

CUMULATIVE IMPACT SUMMARY

As discussed below, the proposed Project would not have impacts that are individually limited but cumulatively considerable. The mitigation measures provided in this EIR would address all of the potentially significant impacts for this Project

Issue areas that typically have the potential to result in cumulative impacts include Air Quality, Biological Resources, Land Use, population (and corresponding impacts to Housing, Public Services, and Utilities and Services), and Transportation and Traffic. However, no cumulative impacts were identified in these areas, and the potential impacts in these areas are reduced to a less than significant level through implementation of mitigation measures provided throughout this EIR.

- **Air Quality**

~~Regarding Air Quality, t~~The analysis in Chapter ~~5~~6 of this EIR determined that the Project would contribute to significant cumulative air quality impacts. The proposed Project and the projects listed in **Table 14-1** are ~~is~~ consistent with San Rafael General Plan 2020,~~.~~ ~~A~~and the City of San Rafael General Plan is consistent with the 1997 *Clean Air Plan* (the regional clean air plan). Projects that conform to General Plans in jurisdictions with General Plans that are consistent with the BAAQMD's *Clean Air Plan* would not make a cumulatively considerable contribution to significant cumulative air quality impacts. URBEMIS modeling was conducted to quantify the project's air quality impacts, in compliance with the applicable BAAQMD thresholds of significance standards. As a result, the Project impacts were below the significance thresholds identified in the BAAQMD guidelines. Thus, addition of the Project to the General Plan 2020, build out scenario, would not result in any incremental air quality impacts that would conflict with the City of San Rafael General Plan and 1997 *Clean Air Plan* (the regional clean air plan).

- **Land Use**

~~Regarding Land Use, t~~The Project is consistent with the site's land use and zoning designations and the Project site is within the City limits of San Rafael. Its use designation has, therefore, been analyzed by the Program EIR previously prepared to analyze the City of San Rafael *General Plan 2020*. The Project conforms to the

airport's ~~Master Use Permit and~~ underlying restrictive covenants~~,~~ which ~~confine~~ limit future uses to ~~recreational or open space uses~~ existing airport and related uses, public utility uses as approved by the appropriate government agencies, airport and airport related uses, roadways, open space, and private and public recreational uses. As discussed above, the Project would attract users from throughout the County; however, it would not induce growth, per se, as users from outside the City would be considered to be existing users who would otherwise find alternate recreational use destinations in the event that this Project is not approved.

The projects listed in **Table 14-1** are all within the City or nearby communities in Marin County (within the San Rafael General Plan 2020 planning area) that would potentially impact the same roadways and contribute to impacts in the area. These consist of in-fill residential, minor commercial in-fill, and renovation projects that are consistent with the General Plan 2020 land use designations and policies, and applicable zoning regulations. Thus, there is no significant cumulative impact and there are no incremental impacts that would be individually or cumulatively considerable as a result of the Project when considered with all past, pending and future probable projects in the study area.

- **Population and Housing**

Regarding Population (and associated issue areas), the proposed Project is not a housing project. The Project site is currently vacant and not designated for residential use; therefore, construction of the proposed Project would not displace current residents or prohibit future housing development opportunities. Moreover, the Project would be consistent with the General Plan. Consequently, the project would not contribute to cumulative impacts related to population-associated issue areas such as Housing, Public Services or Utilities and Services.

- **Traffic**

~~Regarding Transportation and Traffic, t~~The traffic analysis provided in Chapter 13 of this EIR determined that the Project would not cause any study intersections ~~or arterial segments~~ to operate below LOS D under General Plan + Project conditions and there would be no foreseeable impacts to transit operations or bicycle or pedestrian use. Thus, the Project does not make a cumulatively considerable contribution to any significant cumulative traffic impacts. Roadway improvements are funded through the payment of traffic mitigation fees. The current traffic mitigation fee is $4,246 for every new A.M. or P.M peak hour trip generated. The Project would be closed during the A.M. peak hour and would not generate any trips during that period; however, the Project would generate a total of 268 P.M. peak hour trips (135 in, 133 out); therefore, the Project's traffic mitigation fee would be $1,137,926. Based on the fact that Project traffic would not cause any study

intersections or arterial segments to operate below LOS D under General Plan + Project conditions, and a condition of Project approval would require payment of the City's traffic mitigation fees to fund the traffic improvements identified as required for build-out, ~~no cumulative impacts would be imposed on the area by the Project~~ the Project would not make a cumulatively considerable contribution to a significance cumulative traffic impact.

- **Climate Change**

~~Finally, in compliance with current State Requirements, a Climate Change discussion has been added to this analysis in Chapter 15. Currently, no CEQA regulation or statute outlines how a CEQA analysis of a project's greenhouse gas emissions impact should be performed. Draft guidelines for the analysis and mitigation of greenhouse gas emissions in CEQA documents will be submitted by the State Resources Agency to the State Office of Planning and Research by July 1, 2009. These guidelines are required by law to be adopted by January 1, 2010. In lieu of the fact that such guidelines have not yet been adopted, the climate change discussion in Chapter 15 represents the City's best effort to address this important issue given the most current information available.~~

Climate change is inherently a cumulative impact; no individual project would be expected to generate greenhouse gas emissions in an amount that would have measurable impacts on climate. Chapter 15 analyzes the Project's contribution to global climate change impacts. At the time the DEIR was produced there was no CEQA regulation or statute that outlined how a CEQA analysis of a project's greenhouse gas emissions impact should be performed. Nevertheless, applying a qualitative threshold, the DEIR concluded that the Project's climate change impacts were likely to be less than significant. The climate change analysis has been updated in this Final EIR to reflect more recent guidance on conducting an analysis of greenhouse gas emissions and a project's contribution to climate change. Based on analysis of the Project's consistency with the strategies to meet AB32's goals, the Final EIR concludes that the Project will not make a cumulatively considerable contribution to climate change.

- **Aesthetics**

Aesthetic or visual impact on the scenic resources and views impacted by the Project in the area (i.e., viewed from the trail along the creek bank) would clearly not be impacted by the other past, present or future additional projects identified in the study area, as listed in **Table 14-1**. Thus, no cumulatively significant visual impacts result from the Project, in consideration of incremental impacts of all projects.

- **Biological Resources**

The Program EIR for San Rafael's General Plan 2020 did not identify any significant biological impacts associated with development anticipated under the Plan. Biological impacts in the area are localized to the site, and none of the past, present or foreseeable future projects identified in the area, as listed in **Table 14-1**, would have incremental impacts on the sensitive environmental resources identified on-site. Thus, the Project would not make a cumulatively considerable contribution to any significant cumulative biological impacts.

- **Cultural Resources**

The Program EIR for the San Rafael's General Plan 2020 did not identify any significant cultural resource impacts associated with development anticipated under the Plan. Impacts to cultural resources are generally localized to a project site, and the projects listed in **Table 14-1** would not contribute to a cumulative cultural resources impact. The Project, therefore, would not make a cumulatively considerable contribution to a significant cumulative impact. DEIR Chapter 8 has referenced the previous studies and sites in the area, and neither the Project nor the projects listed in **Table 14-1** would have an incremental adverse impact on identified resources of cultural, historical or archaeological significance.

- **Geotechnical**

The Program EIR for San Rafael's General Plan 2020 did not identify any significant geological or geotechnical impacts associated with development anticipated under the Plan. Geologic impacts are generally localized to a project site, and the projects listed in **Table 14-1** would not contribute to a significant cumulative geological impact. None of the projects listed in **Table 14-1**, which consists of in-fill projects located within the Project study area and the General Plan 2020 planning area, would have incremental geotechnical impacts individually or impacts that would cumulatively be considerable when considered in addition to the impacts associated with the proposed development of the Project site. The Project, therefore, would not make a cumulatively considerable contribution to a significant cumulative geological or geotechnical impact.

- **Hazards**

The proposed recreational Project would not be a hazardous waste generator, and the Project site does not contain hazardous wastes. Based on their residential and retail commercial nature, none of the projects listed in **Table 14-1** would create objectionable odors or waste that would impact the Project site. Airport hazards particular to the Project are identified and mitigated on-site, which consist of potential airport-related hazards that could potentially impact users of the recreational facility

(see DEIR Chapter 10). The Project would not make a cumulatively considerable contribution to a significant cumulative impact related to hazards and hazardous materials.

- **Hydrology and Water Quality**

Hydrological impacts would not incrementally contribute to flooding downstream, as discussed in DEIR Chapter 11, which notes that the rate of discharge of storm water into Gallinas Creek would not be increased.

As discussed in DEIR Chapter 11, and in the biological assessment contained in DEIR **Appendix E**, water quality impacts would be addressed through enhancement of the existing drainage ditches on-site to improve water quality before it enters Gallinas Creek, which will be done in compliance with RWQCB mandates implemented locally by ordinance in the City and by the Marin County MCSTOPPP requirements. Additionally, none of the other projects listed in **Table 14-1** discharge directly into the North Fork of Gallinas Creek, and all new development must comply with the current water quality control standards enforced throughout the City. Therefore, no incremental cumulative hydrologic or water quality impacts would result from development of the Project site as proposed.

- **Noise**

The Project would generate noise impacts related to construction, on-site activities and traffic, which have been evaluated in DEIR Chapter 12. There are no other proposed uses that would affect the area and contribute to anticipated Project-related noise levels (aside from the SMART train services that have been discussed in the DEIR and evaluated in a separate certified EIR). Thus, the Project would not contribute to any significant cumulative noise impacts.

- **Other Effects**

The Project has been evaluated to identify whether it would significantly impact categories such as *agricultural resources, mineral resources, public services, utilities, schools, parks, infrastructure, or public facilities*, as discussed in DEIR Chapter 14. The subject Project is consistent with the General Plan 2020 , within the city planning area and urban services boundary, and would not result in incremental impacts in these areas. Further, the anticipated past, present, future, and reasonably foreseeable projects would not have potentially individual or cumulatively considerable impacts on these resources, given that they are in-fill projects that are consistent with the General Plan and zoning regulations, and within existing developed urban areas of the City and County of Marin.

CONCLUSION

~~Therefore, for~~ For the reasons discussed above, there are no significant cumulative impacts as a result of this Project."

On DEIR page 14-13, the text of the third sentence of the second bulleted paragraph has been modified to read as follows:

"The Project conforms to the airport's Master Use Permit and underlying restrictive covenants, which confine future uses to ~~recreational or open space uses~~ existing airport and related uses, public utility uses as approved by the appropriate government agencies, airport and airport related uses, roadways, open space, and private and public recreational uses."

On DEIR page 15-1, the last paragraph has been deleted and replaced with the following text:

"Greenhouse gases include, but are not limited to, the following:[1]

- *Water Vapor (H_2O)*. Although water vapor has not received the scrutiny of other GHGs, it is the primary contributor to the greenhouse effect. Natural processes, such as evaporation from oceans and rivers, and transpiration from plants, contribute 90 percent and 10 percent of the water vapor in our atmosphere, respectively. The primary human-related source of water vapor comes from fuel combustion in motor vehicles; however, this is not believed to contribute a significant amount (less than one percent) to atmospheric concentrations of water vapor. The Intergovernmental Panel on Climate Change (IPCC) has not determined a Global Warming Potential for water vapor.

- *Carbon Dioxide (CO_2)*. CO_2 is primarily generated by fossil fuel combustion in stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources in the past 250 years, the concentration of CO_2 in the atmosphere has increased 35 percent.[2] CO_2 is the most widely emitted GHG and is the reference gas (Global Warming Potential of 1) for determining Global Warming Potentials for other GHGs.

- *Methane (CH_4)*. CH_4 is emitted from biogenic sources, incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. In the United States, the top three sources of CH_4 are landfills, natural gas systems, and

[1] All Global Warming Potentials are given as 100 year Global Warming Potential. Unless noted otherwise, all Global Warming Potentials were obtained from the Intergovernmental Panel on Climate Change. Climate Change (Intergovernmental Panel on Climate Change, *Climate Change, The Science of Climate Change – Contribution of Working Group I to the Second Assessment Report of the IPCC*, 1996).

[2] U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990 to 2004*, April 2006, http://www.epa.gov/climatechange/emissions/usinventoryreport.html.

enteric fermentation. CH_4 is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. The Global Warming Potential of CH_4 is 21.

- *Nitrous Oxide (N_2O)*. N_2O is produced by both natural and human related sources. Primary human-related sources include agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. The Global Warming Potential of N_2O is 310.

- *Hydrofluorocarbons (HFCs)*. HFCs are typically used as refrigerants for both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is growing, as the continued phase out of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) gains momentum. The Global Warming Potential of HFCs range from 140 for HFC-152a to 6,300 for HFC-236fa.

- *Perfluorocarbons (PFCs)*. Perfluorocarbons are compounds consisting of carbon and fluorine. They are primarily created as a byproduct of aluminum production and semi conductor manufacturing. Perfluorocarbons are potent GHGs with a Global Warming Potential several thousand times that of carbon dioxide, depending on the specific PFC. Another area of concern regarding PFCs is their long atmospheric lifetime (up to 50,000 years).[3] The Global Warming Potential of PFCs range from 5,700 to 11,900.

- *Sulfur hexafluoride (SF_6)*. SF_6 is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an electrical insulator in high voltage equipment that transmits and distributes electricity. SF_6 is the most potent GHG that has been evaluated by the IPCC with a Global Warming Potential of 23,900. However, its global warming contribution is not as high as the Global Warming Potential would indicate due to its low mixing ratio compared to CO_2 (4 parts per trillion [ppt] in 1990 versus 365 parts per million [ppm]).[4]

In addition to the six major GHGs discussed above (excluding water vapor), many other compounds have the potential to contribute to the greenhouse effect. Some of these substances were previously identified by scientists as stratospheric O_3 depletors. Therefore, the gradual phase-out of utilization of these substances in products is currently in effect. The following is a listing of these compounds:

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[3] U.S. Environmental Protection Agency, *High Global Warming Potential (GWP) Gases*, October 19, 2006, http://www.epa.gov/highgwp/scientific.html.

[4] Ibid.

- *Hydrochlorofluorocarbons (HCFCs)*. HCFCs are solvents, similar in use and chemical composition to CFCs. The main uses of HCFCs are for refrigerant products and air conditioning systems. As part of the Montreal Protocol, all developed countries that adhere to the Montreal Protocol are subject to a consumption cap and gradual phase out of HCFCs. The United States is scheduled to achieve a 100 percent reduction to the cap by 2030. The Global Warming Potentials of HCFCs range from 93 for HCFC-123 to 2,000 for HCFC-142b.[5]

- *1,1,1 trichloroethane*. 1,1,1 trichloroethane or methyl chloroform is a solvent and degreasing agent commonly used by manufacturers. The Global Warming Potential of methyl chloroform is 110 times that of CO_2.[6]

- *Chlorofluorocarbons (CFCs)*. CFCs are used as refrigerants, cleaning solvents, and aerosols spray propellants. CFCs were also part of the United States Environmental Protection Agency's (EPA) Final Rule (57 FR 3374) for the phase out of O_3 depleting substances. Currently, CFCs have been replaced by HFCs in cooling systems and a variety of alternatives for cleaning solvents. Nevertheless, CFCs remain suspended in the atmosphere contributing to the greenhouse effect. CFCs are potent GHGs with Global Warming Potentials ranging from 4,600 for CFC 11 to 14,000 for CFC 13.[7]"

On DEIR page 15-5, correct typographical errors to delete spaces in the 4th and 5th bullet, as follows:

~~"January 1, 201 0~~ January 1, 2010-"

~~"January 1, 201 1~~ January 1, 2011-"

On DEIR page 15-16, the following text and Table have been added following the paragraph on Recycled Water:

"**Table 15-1**, below, identifies the types of measures which could be implemented to reduce potential Project-related emissions of greenhouse gases.

