CALIFORNIA COASTAL COMMISSION
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PROPOSED FINDINGS

ON CONSISTENCY CERTIFICATION

Consistency Certification No.	**CC-058-01**
Staff:	KS-SF
File Date:	6/18/2001
3 Months:	9/18/2001
6 Months:	12/18/2001
Extended to:	4/12/2002
Commission Action:	4/9/2002
Hearing on Findings:	6/10/2002

APPLICANT: **City of Santa Barbara**

PROJECT LOCATION: Santa Barbara Municipal Airport, 500 Fowler Road, City of Santa Barbara, Santa Barbara County. The project is adjacent to Moffett Place to the east, Highway 101 to the north, Los Carneros Road to the west, and UC Santa Barbara and Goleta Beach County Park to the south (Exhibit 1A)

PROJECT DESCRIPTION: Construction of two 1,000 foot runway safety areas, extension of the runway protection zone, taxiway, a 15,000 square foot air cargo facility, service road, a 3-story parking structure, taxiway widening, 75 T-hangers, a phased 22,725 square foot airline terminal expansion, and the demolition of several existing terminal buildings

PREVAILING COMMISSIONERS: Commissioners Desser, Dettloff, Estolano, Hart, Susskind, McClain-Hill, Potter, and Rose.

SUBSTANTIVE FILE DOCUMENTS: See page 64

EXECUTIVE SUMMARY

The City of Santa Barbara has submitted a consistency certification for improvements related to its Aviation Facilities Plan and related runway safety projects for the Santa Barbara Airport. The project consists of the construction of two 1,000 foot long runway safety areas (RSA), a taxiway (2,600 feet), the realignment of an existing runway, a multi-phase expansion of the airline terminal that will increase the size of the terminal by 22,725 square feet by 2010, a 650 space parking structure, air cargo facilities, 75 T-hangers and a service road. A portion of an existing taxiway will be widened (taxiway B) and runway protection zones (RPZ) will be lengthened. The primary issues raised are allowable use for wetland fill, the selection of the least environmentally damaging alternative, adequate mitigation ratios, the channelization of streams to protect public safety and existing development in the floodplain, water quality and sedimentation of Goleta Slough, effects on special status plant and wildlife species or their habitats, and the protection of archaeological resources and sensitive areas from disturbances.

The wetland policy of the Coastal Act (Section 30233(a)) imposes a 3-part test for projects involving wetland fill: (a) the allowable use test; (b) the alternatives test; and (c) the mitigation test. Under the first of these tests the question is whether the project qualifies as an "incidental public service purpose." Because the project will be constructed by a public agency, in order to provide transportation services to the public, the fill qualifies as a public service purpose. The Commission has previously determined that the limited expansion of an existing road or bridge is an incidental public service purpose, when no other alternative exists and the expansion is necessary to maintain existing capacity. The proposed improvements are incidental to the primary transportation facility, a runway. While the location of the runway will be shifted to accommodate the runway safety area, the runway length, width and capacity will not change. The project is consistent with the allowable use test of Section 30233(a)(5), which authorizes the fill of wetlands for incidental public service purposes.

Alternatives analyzed by the City in the Draft EIR/EIS included a culvert and a "No Project" alternative. Neither of these is less environmentally damaging. In addition, during the public hearing, the Commission considered an additional alternative, the Engineered Material Arresting System (EMAS). The FAA and the City maintained that EMAS was not an acceptable substitute for runway safety areas, and the Commission concluded EMAS was not a feasible alternative. Therefore, the project is consistent with the alternatives test of Section 30233(a).

To compensate for the loss of wetlands the City proposes to create and restore seasonal wetlands and open water habitat similar to those affected by the project. Additional mitigation measures to restore tidal circulation to portions of Goleta Slough are included in the commitments made by the City, although this portion of the mitigation would be delayed until the results of a pending bird strike hazard study is completed. The mitigation plan included in the City of Santa Barbara's consistency certification incorporates acceptable mitigation ratio commitments and locations for impacts related to wetlands. The City has further provided an implementation schedule, detailed monitoring methodology, performance measurements, contingency plans, and an annual reporting process that would contain a quantitative analysis of attainment of performance standards.

The City determined that realigning Tecolotito Creek to construct the runway safety area would be less environmentally damaging than box culverting of the creek because it preserves open water habitat. Realigning the creek using a culvert would require the additional culverting of San Pedro Creek, pose potential airfield flooding impacts from culvert blockages and sediment loading, degrade habitat for the Belding's savannah sparrow, and may require placing Fairview Avenue in a tunnel. In addition, the west creek realignment alternative avoids potential significant impacts to the designated critical habitat for Southern California Steelhead Trout, a federally listed endangered species. The Commission agrees that the culvert alternative is not less environmentally damaging, and that the "culvert alternative" would have resulted in long-term habitat modifications that have the potential to create barriers to migration for which there is no feasible mitigation.

As an area of convergence of five major streams, the Santa Barbara Airport has historically been subject to flooding. In 1969 water completely surrounded the main terminal, and in 1995 and 1998 all three runways were flooded closing the airport for several days. Public buildings and structures are threatened with inundation during heavy rains, and the flooding of the runways presents a safety hazard that prevents planes from landing or taking off. The project is consistent with the stream alteration policy (Section 30236) of the Coastal Act, which allows for the alteration of rivers and streams if those alterations or channelizations are necessary to protect existing structures in the floodplain, and where such protection is necessary for public safety.

Continued unmanaged sedimentation could ultimately result in the destruction of salt marsh habitat and cause a significant alteration of the slough's flood carrying capacity. The proposed project would control sediment by enlarging existing basins along Tecolotito and Carneros Creeks during the process of relocating the creeks. In capturing greater amounts of sediment the basins will minimize deposits in tidal wetlands of Goleta Slough that continue to affect tidal circulation and the conversion of wetlands into non-native uplands. Therefore the project is consistent with Sections 30230 and 30231 of the Coastal Act, which protects water quality, through the restoration of these areas and the minimizing of adverse effects of run-off and surface water flow.

The Area of Potential Effect (APE) for cultural resources within the Santa Barbara Airport Aviation Facilities Plan Boundary has been defined by the FAA as the entire airport property boundary, in accordance with 36 CFR Part 800.2. Archaeological surveys and excavation within this area have recorded four prehistoric Native American sites. These areas, including major village sites, are characterized by high artifact densities, house remains, exotic trade goods and cemeteries. Although the realignment of Tecolotito Creek may require ground disturbances within 50 feet of moderate sensitivity zones, the city has developed avoidance and mitigation measures in anticipation of any intrusion into these areas.

The Office of Historic Preservation concurred with these measures, and the City's establishment of "Zones of Archaeological Sensitivity" to protect archaeological sites and sensitive areas from unauthorized excavation and disturbances. Consultation with the California Native American Heritage Commission will take place during construction and a qualified archaeologist will be

present. The project is consistent with Section 30244 of the Coastal Act in that the City will minimize disturbances to known archaeological resources, and implement planned mitigation measures should any subsurface artifacts be encountered.

The project is consistent with the public access and recreation (Sections 30210-30214), view protection (Section 30251), public works (Section 30254), and water quality (Section 30231) policies of the Coastal Act. These findings are contingent on the mitigation and monitoring measures the City of Santa Barbara has committed to.

STAFF SUMMARY AND RECOMMENDATION

I. Project Description.

The City of Santa Barbara has submitted a consistency certification for the construction of two 1,000 foot runway safety areas (RSA), a taxiway (2,600 feet), the realignment of an existing runway, a 49,700 square foot expansion of the airline terminal, a 650 space parking structure, air cargo facilities, 75 T-hangers and a service road. A portion of an existing taxiway will be widened (taxiway B) and runway protection zones (RPZ) will be lengthened. The project will take place in three phases, beginning in 2002 and ending in 2015.

Phase I construction (2001-2004)

1. Runway safety area extensions, relocation of the service road, taxiway extension, lighting, and navigational aid changes;
2. Runway protection zone acquisition;
3. Taxiway M;
4. Access routes and parking lot improvements for the terminal expansion;
5. Air cargo facility (15,000 square feet);
6. Service road;
7. 40 T-hangers

Phase II construction (2005-2009)

1. Completion of the terminal expansion phase 1
2. 20 T-hangers

Phase III construction (2010-2015)

1. Terminal parking structure (pending additional review)
2. 15 T-hangers

Runway Safety Areas

The runway safety areas at both ends of runway 7-25 will be extended to meet current FAA design standards (14 CFR Section 139). The required dimensions for the RSA at the Santa Barbara Airport are 500 feet wide by 1,000 feet long and are based on the current design aircraft (Boeing 737, MD-80 series, Boeing 727, Lockheed P-3, and Boeing 757) that use the runway. The existing RSA at the eastern end of the runway is 215 feet in length. At this section of the runway 800 feet of existing runway will be converted to a RSA, and the western portion of the

runway will be extended and relocated to maintain an overall length of 6,052 feet. The RSA at the western end of the runway is 300 feet in length and a 1,000 foot RSA will be constructed at this location.

Runway Protection Zone
The runway protection zone (RPZ) is a trapezoidal shape that is centered on an extended runway centerline. The RPZ is designed to protect people and property on the ground. It begins 200 feet beyond the landing threshold, and the dimensions of the RPZ are proportional to the type of aircraft that use the runway. Both ends of runway 7 would be shifted 800 feet to the west (Exhibit-3). The completed RPZ (500 feet by 1,250 feet by 2,500 feet) would meet current FAA standards.

Taxiway M
A partial taxiway (taxiway M) will be constructed parallel to and west of runway 15R-33L. The taxiway (2,600 feet long by 35 feet wide) runs in a north to south direction, traverses runway 7-25 and parallels runway 15R-33L to the west. Taxiway M will provide a direct route for aircraft to travel from the parallel runways (15R-33L and 15L-33R) to the north west aircraft ramp. The taxiway will reduce the potential for runway incursions by aircraft crossing runway 7/25 and 15R/33L.