[5] U.S. Environmental Protection Agency, *Protection of Stratospheric Ozone: Listing of Global Warming Potential for Ozone Depleting Substances*, November 7, 2006, http://www.epa.gov/EPA-AIR/1996/January/Day-19/pr-372.html.

[6] Ibid.

[7] U.S. Environmental Protection Agency, *Class I Ozone Depleting Substances*, March 7, 2006, http://www.epa.gov/ozone/ods.html.

TABLE 15-1: MEASURES AVAILABLE TO REDUCE PROJECT-RELATED GHG EMISSIONS		
GHG Reduction Measure	**Description**	**CO2e Emissions Reduction Range Estimate**
CAPCOA MM D-14	Enhanced Recycling	Low
CAPCOA MM D-15	LEED Certification [a]	Moderate
CAPCOA MM D-16	Retro-Commissioning	8 percent – 10 percent
CAPCOA MM D-17	Drought-tolerant Landscaping	Low
CAPCOA MM E-1	High-Efficiency Pumps	Low
CAPCOA MM E-4	Energy Star Roof	0.5 percent – 1 percent
CAPCOA MM E-5	On-Site Renewable Energy System	1 percent – 3 percent
CAPCOA MM E-9	Low Energy Cooling	1 percent – 10 percent
CAPCOA MM E-11	Charging Facilities	Low
CAPCOA MM E-17	Green Building Materials	Low
CAPCOA MM E-18	Shading Mechanisms for windows, patio and walkway overhangs	Low
CAPCOA MM E-20	Programmable Thermostats	Low
CAPCOA MM S-1	Emissions Reduction Education	Low
CAPCOA MM M-2	Offset Purchase	Up to 100 percent
BAAQMD MM 13	Secure bike parking (at least 1 space per 20 vehicle spaces) [b]	1 percent additional mobile source reduction for employee trips with implementation of these 3 measures together
BAAQMD MM 16	Car sharing services provided [b]	
BAAQMD MM 17	Information Provided on Transportation Alternatives [b]	
BAAQMD MM 23	Increase energy efficiency beyond Title 24	Same as % improvement over Title 24.
BAAQMD MM 24	Electrically powered landscape equipment and electrical outlets	Same as % of landscape equipment emissions.
BAAQMD MM 27	Require Cool Roof Materials	34% reduction in emissions from energy used for cooling.
BAAQMD MM 33	Install Tankless heaters	35% of emissions from natural gas used for water heating
BAAQMD MM 34	Install Solar Panels on Commercial Buildings	100% of emissions from electricity usage
BAAQMD MM 39	HVAC Duct Sealing	30% reduction in emissions from energy used for cooling.
BAAQMD MM 43	Increase Roof/Ceiling Insulation	None Given
BAAQMD MM 45	Install rainwater collection systems in commercial buildings	None Given
BAAQMD MM 46	Install low water use appliances and fixtures	None Given
BAAQMD MM 47	Restrict the use of water for cleaning outdoor surfaces/ prohibit systems that apply water to non-vegetated surfaces	None Given
BAAQMD MM 48	Implement water-sensitive Urban Design Practices in New Construction	None Given
BAAQMD MM 50	Create food waste and green waste curb-side pickup service	None Given
BAAQMD MM 51	Require the Provision of storage areas for recyclables and green waste in new construction	None Given
a While LEED certification is not being proposed for the Project, the Project may be designed to meet certain standards. b Because employee trips make up only about 2% of the total trips to a shopping center, reductions resulting from reducing the single vehicle occupancy trips of employees would be low.		

On DEIR page 16-6, the text of the fifth sentence in the paragraph starting at the bottom has been modified to read as follows:

> "The existing Declaration of Restrictions allow for "private and public recreational uses~~,~~" ~~but not a recreational facility~~."

On DEIR page 16-7, the text of the second sentence in the first complete paragraph has been modified to read as follows:

> "This alternative assumes that the outdoor soccer field and warm-up area that are currently proposed would conform to the existing PD District and Master Use Permit~~, however, the indoor soccer/dance/gymnastics facility would not~~."

Beginning at the top of DEIR page 16-17, the following text has been added to provide discussion of a "No Project/No Build" alternative:

"ALTERNATIVE 1 (VARIANT OF NO PROJECT ALTERNATIVE) - NO PROJECT/NO BUILD

DESCRIPTION OF NO PROJECT/NO BUILD ALTERNATIVE

As described in Chapter 4: *Land Use and Planning*, on March 19, 2001, following the review and recommendation by the Design Review Board and Planning Commission, the San Rafael City Council approved a Master Use Permit to allow the permanent operation of San Rafael Airport. Non-aviation and light-industrial uses were among the allowed land uses under the Master Use Permit. As outlined in Chapter 11, this Master Use Permit did not authorize any expansion of airport operations or number of based aircraft. The summary of the major component of the Master Use Permit are identified below:

- The private airport use is limited to 100-based aircraft.

- The following airport uses or activities are specifically prohibited: flight training and the use of the landing strip for practice purposes by flight instructors; helicopters, charter flights, uses or activities of a public or semi-public nature, commercial flight activity or student pilot training, and non-based aircraft performing landings or departures.

- Maintenance or servicing of aircraft shall be limited to aircraft based at San Rafael Airport

- The non-aviation uses are limited to those uses approved by the Use Permit and there shall be no increase in the amount of square footage. An Administrative Use Permit shall be required for changes in tenancy.

- The non-aviation hours of business are limited to the hours of 7:00 a.m. to 6:00 p.m., Monday through Saturday, excluding holidays.

- The two new modular residences shall be used exclusively as on-site residences for the airport security guard and caretaker.

- All run-ups shall occur at the east end of the runway, or in a designated run-up area in the vicinity of the intersection of the taxiway and runway.

- The airport runway shall be identified with a symbol that the airport is private.

Declaration of Restrictions

In addition to the Master Use Permit, restrictive covenants were recorded for the airport site in December 1983 (see Chapter 4). The City of San Rafael, Marin County and the then property owner entered into a Declaration of Restrictions for the airport property that limits the site to the following uses:

- Existing uses consisting of the airport and related uses.

- Future utility uses as approved by the appropriate government agencies, including flood control, sanitary sewer, gas and electricity, and public safety facilities.

- Airport and airport-related uses.

- Roadways.

- Open space.

- Private and public recreational uses.

No Project/No Build Alternative

As outlined above, the Master Use Permit allows limited non-airport and industrial uses. Further, the 1983 Declaration of Restrictions recorded on the airport site specifies permitting open space and private and public recreational uses at the airport. As described in Chapter 4: *Land Use and Planning*, the proposed Project is not consistent with the current Planned Development District and Master Use Permit established for the airport site. As part of the submitted application for development, the Project Applicant has included an application for an amendment to the PD District and Master Use Permit to establish appropriate standards and regulations for the indoor and outdoor use facility. For the purposes of evaluating this No Build variant of the No Project Alternative only, it is assumed that disapproval of the proposed San Rafael Airport Recreation

Facility would result in no changes in the existing environmental conditions at the airport. Although the description of the No Project Alternative, above, anticipates that if the proposed Project were disapproved, a future applicant similarly could submit a project proposal that included recreational use(s) consistent with the existing PD District and Master Use Permit, for the purposes of evaluating this No Build variant of the No Project Alternative only, it is assumed that no future development proposal would be made in the event the Project as currently proposed were disapproved, and that existing conditions at the Project site would remain unchanged indefinitely.

COMPARATIVE ENVIRONMENTAL ANALYSIS

Land Use and Planning (no change in existing conditions, so no environmental impact)

As discussed above, land use on the Project site is governed by a Master Use Permit that limits the type of non-aviation uses that could be permitted. In addition, restrictive covenants on the site further limit the permitted uses to existing airport and related uses, public utility uses as approved by the appropriate government agencies, airport and airport related uses, roadways, open space, and private and public recreational uses. Under this alternative, there would be no need to amend the existing PD District or Master Use Permit, since no changes in existing land uses would be proposed.

Aesthetics (no change in existing conditions, so no environmental impact)

In the event that the proposed Project is denied, under this No Build variant of the No Project Alternative it is assumed that no future development on the Project site would take place. No new structures would interfere with scenic vistas or existing views in the vicinity of the Project site, and no new lighting would be installed at the Project site.

Air Quality (no change in existing conditions, so no environmental impact)

With no construction at the Project site under this Alternative, there would be no construction-related air quality effects, and with no change in existing activity levels at the airport site, there would be no change in existing vehicle or aircraft traffic patterns and related emissions of air pollutants or GHG.

Biological Resources (no change in existing conditions, so no environmental impact)

No changes in the existing activities or uses at the airport site would take place under this alternative. With no construction activity taking place under this alternative, there would be no changes in existing water quality or drainage patterns that might adversely affect fish or wildlife in the vicinity of the Project site, and no disturbance of birds that may nest in the area. On-going maintenance of the levees and efforts to discourage wildlife use of the Project site in order to

reduce flight hazards would continue, with no new impacts to fish or wildlife that may be observed in the vicinity of the Project site. No new lighting would be installed at the airport site, and current noise levels associated with activity there would remain unchanged, resulting in no new adverse impacts on wildlife in the vicinity.

Cultural Resources (no change in existing conditions, so no environmental impact)

Without construction of new structures at the Project site, there would be no possibility of encountering undiscovered cultural resources during grading or other construction activity, and any such resources would remain undisturbed under this alternative.

Geology and Soils (no change in existing conditions, so no environmental impact)

In the absence of any new structures or changes in existing uses and activities at the Project site, there would be no changes in existing geologic or soil conditions at the Project site, and there would be no change in the current risk of exposure to geologic hazards for those that now use the airport site and related facilities. Without any construction activity, there would be no construction-related erosion under this alternative.

Hazardous Materials and Safety Hazards (no change in existing conditions, so no environmental impact)

The hazardous materials analysis in Chapter 10 of the DEIR did not identify any potentially significant impacts associated with construction of the proposed Project, so the absence of any construction at the site under this alternative would result in no impacts related to possible exposure to hazardous materials. Under this alternative, there would be no changes in current risks associated with aviation operations at the airport site.

Hydrology and Water Quality (no change in existing conditions, so no environmental impact)

In the absence of any construction or development at the Project site, there would be no adverse effects on water quality or changes in existing drainage patterns under this alternative. No additional people or structures would be subject to potential flood hazards or anticipated increases in sea level beyond those currently present at the airport site, and the on-going maintenance of levees which protect the site would continue as at present.

Noise (no change in existing conditions, so no environmental impact)

With no increase in current activity levels at the airport site, there would be no increase in current noise levels associated with such activity. In the absence of construction at the site, there would be no construction-related noise associated with this alternative.

Traffic and Circulation (no change in existing conditions, so no environmental impact)

With no changes in existing vehicle traffic patterns or volumes at the airport site under this alternative, there would be no impacts associated with traffic and circulation.

Other Environmental Effects (no change in existing conditions, so no environmental impacts)

In the absence of development at the Project site, there would be no environmental impacts associated with Agricultural Resources, Mineral Resources, Population & Housing, Public Services (Police, Fire, Schools, etc.), Recreation or Utilities & Services, There would also be no Cumulative Impacts and Growth Inducing Impacts under a No Project/No Build alternative."

On DEIR page 16-25, the text of the third complete paragraph has been modified to read as follows:

> "The San Rafael Airport has a land use designation of Airport/Recreation on the *General Plan 2020* Land Use Map (General Plan Exhibit 12). The proposed Project is recreational in nature and conforms to the land use designation of the site; as described throughout this document, the Project site is subject to a Master Use Permit and restrictive covenants that permit a narrow range of uses. ~~The current restrictive covenants do not permit the indoor sports facility proposed by the Project; however, as part of the Applicant's application submission, the Applicant also requests to amend the Master Use Permit to allow this use.~~ The analysis provided in this EIR has determined that the proposed Project would conform well to the land use designation and additional constraints of the site, provided the recommended mitigation measures contained in this EIR are properly implemented. Moreover, McInnis Park is located to the northwest of the site, across the North Fork of Gallinas Creek and provides recreation activities similar to and compatible with the proposed uses on the airport site."

On DEIR page 16-26, the following paragraph is added immediately following the heading "Environmentally Superior Alternative":

> "As indicated above, a "No Project/No Build" Alternative (evaluated as a variant of the DEIR's No Project Alternative in the FEIR) would not result in any changes in existing conditions at the Project site, and as a result, would not create any environmental impacts. Were there to be some mechanism to ensure that the Project site could never be developed, the absence of environmental impacts associated with this alternative would render it "environmentally superior" to the proposed Project and all of the other alternatives evaluated in the DEIR. However, as indicated above, since current land use regulations would permit some development and use of the Project site, it is unlikely that it will remain vacant indefinitely, and more likely that a future proposal for some level of development at the site may be forthcoming from the property owner at some future date

if the proposed Project is not approved. It also should be noted that allowing the site to remain in its current vacant condition under a "No Project/No Build" alternative would meet none of the Project's basic objectives."

On page 27 of DEIR Volume II, Technical Appendices, **Appendix K**, the text of the paragraph under ASSUMED ROADWAY IMPROVEMENTS has been deleted and replaced with the following text:

"The *San Rafael General Plan 2020* identifies proposed roadway improvements along Lucas Valley Road, just west of U.S. 101. The final *General Plan 2020* traffic improvement for this area is a new southbound US 101 ramp at Los Gamos Road, which will address currently deficient operations at the US 101 Ramps and Smith Ranch Road. Additionally, the *San Rafael General Plan 2020* proposes bike lanes along Smith Ranch Road and Silveira Parkway. The roadway improvements are funded through the payment of traffic mitigation fees. The Project would be required to pay these fees as a condition of Project approval."

On page 27 of DEIR Volume II, Technical Appendices, **Appendix K**, the text of the two paragraphs under TRAFFIC IMPACTS has been deleted and replaced with the following text:

"*General Plan* conditions (year 2020) peak hour traffic volumes for the study intersections come from the City of San Rafael's Traffic Model provided by City staff. Revised Figure 10 and Figure 11 (DEIR **Figure 13-7** and **Figure 13-8)** illustrate the General Plan and General Plan with Project traffic volumes. Revised Table 10 (DEIR **Table 13-7**) summarizes the results of the analysis of intersection operations expected for the year 2020. The table shows that all study intersections are expected to operate at LOS D or better under year 2020 conditions with and without the Project. Based on the significance criteria provided above, a Project would result in a significant traffic impact to an intersection if Project traffic would contribute to reducing its LOS from an acceptable level (LOS D in this area) to an unacceptable one; or if said intersection is already operating at an unacceptable level, a significant impact would occur if Project traffic added five (5) or more seconds of delay. However, as discussed above, based on *General Plan 2020: Circulation Element* **Policy C-5B**, the arterial LOS analysis is not the sole method that could be utilized in this analysis to determine traffic impacts. Although the westbound Smith Ranch Road arterial segment would deteriorate from LOS D to LOS E under General Plan + Project conditions, the intersections associated with this arterial–Redwood Highway & Smith Ranch Road and US-101 Ramps & Smith Ranch Road–would continue operating at acceptable levels of service. Based on this analysis, the development of this property is within the build-out scenarios analyzed by the General Plan EIR and therefore would not result in significant cumulative impacts."