Access Roads
Three new access road connections are planned to serve the new parking structure and lots. The first connection, located 450 feet south of the existing loop road exit, would serve a new surface lot and the planned parking garage. A second connection, 400 feet south of the first connection, will serve the new air cargo building and a smaller parking lot. A third connection will be constructed, 900 feet to the south and opposite the southbound off-ramp from Route 217. This connection will serve long-term parking. The loop road (one-way-40 feet wide) that currently serves the airline terminal would be converted to a median divided one-way system. The loop would contain two roadways divided by a 12-foot median, a 16-foot curbside passenger loading/unloading area adjacent to the terminal, and two 12-foot travel lanes. One of the 12-foot lanes would be designated for taxis, shuttles and buses.

Parking
An additional 596 spaces would be added to the terminal during the first phase of the planned parking improvements. All of the phase one spaces would be at grade. Phase two would add an additional 350 spaces with the construction of a 650 space 3-story parking structure in an area south of the terminal. The new parking structure (240 feet by 325 feet) has not yet been designed, and no visual rendering of the building is included in the EIS/EIR for the Airport Facilities Plan. The City states that it will evaluate the need for the construction of the parking structure after the completion of phase one of the project to further determine if these additional spaces are needed.

Air Cargo Facility
There are currently three air cargo companies operating at the airport, as well as airlines that accept freight shipments. Based on the increased demand for this service, a new 15,000 square foot facility is planned for construction at the south terminal. Independent air cargo facilities will also be located at the site. The new building will decrease the overall square footage currently used by cargo activities and enhance customer service.

T-Hangers and Service Road
There are presently 55 T-hangers available at the airport. T-hangers are used by general aviation aircraft in which the aircraft are parked alternately tail to tail. To meet current demand, and accommodate the projected number of additional general aviation aircraft that will need T-hangers by the year 2015, a total of 185 T-hangers are needed.

An additional 130 hangers would be constructed beginning in 2002. Seventy-five (75) of the above mentioned 130 T-hangers are included in the current AFP and part of this project. An additional fifty-five (55) T-hangers are identified as part of the City's *Airport Industrial/Commercial Specific Plan* (Specific Plan), which was incorporated into the Airport Goleta Slough LCP (LCP Amendment 2-97) in 1998.

A new service road is proposed to allow firefighting/maintenance vehicles to access the northeast quadrant of the airfield to eliminate potential conflicts/crossing situations with the large jet aircraft that are serviced on the Ampersand ramp. The service road will be located just west of the ramp.

Airline Terminal Expansion
The existing 43,500 square foot terminal will be expanded to 58,989 square feet during phase one of the project, with an allowance of an additional 1% increase in size (8,000 square feet) to accommodate potential passenger growth through the year 2010. This represents a 14,865 square foot reduction from the previous 81,865 square foot proposal that had been based on the airport's historical 4% growth rate.

The terminal itself will be raised two feet above the 100 year flood level, electrical, mechanical, and plumbing facilities will be upgraded, a main lobby will be constructed, and safety and administrative offices will be consolidated. These improvements involve the demolition of all but the historic 1942 portion of the terminal. The 1967 and 1976 additions will be removed and the 1942 portion of the terminal will be renovated. Planning and design of the terminal expansion would take place during phase I of the project, although architectural renderings of the design concepts are included in the EIS/EIR.

The four existing ground loading passenger gates will increase to five, and four new passenger loading bridge gates will be constructed at the south concourse which serves regional jets and larger aircraft. The two-story concourse addition will include central power and pre-conditioned air for aircraft parked at those gates. The improvements will increase the square floor area of

passenger holding and ticket counter areas, baggage claim and makeup, rental car facilities, airline offices, food and beverage concessions, retail services, sky cap offices, and employee facilities.

II. Background/Project Purpose & History

The Santa Barbara Airport has been owned and operated by the City of Santa Barbara since 1941. The airport consists of 950 acres, and is the busiest commercial service airport on the California coast between San Jose and Los Angeles. Aviation support facilities and the airport consist of approximately 600 acres, and another 300 acres encompass the Goleta Slough and it's associated wetlands and tidal channels. The airport is included in the FAA's National Plan of Integrated Airport Systems (NPIAS), which defines the role and future development of public-use airports throughout the United States. Santa Barbara Airport is classified as a Commercial Service Primary Airport, which serves short-haul air carrier routes of less than 1,500 miles. The terminal served approximately 793,000 passengers in 1999.

The original passenger terminal, constructed in 1942, is considered to be eligible for listing on the National Register of Historic Places on the basis of both its historical and architectural significance. It is associated with the earliest period of aviation in Santa Barbara (1918-1942), and is an example of the distinctive Santa Barbara Spanish Colonial Revival architectural style. It was remodeled and expanded in 1967, and further expanded in 1976 to its current size of 43,500 square feet. In 1976 the facility served approximately 398,000 passengers. The FAA recently completed a formal review of the Santa Barbara Airport's aviation forecast, and concluded that by the year 2015, an estimated 1,300,000 passengers would use the facility on an annual basis.

Previous Commission Review

In 1997, the Commission granted a Coastal Development Permit to the City (4-97-134) to re-grade 123 acres of the Airport runway infield and taxiway safety areas, including the implementation of a wetland restoration and enhancement program that would create some 25.38 acres of transitional marsh habitat at Goleta Slough. The project was initiated in response to Federal Aviation Administration requirements to maintain airport runway and taxiway safety areas.

In 1998 the Commission approved LCP amendment 2-97. The amendment incorporated the Airport Industrial Area Specific Plan into the City's LCP, and up-dated portions of the Land Use Plan and related implementation ordinances.

Aircraft Operations

Aircraft operations by definition consist of the total number of take-offs and landings at an airport. The City states that in recent years the trend in operations has shifted away from the use of small 19 to 30 passenger commuter jets and turboprops to larger capacity regional jets that seat 60 or more passengers. Historical operations data are divided into four categories consisting of air carriers, air taxi, general aviation and military. Air carriers use aircraft with 60 or more seats, air taxis include commuter aircraft having a maximum passenger-seat configuration of 9

seats or less, and general aviation covers a diverse range of aviation activities except commercial air carriers and commuter airlines.

In 1999 aircraft operations at the Santa Barbara Airport consisted of the following:

8,196	Air carrier
36,647	Air taxi/commuter
122,810	General Aviation
804	Military
168,457	Total Operations

Enplanements
Enplanements are defined as the number of passengers boarding or departing aircraft. Several scenarios used to project annual enplanement growth between one and four percent were prepared by the City and are included in this staff report.

Proposed Terminal Expansion:
The objective of the restoration and expansion of the terminal building is to extend the useful life of the facility, and allow it to function as an efficient, modern airline terminal while preserving its architectural character. The "Santa Barbara Airline Terminal Expansion Program Report" found that many of the terminal's electrical, mechanical and plumbing facilities, some now 50 years old, need to be upgraded. The report cites circulation difficulties in the terminal main lobby, inefficient operations, lack of support facilities, inadequate lobby and baggage claim space, and increased demand for air cargo and general aviation facilities as the primary reasons for the terminal expansion. The expansion of the terminal that took place 24 years ago in 1976 can not realistically meet the current and future passenger demand projected to use the facility by the year 2015.

Existing Terminal Conditions
Calculations done by the Santa Barbara Airport using FAA criteria for determining space needs of the terminal are based on *annual passenger enplanements* combined with *peak hour activity.* Overall demand is derived from historical measured peak hour statistics and flight schedules on the average day of the busiest month of the year. The peak hour activity is then adjusted for each future year by the forecasted rate of growth of passenger enplanements.[1] This methodology is considered the industry standard for determining space needs, according to the FAA *Apron and Terminal Planning Manual.*

The methodology is used in evaluating how much square footage is needed for the terminal and related support spaces, and is detailed in Table 1-1, *Airline Terminal Square Footage by Use* in this staff report. Based on the current level of passenger activity at the Santa Barbara Airport, the existing terminal built to today's FAA and industry standards would need to be approximately 59,000 square feet, based on 430 peak hour passengers. Some of the square

[1] Draft Aviation Facilities Plan, City of Santa Barbara Airport Department (2001)

footage requirements, such as ticketing and baggage makeup areas are derived from FAA and industry standards, while the size of passenger hold rooms and the number of bathrooms are based on local zoning and building codes.

Table 1-1
Airline Terminal Square Footage by Use Comparison
(Based on peak hour enplanements)

	Existing Sq. Footage	*430 peak/hr passengers*	*523 peak/hr passengers*	*636 peak/hr passengers*	*774 peak/hr passengers*	*% change Existing Year 2000*	
	Year 2000	**Year 2000**	**Year 2005**	**Year 2010**	**Year 2015**	**430**	**523**
						Peak/hr	
Departure Holdrooms	3,296	6,450	7,847	9,547	11,600	*95.6*	*138*
Security Checkpoint	0	560	560	560	720		
Secure Toilets	0	800	800	1,000	1,000		
Landside Toilets	715	800	800	1,000	1,000	*11.8*	*11.8*
Baggage Claim	2,500	4,500	5,500	7,000	9,000	*80.0*	*120*
Rental Car Area	3,800	4,800	4,800	6,000	6,000	*26.3*	*26.3*
Number of Ticket Stations	[14]	[15]	[18]	[22]	[26]		
Ticket Counter Area	876	825	990	1,210	1,430	*-5.8*	*13.0*
Ticket Queue	857	2,025	2,430	2,970	3,510	*136*	*183*
Ticket Circulation	961	975	1,170	1,430	1,690	*1.4*	*21.7*
Airline Baggage Make-up	1,196	5,366	6,666	8,366	10,366	*348*	*457*
Airline Offices	2,495	3,000	3,650	4,440	5,400	*20.2*	*46.2*
Airport Administration Offices	300	1,000	1,225	1,500	2,000	*233*	*308*
Food/Beverage Concession	280	500	650	800	1,000	*78.5*	*132*
Retail Concession	0	150	150	150	200		
Concession Storage	0	150	150	200	300		
Sky Cap Office	784	784	784	784	784		
Contractors Breakroom	3,050	0	0	0	0		
Security Office	784	784	784	784	784		
Aircraft Apron Baggage Handling	3,050	0	0	0	0		
Subtotal	**34,891**	**46,085**	**52,972**	**63,957**	**74,500**	**32.0**	**51.8**
13% for Mechanical/Electrical	4,893	5,991	6,886	8,314	9,685		
15% for Circulation	5,516	6,913	7,946	9,594	11,175		
Total Area	**45,300**	**58,989**	**68,025**	**81,865**	**95,360**	**30.2**	**50.1**

[X] is not included in total area
Peak Hour Passenger forecast assumes previous 4% annual growth rate (for comparison purposes)
This analysis is based upon 3 airlines serving the terminal
Airline baggage makeup is exterior covered space
Use of aircraft apron for baggage handling eliminated for new terminal

Changes in Terminal Expansion Forecasts

Since the Commission previously reviewed this project at its January 2002 meeting, in response to Commissioner questions, the City has provided additional information related to the forecasts and growth projections of passengers at the airport. While the *Airport Facilities Plan* currently reflects the long-term projection of 4% annual passenger growth, the City has recognized that the

phasing of the terminal expansion should be re-evaluated and implemented based on a more conservative growth estimate through the period 2010.