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
Aesthetics		
Impact Aesth-1: Light and Glare. Project lighting may exceed the light intensity standards of the surrounding community, particularly the inclusion of exterior field lighting. Unless subject to proper review and approval, the impact of the Project's proposed exterior lighting on the surrounding community is considered to be ***potentially significant.***	**MM Aesth-1a: Design Review Board Lighting Approval.** Prior to issuance of building permits, the Project Proponent shall prepare an exterior lighting plan for all areas of the Project site subject to the photometric analysis for the review and approval of the Design Review Board. The plan shall meet the following performance standards and include the following information: • Sufficient exterior lighting to establish a sense of well-being to the pedestrian and one that is sufficient to facilitate recognition of persons at a reasonable distance. Type (lighting standard) and placement of lighting shall be to the satisfaction of the Police Department and Department of Public Works; • A minimum of one foot-candle at ground level overlap provided in all exterior doorways and vehicle parking areas, and on outdoor pedestrian walkways presented on a photometric plan; • A maximum of one (1) foot-candle intensity at the property line and edge of conservation area; • Vandal-resistant garden and exterior lighting; • A lighting standard that is shielded to direct illumination downward and to limit casting light and glare on adjacent properties; • Exterior lighting on a master photoelectric cell, which is set to operate during hours of darkness; • The plan shall include a note requiring a site inspection 90 days following installation and operation of the lighting.	Less than significant

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	The post construction inspection by the City shall allow adjustments in the direction and/or intensity of the lighting, if necessary; • Outdoor field lighting shall be set to turn off 15 minutes after the last scheduled game, or by 10 p.m. at the latest; • Security level lighting shall be set to turn off in parking areas and pedestrian walkways one-half hour after close of the facility, e.g. by 12:30 a.m. **MM Aesth-1b: Design Review Board Materials and Colors Approval.** Consistent with the recommendations of the Design Review Board subsequent to an earlier review, the DRB shall also review and approve the proposed building materials to ensure that the proposed Project is designed with non-reflective and/or tinted glass to minimize potential daytime glare impacts pursuant to the Design Review Permit criteria established in the San Rafael Municipal Code Title 14 (zoning), Chapter 25 (Design Review). Additionally, Project landscape plans shall show the area where the DRB requested the gap in the Eucalyptus row to be filled in. Replacement species shall be consistent with City tree guidelines.	
Air Quality		
Impact AQ-1: Construction Impacts. Construction of the proposed Project would involve substantial grading activities that could affect air quality, particularly regarding emissions of PM10. This impact is considered ***potentially significant.***	**MM AQ-1a:** Construction Impacts. The Project Contractor shall implement the following control measures during construction activities to reduce PM_{10} emissions per the BAAQMD's recommendation. • All active construction areas shall be watered at least twice daily. A water truck or equivalent method shall be in place prior to commencing grading operations. • All trucks hauling soil, sand, and other loose materials shall be covered and	Less than significant

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	maintain at least one foot of freeboard. • All unpaved access roads, parking areas and staging areas at construction sites shall be paved, watered three times daily, or applied with non-toxic soil stabilizers. • All paved access roads, parking areas and staging areas at the construction site shall be swept daily with water sweepers and adjacent public streets shall be swept if visible soil material is carried onto them. This shall also include Smith Ranch Road (from the entrance to the site west ¼ mile daily (with water sweepers) if visible soil material is carried onto adjacent public streets. All inactive construction areas (previously graded areas inactive for ten days or more) shall be treated with hydroseed or non-toxic soil stabilizers. • Any exposed stockpiles (dirt, sand, etc.) shall be enclosed, covered and watered twice daily or non-toxic soil binders shall be applied to any exposed stockpiles • All construction traffic on unpaved roads shall be limited to speeds of 15 mph. Prior to the commencement of any grading, appropriate signs shall be placed on site to identify the maximum speed. • Excavation and grading activity shall be suspended when wind gusts exceed 25 miles per hour. • Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site. • The Project sponsor shall inform the contractor, general contractor or site supervisor of these requirements and shall be responsible for informing subcontractors of these requirements and	

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	for implementing these measures on the site. • A dust control coordinator shall be designated for the Project. The name, address and telephone number of the dust coordinator shall be prominently posted on site, and shall be kept on file at the Planning Division. The coordinator shall respond to dust complaints promptly (within 24 hours) and shall have the authority to take corrective action. • The above requirements shall be noted on the grading plans or building permit plans prepared for the Project prior to issuance of any permit. **MM AQ-1b: Plan Notations.** Prior to approval of the final improvement plans and specifications, the City of San Rafael shall confirm that the plans and specifications stipulate that, ozone precursor emissions from construction equipment vehicles shall be controlled by maintaining equipment engines in good condition and in proper tune per manufacturer's specifications, to the satisfaction of the City. The City inspector shall be responsible for ensuring that contractors comply with this measure during construction. **MM AQ-1c Construction Contract Specifications.** Prior to issuance of grading permits or approval of grading plans, the Applicant shall include in the construction contract standard specifications a written list of instructions to be carried out by the construction manager specifying measures to minimize emissions by heavy equipment. Measures shall include provisions for proper maintenance of equipment engines, measures to avoid equipment idling more than two minutes and avoidance of unnecessary delay of traffic on off-site access roads by heavy equipment blocking traffic.	

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
Biological Resources		
Impact Bio-1: Listed Anadromous Fish Species. Project construction or operations would not result in any direct impacts to federally listed fish species; however, activities during bridge construction could result in indirect impacts to federally listed anadromous fish species that may occur in the North Fork of Gallinas Creek. This is a ***potentially significant*** impact.	**MM Bio-1a: Listed Anadromous Fish Species – Pile Driving.** Bridge construction shall proceed according to the following: • All work associated with the new bridge, including the demolition of existing bridge deck, installation of the new deck, and other bridge improvements, shall be restricted to August 1 to October 15; • Pile-driving work shall be further restricted to between the dates of September 1 and October 15, when migrating anadromous fish would not be expected to be in Gallinas Creek. This "avoidance window" was selected to avoid the breeding season of several other special-status species as well, as detailed below. • As required by CDFG in the Streambed Alteration Agreement (SBAA), work activities associated with the pile-driving shall not begin unless there is no rain in the forecast, and all erosion control measures are in place pursuant to a detailed Storm Water Pollution Prevention Plan (SWPPP) prepared for the project. • Any conditions of the SBAA imposed by the CDFG shall also become conditions of the Project approval. • Compliance with Best Management Practices for sediment and erosion control as detailed in the SWPPP and ECP prepared for the project ~~Precautions~~ shall be taken to prevent silt-laden or contaminated runoff from entering the stream. Measures to control runoff from entering the stream could include the placement of fiber rolls and silt fences, containing wastes, dry sweeping instead of washing down impervious surfaces, and providing proper washout areas for the	Less than significant

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	construction contractor. • Sandbags shall be installed at the top of bank to prevent fluids, sediment, or construction related debris from entering Gallinas Creek. • A hammock, or similar material, shall be deployed over the creek during reconstruction of the bridge to capture any construction debris that could fall into the creek during the proposed bridge work. • All construction debris shall be removed from the work area following completion of the bridge improvements. **MM Bio-1b: Listed Anadromous Fish Species – SWPPP & SWMP.** The SWPPP and SWMP required under **MM Hyd-1** in Chapter 10 of this EIR shall ensure the following specifications are met: • The SWPPP and SWMP will be designed to ensure that there are no significant impacts to water quality in the North Fork of Gallinas Creek resulting from Project construction or post-construction storm water discharges. • Prior to being discharged, storm water generated on the Project site, including the parking lots, shall be treated via a comprehensive set of onsite treatments BMPs to remove urban contaminants from the runoff. • Since the proposed Project will increase the amount of impervious surface on the Project site, the SWMP shall also address storm water detention and shall ensure that the ~~volume of water discharged~~ volumetric flow rate of water discharged into the North Fork of Gallinas Creek does not exceed the pre-project ~~volumes~~ rate. Treated storm water will continue to be	

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	discharged at constant rates up to the existing pump station capacity of 500,000 gallons per hour/18.5 cubic feet per second.	
Impact Bio-2: California Clapper Rail and California Black Rail. The proposed Project will not impact marsh habitats or adjacent upland habitats along the North Fork of Gallinas Creek; therefore, there will be no direct impacts to the California clapper rail or the California black rail. However, indirect impacts to California clapper rails, and possibly to California black rails, could result from noise generated during Project construction and as part of Project operation. Unless mitigated, these impacts would be ***potentially significant***.	**MM Bio-2a: California Clapper Rail and California Black Rail – Perimeter Fence.** To ensure that the marsh habitat and the upland buffer along the North Fork of Gallinas Creek is protected, a fence shall be installed around the perimeter of the proposed Project area, and human access into this buffer area will be prohibited except as required by maintenance/operation personnel for continued levee maintenance and other required airport operational tasks that are routinely practiced today (see following paragraphs). The exact location and size of the fence shall be determined by a qualified biologist. The fence will be a minimum of ten-feet tall (which may consist of a standard 6-foot tall cyclone fence with a 4-foot netting extension) for the purpose of preventing balls from the soccer fields from entering the marsh. Retrieval of items from the fenced area shall be done by authorized recreation facility personnel only. In addition, signs will be posted stating that public access into the buffer area is strictly prohibited owing to the sensitivity of the marsh habitat and to ensure the continued use of this habitat by special-status wildlife species. Without a fence, there is no realistic expectation that the marsh habitat along the North Fork of Gallinas Creek and the adjacent upland areas will remain protected. **MM Bio-2b: Permanent Conservation Area.** ~~The applicant shall designate the marsh habitats along the North Fork of Gallinas Creek and the 100-foot upland buffer area on the Project site adjacent to the North Fork of Gallinas Creek as a permanent "conservation area" that will be protected through recordation of a declaration of covenants, conditions and restrictions on the property The deed restriction will create covenants running~~	Less than significant

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	~~with the land that impose on the property owner (Applicant) the duty to manage and maintain the "conservation area" in perpetuity to ensure that the resource values of the preserved land remain protected forever. The deed will preclude future development or modification of the "conservation area." The City shall have review and approval authority over the deed restriction language and ability of the owner or subsequent owners to make any modifications to the restrictions. The location and the total acreage of the "conservation area" shall be clearly indicated on a plat map which shall accompany the deed restrictions that shall be recorded for the property before issuance of building permits. Prior to recordation of the deed restriction document, the City shall review and verify that compliance is achieved with the following specifications.~~ ~~a) The deed restriction shall clearly indicate that the land shall be maintained as a "conservation area," without encumbrances of any structures or roads or landscaping. The purpose of this limitation on use of the property is to protect the biological resource values of the North Fork of Gallinas Creek. All future property owners shall be obligated to maintain this restriction. The "conservation area" shall be protected in perpetuity and shall not be canceled, amended or modified without the prior written approval by the City of San Rafael.~~ ~~b) The deed restriction shall be recorded as a condition of Project approval. It is intended that the deed restriction will be a perpetual limitation on use running with the land and all present and future landowners.~~ ~~The Applicant shall be responsible for the costs and expense incurred by the City in~~	

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	~~causing the Declaration of Covenants, Conditions and Restrictions (i.e., the deed restriction) to be recorded for the "conservation area", as well as enforcement of the deed restriction and exercise of its rights and remedies under the deed restriction recorded for the "conservation area.~~ The Project Applicant shall designate the 100-foot upland buffer area on the Project site adjacent to the North Fork of Gallinas Creek as a permanent "conservation area" that will be protected through recordation of a declaration of covenants, conditions and restrictions on the property. A deed restriction shall be recorded that specifies the prohibited and allowed uses of the buffer areas. The allowed uses would include the continued maintenance of the fields and levees, while the prohibited uses would prohibit any future development or land disturbance (outside of that required for routine maintenance and levee repairs) within the 100+-foot creek protection buffer that is designated as a conservation area. The deed restriction will become a condition of Project approval. **MM Bio-2c: California Clapper Rail and California Black Rail – Levee Maintenance.** Maintenance of the levees along Gallinas Creek must be allowed to continue for airport safety purposes (i.e., aviation safety and flood control). Any scheduled maintenance by the airport operator along the North Fork of Gallinas Creek, other than vegetation control, should occur in August through ~~September~~ January when rails are not expected to be nesting. Mowing of vegetation along levees has occurred for many years pursuant to FAA guidelines, and should continue. To ensure that clapper rails in the area have necessary vegetative cover to escape predators during high tide events, no mowing should be allowed on the slopes of the levees that face the creek.	