In consideration of events that took place on September 11, 2001, which continue to greatly affect the aviation industry, the Airport has revisited the airline terminal expansion component of the *Aviation Facilities Plan* Three issues related to local conditions and the air travel market were of immediate concern. The need for increased levels of security, the reduced level of passenger activity, and the replacement of the United Shuttle Service with United Express raised concerns. After further assessment of these issues and the implications for the airline terminal expansion, the City is proposing a phased plan that is need based, in which previously proposed improvements would occur only as passenger demand increases and the airlines re-establish service in Santa Barbara.

The City prepared the *Aviation Forecasts Summary for the Santa Barbara Airport* (Table 1-3) as part of the *Aviation Facilities Plan* (AFP) to guide commercial aviation activities and development through the year 2015. The plan's summary provides a basis for comparing several levels of growth in enplanements that can then be applied to the relative square footage of the phased terminal improvements. The major projects proposed in the AFP, which are based on these forecasts, will be correlated to the actual levels of passenger use and aircraft operations. These forecasts also consider local population and economic data, as well as regional, state and national aviation trends.

Historic Passenger Activity

Over the 30 year period from 1970 to 2000, the historic passenger increases at the airport have averaged four (4) percent per year.[2] This reflects a long-term average, and "reasonable worst case" assumption (as defined under the California Environmental Quality Act). In May 2001, the FAA completed its review of the Airport's aviation forecast and concluded that a 4% annual passenger growth rate is probably too optimistic for the next fifteen years. The FAA states that a lower annual growth rate of around 3% appears to be more reasonable. This lower growth rate would equate to approximately 650,000 enplanements in 2015, rather than the 750,000 enplanements that would result from a 4% annual growth rate.[3]

Total passenger activity (enplaned passenger activity) described in the City's *Aviation Facilities Plan* shows an average annual increase from 1970 to 2000 of four percent, although extreme fluctuations occurred throughout this period. As a result of the Airline Deregulation Act in 1978 there was some growth in the number of regional airlines serving markets in California and in Santa Barbara. In 1980 there were an estimated 216,407 passengers, growing to 341,427 in 1987, a 57% increase in 7 years. By 1990 this total had dropped to 314,205 and continued to decline for several more years, reaching a low of 264,343 in 1995. For the period 1999 thru 2015 the FAA projects total growth (enplanements) at the Santa Barbara Airport to increase by 2.3% per year, reaching 550,000 in 2015.

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2 Airport and Planning Commission Staff Report, City of Santa Barbara (2001)

3 Airport and Planning Commission Staff Report, City of Santa Barbara (2001)

In commenting on the Santa Barbara Airport's Terminal Area Forecast (TAF) in the *Draft Aviation Facilities Plan*, the FAA noted a sharp rise in enplanements between 1995 and 1998, and that this resulting enplanement spike may be overly influencing the latest forecast revision. Overall enplanements increased in 1996 by 27.4 percent, and in 1997 by 25.7 percent. Enplanements then fell over the next three years (2.0 percent in 1998, 3.9 percent in 1999 and 2.0 percent in 2000). Table 1-2, Enplaned Passenger Activity, 1980 – 2000, provides data relative to the total number of passengers enplaned each year, which were then used to develop these forecasts.

Table 1-2
Santa Barbara Airport Enplaned Passenger Activity 1980-2000

Year	Air Carrier	Commuter	Total Enplaned Passengers	% Change
1980	n.a.	n.a.	216,407	-7.2
1981	n.a.	n.a.	187,279	-13.5
1982	81,618	96,139	177,757	-5.1
1983	102,555	109,604	212,159	19.4
1984	134,441	114,865	249,306	17.5
1985	157,420	104,435	261,855	5.0
1986	207,961	87,516	295,477	12.8
1987	225,451	115,976	341,427	15.6
1988	186,894	125,827	312,721	-8.4
1989	190,244	133,469	323,713	3.5
Year	**Air Carrier**	**Commuter**	**Total Enplaned Passengers**	**% Change**
1990	166,701	147,504	314,205	-2.9
1991	152,391	141,633	294,024	-6.4
1992	161,887	127,129	289,016	-1.7
1993	127,881	134,441	262,322	-9.2
1994	115,298	163,796	279,094	6.3
1995	97,964	166,379	264,343	-5.3
1996	117,898	218,834	336,732	27.4
1997	159,110	264,212	423,322	25.7
1998	164,116	250,774	414,890	-2.0
1999	171,436	227,431	398,867	3.9
2000	188,315	202,654	390,969	-2.0

Phasing of Terminal Improvements

The City states it is currently proposing to construct only the first phase of the Airline Terminal Improvements to meet current demand, combined with a modest 1% allowance of growth through the year 2010. The second phase of the program would depend entirely on the performance of passenger activity levels between the years 1999 and 2008, with a cap not to exceed 4 % through 2015. If passenger activity is flat, there will be no justification for a second phase. However, if passenger activity reaches levels of 1997 and 1998 (annual growth of 25% and 27% respectively) then phase 2 of the planned terminal expansion would be proposed. The size of the terminal area, relative to annual enplanements, would be based on actual growth (between a one and four percent) as shown in table 1-3 below.

Table 1-3
Aviation Forecasts Summary - Santa Barbara Airport

Factor	Base Year 1999	Forecasts		
		2005	2010	2015
Total Annual Enplanements[a]				
Air carrier[b] and commuter[c]				
• 4% annual growth rate used in EIS/EIR)	399,000	500,000	610,000	750,000
• 3% annual growth rate (recommended by FAA)	399,000	477,000	552,000	640,000
For information:				
2% annual growth rate	399,000	424,000	496,000	548,000
1% annual growth rate	399,000	407,000	445,000	468,000

(a) Enplanements x 2 typically equals total passengers.
(b) "Air carrier" = airline engaging in air transportation under a certificate issued by FAA in aircraft with 60+ seats.
(c) "Commuter" or "Air Taxi" means any scheduled operation of at least 5 round trips per week between 2 or more points in aircraft of 60 or fewer seats. Helicopter and air cargo operations are grouped with air taxi/commuter.

Phase 1 Improvements

This revised phase of the Airline Terminal improvement program is scheduled to be completed in 2008, six years after the projected Airport Facility Plan approval and EIS/EIR certification. During this period of design, permitting, and construction, some increase in passengers is expected.[4] Initially, the City had projected expansion of the terminal to 81,865 square feet by the year 2010. The Airport now proposes that the Phase 1 improvements be sized to meet today's level of passenger enplanements (59,000 square feet) plus an additional 8,000 square feet to allow for 1% growth through the year 2010. This represents a 14,865 square foot reduction from the previously planned 81,865 square foot proposal that had been based on the airport's historical 4% growth rate.

Table 1-4
Projected Enplanements and Relative Terminal Size[5]
Santa Barbara Airport

Year	Level of Enplanements	Terminal Area	Growth Rate
1999	400,000	45,000 sq. ft. (existing)	n/a
2010	445,000	67,000 sq. ft.(Phase I)	1%
2015	468,000	72,000 sq. ft.	1%
2015	548,000	78,000 sq. ft.	2%
2015	640,000	87,000 sq. ft.	3%
2015	750,000	95,000 sq. ft.	4%

Phase 2 Improvements

The level of passenger activity, measured by the number of annual enplanements, will determine the need and size of any additional terminal development proposed for phase 2 of the project. The City states that between 2008 and 2010 no construction will occur, and that during this time

4 Airport and Planning Commission Staff Report, City of Santa Barbara (2001)

5 PMSM-MClier Architects (2001)

updated terminal forecasts will be reviewed by both the City and FAA. The evaluation will be compared with historic trends, economic information, operational factors, and market demand.

The FAA has the responsibility to review any such aviation forecasts that are submitted to it in conjunction with airport planning, including airport master plans and environmental studies. These forecasts of aviation activity are included in the FAA's Terminal Area Forecast (TAF), the National Plan of Integrated Airport Systems (NPIAS), and analyzed when federal funding requests are submitted.[6]

FAA

The FAA requires that all airports be operated under the provisions of 14 CFR Part 139 (Certification and Operations), which establishes certification criteria for airports serving scheduled air carrier operations for aircraft with 30 seats or more. The FAA requires that the airport maintain runway safety areas, and defines the runway safety area as: "a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway." The Santa Barbara Airport currently does not provide the requisite safety area overrun for runway 7-25.

The FAA Office of Safety Oversight completed a recent study entitled "Location of Commercial Aircraft Accidents/Incidents Relative to Runways" which analyzed the causes of such accidents. The study determined that improving the existing non-complying runway safety areas to meet minimum FAA design standards is necessary to ensure the overall safety of existing aircraft operations at the Santa Barbara Airport. Regardless of future passenger demand for commercial airline services, the runway safety improvements are required in order to meet current FAA safety standards.

The FAA further stipulates that the safety areas shall be:

1. Cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations;

2. Drained by grading or storm sewers to prevent water accumulation;

3. Capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft;

4. Free of objects, except for objects that need to be located in the safety area because of their function. Objects higher than three inches above grade should be constructed of low impact resident supports of the lowest practicable height with the frangible point no higher than 3 inches above grade. Other objects, such as manholes, should be constructed at grade. In no case should their height exceed 3 inches above grade; and

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6 Forecasting Aviation Activity by Airport, FAA Office of Aviation Policy and Plans, Statistics and Forecast Branch (APO-110) (2001)

5. Safety areas must be compacted to 90 percent of their relative maximum level of compaction.

Bird Strike Hazards
Bird use of wetlands in the area surrounding Goleta Slough is a concern to both the FAA and the City of Santa Barbara, due the hazards birds pose to aircraft. The FAA is generally opposed to increases in wetland acreage in the vicinity of airfields, regardless of the type of wetland and habitat.

The FAA states that wildlife aircraft strikes have resulted in the loss of hundreds of lives world wide, as well as billions of dollars worth of aircraft damage. The FAA Advisory Circular *Hazardous Wildlife Attractants on or Near Airports* recommends siting criteria for separations between wildlife attractants and airport developments projects. The Circular recommends a distance of 5,000 feet for airports serving piston powered aircraft, and 10,000 feet for turbine powered aircraft. Given these considerations, the City had not initially proposed a mitigation plan for this project that included restoring tidal wetlands, although they are currently involved in a long-term project with the Coastal Conservancy to restore tidal circulation in Goleta Slough.

The City's current study (*Tidal Circulation and Bird Strike Study)* on tidal circulation and bird use of the airport property will assess the feasibility of conducting an experiment to provide guidance in determining a long-term wetland restoration strategy for Goleta Slough. The pilot study will examine the effects of tidally influenced bodies of water in Goleta Slough on bird activity and bird strike hazards at the airport, conduct a field study, and evaluate the potential effect on future modifications of the slough.

The City prepared the *Wetlands Mitigation Feasibility Study and Wildlife Hazard Assessment* in 2000, which determined that the existing conditions at the airport actually pose a greater risk of bird strikes, and that the implementation of tidal restoration could reduce the attractiveness of several areas within the slough to birds. The FAA deferred to the U.S. Department of Agriculture to review these findings, which in turn disagreed with the results of the study. However, in consideration that safety at the airport could be improved through some form of tidal restoration, the FAA determined that an additional study was warranted, even though the Department of Agriculture advised against such a study. The current *Tidal Circulation and Bird Strike Study* is the result of this action.

Goleta Slough Tidal Restoration Project
In June 1999 the California Coastal Conservancy accepted $938,000 from the U.S. Fish and Wildlife Service, $200,000 from the County of Santa Barbara, and approved $120,000 of Conservancy funding for the preparation of an enhancement plan for the Goleta Slough Tidal Restoration Project. This project is distinctly separate from the Bird Strike Study, which was requested by the FAA to determine whether tidal restoration would increase bird-strike hazards.

The Goleta Slough Tidal Restoration Project would entail restoration of tidal circulation to approximately 25 acres of degraded salt marsh in the western slough, on UCSB and Department of Fish and Game property, and enhancement of 13 acres of surrounding transitional and upland

habitat. In February 2001 the Coastal Conservancy authorized $150,000 for the current Bird Strike Feasibility Study.

Status Report on The Tidal Circulation and Bird Strike Hazard Study
Since the Commission's January 2002 meeting, when this item was postponed, the City of Santa Barbara has provided the Commission staff with additional information on this ongoing feasibility study (Phase 1), which is scheduled for completion in March 2002. There are two distinct portions of the study. Phase 1 is currently in progress and the results of that portion of the study are nearly completed. Once the results of Phase 1 are prepared, the FAA and its consulting biologists must agree with the findings and recommendations in order for the City to go forward with the second portion of the study, the field experiment.

Phase 1 of the *Tidal Circulation and Bird Strike Hazard Study* consists of:

1. ***Evaluation of existing bird strike hazards***: Bird surveys on the airfield and surrounding areas for an 11 month period, an analysis of bird strike records or incidents at the airport, and identification of bird attractants and hazardous bird behavior near the airfield.

2. ***Bird use of tidal and non-tidal areas:*** Mapping of habitats in Goleta Slough and surveys of birds in tidal and non-tidal areas.

3. ***Analysis of existing tidal and non-tidal areas:*** Development of topographic and GIS mapping, calculation of acreage, characterization of current tidal influence in the slough, and simulation and modeling of tidal inundation areas.

4. ***Project Development and Identification of Candidate Species for Field Experiments:*** Conceptual plans and construction design details will be completed, an analysis of bird strike potential, the extent of tidal inundation, and the development of project related design/controls/monitoring and evaluation will be completed.

5. ***Environmental Documentation:*** This portion of the project includes the preparation of environmental documents, review of findings, and public meetings and coordination with other resource agencies. The second phase of the study, the field experiment, would require a Coastal Development Permit from the Commission, and may require a Section 404 Permit from the Corps of Engineers, a Section 401 Certification from the Regional Water Quality Control Board, and a Streambed Alteration Agreement from the California Department of Fish and Game.

FAA Review of Recommendations
The FAA and its consulting biologists will review the results of Phase 1 of the Tidal Circulation and Bird Strike Hazard Study. The FAA must then decide, based on the results of Phase 1 of the study, whether the separation between areas of proposed tidal restoration and aircraft operations is adequate, considering the FAA's existing siting criteria and previous opposition to increasing wetland acreage in the vicinity of airfields.

Commitments by the City of Santa Barbara
Under the assumption that the FAA accepts and approves the City's recommendations to proceed, the City of Santa Barbara has agreed to the following additional commitments for the airfield safety project. These commitments are incorporated into the City's Consistency Certification, and would also be part of any Coastal Development Permit application.

Prior to submitting the Phase 1 results to the FAA, the City will submit the results to the Commission for its comments and recommendations. These comments and recommendations will be included in the City's submittal to the FAA.

1. The City will attempt to pursue a Memorandum of Understanding with the FAA to ensure that the terms, conditions, and findings under which the field experiment (Phase 1) is conducted will result in a clear conclusion to either conduct tidal restoration or not. Prior to signing any MOU, the City will work with Commission staff on the language of any draft MOU, and if the Commission so desires, it will be added as a signatory to the MOU.

2. Upon the completion of Phase 2 of the study, approximately three years from its start date (estimated to be 2005) the City will recommend to the FAA that a tidal restoration project (partially funded by the Coastal Conservancy) be authorized if such restoration does not increase the risk of bird strikes. Again, prior to submitting the Phase 2 results to the FAA the City will submit the results of the second phase of the study to the Commission for its comments and recommendations. These comments and recommendations will be included in the City's submittal to the FAA.

3. The results of the Tidal Circulation and Bird Strike Hazard Study will be presented to the Commission for review.

4. The City will coordinate with other regulatory resource agencies, including the Commission, to identify one or more tidal restoration sites in Goleta Slough, and pursue potential funding sources for the implementation of the restoration project.

5. Once there is authorization from FAA, and concurrence with the Goleta Slough Management Committee on the focus of the tidal restoration projects, the airport will act as the lead agency to develop a joint implementation of the Tidal Restoration Plan for Goleta Slough with participation from U.C. Santa Barbara, the California Department of Fish and Game, and adjacent property owners.

6. If full agreement is not reached, or if any of these agencies or property owners do not choose to participate, (the exception being if the Commission or the FAA prohibit or deny tidal restoration) the City will continue to implement tidal restoration options to the maximum extent feasible.

7. If tidal restoration is not ultimately approved, the City commits to providing an additional 13.30 acres of wetland mitigation.

Safety

The present runway safety area (RSA) at Runway 7-25 is 320 feet long and 500 feet wide at the west end, and 215 feet long and 500 feet wide at the eastern end. Minimum FAA design standards for C-IV runways require a 500 foot wide by 1,000 foot long RSA. These undersized safety areas have not been enlarged in the past as they were constrained by Tecolotito Creek to the west, and San Pedro Creek and Fairview Avenue to the east.

The FAA considers the types of aircraft that use the runway in assessing runway length requirements. At the Santa Barbara Airport, jets operating in scheduled service are most affected by runway length and are considered the critical aircraft group. Of all the variables considered in aircraft takeoffs (payload/elevation/wind speed/runway gradient/air temperature/obstacles) the payload, or maximum gross take-off weight of the aircraft and air temperature are the most critical. When air is less dense due to higher temperatures the climbing capabilities of aircraft are reduced. When runway length limitations are a factor, cargo may be limited or the number of passengers and their luggage may be reduced.

The proposed Taxiway M will allow aircraft landing on Runways 15R33L and 15L33L to access aircraft facilities on the northwest side of the airfield without crossing the runway several times. Under current taxiway conditions, aircraft landing on these runways must cross up to four active runways to access the northwest aircraft ramp area, and this greatly increases the probability of runway incursions, or unauthorized runway crossings.

In the year 2000, the Santa Barbara Airport had the third highest rate of incursions in California and the tenth highest in the nation, according to FAA data from 450 towered airports nationwide and summarized in the FAA Runway Safety Report 2000. Twice in the past four years, there were serious "near collision" incidents involving airplanes either taking off or landing across the path of another aircraft, according to FAA. Of California's nearly 40 towered airports that reported statistics, only LAX, with five near misses on the runway, has had more near collisions over the same period. The Santa Barbara Airport ranks ahead of such major airports such as SFO, as well as airports in Oakland and Seattle.

Goleta Slough

The City of Santa Barbara Airport and Goleta Slough Local Coastal Program (LCP) (1982) describes Goleta Slough as an area of approximately 400 acres, of which 189 acres are classified as tidal marsh subject to tidal inundation through natural channels or culverts. Goleta Slough is designated "Recreational Open Space" in the LCP. The Goleta Slough Reserve Zone, which coincides with the Goleta Slough Ecological Reserve, is located 50 feet from the westerly end of Runway 7-25. The wetland communities within the slough include open water, coastal salt marsh, salt flats, seasonal wetland meadows, riparian woodland, shrub-scrub thicket and transitional wetlands. Upland areas include 25 acres south of the main slough channel adjacent to the University of California Santa Barbara (UCSB) campus.

Goleta Slough once occupied an area of over 1,200 acres. The natural harbor extended north of Hollister Avenue and east of the airport property for several miles, until sedimentation from upstream slopes filled most of the harbor with silt and a shallow lagoon was formed. The slough

provides habitat to support a large resident bird population and serves as a resting and feeding site for migrating birds using the Pacific Coast flyway. In the 1940's, salmon runs throughout the slough and its feeder creeks were a common occurrence, and the slough has supported a recreational fishery for flounder.