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Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	MM Bio-2d: California Clapper Rail and California Black Rail – Avoidance Measures. Disturbances to clapper rails and black rails can be minimized during the construction of the proposed recreational facility by implementing the following avoidance measures: Pile driving associated with the recreational facility building shall not commence until September 1st and shall be completed by February 1st. Outside of pile driving, exterior construction of the recreational facility shall be allowed between July 1st and February 1st without limitation. Interior work shall be allowed without timing limitations. Construction ~~of the recreational facility~~ shall not commence on the recreational facility Project ~~until~~ on July 1st until a qualified biologist determines that there are no nesting California Clapper Rails or California Black Rails within 200 feet of the Project construction envelope. In the event nesting rails are found within 200 feet of the Project site on or after July 1st, construction shall be delayed until the nesting attempt is completed and the nest is abandoned or a qualified biologist determines that the nesting would not be adversely affected by commencement of the project. If California Clapper Rails or California Black Rails are determined to be nesting between 200 feet and 500 feet from the Project construction envelope on July 1st, the Project may proceed if a qualified biologist determines that the nesting rails would not be affected by the proposed construction activities. Under all circumstances any nest identified within 500 feet of the Project construction envelope would be monitored by a qualified biologist while construction activities were in progress. The monitoring biologist would have the right to shut down any and all construction activities immediately in the event that such activities were determined to be disturbing the nesting	

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Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	attempt. Nests greater than 500 feet away would not require biologist monitoring ~~when the rails can be expected, in most cases, to have fledged young. Construction of the recreational facility could extend into October, with interior work allowed throughout the year~~. To account for California clapper rails or black rails, and other special-status birds, that ~~likely~~ occur and nest in the marsh habitats along the creek in the immediate area of the bridge, all work associated with the new bridge, including the demolition of existing bridge deck, installation of the new deck, and other bridge improvements, shall be restricted to August 1 to October 15. The bridge pile-driving dates shall be further restricted to September 1 and October 15 when potentially occurring anadromous fish would not be expected to occur in the channel. This "avoidance window" is outside of the California clapper rail, California black rail, and other special-status birds breeding seasons, thereby eliminating the potential that bridge reconstruction activities would disrupt breeding attempts. This mitigation measure provides conservation measures that are consistent with the ISP Best Management Practices." Noise abatement measures shall include restricting construction to the daylight hours and limiting the use of high decibel construction equipment (70-90 dBA) to areas at least 200 feet from the North Fork of Gallinas Creek. This restriction does not apply to bridge pile-driving activities, provided these activities occur during the "avoidance window" provided above. Consequently, noise from the Project site construction will not disrupt nocturnal wildlife species' activity patterns, and daytime high decibel construction noise will be buffered by the established noise abatement zone along the North Fork of	

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Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	Gallinas Creek. Finally, four-foot black mesh exclusion fencing shall be installed along the outside edge of the creek buffer zone (100 feet from the North Fork of Gallinas Creek) to prevent sensitive species, such as clapper rails and black rails, from entering the work areas. The exact location of this fence shall be determined by a qualified biologist. The fence shall be installed prior to the time any site grading or other construction-related activities are implemented. The fence shall remain in place during site grading or other construction-related activities. **MM Bio-2e: California Clapper Rail and California Black Rail – Event Curfew.** In order to ensure that Project operational noise does not significantly disrupt normal nocturnal wildlife species activity patterns, outdoor evening events, including soccer games and any other outdoor events that attract large numbers of spectators, shall end by 10:00 p.m. When there are evening soccer events, the 10:00 p.m. end time will ensure that noise generated from the recreational facility will not disrupt normal nocturnal wildlife species' activity patterns, allowing nocturnal movements through the project area over the duration of most of the night on the nights of the year affected by events.	
Impact Bio-3: Nocturnal Lighting. Lighting of the outdoor soccer field at the proposed recreational facility at night for evening games could result in ***potentially significant*** impacts to wildlife species and habitat in the North Fork of Gallinas Creek.	**MM Bio-3a: Nocturnal Lighting.** Lighting of the outdoor soccer field located near the North Fork of Gallinas Creek will be designed to have focused illumination areas that will ensure that there is no direct lighting of off-site areas, such as the North Fork of Gallinas Creek. All lighting fixtures on the perimeter of the Project shall be outfitted with hoods and cut-off lenses so that the light source itself is not visible to the naked eye from neighboring properties, thereby avoiding indirect light "trespassing" into adjacent habitat areas. This shall be verified by the Design Review Board when it reviews the final lighting plans prior to	Less than significant

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Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	the issuance of building permits, and verified again at the Project site during the inspection occurring 90 days following lighting installation, as required by **MM Aesth-1a**. **MM Bio-3b: Lighting Curfew.** The recreational facility shall set a 10:00 p.m. outdoor event lighting restriction. While safety lighting allowing visitors to safely leave the site may be illuminated as late as 12:30 p.m., all outdoor field lighting shall be terminated no later than 10:00 p.m. When there are evening outdoor soccer events, the 10:00 p.m. end time will ensure that light generated from the use of the recreational facility's outdoor fields will not disrupt nocturnal wildlife species' activity patterns, allowing nocturnal migration movements through the project area after that time.	
Impact Bio-4: Nesting Raptors. Construction and operation of the proposed Project could result in disturbance of nesting raptors, possibly resulting in death of adults and/or young raptors. This is a ***potentially significant*** impact.	**MM Bio-4a: Nesting Raptors – Bridge Construction.** The bridge reconstruction component of the project shall occur between the dates of August 1 and October 15, and the pile-driving activities shall be restricted to September 1 to October 15, as otherwise specified above. This "avoidance window" is outside of the raptor breeding season, thereby eliminating the potential that bridge reconstruction activities would disrupt nesting raptors in the area. **MM Bio-4b: Nesting Raptors – Recreation Facility Construction.** Construction of the recreational facility shall occur from July 1 through October 15 when most raptors are expected to have completed their nesting cycles. In cases where a nest fails early in the egg-laying phase, adults may recycle, laying a second set of eggs. In such cases the completion of the nesting season will be delayed until August. While this is rare, it does occur sometimes in nature and thus a mitigation measure is provided below to account for late nesting raptors.	Less than significant

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	MM Bio-4c: Nesting Raptors – Pre-construction Nesting Surveys. Pre-construction nesting surveys shall be conducted as follows: • A pre-construction nesting survey shall be conducted ~~in June~~ during the breeding season (February through July) of the year construction of the project will commence. The nesting survey shall be conducted within 30 days prior to commencing of construction work. The raptor nesting surveys shall include examination of all habitats and trees within 500 feet of the entire Project site, including near the bridge, not just eucalyptus trees on the northern boundary of the Project site. • If a nesting raptor species is identified, a 300-foot radius buffer around any active nest site that is located on or within 300 feet of the Project site shall be fenced with orange construction fencing. If the nest is off the Project site, the Project site shall be fenced where this buffer intersects the project area. This 300-foot buffer may be reduced in size if a qualified raptor biologist determines that the nesting raptors are acclimated to people and disturbance, and/or otherwise would not be adversely affected by construction activities. At a minimum, however, the non-disturbance buffer shall be a radius of 100 feet around the nest site. When construction buffers are reduced from the 300 foot radius, a qualified raptor biologist shall monitor distress levels of the nesting birds until the young fledge from the nest. If at any time the nesting raptors show levels of distress that could cause nest failure or abandonment, the raptor biologist shall have the right to re-implement the full 300-foot buffer. Instances when the buffer could be reduced in size would be if the raptors were well acclimated to disturbance	

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	and/or if there were physical barriers between the nest site and the construction project that would reduce disturbance to the nesting raptors. • No construction or earth-moving activity shall occur within the non-disturbance buffer until it is determined by a qualified raptor biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by July 1. Regardless, the resource agencies consider September 1 the end of the nesting period unless otherwise determined by a qualified raptor biologist. Once the raptors have completed the nesting cycle, that is the young have reached independence of the nest, no further regard for the nest site shall be required and no other compensatory mitigation is required.	
Impact Bio-5: Western Burrowing Owl. Construction and operation of the proposed Project could result in disturbance of the western burrowing owl, possibly resulting in death of adults and/or young owls. This is a ***potentially significant*** impact.	**MM Bio-5a: Western Burrowing Owl – Nesting Surveys.** Pre-construction nesting surveys for Western burrowing owl shall be conducted as follows: ~~• Surveys shall be conducted for western burrowing owls in April, May, and June the year construction of the project will commence. The Project site and a 150 meter (approximately 500 ft.) buffer (where possible based on habitat) shall be surveyed to assess the presence of burrowing owls and their habitat. The survey shall be conducted in accordance with the survey requirements detailed in the California Department of Fish and Game's *Staff Report on Burrowing Owl Mitigation* (CDFG 1995). Ideally, surveys shall be conducted in both breeding season (April 15-July 15) and non-breeding season (December-January) to assess use of the Project site by this species.~~	Less than significant

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Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	~~• If burrowing owls are found on the Project site during the non-breeding season (September 1 through January 31), impacts to burrowing owls shall be avoided by establishing a fenced 160-foot buffer (50 meters) between the nest site (i.e., the active burrow) and any earth-moving activity or other construction-related disturbance on the Project site.~~ ~~• If burrowing owls are detected on the site during the breeding season and appear to be engaged in nesting behavior, a fenced 250-foot buffer (75 meters) shall be installed between the nest site (i.e. the active burrows or ground nests) and any earth-moving activity or other disturbance on the Project site. This 250-foot buffer may be removed once it is determined by a qualified raptor biologist that that young have fledged (that is, left the nest). Typically, the young fledge by August 31st. This fence removal date may be earlier than August 31st, or later, and would have to be determined by a qualified raptor biologist.~~ • Pre-construction Survey. A preconstruction survey of the Project site shall be conducted within 30 days prior to any ground disturbing activities to confirm the absence or presence of burrowing owls. If more than 30 days lapse between the time of the preconstruction survey and the start of ground-disturbing activities, another preconstruction survey must be completed. This process should be repeated until the Project site habitat is converted to non-habitat (e.g., developed for recreational uses). If western burrowing owls are not present, no further mitigation is required. • If burrowing owls are found on the Project site during the non-breeding season	

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	(September 1 through January 31), impacts to burrowing owls shall be avoided by establishing a fenced 160-foot buffer (50 meters) between the nest site (i.e., the active burrow) and any earth-moving activity or other construction-related disturbance on the Project site. • If burrowing owls are detected on the site during the breeding season and appear to be engaged in nesting behavior, a fenced 250-foot buffer (75 meters) shall be installed between the nest site (i.e. the active burrows or ground nests) and any earth-moving activity or other disturbance on the Project site. This 250-foot buffer may be removed once it is determined by a qualified raptor biologist that that young have fledged (that is, left the nest). Typically, the young fledge by August 31st. This fence removal date may be earlier than August 31st, or later, and would have to be determined by a qualified raptor biologist. Once the qualified raptor biologist confirms that there are no owls inside any active burrows, these burrows may be collapsed. ~~**MM Bio-5b: Western Burrowing Owl – Pre-construction Surveys.** A preconstruction survey of the Project site shall be conducted within 30 days prior to ground disturbing activities. If more than 30 days lapse between the time of the preconstruction survey and the start of ground-disturbing activities, another preconstruction survey must be completed. This process should be repeated until the Project site habitat is converted to non-habitat (e.g., developed for recreational uses).~~ **MM Bio-5eb: Western Burrowing Owl – Passive Relocation.** If occupied western burrowing owl burrows are found within 160 feet of the proposed Project work area during the non-breeding season, and may be impacted, passive relocation measures shall be	

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Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	implemented according to the Burrowing Owl Consortium Guidelines (BOC 1993) and ~~as otherwise approved by CDFG~~ as recommended by a qualified biologist. Rather than capturing and transporting burrowing owls to a new location (which may be stressful and prone to failure), passive relocation is a method where the owls are enticed to move on their own accord. ~~Proof that CDFG has approved any passive relocation measures shall be provided to the City of San Rafael prior to commencement of such activities.~~ The biologist shall consult with CDFG prior to initiating passive relocation measures. Passive relocation shall not commence before September 30th and shall be completed prior to February 1st of any given year. After passive relocation, the Project site and vicinity will be monitored by a qualified biologist daily for one week and once per week for an additional two weeks to document where the relocated owls move. A report detailing the results of the monitoring will be submitted to CDFG within two months of the relocation. **MM Bio-5d~~c~~: Western Burrowing Owl – Habitat Delineation.** If burrowing owls are found occupying burrows on the Project site, a qualified raptor biologist shall delineate the extent of burrowing owl habitat on the site. To mitigate for impacts to burrowing owls, the applicant shall implement mitigation measures ~~required~~ recommended by the CDFG which state that six and a half acres (6.5 acres) of replacement habitat must be set-aside (i.e., protected in perpetuity) for every occupied burrow, pair of burrowing owls, or unpaired resident bird. Protecting burrowing owl habitat in perpetuity will off-set permanent impacts to burrowing owl and their habitat. For example, if two pairs of burrowing owls are found occupying burrows on the Project site, 13 acres of mitigation land must be acquired. Similarly, if one pair and one resident bird are identified, 13 acres of mitigation land must be acquired.	

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	The protected lands shall be adjacent to occupied burrowing owl habitat and ~~at a location acceptable to~~ determined to be suitable in consultation with CDFG. Land identified to off-set impacts to burrowing owls must be protected in perpetuity either by a conservation easement or via fee title acquisition. ~~CDFG will likely require that a~~ A detailed mitigation and monitoring plan shall be developed for the burrowing owl mitigation area. This plan shall be prepared by the project biologist ~~and will be subject to~~ in consultation with CDFG ~~approval~~. The applicant will provide an endowment fund to the Grantee of the Conservation Easement for the long-term management of the burrowing owl mitigation lands.	
Impact Bio-6: Impacts to Common and Special-Status Nesting Birds. Construction and operation of the proposed Project could adversely impact common and special-status nesting passerine birds, their eggs, and/or young. Common and special-status nesting passerine birds are protected under the California Fish and Game Code (Sections 3503, 3503.5), and the Migratory Bird Treaty Act. This is considered a ***potentially significant*** impact pursuant to CEQA.	**MM Bio-6a: Common and Special-Status Nesting Birds – Bridge Construction.** The bridge reconstruction component of the project shall occur between the dates of August 1 and October 15, and the pile-driving activities will be restricted to September 1 to October 15, as otherwise specified above. This "avoidance window" is outside of the breeding season, thereby eliminating the potential that bridge reconstruction activities would disrupt nesting birds. **MM Bio-6b: Special-Status Nesting Birds – Nesting Surveys.** A nesting survey shall be conducted within 15 days prior to commencing construction work. If special-status birds, such as saltmarsh common yellowthroat and San Pablo song sparrow, are identified nesting near the bridge reconstruction component of the Project, a ~~200~~ 50-foot radius buffer must be established around the nest site by installing bright orange construction fencing. Similarly, if great blue herons, great egrets, snowy egrets, or black-crowned night herons are found nesting near the bridge or near the Project site area, a 200-foot radius around the nest site(s) must be fenced with bright orange construction fencing. If nests are found off the Project site	Less than significant

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	but within ~~200 feet~~ the appropriate buffer, the portion of the ~~200-foot~~ buffer on the Project site shall be fenced with bright orange construction fencing. No construction or earth-moving activity shall occur within a ~~200-foot~~ buffer until it is determined by a qualified biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by August 1. This date may be earlier than August 1, or later, and would have to be determined by a qualified ornithologist. **MM Bio-6c: Common Nesting Birds – Nesting Surveys.** If common (that is, not special-status) passerine birds (that is, perching birds such as western scrub jays and northern mockingbird) are identified nesting within the project area or immediately adjacent to the Project site, a ~~75~~ 50-foot buffer demarcated by orange lath staking installed every 20 feet around the buffer shall be established. No grading/construction activities shall occur in the established buffer until it is determined by a qualified biologist that the young have fledged and have attained sufficient flight skills to leave the area. Typically, most passerine birds can be expected to complete nesting by July 1, with young attaining sufficient flight skills by early July. Swallows species are the exception typically fledging and attaining sufficient flight skills in mid-July.	
Impact Bio-7: Salt Marsh Harvest Mouse, Suisun Shrew and San Pablo Vole. Indirect impacts to Suisun shrew, the salt marsh harvest mouse and the San Pablo vole could result from implementation of the proposed Project. This is a ***potentially significant*** impact.	**MM Bio-7: Salt Marsh Harvest Mouse, Suisun Shrew and San Pablo Vole – Perimeter Fence.** To ensure that the buffer along the North Fork of Gallinas Creek is protected, a fence will be installed around the perimeter of the proposed recreational facility to prohibit human access to this area except as otherwise allowed for maintenance activities associated with the airport. A four-foot black mesh exclusion fencing shall be installed along the outside edge of the creek buffer zone (100 feet from the North Fork of Gallinas Creek) to	Less than significant