Several current and former rare or endangered species have been identified in the slough including the Light-footed clapper rail, California least tern, American peregrine falcon, California brown pelican, Belding's savannah sparrow, California Red-legged frog, Tidewater goby and Southern California steelhead trout. Portions of Tecolotito Creek that flow into the Goleta Slough ecosystem are considered Essential Fish Habitat (EFS) for the rex sole and starry flounder, which spend part of their life cycle in the tidally influenced portions of the creek.

Goleta Slough Management Committee
The Goleta Slough Management Committee includes federal, state and local agency staff, public and private property owners, public utilities, and public interest groups and land trusts. The GSMC's role is advisory and offers a forum for the review of the proposed plans and projects that directly or indirectly impact the Goleta Slough Ecosystem. The Committee has also pursued grants and made recommendation relating to wetland restoration and mitigation projects.[7] The committee has worked to develop the Goleta Slough Ecosystem Management Plan (GSEMP). The plan focuses on the protection and maintenance of the natural diversity of species, habitats and ecosystem functions of the slough, and the restoration and enhancement of those resources.

The objective of the GSEMP is to compile all existing plans and data related to the Goleta Slough Ecosystem Management Area, and provide a comprehensive approach to ecosystem management and project mitigation in the slough. The policies are advisory and are designed to complement those policies of regulatory agencies that retain control over the slough.

Consistency with Local and Regional Plans
The City of Santa Barbara states that the proposed project is "potentially consistent" with the Santa Barbara County Airport Land Use Plan (ALUP). The plan establishes spheres of influence around the airport, and prescribes land use policies, building height restrictions, and soundproofing standards. The Santa Barbara Airport Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the Aviation Facilities Plan (AFP) states that the proposed project is potentially consistent with the following plans and policies:

Santa Barbara Airport-Community/Industrial specific Plan (1998)
Draft Goleta Slough Ecosystem Management Plan (1997)
Santa Barbara City General Plan
City of Santa Barbara Local Coastal Plan
Santa Barbara Airport Aviation Facilities Plan
City of Santa Barbara Local Coastal Plan-Airport and Goleta Slough (1982)
Goleta Community Plan

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7 Santa Barbara Airport Draft EIS/EIR for the Aviation Facilities Plan: pp. 3-152 (2001)

Local Coastal Program
The Santa Barbara Airport and Goleta Slough LCP was certified by the Commission on May 20th 1982. In 1998 the Commission approved an LCP Amendment which incorporated the Airport Industrial Area Specific Plan into the City's certified Local Coastal Program. In the LCP, the City describes development that includes the lengthening of runway 7-25 an additional 400 feet, and an extension of runway 7-25's safety area. Other projects described include a taxiway ramp widening parallel to runway 15L-33R, additional aircraft parking and the re-routing of Los Carneros and Tecolotito Creeks as they drain into Goleta Slough. The LCP states that no additional development can take place within Goleta Slough, and the only area open for expansion at the Airport is to the north and east of the slough.

The Santa Barbara Airport Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the Aviation Facilities Plan states: "that to construct the airfield safety area projects, realign Tecolotito Creek, and expand the airline terminal, it will be necessary to amend the Local Coastal Program to remove the affected area from the Goleta Slough Ecological Reserve, and rezone the property to Airport Approach and Operations (AAO) and Airport Facilities (AF)". Additional areas south of Hollister Avenue near Carneros Creek which are designated "Major Public and Institution" would also need to be changed to "Goleta Slough Reserve" (GSR) and "Open Space." An LCP amendment is currently being prepared by the City of Santa Barbara for submittal to the Commission.

III. Phased Review

The Federal Aviation Administration (FAA) procedures require Commission concurrence in a consistency certification prior to finalization of an Environmental Impact Statement (EIS) and issuance of a record of decision (ROD). Consistency review is also necessitated by the fact that the project requires a permit from the U.S. Army Corps of Engineers. In these situations, the Commission performs its federal consistency review in a "phased" manner. The "phase" of the Commission's review that is before it at the present time is for the limited purpose of assuring that the fundamental concept, goals and objectives of the project are consistent with the applicable California Coastal Management Program (CCMP)/Coastal Act policies. (The standard of review for the subsequent coastal development permit will be the policies of the City of Santa Barbara-Airport and Goleta Slough LCP.) More detailed review at this time is precluded by the fact that final mitigation measures and monitoring plans have not been fully developed.

At this stage in the review process, the information submitted to date does not include final plans or detailed mitigation and monitoring plans. The City has not made final design decisions, and several project elements have not been finalized, including: (1) final detailed habitat configurations; and (2) the biological, water quality, and other monitoring plans. Thus, the consistency certification submitted contains only a conceptual plan and conceptual mitigation measures. To the extent mitigation measures have been committed to and described, as discussed in the findings below, the Commission is able to make an overall determination as to whether the project is consistent with the applicable Coastal Act policies. Detailed design will

follow and be the subject of a subsequent coastal development permit application submitted by The City of Santa Barbara.

In addition, any changes to the project design or mitigation commitments raising Coastal Act policy concerns not previously identified could independently trigger additional federal consistency review under the provisions of Section 930.66(b) and/or Section 930.100(b) of the federal consistency regulations (15 CFR Part 930), which provide for re-review based on "changed circumstances" of federally permitted and federally funded activities in which the Commission has previously concurred (i.e., based on a determination that the project is having coastal zone effects that are substantially different than originally proposed and, as a result, the project is no longer consistent with the applicable coastal management program policies).

IV. Status of Local Coastal Program

The standard of review for federal consistency certifications is the policies of Chapter 3 of the Coastal Act, and not the Local Coastal Program (LCP) of the affected area. If an LCP that the Commission has certified and incorporated into the California Coastal Management Program (CCMP) provides development standards that are applicable to the project site, the LCP can provide guidance in applying Chapter 3 policies in light of local circumstances. If the Commission has not incorporated the LCP into the CCMP, it cannot guide the Commission's decision, but it can provide background information. The City of Santa Barbara's Goleta Slough/Airport LCP has been certified by the Commission and incorporated into the CCMP.

V. Applicant's Consistency Certification

The City of Santa Barbara has certified that the project is consistent with the California Coastal Management Program.

VI. Commission Decision

On April 9, 2002, the Commission passed a motion to concur with the City's Consistency Certification CC-058-01 and in doing so adopted the following resolution:

Concurrence

The Commission hereby **concurs** with consistency certification CC-058-01 that the project described therein is consistent with the enforceable policies of the California Coastal Management Program.

VII. Staff Recommendation

The staff recommends that the Commission pass the following motion in support of its action:

MOTION: I move that the Commission **adopt** the following findings in support of its concurrence in the City's consistency certification CC-058-01.

The staff recommends a **YES** vote on this motion. Pursuant to Section 30315.1 of the Coastal Act, adoption of findings requires a majority vote of the members of the prevailing side present at the April 9, 2002, hearing, with at least three of the prevailing members voting. Only those Commissioners on the prevailing side of the Commission's action on the consistency certification are eligible to vote. A majority vote by the prevailing Commissioners listed on page 1 of this report will result in adoption of the findings set forth in sections I-III and VIII of this document.

VIII. Findings and Declarations

The Commission finds and declares as follows:

A. Wetlands and Environmentally Sensitive Habitat.

1. Coastal Act Policies. The Coastal Act provides that:

30233(a): The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

(l) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.

(2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels ....

(3) In wetland areas only, entrance channels for new or expanded boating facilities ....

(4) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.

(5) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

(6) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

(7) Restoration purposes.

(8) Nature study, aquaculture, or similar resource dependent activities.

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary...

30240. (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

(a.) Wetland Impacts

Wetland impacts from the project would occur in ten separate locations of the Santa Barbara Airport property (see Exhibits 11- 15). The information below provides a description of the biological and physical attributes of Goleta Slough and its upstream creeks and channels, permanent and temporary wetland and habitat impacts, the Airport's *Tidal Circulation and Bird Strike Study*, and input from other regulatory agencies.

Goleta Slough

Goleta Slough is an estuary which is dominated by marine influences and supports an extensive salt marsh. Seven creeks (Tecolotito, Carneros, San Pedro, Las Vegas, San Jose, Atascadero and Maria Ignacio) drain southward from the Santa Ynez Mountains, discharging into the slough. The present condition of the slough reflects the interaction of changing sea levels with processes of erosion and deposition at the mouths of these streams over thousands of years. Tidal circulation extends up each of the tributaries with the exception of La Vegas and Maria Ygnacio Creeks. The Goleta Slough ecosystem encompasses diverse wetland and habitat types. It supports species which are both resident and migrant that are regionally rare in coastal California, or locally rare in Santa Barbara County.

An estimated 279 bird species have been reported within the Slough, and of these, 121 species are water associated, and 158 species occur primarily in upland areas. The salt marsh vegetation and mudflats offer roosting and nesting areas and foraging habitat for several avian species. Sora and Virginia rail, several species of herons, and the state listed endangered Belding's savannah sparrow all feed in the dense pickleweed (*Salicornia virginica*) vegetation. Open mudflats provide roosting and resting areas for shorebirds and other migratory species.

Vegetation and habitat types in the slough include extensive wetland and upland areas. Wetlands include: estuarine, riverine, palustrine, intertidal estuarine and low intertidal mudflats. Upland vegetation classified as ruderal has colonized most of the upper surfaces of the artificial dikes and berms that line the slough's basins and creek channels. Scrub vegetation is scattered over many parts of the area. Coastal bluff scrub is common at the project area, and Coastal sage scrub vegetation occurs along the southern margin of Goleta Slough.

Within the airport property and elsewhere in the Goleta Slough Ecosystem, the extent of estuarine wetlands has been reduced by diking and filling. What remains is primarily in the tidal floodplain of lower Tecolotito Creek, south of the airfield. Most of this area experiences limited tidal circulation because of inadequacies in the system of channels and culverts that connect the creek to the surrounding marsh. In the lower portions of Goleta Slough the mouth of the slough is tidally influenced and large mudflats are exposed at the lowest tides.