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	prevent the Suisun shrew, the salt marsh harvest mouse and the San Pablo vole from entering the work areas. The exact placement of the fence shall be determined by a qualified biologist. In addition, signs will be posted stating that public access into the marsh and adjacent uplands is strictly prohibited to ensure the continued use of the protected area by sensitive wildlife species.	
Impact Bio-8: Pallid Bat (and Other Bat Species). Construction and operation of the proposed Project could result in adverse impacts to the Pallid bat (California species of special concern) and other bat species. This is a ***potentially significant*** impact.	**MM Bio-8: Pallid Bat (and Other Bat Species).** In order to avoid impacts to roosting bat habitat, preconstruction surveys shall be conducted prior to any tree removal on the Project site to ensure that direct take of this species would not occur. A biologist with experience conducting bat surveys shall conduct this survey. If no bats are found during the survey, tree removal shall be conducted within one month of the survey. If a maternity colony is found during the surveys, no eviction/exclusion shall be allowed during the breeding season (typically between April 15 and July 30). If a non-reproductive group of bats are found, they shall be passively evicted by a qualified biologist and excluded from the roost site prior to work activities during the suitable time frame for bat eviction/elusion (*i.e.,* February 20 to April 14 and July 30 to October 15). CDFG shall approve any and all bat eviction activities prior to implementation of such activities. Any conditions for the project imposed by CDFG as a condition for removal of bats would become a condition of project approval.	Less than significant
Impact Bio-9: Impacts to CDFG Jurisdiction – Banks of the North Fork of Gallinas Creek. Construction activities at the top of the bank of the North Fork of Gallinas Creek associated with the proposed improvements to the bridge crossing may result in ***potentially significant*** impacts to CDFG jurisdictional areas.	**MM Bio-9: Impacts to CDFG Jurisdiction – Banks of the North Fork of Gallinas Creek.** Construction of the proposed bridge shall be restricted to the terms and activities consistent with the approved CDFG 1602 Lake and Streambed Alteration Agreement (Notification Number: 1600-2006-0266-3), including but not limited to the following: • work on the bridge project shall be restricted to July 15th through October 15th during periods of low stream flow and dry	Less than significant

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	weather • no work shall occur below the top-of-bank or the normal high-water mark of the stream • all conditions in the authorized SBAA shall also be made a condition of the project	
Cultural Resources		
Impact CR-1: Discovery of Resources. The proposed Project has the potential to disturb unidentified Prehistoric, Archaeological or Historic resources on the Project site. This is considered a ***potentially significant*** impact.	**MM CR-1a:** Monitoring. A qualified archaeological monitor shall be present during pre-construction and construction activities that involve earth disturbance, such as land clearing, excavation for foundations, footings, and utilities. Land clearance and soil excavation shall occur only under the direction of the project archaeologist, and soil shall not be removed from the site without the approval of the project archaeologist. **MM CR-1b:** Discovery. In the event that archaeological features, such as concentrations of artifacts or culturally modified soil deposits including trash pits older than fifty years of age, are discovered at any time during grading, scraping, or excavation within the property, all work shall be halted in the vicinity of the find, the Planning Division shall be notified, and a qualified archaeologist shall be contacted immediately to make an evaluation. If warranted by the concentration of artifacts or soils deposits, further work in the discovery area shall be monitored by an archaeologist.	Less than significant
Geology and Soils		
Impact Geo-1: Soils on the Project site are composed of highly compressible Bay Mud, which is not suitable for at-grade foundation support. Additionally, the geotechnical report concludes additional fill is not appropriate for the foundation support because of the potential for additional fill to induce settlement. Construction of the proposed Project without proper engineered foundation design is considered a potentially significant impact.	**MM Geo-1: Geotechnical Engineering Recommendations.** Prior to the issuance of the building permit or grading permit, the following recommendations contained in the Geotechnical Report prepared by John C. Hom & Associates, dated May 9, 2005 and November 23, 2005, shall be incorporated into the Project design. Prior to issuance of a grading or building permit, written verification of conformance with these recommendations shall be submitted by the Project geotechnical	Less than significant

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	engineer to the City of San Rafael: a) A soil profile Type Se in accordance with the 2006 International Building Code shall be used in the design of the proposed Project. b) All areas to be graded should be stripped of any debris and organic materials. The organic material should be removed off-site and disposed of. Excavation should then be performed to achieve any finished grades. c) Where fill is required, the exposed surface should be scarified to at least 6 inches, moisture-conditioned and compacted to at least 90-percent relative compaction per ASTM D-1557 test procedure. Where soft soils are encountered, treatment of the soft soils with lime maybe required. The fill should be placed in lifts of 8 inches or less in loose thickness, moisture conditions and compacted to at least 90 percent compaction. The fills materials should be should have a plastic index of 15, or less, and be no larger than 6 inches. d) Finished slopes are to be no steeper than 2-horizontal to 1-vertical (2:1). If steeper slopes are necessary, they should be retained. The finished slops should be planted with deep-rooted ground cover. e) The proposed structure should be supported by 10-12 inch square driven piles which are pre-cut and pre-stressed concrete or steel piles. These piles should be driven continuously through the Bay Mud, the stiff soils and to refusal in bedrock (penetrate into bedrock no more than 10 feet). Ten and 12-inch piles should be driven with a hammer and maintained in good operating condition with a minimum rated energy of 20,000 and 30,000-foot pounds per blow,	

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	respectively. The piles should not deviate from vertical by more than ¼ inch per foot. Indicator piles should be driven near the corners of the building and interior of the building to determine pile depths and production piles should be ordered based on the indictor piles. The refusal blow count would depend on the hammer that is utilized and the structural capacity of the pile. The piles should be driven at least 5 feet into bedrock. The pile driving subcontractor should submit to the Soils Engineer specification of the pile hammer and equipment to be used. f) Down draft would occur on the piles due to consolidation of Bay Mud. The down drag forces should be deducted from the structural capacity of the piles. For 10 and 12-inch concrete piles, drag loads should be 22 and 28 tons respectively. For different sized piles, the down draft should be proportionate with the cross sectional perimeter of the pile. g) To resist lateral loads, a passive pressure of 250 pcf should be used. h) Slab on grade should not be used for the mezzanine structure. Instead, supported slabs should be used. The slab subgrade should be firm and non-yielding. In areas where slab on grade is used, such as exterior walkways, the slab on grade should be tied to foundations and reinforced to span from grade beam and/or pile to grade beam and/or pile. The upper 6 inches of slab subgrade should be compacted to at least 90 percent relative compaction. Slabs should be underlain by at least 4 inches of clean, free-draining crushed rock or gravel. If migration of moisture through the slabs would be objectionable, a vapor barrier should be installed between the slab and the rock. Two inches of sand may be provided	

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	above the vapor barrier. Expansive soils shall be maintained at an elevated moisture content of at least two (2) percent above optimum until the slab is poured. Exterior slabs should be separated from foundations because of potential differential settlement. i) Areas outside the structural envelope that receive fill will experience differential settlement and utilities from the structure to the street shall be designed to accommodate this. Sewer lines shall be provided with swing points. Gas, water and electrical lines shall be provided with flexible lines with sufficient slack to accommodate anticipated settlement. j) Driveway and ramp approaches from the street to the building will also experience settlement. Driveway slabs shall be provided with hinge joints and reinforced to structurally span the settlement. k) Surface water drainage should be diverted away from slopes and foundations. Gutters should be provided on the roofs and downspout should be connected to closed conduits discharging into the landscaped area where possible, per City standards. l) Roof downspouts and surface drains must be maintained entirely separate from sub-drains and foundation drains. The outlets should discharge onto erosion resistant areas of the landscaping where possible, per City standards. m) The Project geotechnical engineer shall conduct inspections during construction of the Project to confirm that the recommendations are properly incorporated. Prior to final occupancy of the building, the Project geotechnical engineer shall submit written verification that the Project was constructed in	

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	accordance with the recommendations identified in the geotechnical reports.	
Hazards		
Impact Haz-1a: The highest estimated concentration of people in a single-acre area on the Project site would be 216, which slightly exceeds the single-acre criterion of 200 people for Airport Safety Zone 5–Sideline Zone (Table 10-1). Although the actual occupancy level is likely to be lower than the estimate, this is considered a ***potentially significant*** impact and risk-reduction design features should be incorporated into the design of the facility. **Impact Haz-1b:** The proposed Project will likely attract users and spectators that will include young children and the elderly. These groups of people may find it difficult to move out of harm's way if an aircraft accident should occur. Therefore, this is considered a ***potentially significant*** impact and risk-reduction design features should be incorporated into the design of the facility.	**MM Haz-1: Risk-reduction design features.** In order to ensure that the proposed Project does not expose users to hazards associated with the operations at the San Rafael Airport, the Project Applicant shall: • Limit the intensity of use to a maximum of 200 people per single acre or, at a minimum, incorporate the following risk-reduction building design features into the design of the recreational building: • Add one additional emergency exit beyond the number required by the California Building Code. • Provide enhanced fire sprinkler system (e.g., designed in a manner that the entire system would not be disabled by an accident affecting one area • Add a sign at the entrance of the warm-up field indicating the maximum occupancy of the field is 50 people.	Less than significant
Impact Haz-2: Hazards to Flight. Based on a review of the site plan, elements of the Project have heights that would extend into the navigable air-space above the San Rafael Airport, as defined by Part 77 of the Federal Aviation Regulations. Any object which penetrates this volume of airspace is considered to be an obstruction. This is considered a ***potentially significant*** impact.	**MM Haz-2: Elimination of Flight Hazards.** In order to ensure that the proposed Project does not expose aircraft to hazards associated with the operations of the proposed Project, the Project Applicant shall: • Limit height of proposed structures to assure clearance of the 7:1 Transitional Surface • Design the row of parking stalls nearest to airfield for compact vehicles and/or add signs along the fence-line notifying drivers not to back-in their vehicles • Add obstruction lights to the following features to make them more conspicuous to pilots:	Less than significant

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	○ Southwesterly and southeasterly corners of building ○ Southwesterly and southeasterly ends of the fence fronting the airfield ○ Most easterly field light along the southeastern edge of the outdoor soccer field • Tall trees should be trimmed to ensure that they do not constitute an airspace obstruction (or, alternatively, shorter species can be planted). • Outdoor parking lot lights and outdoor soccer field lights, in particular, should be shielded so that they do not aim above the horizon. Additionally, outdoor lights should be flight checked at night to ensure that they do not create glare during landings and takeoffs. • Construction cranes and other tall construction equipment should be lowered at the end of each day • Prior to issuance of building permits or authorization to construct, the applicant should submit a *Notice of Proposed Construction or Alteration* (Form 7460-1) to the Federal Aviation Administration (FAA) and obtain from the FAA a determination of "*No Hazard to Air Navigation.*" Construction cranes and other tall construction equipment should be noted on the form.	
Hydrology and Water Quality		
Impact Hyd-1: Project construction and operational activities may result in increased pollution of receiving waters, including the North Fork of Gallinas Creek and San Rafael Bay. This impact is considered	**MM Hyd-1a: Erosion Control Plan.** Prior to issuance of a grading permit, a California Registered Civil Engineer retained by the Project Applicant shall prepare and submit a detailed erosion control plan (ECP) and	Less than significant

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
potentially significant.	narrative to the Stormwater Program Manager of the City of San Rafael for review and approval. The ECP shall be designed to control and manage erosion and sediment, control and treat runoff, and promote infiltration of runoff from new impervious surfaces ~~mitigate erosion and sedimentation impacts during~~ resulting from construction activities in order to minimize erosion and runoff to the maximum extent feasible. At a minimum, the ECP and written narrative shall include the following: • A proposed schedule of grading activities, monitoring, and infrastructure milestones in chronological format; • Identification of critical areas of high erodibility potential and/or unstable slopes; contour and spot elevations indicating runoff patterns before and after grading; • Identification and description of erosion control measures on slopes, lots, and streets, based on recommendations contained in the *Erosion and Sediment Control Field Manual* published by the San Francisco Regional Water Quality Control Board (RWQCB), the Association of Bay Area Governments' *Manual of Standards for Erosion and Sediment Control*, or equivalent document, as required by the City of San Rafael *General Plan 2020* Policy S-~~19~~22 (Erosion). Measures could include, but are not limited to stabilizing the entrances, using straw wattles, installing silt fences, using erosion control blankets, and covering all exposed soil with straw mulch or a trackifier; • The location, implementation schedule, and maintenance schedule of all erosion and sediment control measures, including measures to control dust; • Identification and description of s~~S~~oil	

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	stabilization techniques (such as short-term biodegradable erosion control blankets and hydroseeding) to be utilized; ~~and~~ • A description of the location and methods of storage and disposal of construction materials; • The post-construction inspection of all drainage facilities for accumulated sediment, and the cleaning of these drainage structures of debris and sediment.~~;~~ • The first 3/4 –inch of runoff from the first 1-inch of rainfall must be treated.~~;~~ and • A copy of the City's Best Management Practices sheet included within project plans. The ECP shall limit the areas of disturbance, designate restricted-entry zones, and provide for revegetation or mulching. The Project Applicant shall ensure that the construction contractor is responsible for securing a source of transportation and deposition of excavated materials. The construction contractor employed by the Project Applicant shall retain a copy of the ECP on-site and shall implement the ECP during all earth-moving activities. **MM Hyd-1b: NPDES Permit.** Prior to issuance of a grading or building permit, whichever occurs first, and following the preparation of Project site grading plan, the Applicant shall comply with NPDES General Construction Activities Storm Water Permit Requirements established by the Clean Water Act (CWA), including the preparation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP shall identify specific types and sources of stormwater pollutants, determine the location and nature of potential impacts, and specify appropriate control measures to eliminate any potentially	

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	significant impacts on receiving water quality from stormwater runoff. In addition to complying with the standards established by the CWA for preparation of a SWPPP, the SWPPP shall also comply with the directions for preparing a SWPPP contained in the latest edition of the *Guidelines for Construction Projects,* published by the San Francisco Regional Water Quality Board (RWQCB). Furthermore, in conjunction with the Marin County Stormwater Pollution Prevention Program (MCSTOPPP), and as required by the City's *General Plan 2020* Policy S-21 (RWQCB Requirements), the Project Applicant shall consult with City staff and implement recommended measures that would reduce pollutants in stormwater discharges from the site to the maximum extent practicable. **MM Hyd-1c: Storm Water Pollution Prevention Plan (SWPPP).** Prior to issuance of a grading or building permit, whichever occurs first, and following the preparation of the Project site grading plan, the Project Applicant shall submit to the City Engineer for review a draft copy of the Notice of Intent (NOI) and SWPPP. After approval by the City, the NOI and SWPPP shall be sent to the State Water Resources Control Board. (The SWPPP follows the preparation of the Project site grading plan because Best Management Practices (BMPs) for erosion control are selected to meet the specific site requirements.) **MM Hyd-1d: Storm Water Management Plan (SWMP).** Consistent with the requirements of the City of San Rafael NPDES Permit, prior to issuance of a grading or building permit, whichever comes first, the Project engineer shall prepare a post-construction Storm Water Management Plan (SWMP) and incorporate into the final site plan features that would clean site waters in accordance to RWQCB and MCSTOPPP	