A sand bar develops across the mouth as winter runoff declines, which is periodically breached by the flood control district to allow tidal flushing. Vegetation in the lower part of the slough is dominated by pickleweed (*Salicornia virginica)*; with dodder (*Cuscuta salina)*, alkali heath (*Frankenia salina*) and fleshy jaumea. Subtidal and intertidal mudflats are frequently vegetated with algae. Shrub/scrub wetlands and upland scrub habitats contain big saltbush (*Atriplex lentiformis* ssp. *lentiformis*), coyote bush (*Bacharis pilularis*), and woolly sea-blite (*Suaeda taxifolia*). The stream and slough channels have little to no vegetation, and prairie bulrush (*Scripus maritimus*) occurs in patches along the channel margins.

Tecolotito Creek

Tecolotito Creek is the second largest creek on the airport property. It enters the airport through a concrete culvert under Hollister Avenue, and has a 100 year storm discharge of 4,600 cubic feet per second. The creek traverses Goleta Slough through man-made channels for the first two thirds of its length, and then through a natural channel. It leaves the airport at the bike path footbridge at the end of Moffet Place, continues under Ward Memorial Drive, and then joins San Pedro, San Jose and Atascadero creeks before discharging to the ocean at Goleta Slough. The width of the creek ranges from 75-150 feet, with a depth of 10 to 20 feet.

Since the 1970's, beginning with construction of the airport, Tecolotito Creek has been excavated and channelized to convey floodwaters around the airfield. Most of this activity has taken place from Hollister Avenue, to approximately one mile upstream from the creek's confluence with Atascadero, San Jose, and San Pedro Creeks near the mouth of Goleta Slough. The effects of the constricted channel, and the relatively broad, level area of adjacent tidal marsh make this area extremely vulnerable to sedimentation during winter flooding. Flood waters laden with sediment may spill over creek banks at the point of constriction, resulting in natural berm formation along the creek, and an elevation of the surrounding marsh plain.

The elevated creek banks and marsh plain tend to impound floodwaters and cause further sedimentation in lower areas. The process has raised elevations enough to eliminate tidal circulation from several locations, and the vegetation in the area is undergoing a transition from tidal marsh to transitional brackish wetland and upland habitat. The area downstream of Hollister Avenue has been excavated and desilted with a dragline to form a sedimentation basin. Streamflow at this location is intermittent in the summer months.

Vegetation on the upper portions of the banks near the sedimentation basin are weedy with tree tobacco, thistle, mustard, castor bean, jimsonweed (*Datura* sp.), coyote brush (*Baccharis pilularis* (ssp. consanguinea), poison hemlock (*Conium maculatum*), escape sage (*Salvia* sp.) and rice grass (*Oryzopsis miliacea*) being the common species. The lower portions of the bank

adjacent to the channel support patches of pickleweed, saltgrass, and river bulrush. A sand bar at the upper end of the basin is covered with willow shoots, cocklebur, curly dock (*Rumex salicifolius* var. *transitorius*), and cattail.

Areas of the streambed contain cattail/broad leafed cattail, a variety of bullrush, willow dock, willow weed (*Polygonum lapithifolium*), iris-leaved rush (*Juncus xiphioides*), creeping bentgrass (*Agrostis stolonifera*), watercress (*Rorippa nasturtium aquaticum*), water speedwell, canary grass and beard grass (*Phalaris paradoxa*). South of Hollister Avenue the slopes of the channel banks are covered with thick upland vegetation that offers cover and nesting habitat for mammal, bird, reptile, and amphibian species.

Carneros Creek
The creek enters the airport property just east of Aero Camino Road at Hollister Avenue. As it crosses Hollister Avenue, it turns west and parallels Hollister Avenue until it intersects with Tecolotito Creek. The Carneros Creek channel is surrounded by heavily disturbed upland habitat providing easy access for animals. A dirt road borders the creek, and a row of willows on the west bank of the channel offers limited cover for wildlife. The stream channel in the sedimentation basin area is primarily sand with gravel and small cobbles in the low flow channel at the north end of the basin. The stream channel in the sedimentation basin area (located on the south side of Hollister Avenue) has been dredged with a dragline to control sediment.

The bank on the east side of the sedimentation basin has been disturbed in the past and is dominated by weedy species such as introduced grasses and hottentot fig. Mugwart is also interspersed along the bank. The west bank is similar, but with several patches of arroyo willow along the edge of the channel. Understory plants in the willow patches include coyote bush, California blackberry (*Rubus ursinus*), sandbar willow, and branching phacelia (*Phacelia ramosissima*). The sand bars within the channel support cocklebur and dock as well as patches of pickleweed and California bullrush.

(b.) Allowable Use Test

The portion of the project related to the construction of the runway improvements entails both temporary and permanent fill in wetlands as defined under the Coastal Act, and therefore triggers the 3-part test under Section 30233(a) for projects involving wetland fill: (a) the allowable use test; (b) the alternatives test; and (c) the mitigation test. Under the first of these tests, a project must qualify as one of the eight stated uses allowed under Section 30233(a). Since the other allowable uses clearly do not apply, the Commission must determine whether the proposed project can be permitted under Section 30233(a)(5), which authorizes fill for: "*Incidental public service purposes, including but not limited to, burying cables, pipes or inspection of piers and maintenance of existing intake and outfall lines.*"

In order to be for an "incidental public service purpose" a proposed fill project must satisfy two tests: 1) the project must have a "public service purpose," and 2) the purpose must be "incidental" within the meaning of that term as it is used in section 30233(a)(5). Because the project will be constructed by a public agency for the purpose of providing transportation

services to the public, the fill is for a public service purpose. Thus, the project satisfies the first test under section 30233(a)(5).

With respect to the second test, in 1981, the Commission adopted the "Statewide Interpretive Guidelines for Wetlands and Other Wet Environmentally Sensitive Habitat Areas" (hereinafter, the "Guidelines"). The guidelines analyze the allowable uses in wetlands under Section 30233 including the provision regarding "incidental public service purposes." The Guidelines state that fill is allowed for:

> Incidental public service purposes which temporarily impact the resources of the area, which include, but are not limited to, burying cables and pipes, inspection of piers, and maintenance of existing intake and outfall lines (roads do not qualify).

A footnote (no. 3) to the above-quoted passage further states:

> When no other alternative exists, and when consistent with the other provision of this section, limited expansion of roadbeds and bridges necessary to maintain existing traffic capacity may be permitted.

The Court of Appeal has recognized the Commission's interpretation in the Guidelines' of the term "incidental public service purposes" as a permissible one. In the case of *Bolsa Chica Land Trust et al., v. The Superior Court of San Diego County* (1999) 71 Cal.App.4th 493, 517, the court found that:

> *... we accept Commission's interpretation of sections 30233 and 30240... In particular we note that under Commission's interpretation, incidental public services are limited to temporary disruptions and do not usually include permanent roadway expansions. Roadway expansions are permitted only when no other alternative exists and the expansion is necessary to maintain existing traffic capacity.*

In past cases the Commission has considered the circumstances under which fill associated with the expansion of an existing "roadbed or bridge" might be allowed under Section 30233(a)(5). In such cases the Commission has determined that, consistent with the analysis in the Guidelines, the expansion of an existing road or bridge may constitute an "incidental public service purpose" when no other alternative exists and the expansion is necessary to maintain existing traffic capacity.

The Commission recently granted to the Cities of Seal Beach and Long Beach a coastal development permit (5-00-321), for the construction of bridge abutments and concrete piles for the Marina Drive Bridge located on the San Gabriel River. The Commission found that the project involved the fill of open coastal waters for an incidental public service purpose because the fill was being undertaken by a public agency in pursuit of its public mission, and because it maintained existing road capacity.

The Commission has also determined in connection with a project (El Rancho Rd. Bridge) proposed by the U.S. Air Force (USAF) that permanent impacts to wetlands are allowable under Section 30233(a)(5) of the Coastal Act as an incidental public service because the USAF was undertaking the fill in the pursuit of a public service mission and because the "permanent fill [was] associated with a bridge replacement project [that] would not result in an increase in traffic capacity of the road." (CD-70-92, and reiterated in CD-106-01).

Thus, based on past interpretations, fill for the expansion of existing roadways and bridges may be considered to be an "incidental public service purpose" if: (1) there is no less damaging feasible alternative; (2) the fill is undertaken by a public agency in pursuit of its public mission; and (3) the expansion is necessary to maintain existing traffic capacity. An important question raised in this case is the applicability of this interpretation to transportation infrastructure other than roads and bridges, such as the construction of a "safety area" at the end of an airport runway.

One such case was a light rail train mass transit proposal in San Diego (CC-64-99), where a bridge support piling was located in a wetland. The Commission determined that the proposal was not an allowable use under Section 30233 because the purpose of the project was not to maintain existing capacity but rather to expand the capacity of the light rail service by extending it to a new area. The Commission's analysis in CC-64-99 supports the proposition that the above identified interpretation of section 30233(a)(5) may be applied to forms of public transportation other than roads. The proposed airfield safety projects and taxiways will increase the size of a safety area of an existing runway and thus are a public transportation project very similar in nature to road or bridge construction projects. The question thus becomes whether the improvements are necessary to maintain the existing capacity of the runway.

It is necessary to construct Taxiway M to operate this airport safely. Under current conditions planes landing on this runway must cross up to four active runways to access the ramp area, and this has greatly increased the probability of runway incursions (contact between aircraft, or near misses) and unauthorized runway crossings. Taxiway "M" (2,600 feet long by 35 feet wide) will provide a direct route for aircraft that land on runway 15R33L and 15L33L to reach the terminal and northwest side of the airfield.

The FAA standards specify a 1,000 foot long by 500 foot wide safety area at either end of runway 7/25 in accordance with FAA Circular 150/5300-13 which defines the runway safety area as...

> *A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway.*

While the location of the primary runway will be shifted to accommodate the larger safety area (RSA) as prescribed by the FAA, the runway length and width (6,052 feet by 150 feet), as well as the functional capacity of the runway, will not change.