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	standards before they enter San Rafael Bay, to the maximum extent feasible. Features that could be used to clean site waters include, but are not limited to, bioswales, filters inserted into the site drainage inlets to filter runoff, and landscaped and unimproved areas that would act as bio-swales to allow microorganisms in the soil to clean and filter site waters before release into Gallinas Creek. In addition, prior to preparation of the SWPPP, the Marin/Sonoma Mosquito & Vector Control District shall be consulted to ensure that the measures do not have the potential to promote mosquito breeding. **MM Hyd-1e: Drainage Swales.** Where grassed swales are to be used to filter pollutants from runoff, they shall consist of a dense, uniform growth of fine-stemmed herbaceous plants best suited for filtering pollutants and tolerant to the water, climatological, and soil conditions of the development area. In addition, the swale design shall include, but not be limited, to the following: • Design methods for increasing detention, infiltration, and uptake by wetland-typed plants. • A flow path adequate to provide for efficient pollutant removal in accordance with the standards of the RWQCB and MCSTOPPP. The Project Applicant shall submit a final site plan, design, construction details, and maintenance program for the proposed grassed swale(s) to the City's Engineering Services Manager for review and approval prior to issuance of a grading or building permit, whichever occurs first. **MM Hyd-1f: Maintenance of Paved Areas.** After Project completion, the Project Applicant or successor shall properly maintain parking	

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	lots and other common paved areas, by sweeping or other appropriate means, to prevent the majority of litter from washing into storm drains. Parking lots and paved areas shall be swept once per week. Should the Project Applicant or successor fail to maintain this schedule, the City shall sweep the parking lots and paved areas at the expense of the Project Applicant or successor. This mitigation measure shall also be included in the Owner's Association CC&R's.	
Impact Hyd-2: Flooding as a result of Levee Failure. The Project site is located within a 100-year flood zone. The Project site is protected by nine foot levees on the north, south and east; however, the site itself would be graded to a finished ground elevation of +1.0 feet above mean sea level (MSL). Unless FEMA-established ~~wet~~ flood-proofing standards are implemented to protect the buildings in the event of flooding, this impact is considered ***potentially significant***.	**MM Hyd-2a: Flood-proofing.** ~~Ensure that the office, administrative, café and meeting room uses within the proposed building are built with a minimum elevation of +7.0 MSL. The building shall be wet floodproofed according to the following specifications:~~ • ~~In order to provide for one foot of freeboard elevation above the base 100-year flood elevation of +6.0 NGVD, the portions of the building below +7.0 NGVD shall be flood proofed.~~ • ~~The building materials, where flood proofing is required, must be of the type resistant to flood water.~~ • ~~The construction plans must be signed and stamped by either a registered engineer or architect, certifying that the building and materials are designed to comply with the requirements and guidelines of the flood proofing methods established by FEMA.~~ In order to provide for one foot of freeboard elevation above the base 100-year flood elevation of +6.0 NGVD (+8.67 NAVD), the portions of the building below +7.0 NGVD (+9.67 NAVD) shall be flood proofed according to the following specifications per FEMA *Technical Bulletin 3-93* (see **Appendix I**): • The building must be watertight to the floodproof design elevation of +7 NGVD	Less than significant

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	(9.67 NAVD). Floodproofing to any elevation less than 1 foot above the BFE will have a serious negative impact on the flood insurance rating for the building. Generally a minimum of 1 foot of freeboard is recommended. Additional freeboard is warranted for sites where predicted flood depths may be inaccurate, such as sites within large drainage areas and rapidly urbanizing areas. • The building's walls must be "substantially impermeable to the passage of water." FEMA has adopted the U.S. Army Corps of Engineers (ACOE) definition of substantially impermeable from the ACOE publication "Flood Proofing Regulations." This document states that a substantially impermeable wall "shall not permit the accumulation of more than 4 inches of water depth during a 24-hour period if there were no devices provided for its removal. However, sump pumps shall be required to control this seepage." Flood resistant materials, described in Technical Bulletin 2, "Flood-Resistant Materials Requirements," must be used in all areas where such seepage is likely to occur. • The building's utilities and sanitary facilities, including heating, air conditioning, electrical, water supply, and sanitary sewage services, must be located above the BFE, completely enclosed within the building's watertight walls, or made watertight and capable of resisting damage during flood conditions. • All of the building's structural components must be capable of resisting specific flood-related forces. These are the forces that would be exerted upon the building as a result of floodwaters reaching the BFE (at a minimum) or floodproofing design level.	

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	• The construction plans must be signed and stamped by either a registered engineer or architect, certifying that the building and materials are designed to comply with the requirements and guidelines of the flood proofing methods established by FEMA. **MM Hyd-2b: Finalize Hydrology Report and Grading and Drainage Plans.** A final hydrologic report and final grading and drainage plans shall be prepared by the Applicant and submitted for review and approval by the Building Division and Department of Public Works prior to issuance of permits authorizing grading, construction and installation of on-site improvements. The final construction plans shall be prepared based on the preliminary hydrologic report, grading plan and drainage plans that have been submitted for the project zoning entitlements and which have been reviewed by Building and Public Works for the purpose of identifying their respective requirements that would apply to this project, and confirm that their respective requirements could be satisfied based on the preliminary plans and reports submitted for zoning review. The final plans shall incorporate responses required to address requirements of the Building and Public Works Department; as necessary to assure construction plans and details shall comply with all codes, standards, and requirements currently imposed and enforced by the Building Division and Department of Public Works. This shall include submittal of the following: • Preliminary drainage calculations shall be verified and confirmed by the project Civil Engineer with plans submitted for final construction documents. The final hydrology report shall contain updated pre- and post-construction runoff calculations to support the final	

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	improvement plan details shown on the final construction documents. • Final grading and drainage plans shall be prepared by a registered engineer and the final building pad/finished floor grade shall be verified and certified by a licensed surveyor to assure the required finish grade and building flood proofing elevations are achieved.	
Noise		
Impact N-1: Operation of the proposed recreational facility would have the potential to increase noise levels on the Project site, which could adversely affect nearby residential uses. In addition, operation of the facility would increase traffic on local streets providing access to the site, which also could affect residential uses located adjacent to these streets. This impact is considered ***potentially significant***.	**MM N-1: Evening Noise.** To address the potential that noise from late evening games becomes an annoyance to neighbors to the south due to the potential of a 1 decibel increase over maximum allowable nighttime noise levels, ~~either of~~ the following measures shall be implemented: • ~~Close the outdoor fields at 9 p.m., Sundays through Thursdays, and 10 p.m. on Fridays and Saturdays. Alternatively,~~ During the first full year of operations, the project sponsor shall annually monitor noise levels during a minimum of five nighttime games to determine whether the use of outdoor fields and warm-up areas actually causes the 40 dBA (Ldn) nighttime noise threshold to be exceeded at the closest residential property boundary as a result of the outdoor field use. The City shall be consulted in determining which games are to be monitored. This shall include at least 3 mid-week games and 2 weekend games. A copy of the noise consultant's analysis shall be submitted to the City. If the Noise Ordinance nighttime threshold is exceeded, the outdoor facilities shall close at 9 p.m., Sundays through Thursdays, and 10 p.m. on Fridays and Saturdays. ~~Or~~ • ~~Project sponsor shall revise the site plan to provide sufficient space to accommodate a noise wall along the southern boundary of the parking lot and soccer warm-up areas.~~	Less than significant

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	~~If noise measurements of nighttime games indicate that the ordinance noise limits are exceeded, the project sponsor could build a noise wall instead of closing the outdoor fields at 9 p.m. If a noise wall is constructed, it shall be subject to the following requirements:~~ ~~o Pursuant to General Plan Policy S-4, the wall's location shall be subject to a geotechnical investigation, and the wall's design and construction shall proceed in accordance with the recommendations of the geotechnical investigation, as set forth in the City's Geotechnical Review Matrix.~~ ~~o The design of the sound wall shall be subject to review and approval by the City's Design Review Board.~~ ~~o The sound wall shall be constructed consistent with Part 77 of the Federal Aviation Regulations, *Objects Affecting Navigable Airspace*, specifically, the 7:1 transitional surface that governs Airport Safety Zone 5 Sideline Zone, as analyzed by airport hazards safety specialist.~~	
Impact N-2: Construction activities could disrupt softball practices or games on the closest field, a ***potentially significant*** impact.	**MM N-2: Construction Time Restrictions and Engine Controls.** The Project sponsor shall implement the following engine controls to minimize disturbance at McInnis Park recreational facilities during Project construction: • Construction activities on the site shall be limited to the hours specified in the San Rafael Noise Ordinance. • Construction equipment shall utilize the best available noise control techniques (including mufflers, intake silencers, ducts, engine enclosures and acoustically–attenuating shields or shrouds) in order to	Less than significant

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	minimize construction noise impacts. These controls shall be used as necessary to reduce heavy equipment noise to 72 dBA (Leq) at 100 feet to ensure acceptable noise levels are maintained at the closest (southernmost) softball field. <u>If such equipment noise levels cannot be achieved, the Project sponsor shall coordinate operation of heavy equipment to avoid hours when the closest (southernmost) softball field is being used for practices or games to the maximum extent feasible.</u> • The applicant shall contact the County Parks and Open Space Director and General Manager to obtain game and practice field schedules and schedule work to avoid games and practices on the closest field, to the maximum extent feasible. In addition, the applicant shall contact the program manager for McInnis Park to advise them of the pending construction project in order to help facilitate a schedule that would avoid most game and practice times. • If impact equipment such as jack hammers, pavement breakers, and rock drills is used during construction, hydraulically or electric-powered equipment shall be used to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust shall be used. External jackets on the tools themselves shall also be used, where feasible. • A Noise Disturbance Coordinator shall be designated to respond to any local complaints about construction noise. The disturbance coordinator will determine the	

REVISED TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Potential Environmental Impacts	Recommended Mitigation Measures	Resulting Level of Significance
	cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and shall require that reasonable measures warranted to correct the problem be implemented. The construction schedule and telephone number for the Noise Disturbance Coordinator shall be conspicuously posted at the Project construction site.	
Impact N-3: Pile driving-related noise levels could result in speech interference effects at recreational uses in McInnis Park. Speech interference effects could disrupt soccer or softball practices or games, a ***potentially significant*** impact.	**MM N-3: Pile Driving Noise.** For proposed pile driving, quieter procedures shall be used such as pre–drilling holes to the maximum depth feasible and using more than one pile driver to shorten the total pile driving duration. To minimize disruption of recreational activities on the closest (southernmost) field at McInnis Park, the applicant shall contact the County Parks and Open Space Director and General Manager to obtain game and practice field schedules and schedule work to avoid games and practices on the closest field, to the maximum extent feasible. In addition, the applicant shall contact the program manager for McInnis Park to advise them of the pending construction project in order to help facilitate a schedule that would avoid most game and practice times. The applicant shall also provide the County with contact information for noise complaints.	Less than significant
Transportation and Traffic		
~~**Impact Traf-1: Bridge Access.** The analysis of the existing one-lane bridge determined that when groups of vehicles are entering or exiting at similar times, vehicles will need to wait for opposing traffic, resulting in short-term queuing at the bridge just before and after the dance and gymnastics classes. The traffic analysis determined that queuing would be minimal due to the short length of the bridge; however, without proper mitigation, the potential exists for queues to back onto Smith Ranch Road, the public right of way. This is considered a ***potentially significant*** impact.~~	~~**MM Traf-1: Traffic Management Plan.** If the proposed two-lane bridge deck is not installed as a part of this Project, the Applicant shall prepare and submit to the City for approval a traffic management plan for events held at the facility in order to ensure adequate queuing and pedestrian safety occurs.~~	~~Less than significant~~

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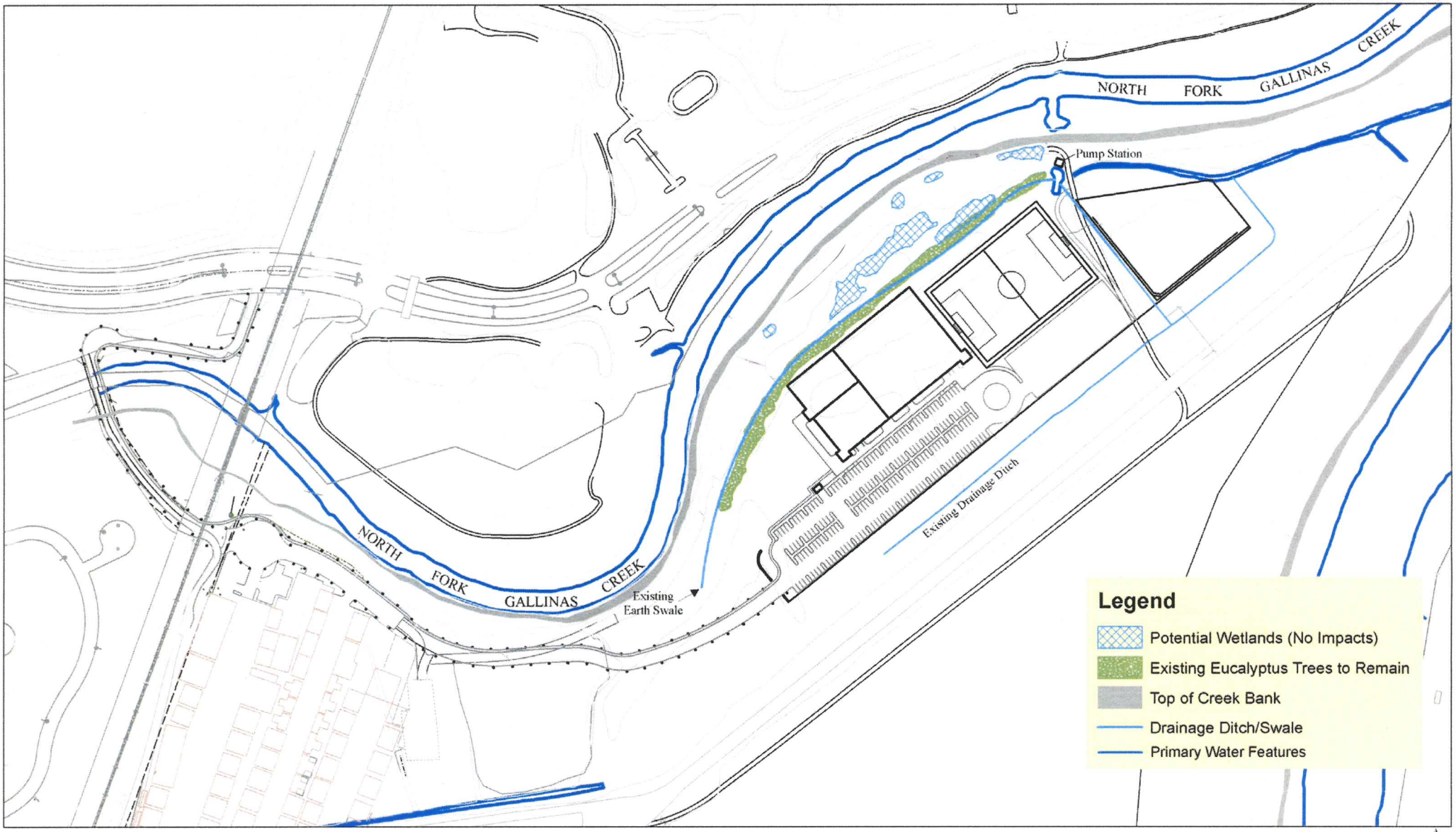
FEIR APPENDIX A

San Rafael Airport Recreation Facility Project Site Plan
San Rafael, CA



Monk & Associates
Environmental Consultants
1136 Saranap Avenue, Suite Q
Walnut Creek, California 94595
(925) 947-4867

Appendix A. San Rafael Airport Recreation Facility Project Site Plan
San Rafael, CA

Map Preparation Date: April 3, 2008

FEIR APPENDIX B

Letter from John C. Hom, John C. Hom & Associates, Inc., to Bob Herbst, February 23, 2010

JCH
JOHN C. HOM & ASSOCIATES, INC.
1618 Second Street
San Rafael, California 94901-2707
Telephone(415)258-9027 Fax(415) 258-9309

February 23, 2010

Job Number 1250.13

San Rafael Airport
Attention: Bob Herbst
2167 Francisco Boulevard, Suite A
San Rafael, California 94901

Dear Mr Herbst:

Report Supplement
San Rafael Airport Recreation Building
Smith Ranch Road
San Rafael, California

This is a report supplement to the geotechnical investigation that we conducted for the proposed San Rafael Airport Recreation Building at Smith Ranch Road in San Rafael, California. We previously conducted a geotechnical investigation and presented our findings in written report dated May 9, 2005 and presented a letter dated February 24, 2006 regarding liquefaction potential. The purpose of this work was to conduct one additional test boring into bedrock in the building area and three test boring in the levee to verify the assumed fill material in our letter of February 24, 2006.

On December 17 and 23, 2009, we explored the subsurface conditions at the site to the extent of two test borings. The locations of the test borings are shown on the Test Boring Location Plan, Plate 1. We drilled the test borings with a truck-mounted drill rig equipped with hollow stem augers. Our Field Geologist was on site to locate the test borings, to observe the drilling, to log the conditions encountered, and to obtain soil samples for visual examination and laboratory testing. The logs of the materials encountered are shown on Plates 2 through 6. The soils are described in accordance with the Unified Soil Classification System, as explained on Plate 7. The bedrock materials are described in accordance with the Geologic Terms for Rock, Plate 8.

Relatively undisturbed samples were obtained by driving a 2.43-inch inside diameter, 3.00-inch outside diameter, split-barrel sampler with a 140-pound hammer falling about 30-inches. The samples were retained in brass lined containers and sealed with plastic caps. The driving resist-ance was recorded for every 6-inches. The resistances were then converted to standard penetration resistance (ASTM-1586), which is shown on the logs of the borings. A shelby tube was used to sample the soft soils.

The deeper test boring verified the depth to bedrock consistent with our previous report. The test borings drilled on the levee verified the fill materials are clayey and have little or no liquefaction potential.

We estimate that the project will require 40 to 50 piles. The piles will be installed by driving with a hammer mounted on a crane. The usual production would be 15 to 20 piles per day. The number of blows would depend on the actual hammer and our analysis of the structural loads and hammer energy. Based on our experience, we expect the driving of the piles would be relatively easy when the

tip of the pile is in Bay Mud. The hammer would not utilize its full energy potential and therefore, less noisy. The weigh of the hammer is usually enough to cause the pile to sink into the Bay Mud. When the tip is in bedrock, the hammer would be driving the pile with its full energy potential. Since we expect the piles will be one to five feet into bedrock, this driving period would be about five minutes or less.

We trust this provides the information you require at this time. If you have any questions, please call.

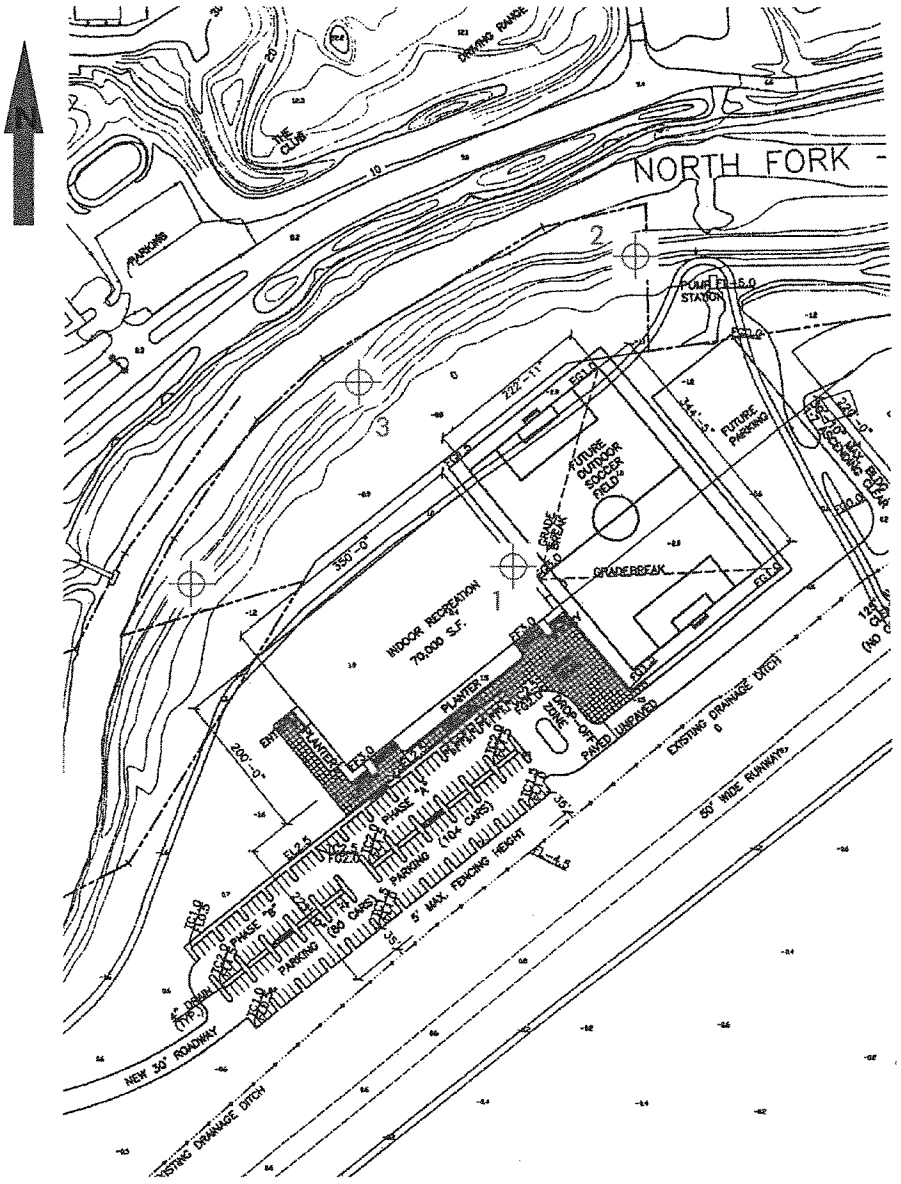
Yours very truly,

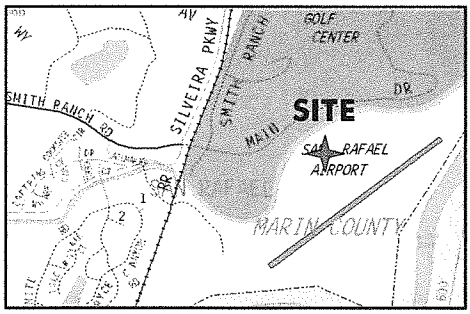
JOHN C HOM & ASSOCIATES, INC

John C Hom
Civil Engineer - 28877
Geotechnical Engineer - 412
Certificates Expire 3/31/11

JCH

three copies submitted





EXPLANATION

Test Boring

Reduced from Base Map

Prepared by Oberkamper and Associates

Dated: 1/31/05

JCH **JOHN C. HOM** & ASSOCIATES, INC. *Geotechnical Consultants*	Job No. : 1250.13 Appr: JCH Date: 1/10	TEST BORING LOCATION PLAN Smith Ranch Airport Fields San Rafael, California	PLATE **1**

Log of Boring 1

Equipment: Truck Mounted Drill Rig

Elevation: 0 Date Drilled: 12/17/09

Laboratory Tests	Drill Rate	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth	Sample	
		*			0		MEDIUM BROWN, ORANGE and GREY SILTY CLAY (CH), wet, medium stiff, (FILL)
		5					
					5		DARK GREY CLAY (CH), saturated, soft, (BAY MUD)
					10		
					15		
					20		
CONSOL					25		
							MOTTLED RED, BROWN and ORANGE GRAVELLY SANDY CLAY (CL), saturated very stiff, (ALLUVIUM)
					30		Water Level as measured at time of backfill (12/17/09-12:30pm)
		17	14.2	117			
							MOTTLED ORANGE and TAN GRAVELLY SANDY CLAY (CL), saturated, very stiff, (ALLUVIUM)
		17	19.4	109	35		
							MOTTLED RED, ORANGE and BROWN GRAVELLY SANDY CLAY (CL), saturated, very stiff, (ALLUVIUM)
					40		

JCH
JOHN C. HOM
& ASSOCIATES, INC.
Geotechnical Consultants

Job No: 1250.13
Appr: JCH
Date: 1/10

LOG OF BORING 1

Smith Ranch Airport Fields
San Rafael, California

PLATE
2

Laboratory Tests	Drill Rate	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth	Sample
		21				
UC = 1868 psf		39				

Log of Boring 1

Equipment: Truck Mounted Drill Rig

Elevation: 0 Date Drilled: 12/17/09

MOTTLED RED, ORANGE and BROWN GRAVELLY SANDY CLAY (CL), saturated, very stiff, (ALLUVIUM)

DARK GREY SHEARED SHALE, moderately hard, friable, highly weathered, (BEDROCK)

Bottom of Boring

*Blows converted to Standard Penetration Resistance.

45
50
55
60
65
70
75
80

JCH
JOHN C. HOM
& ASSOCIATES, INC.
Geotechnical Consultants

Job No: 1250.13
Appr: JCH
Date: 1/10

LOG OF BORING 1

Smith Ranch Airport Fields
San Rafael, California

PLATE
3

Log of Boring 2

Equipment: Track Mounted Drill Rig

Elevation: 0 Date Drilled: 12/23/09

Laboratory Tests	Drill Rate	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth	Sample	
					0		LIGHT ORANGE and GREY-BROWN SILTY CLAY (CH), moist, medium stiff, (FILL)
		7	29.3	64	2		
					4		
					6		
		8	37.6	61			DARK GREY CLAY (CH), wet, medium stiff, (FILL)
					8		
							DARK GREY CLAY (CH), saturated, soft, (BAY MUD)
					10		
		3	101.2	43			
					12		
					14		
		2	94.1	44			
							Bottom of Boring
							No measurable groundwater at time of backfill
					16		

JCH
JOHN C. HOM
& ASSOCIATES, INC.
Geotechnical Consultants

Job No: 1250.13
Appr: JCH
Date: 1/10

LOG OF BORING 2

Smith Ranch Airport Fields
San Rafael, California

PLATE
4

Log of Boring 3

Equipment: Track Mounted Drill Rig

Elevation: 0 Date Drilled: 12/23/09

Laboratory Tests	Drill Rate	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth	Sample
			31.1		0	
					2	
-#200 Wash = 91.9%		10	30.7	55	4	
					6	
		2	93.2	44	8	
					10	
		1	109.9	40	12	
					14	
					16	

LIGHT GREY-BROWN SILTY CLAY (CH), moist, stiff, (FILL)

DARK GREY CLAY (CH), saturated, soft, (BAY MUD)

Bottom of Boring

No groundwater encountered at time of backfill

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LOG OF BORING 3

Smith Ranch Airport Fields
San Rafael, California

PLATE

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Log of Boring 4

Equipment: Track Mounted Drill Rig

Elevation: 0 Date Drilled: 12/23/09

Laboratory Tests	Drill Rate	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth	Sample	
					0		LIGHT ORANGE-BROWN and GREY SILTY CLAY (CH), moist, medium stiff, (FILL)
		5	22.3	56	2		
					4		
		21	46.5	70	6		
					8		DARK GREY CLAY (CH), saturated, soft, (BAY MUD)
		2	103.2	42	10		
					12		Bottom of Boring No groundwater at time of backfill
					14		
					16		

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LOG OF BORING 4

Smith Ranch Airport Fields
San Rafael, California

PLATE
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MAJOR DIVISIONS				TYPICAL NAMES
COARSE GRAINED SOILS (MORE THAN HALF IS LARGER THAN #200 SIEVE)	GRAVELS (MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE)	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES
			GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, POORLY GRADED GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES
	SANDS (MORE THAN HALF COARSE FRACTION I S SMALLER THAN NO. 4 SIEVE SIZE)	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS
			SP	POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES
			SC	CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES
FINE GRAINED SOILS (MORE THAN HALF IS SMALLER THAN #200 SIEVE)	SILTS AND CLAYS (LIQUID LIMIT LESS THAN 50)		ML	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (LIQUID LIMIT GREATER THAN 50)		MH	INORGANIC SILTS, FINE SANDY OR SILTY SOILS, PLASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS

UNIFIED SOIL CLASSIFICATION SYSTEM

			Shear Strength, psf / Confining Pressure, psf	
Consol	Consolidation	Tx	320 (2600)	Unconsolidated Undrained Triaxial
LL	Liquid Limit (in %)	TxCU	320 (2600)	Consolidated Undrained Triaxial
PL	Plastic Limit (in %)	DS	2750 (2000)	Consolidated Drained Direct Shear
PI	Plastic Index (in %)	FVS	470	Field Vane Shear
Gs	Specific Gravity	UC	2000	Unconfined Compression
SA	Sieve Analysis	LVS	700	Laboratory Vane Shear
■	Undisturbed Sample	SS	Shrink Swell	
◧	Auger Sample	EXP	Expansion	
◪	Standard Penetration Sample	P	Permeability	
⊠	Excavation Sample			
□	Sample Attempt No Recovery			

Note: All strength tests on 2.8" or 2.4" diameter samples unless otherwise indicated.