Runway Capacity Functional Design
Runway capacity is functionally limited by the design parameters that the FAA uses to classify an airport. Those criteria include pavement strength and width, approach speed categories, the airplane design group (determined by wingspan), and the weight class of the aircraft. The size and location of the Airport Terminal is not a factor in determining runway capacity.
The Santa Barbara Municipal Airport is classified as a category C-IV runway with the following configuration:

Approach Category "C"	approach speed of $\geq$ 121 knots and < 141 knots
Design group IV	wingspan $\geq$ 118 feet and < 171 feet
Weight Class	max certified takeoff weight < 300,000 lbs
Typical Aircraft	Boeing 737, 757, P-3 and MD-80
Runway Safety Area	1,000 feet long by 500 feet wide

For example, a Boeing 727-200 has a maximum takeoff weight of 172,000 to 209,500 pounds and a maximum landing weight of 150,000 to 161,000 pounds. The Boeing 747 (300 combi), a much larger airplane, has a maximum takeoff weight of 775,000 pounds and a maximum landing weight of 605,000 pounds with optional weight limits up to 833,000 pounds. The wing span of the 747 is 195 feet, nearly 25 feet over the design group IV maximum for an airfield such as Santa Barbara.

The FAA rates the pavement strength of airport runways and uses factors such as the useful strength, or weight bearing capacity depending on the landing gear configuration of the aircraft (single, dual, or dual tandem wheels). Runway 7-25 is rated: 100,000 pounds for single wheel, 205,000 pounds for dual wheel and 310,000 pounds for dual tandem wheel landing gear. Although airfield pavement can typically support 25% to 50% more than the published weight values without causing damage to the pavement, frequent use by heavier aircraft results in premature deterioration of the pavement and is not recommended nor approved on a continual basis by the FAA.

Operational Capacity
The operational capacity of the airport, as well as market driven demand for flights, play an important role in characterizing potential capacity of the airport. The FAA defines capacity as:

> *Capacity (throughput capacity) is a measure of the maximum number of aircraft operation which can be accommodated on the airport or airport component in an hour. Since the capacity of an airport component is independent of the capacity of the other airport components, it can be calculated separately.[Exhibit 30]*

Peak Hour Capacity
The FAA defines peak hour capacity as the peak hour activity on the busiest or peak hour of an average day of the peak month of the year. There are several variables used in making the peak hour calculation, but for the sake of simplicity, the hourly capacity of the Santa Barbara Airport runway system is 180 operations during visual conditions (VFR Capacity) and 60 operations per hour using instrument flight rules (IFR Capacity).

Annual Capacity

The annual capacity of the airfield is based on the relationship between the peak hour and annual demand. The FAA refers to this as the *annual service volume* (ASV) to represent a *reasonable* annual capacity. It would be overly simplistic to state that the ASV calculation is dependent on just the two factors previously mentioned. The airport, and the FAA use a regression analysis that actually combines different runway use configurations used over the course of a year, the percentage of use for the various configurations, the hourly capacity for each runway, the runway use configuration that provides the maximum capacity, and weighting factors such as the mix of different aircraft types to calculate capacity.

Historical Aircraft Operations at the Santa Barbara Airport
1984 – 1999

YEAR	Total Operations	% of Capacity	% Change
1984	240,819	50.6	10.3
1985	202,266	42.5	-16.0
1986	186,676	39.3	-2.0
1987	190,641	40.1	2.1
1988	182,523	38.4	-4.2
1989	182,777	38.4	0.1
1990	188,839	39.7	3.3
1991	168,949	35.5	-10.5
1992	167,130	35.1	-1.0
1993	182,676	38.4	9.3
1994	180,062	37.9	-1.4
1995	167,817	35.3	-6.8
1996	165,647	34.8	-1.2
1997	175,164	36.8	5.7
1998	158,922	33.4	-9.2
1999	168,457	35.4	5.9

The service volume capacity estimates for the Santa Barbara Airport indicate that with a current capacity of 475,000 annual operations[8], the airport is well below that threshold with 168,457 annual operations in 1999 (35.4 percent of annual capacity). At this time there is no unmet demand for increased operations (see page 7 for the FAA definition of operations and enplanements). In reviewing historical data for operations at the airport from 1977 through 1999, total operations peaked in 1984 at 240,819, representing 50.6 percent of the airports potential capacity.

Capacity Development

Increased capacity development, beyond the fundamental airport configuration is the improvement of an airport for the primary purpose of reducing delay and/or accommodating more passengers, cargo, aircraft operations or aircraft. New capacity development, within the realm of airport planning is need based, and recommended when conditions specific to runways,

8 Draft Aviation Facilities Plan, pp. 5-11, City of Santa Barbara Airport Department (2001)

taxiways, or holding aprons reach a level of delay relative to annual capacity, operations, or peak hour operations.[9] An example of this is the construction of a new runway. The FAA states that the activity level must reach 60% to 75% of annual capacity before the construction of a new runway is considered. Holding aprons and by-pass taxiways are evaluated based on total and peak hour operations, although in either case, the FAA makes this determination after reviewing annual forecasts and does not recommend development unless these threshold limits are met or exceeded.

Operations and annual capacity are not calculated nor affected by this feature of the airfield, and the construction of the safety area is not capacity increasing. Furthermore, the mathematical relationship between capacity, demand, and delay on a runway, is not affected by a perceived margin of safety (i.e. a dirt unpaved area that allows variations in an aircraft's ascent or decent) because it is never used for aircraft operations. Safety improvements, which are designed to ensure the safe operation of aircraft, have never been a factor in the calculation of capacity, and similarly, the size of a terminal has no effect on the capacity of a runway, as the runway's capacity is measured by the maximum number of aircraft that can be accommodated in an hour.

Conclusion

Based on the previous analysis, the airport is well below historic levels of operational capacity. The Commission has reviewed the FAA's methodology that it uses in forecasting aviation activity and predicting the capacity of existing runways, in consideration of the comments made by both the public and Commissioners at the January 2002 Commission meeting.

The results of this consultation provided the foundation for an understanding that the operational capacity of an airfield is not a simple calculation, but a complex analysis that considers the subtle relationships between capacity, demand and delay. The current operational capacity of the airfield, the FAA's Advisory Circulars related to forecasting aviation activity, and the existing level of use of the airfield relative to its planned capacity are all important factors to be weighed in concluding that this project does not increase capacity. However, in order to find the project "necessary" to maintain capacity, the Commission must determine that "no other alternative exists"; feasible alternatives are analyzed in the following section of this report, which concludes that the proposed project represents the least environmentally damaging feasible alternative available.

The proposed improvements are strictly, not loosely defined, as safety measures to ensure the safe operation of aircraft. In addition, the project will not increase the existing capacity of runway and airport operations, and does not include a permanent roadway or runway expansion. While the location of the primary runway will be shifted to accommodate the runway safety areas prescribed by the FAA, the primary runway length and width (6,052 feet by 150 feet) and the capacity of the runway as designed will not change. The Commission therefore concludes that, as an incidental public service under Section 30233(a)(5), the project constitutes an allowable use for the fill of wetlands.

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9 Field Formulation of the National Plan of Integrate Airport Systems Order 5090.3C, FAA (2000)

(c.) Alternatives

The primary alternatives analyzed by the City of Santa Barbara in the Draft EIR/EIS have been: (1) The West Creek Realignment; (2) The West Creek Culvert; and (3) The No Project Alternative. The difference between the two build alternatives involves how Tecolotito Creek is affected. The preferred alternative (West Creek Realignment Alternative) would realign the creek around the runway safety area. The culvert alternative is designed to place Tecolotito Creek in a closed culvert beneath the runway safety area in lieu of rerouting it.

The City determined that realigning Tecolotito Creek would be less environmentally damaging than the culvert alternative because it preserves the creek as open water habitat. Realigning the creek using a culvert would require the additional culverting of San Pedro Creek, pose potential airfield flooding impacts from culvert blockages and sediment loading, and may require placing Fairview Avenue in a tunnel. Secondary impacts associated with the culvert alternative include the fragmentation of the estuary and adjacent wetland habitats (Belding's savannah sparrow) in the floodplain. The realignment alternative avoids potential significant impacts to the southern California Steelhead Trout designated critical habitat, a federally listed endangered species. The culvert alternative would result in long-term habitat modifications that have the potential to create barriers to migration for which there is no feasible mitigation.

West Creek Realignment Alternative (proposed alternative)

This alternative would combine Tecolotito Creek with Carneros Creek, rerouting Tecolotito Creek 2,000 feet to the west of the new runway safety area. The creek realignment would include an expanded settling basin to trap sediment before it reaches Goleta Slough, and include the filling of **4.62 acres** of Carneros and Tecolotito Creek to allow for the extension of runway 7-25 to the west. Approximately **13.30 acres** of permanent impacts to wetlands would occur under this alternative. The filled portion of the creeks would be covered with pavement or gravel to accommodate construction of the new runway safety areas. Additional permanent impacts include **18.91 acres** of upland habitat consisting of upland grassland and coastal sage scrub communities that function as buffers for wetland habitats. However, pending further review of new information on these impacts to uplands by Commission Staff, permanent impacts could be less than 18.91 acres. The City committed at the hearing to provide this additional information and provide a level of mitigation deemed satisfactory by the Commission staff biologist.

West Creek Culvert Alternative

Under this alternative Tecolotito Creek would remain in its present location and be placed in a box culvert so that the runway can be constructed above it. A concrete box culvert (6-8 feet high by 80 feet wide by 750 feet long) will be constructed on Tecolotito Creek in its current location, at the westerly end of runway 7-25. The culvert would extend upstream and downstream from the 500-foot wide safety overrun area. This alternative would result in **1.38 acres** of permanent impacts to stream channel and bank habitat, eliminate **5.79 acres** of palustrine wetlands in the floodplain bordering Tecolotito Creek and at Runway 15/33, and result in **13.14 acres** of permanent impacts to upland habitats consisting of grassland and coastal sage that function as buffers for wetlands. The culvert alternative will disrupt upstream and downstream habitats during construction because tidal and freshwater stream flow, as well as groundwater would need to be kept out of the construction zone by damming, diversion or pumping. While these impacts

are considered temporary-they are unavoidable and significant. The long-term habitat loss is considered significant because directing the creek through a box culvert would fragment the estuary and create a partial or complete barrier to plant and animal dispersal, causing additional impacts to fish, wildlife, and botanical resources.[10]

No Project Alternative

Under the No-Action alternative, the construction of a regulation runway safety area and the relocation of runway 7-25, and taxiway M would not occur. The increase in passengers through the year 2015 (1.5 million) would still occur, although the required safety standards would not be met. The City states that the no project alternative would entail adverse effects on public access, the marine environment and sensitive species. Air quality and traffic congestion would continue to increase without efficient transportation modes that allow for maximum coastal access, flood hazards and sediment build up would threaten water quality and sensitive habitat, public buildings and structures would be subject to inundation in the event of flooding due to impaired circulation and sedimentation of main channels which drain into Goleta Slough, and estuarine functions and habitat values will continue to diminish as the slough undergoes a transformation from tidal marsh to transitional brackish wetland. The Santa Barbara Airport would not meet FAA standards of Certification and Operations necessary to ensure the safety of the public and aircraft operations, and the risk of damage to airplanes due to non-complying runway safety areas would continue. The following table compares wetland impacts from each alternative.