KEY TO TEST DATA

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SOIL CLASSIFICATION CHART
AND KEY TO TEST DATA

Smith Ranch Airport Fields
San Rafael, California

PLATE

ROCK TYPES

 CONGLOMERATE

 SHALE

 METAMORPHIC ROCKS

 SANDSTONE

 SHEARED SHALE MELANGE

 IGNEOUS ROCKS

 CHERT

 SERPENTINE

 GREENSTONE

 SANDSTONE & SHALE

BEDDING THICKNESS

Massive - Greater than 6-feet
Thickly Bedded - 2- to 6-feet
Medium Bedded - 6- to 24-inches
Thinly Bedded - 2-1/2- to 8-inches
Very Thinly Bedded - 3/4- to 2-1/2-inches
Closely Laminated - 1/4- to 3/4-inches
Very Closely Laminated - less than 1/4-inch

JOINT, FRACTURE, OR SHEAR SPACING

Very Widely Spaced - Greater than 6-feet
Widely Spaced - 2- to 6-feet
Moderately To Widely Spaced - 8- to 24-inches
Closely Spaced - 2-1/2- to 8-inches
Very Closely Spaced - 3/4- to 2-1/2-inches
Extremely Closely Spaced - less than 3/4-inch

HARDNESS

Soft - pliable; can be dug by hand
Slightly Hard - can be gouged deeply or carved with a pocket knife
Moderately Hard - can be readily scratched by a knife blade; scratch leaves heavy trace of dust and is readily visible after the powder has been blown away
Hard - can be scratched with difficulty; scratch produces little powder and is often faintly visible
Very Hard - cannot be scratched with pocket knife; leaves a metallic streak

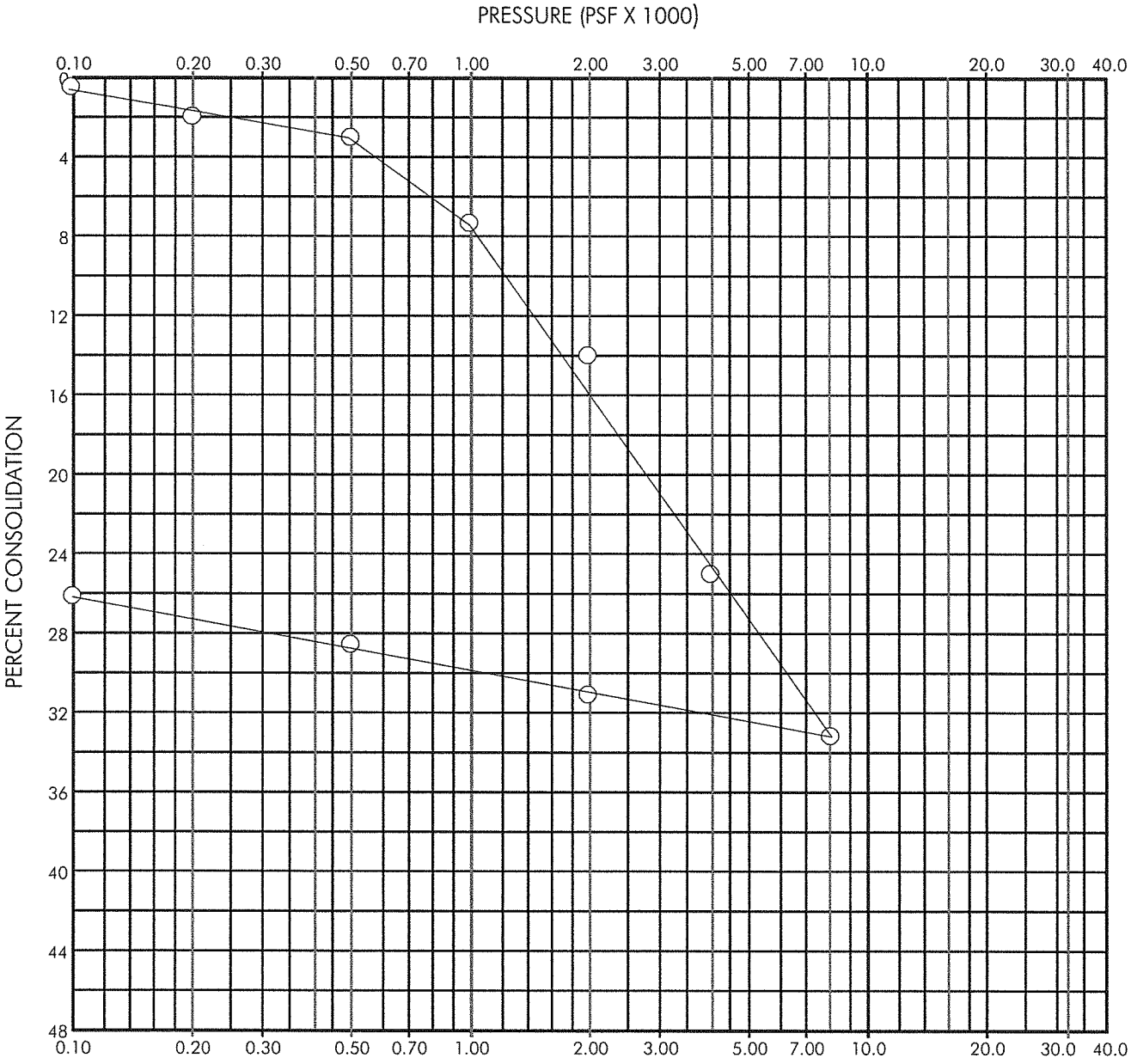
STRENGTH

Plastic - capable of being molded by hand
Friable - crumbles by rubbing with fingers
Weak - an unfractured specimen of such material with crumble under light hammer blows
Moderately Strong - specimen will withstand a few heavy hammer blows before breaking
Strong- specimen will withstand a few heavy ringing hammer blows and usually yields large fragments
Very Strong - rock will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments

DEGREE OF WEATHERING

Highly Weathered - abundant fractures coated with oxides, carbonates, sulphates, mud, etc., through discoloration, rock disintegration, mineral decomposition
Moderately Weathered - some fracture coating, moderate or localized discoloration, little to no effect on cementation, slight mineral decomposition
Slightly Weathered - a few strainedfractures, slight discoloration, little or no effect on cementation,mineral decomposition
Fresh - unaffected by weathering agents, no appreciable change with depth

JCH **JOHN C. HOM** & ASSOCIATES, INC. *Geotechnical Consultants*	Job No.: 1250.13 Appr: JCH Date: 1/10	GEOLOGIC TERMS FOR ROCK Smith Ranch Airport Fields San Rafael, California	PLATE



Type of Specimen Undisturbed			Before Test	After Test
Diameter (in.) 2.43	Height (in.) 0.800	Moisture Content	105.4	67.2
Overburden Pressure, Po	900 psf	Void Ratio	2.826	1.869
Preconsolidation Pressure, Pc	900 psf	Degree Saturation	100%	100%
Compression Index, Cc	0.28	Dry Density	44	33
Liquid Limit	Plastic Limit	Plastic Index	Specific Gravity, Gs 2.7, assumed	
Classification DARK GRAY CLAY (CL)		Source Boring 1 @22.5'		

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Appr: JCH
Date: 1/10

CONSOLIDATION TEST REPORT

Smith Ranch Airport Fields
San Rafael, California

PLATE
9

FEIR APPENDIX C

Greenhouse Gas Emissions Calculation Tables

San Rafael Airport Recreation Facility
GHG Emission Calculations

Land Use	Square Feet (SF) Recreation Facility		Electricity Demand (kWh) per unit	Rec Facility	
Other	87,500	-	22.5	1,968,750	-

Sources:

Energy Information Administration. 2006. http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set10/2003pdf/c14.pdf (Accessed September 2010)

Land Use	Square Feet (SF) Recreation Facility		Natural Gas Demand (converted to kWh) per unit	Rec Facility	
Other	87,500		20.2	1,767,500	-

Sources:

Energy Information Administration. 2006. http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set11/2003pdf/c24.pdf (Accessed September 2010)

Direct Emissions

Recreation Facility	URBEMIS CO2 Output		Conversion Factor		Total CO2 Emissions	
Area Source	128	tons/year	0.907	metric ton/English ton	116	MT/yr
Mobile Source	1,367	tons/year	0.907	metric ton/English ton	1,240	MT/yr

Indirect Emissions

Indirect Emissions from Electricity and Natural Gas Consumption

		CO2 Emissions		CH4 Emissions		N2O Emissions		Total
	MWh/yr	lb/MWh	GWP	lb/MWh	GWP	lb/MWh	GWP	CO2e MT/yr
Rec Facility	3,736	724.12	1	0.03020	23	0.0081	296	1,232

Total Direct and Indirect Long-Term Emissions **2,588 CO2e metric tons per year**

Sources:

California Climate Action Registry. 2009. General Reporting Protocol v 3.1.

AB 32 2020 Goal GHG emissions (metric tons CO2e) per Service Population **4.6**

Source: Bay Area Air Quality Management District. 2010. BAAQMD CEQA Thresholds, 2010 (Accessed September 2010)

GHG Reduction Summary

Construction Phase GHG Emission Reductions	
	MT CO2e
C&D Waste Diversion	23
Anti-Idling	53
Equipment Maintenance	51
Construction Worker Carpool	241
Total	**367**

Annual Project GHG Emission Reductions	
	MT CO2e
Photovoltaics	155
Green Building	184
Lighting Efficiency	12
Synthetic Turf	3
Water Conservation	31
Total	**386**

Construction & Demolition

Emission Reductions (Metric Tons CO2e)	23

C&D Waste Reductions

Proposed Squre Footage	85,700
Average C&D Waste Generated (lb/s.f.)	4.34
Total Waste Generated (Metric Tons)	169
Total Waste Diverted from Landfill (Metric	127

Methodology:

EPA states the weighted average C&D waste generated in nonresidential construction is 4.34 lb/s.f. Assumed 75% diversion rate. Emission were calculated using EPA's WARM Model coefficients.

Source:

EPA *Estimating 2003 Building Related Construction and Demolition Materials Amounts*
CalRecycle *Detailed Characterization of Construction and Demolition Waste*, 2006
USA Today March 2009 article based on U.S. Census Data

C&D Waste Characterization

	% of Waste	Metric Tons	Metric Tons w/ 75% Diversion
Composition Roofing	10.2%	17	4
Remainder Composit	8.3%	14	4
Lg. Asphalt	8.1%	14	3
Dirt & Sand	6.6%	11	3
Other Aggregates	6.4%	11	3
Clean Dimensional Lu	5.9%	10	2
Lg. Concrete w/o Reb	5.2%	9	2
Painted Wood	4.6%	8	2
Clean Gypsum Board	4.5%	8	2
Clean Engineered Wo	4.5%	8	2
Paper	3.2%	5	1
Organic	3.0%	5	1

C&D Waste Characterization Combined

	Metric Ton	Metric Ton	Total CO2e Reduced (Metric Ton
Dimensional Lumber	33	8	15
Concrete & Asphalt	33	8	n/a
Paper	5	1	4
Organic	5	1	3

Green Building

Emissions Reduction

	2020
Emissions Reduction (MT CO2e)	184

Title 24 Energy Reductions

Sector (Energy Type	Reduction from updated 2008 Standards vs. 2005	Tier 1 Reduction (+15% efficiency)	Tier 2 Reduction (+30% efficiency)
Residential NC (electricity)	21.80%	36.80%	51.80%
Residential NC (NG)	9.82%	24.82%	39.82%
NonRes NC (Electricity)	4.90%	19.90%	34.90%
NonRes NC (NG)	9.40%	24.40%	39.40%

Title 24 Applied to Project

2008 Standards

Sector (energy type)	MWh from proposed project	Efficiency above 2008 Standards	Reduced Energy Use (MWh)	2020 reduction attributed to Title 24
NonResidential (electricity)	1,968.75	15.00%	295.31	97.00
NonResidential (natural gas)	1,767.50	15.00%	265.13	87.09
		Total	X	184.09

Methodology
-Assumed proposed project exceeds Title 24 energy efficiency standards by 15 percent with green building practices.

Sources
-California Energy Commission, Impact Analysis: 2008 Update to the California Energy Efficiency Standards for Residential and Nonresidential Buildings, November 2007

Lighting

Emission Reductions

Emission Reductions (Metric Tons CO2e)	12

Operation Reductions

Lighting Type/Location	Total MWh	Total MWh if traditional bulbs were used	Total Electricity Saved (MWh)	Total Emission Reductions (MT CO2e)
Parking Lot	12.20	23.81	11.61	4
Exterior of Proposed Building	14.77	34.89	20.12	7
Bollards	9.29	13.80	4.51	1

Methodology:

-Using project specific information provided by the applicant to calculate energy consumption.
-Assumed lights will be on 4,280 hours annually

Source

-CAPCOA (2010) <http://www.capcoa.org/wp-content/uploads/downloads/2010/09/CAPCOA-Quantification-Report-9-14-Final.pdf> pg. 119

Solar Energy

CO2e Reductions

	2020
Emission Reductions MT CO2e	155

Energy Reductions

	2020
kW PV Installed (cumulative)	259
Average Sun Hours per day	5.00
Annual Electricity generated (kWh)	473,040.00
Annual Electricity generated (MWh)	473.04

Methodology:

-Assumed an average 200 watt photovoltaic panel

Source

-Average Sun Hours per day obtained from the National Renewable Energy Lab. Assumes South-facing tilted system.
http://www.nrel.gov/gis/images/map_pv_us_annual10km_dec2008.jpg

Water Conservation

Emission Reductions

Emission Reductions (Metric Tons CO2e)	31

Operation Reductions

Percentage decrease in annual landscaping water consumption	40%
Total emissions associated with landscaping	81.3

Methodology:

- Assumed a 40% decrease in annual water consumption for the proposed irrigation system.
- Assumed 70% of water consumption per year for the project was for outdoor landscaping

Source

'-Synthetic Turf Council
<http://www.syntheticturfcouncil.org/displaycommon.cfm?an=1&subarticlenbr=228>
-Energy associated with water consumption calculated using URBEMIS 2007

Synthetic Turf

Emission Reductions

Emission Reductions (Metric Tons CO2e	3

Operation Reductions

Decrease in annual water consumption (gallons)	750,000
Embeded energy in water consumption (MWh/Mg/year)	12.7
Energy saved per year (MWh)	10

Assumptions

- Assumed annual water savings of a synthetic turf sports field is 750,000 gallons of water.

Source

-Synthetic Turf Council <http://www.syntheticturfcouncil.org/displaycommon.cfm?an=1&subarticlenbr=228>
-California Energy Commission. 2005. California Energy - Water Relationship Staff Report.

Employee Commute

Emission Reductions (Metric Tons CO2)	241

Emission Reductions

Total commute emissions (MT CO2e)	5,596
% Attributed to SOV (lbs CO2)	4,812
Increase in carpool mode share	5%
Decrease in SOV emissions (lbs CO2)	241

Assumptions

55% of all construction related emissions were attributed to employee commute.
Assumed 14% of construction worker carpool based on 2000 Census data.
Assumed an increase in carpool mode share to 20%

Sources

EPA *Potential for Reducing Greenhouse Gas Emissions in the Construction Sector,* February 2009
2000 US Census Data

Equipment Maintenance

Emission Reduction (Metric Tons CO2e)	51

Methodology

Proper equipment maintenance can reduce construction related CO2 emissions by 0.5%

Source

EPA *Potential for Reducing Greenhouse Gas Emissions in the Construction Sector,* February 2009

Vehicle Idling

Emission Reductions

Emission Reductions (Metric Tons CO2e)	53

Operation Reductions

Decrease in idling time (hours)	5,232
Heavy-Duty Truck population targeted	13
Decrease in diesel consumption (gallons)	5,232
CO2 Emission Reduction (kg/gallon)	53,105

Methodology:

- Total construction operations calculated using Urbemis 9.2.4 -Assume heavy trucks idle for one hour per day
- According to http://www.cobbcountyga.gov/green/downloads/meassure37-reduction.pdf, vehicles consume 1 gallon of diesel fuel for every hour of idling. Assume 0.5 gallons per hour for passenger cars

Construction Operations

Total number of days	654
Total hours	5232
Total Construction Vehicles	13