Alternative Analysis
Permanent Impacts to Wetlands - Open Water Habitat[11]

	(1.) West Creek Realignment Alternative	(2.) West Creek Culvert Alternative	(3.) No-Project Alternative
Creek Bed and Bank Habitat			
Tecolotito Creek	4.11	1.38	0
Carneros Creek	0.51	0	0
Salt Flats			
Carneros Creek Channel	0.34	0	0
Tecolotito Creek Channel	0.32	0	0
Service Rd	0.01	0	0
Wetlands			
Tecolotito Creek (East)	1.01	1.01	0
Tecolotito Creek (West)	6.61	4.39	0
Taxiway M	0.39	0.39	0
Total Sq ft.	**579,334**	**312,318**	**0**
Total Acres	**13.30**	**7.17**	**0**

10 Santa Barbara Airport Draft EIS/EIR for the Aviation Facilities Plan: pp. 3-190 (2001)

11 Santa Barbara Airport Draft EIS/EIR for the Aviation Facilities Plan: Table 3.10-2 "Impacts of Aviation Facilities Alternatives on Wetlands and Open Water Habitats" (2001)

Analysis of Arresting Systems

The City did not fully evaluate a potentially feasible alternative that would be less environmentally damaging to wetlands and environmentally sensitive habitat. The FAA recently approved a technology designed to stop an overrunning aircraft, which has been used on non-standard Safety Areas, where natural obstacles, such as bodies of water or wetlands, make construction of a standard safety area impracticable. The Engineered Material Arresting System (EMAS) consists of energy absorbing blocks of thin concrete that crush under the weight of the aircraft. The EMAS exerts a predictable deceleration force on the landing gear, and at the same time transfers the kinetic energy of the aircraft to the material.

The FAA's Advisory Circular No. 150/5220-22 Engineered Materials Arresting Systems (EMAS) for Aircraft Overruns states that:

> *At some airports, reconstruction of a runway requires its safety area to be brought up to current standards to the extent practicable. Occasionally, however, it may not be practicable to achieve a standard safety area...*
>
> *There are many runways, particularly those constructed prior to the adoption of the safety area standards, where natural obstacles (bodies of water or sharp drop-offs), local development (roads and railroads), or environmental constraints (wetland encroachment), make the construction of a standard safety area impracticable.*

In order to evaluate the applicability of an EMAS at the Santa Barbara Airport the City would be required to submit a design proposal to the FAA as specified in Advisory Circular No. 150/5220-22.

> *The EMAS design shall be submitted to the FAA, Office of Airport Safety and Standards, through the responsible FAA Airports Regional or District Office, for review and approval and shall be certified as meeting all the requirements of this AC. The submittal shall include all design assumptions and data utilized in its development as well as proposed construction procedures and techniques.*

The Commission finds that the City of Santa Barbara has examined feasible alternatives and proposes the least environmentally damaging feasible alternative. Where wetlands in the project area contain environmentally sensitive habitat (the Southern California Steelhead and Belding's savannah sparrow), the City has modified the project to avoid adverse effects to these species. Given complex physiographic and biological features that encompass Goleta Slough, feasible alternatives that would further reduce adverse impacts are either not available or are more environmentally damaging.

The Commission further finds, based on information provided by the FAA and the City of Santa Barbara (Exhibits 33 and 34, and in testimony during the public hearing), that EMAS is not a feasible alternative to the realignment of Tecolotito and Carneros Creeks. The FAA stated that:

(1) EMAS was not an acceptable substitute for meeting FAA Airport Design Standards for runway safety areas;

(2) the FAA did not consider EMAS an equivalent to any length or width of a standard runway safety area;
(3) EMAS does not result in a runway safety area that would be considered to meet the FAA's dimensional requirements;
(4) EMAS does not meet the objective of the safety enhancement project at the Santa Barbara Airport; and
(5) there is concern that EMAS would not enhance safety in the event of an undershoot, where an aircraft would encounter either creek before reaching the EMAS.

Based on these considerations, the FAA therefore concluded that it "...does not consider EMAS to be a viable alternative to constructing a Runway Safety Area that meets Airport Design Standards at Santa Barbara Airport" (Exhibit 34). The Commission agrees, and concludes that the City has implemented design modifications that avoid significant wetland and environmentally sensitive habitat impacts, that the proposed project represents the least environmentally damaging feasible alternative, and that the project is therefore consistent with the alternatives test of Section 30233(a) of the Coastal Act.

(d.) Mitigation

The City has delineated wetlands based on both the Coastal Act and the U.S. Army Corps of Engineers definitions, noting that the Coastal Act definition can be more inclusive than that contained in the Corps' manual. Using Corps manual definitions, the overall project would involve approximately **11.01 acres** of wetland fill. Using the broader Coastal Act definition, The City has determined the overall wetland fill would be **13.30 acres** of permanent wetland fill (which will be mitigated on-site) and **1.77 acres** of temporary wetland fill (which will be restored on-site). Replacement ratios recommended by Commission staff evaluated the habitat value and type affected, and there will be no permanent net loss of wetland habitat as a result of the project. Mitigation ratios for impacts to wetlands will be 4:1, and mitigation ratios for creeks and open channels will be 2:1.

Summary of Temporary and Permanent Wetland Impacts

Location	Habitat	Type	Permanent Impact	Temporary Impact
Service Road RSA (500'x1,000') Runway/Taxiway "B" West	Non-tidal seasonal wetlands dominated by annual grasses and herbs without impounded water. Palustrine persistent emergent wetlands.	Wetland	7.62	1.52
	Non-tidal unvegetated salt flats	Wetland	0.67	
Carneros Creek realignment Tecolotito Creek realignment	Tidal open water and mudflats. Estuarine intertidal aquatic bed an unconsolidated bottom.	Estuary	4.62	0.06
Taxiway "M"	Non-tidal seasonal wetlands dominated by annual grasses and herbs without impounded water. Palustrine persistent emergent wetlands.	Wetland	0.29	0.14
Approach lights/service road	Non-tidal seasonal wet grassland without impounded water. Palustrine persistent emergent wetlands.	Wetland	0.10	0.05
	Total:		**13.30**	**1.77**

Impacts

The preferred alternative would result in **4.62 acres** of permanent impacts to existing stream channel bed and banks. The project could result in some loss of functions and values if tidal action and stream flow through the upper portions of the estuary are disrupted, and if native wetland and contiguous upland buffer vegetation are not reestablished along new stream banks.

Permanent impacts to **8.68 acres** of additional Coastal Act wetlands would occur from the project. These 8.68 acres are included in the 13.30 acres in the table above, although mitigation for these impacts will be at a higher ratio (4:1) than for the 4.62 acres of stream channel impacts.

Impacts to upland habitats would result from the realignment of Tecolotito Creek, Taxiway M, construction of the runway safety area at the western end of runway 7-25, and the abandonment of sections of Carneros and Tecolotito Creek. Permanent and temporary impacts to grassland and coastal sage scrub communities (**18.91 acres**) that function as wetland buffer zones will also occur in the existing graded runway safety area.

Impacts to Wetlands and Sensitive Habitat
West Creek Realignment (Preferred Alternative)

	Wetlands	Uplands	Other Areas
Carneros Creek realignment	0.51	2.04	.54
Tecolotito Creek realignment	4.11	3.73	.72
Service Road	0.99	0.58	0.01
RSA (500'x1,000")	1.50	9.97	0
Runway/Taxiway "B" West	0.58	1.67	0.60
Other RSA-West	1.30	0.92	0.20
Runway/Taxiway East	0.43	0	1.28
New RSA-East	0.58	0	2.58
New approach lights	0.10	0	0
Taxiway "M"	0.29	0	0
Total Sq ft.	**579,334**	**823,719**	**258,310**
Total Acres	**13.30**	**18.91**	**5.93**

Although the City has selected several mitigation sites adjacent to the project, the Federal Aviation Administration (FAA) and the USDA Wildlife Services has recommended deferring a wetland mitigation approach based on increasing tidal circulation in the slough until the Airport's ***Tidal Circulation and Bird Strike Study*** evaluating the relationship between bird strike hazards and the presence of tidal and non-tidal waters near the airfield is completed.

The City's Draft EIS/R further states that the West Creek Realignment Alternative (the City's preferred alternative) includes an increase in the length of Tecolotito Creek and mitigation for wetlands that would be affected by the westward extension of runway 7/25. In order to reduce the potential for bird strikes, the mitigation (new creek channel and seasonal wetland) has been designed to be as far away from the end of runway 7/25 as possible. The wetland mitigation would not result in additional areas of ponded water on the airport property, rather these areas

would be saturated and capable of supporting vegetation species that tolerate saturated conditions.

The Wildlife Service (USDA) reviewed the City's proposal to realign Tecolotito Creek and the proposed mitigation measures and concluded that:

> *The western extension does not seem to increase the wildlife hazards at SBA based upon the information provided to Wildlife Services (WS)...Area I is the furthest distance from runway 7/25 and will not likely increase wildlife hazards to aviation...*

In comments to the City of Santa Barbara related to the bird strike issue, the National Marine Fisheries Service, the Santa Barbara Audubon Society, and the Goleta Slough Management Committee have urged the City to consider tidal restoration to diked basins on the airport property. Although a long-term goal for Goleta Slough is to create a self sustaining and enhanced estuarine system, the uncertainties of bird strike hazards as a consequence of tidal restoration in the slough must be considered. There are conflicting views among FAA, and federal and state wildlife protection agencies, and a lack of data related to the effects of tidally influenced bodies of water in Goleta Slough on bird activity and bird strike hazards. The results of the *Tidal Circulation and Bird Strike Study* will provide information to evaluate the effects of such restoration in attracting different guilds of birds and their potential hazard to aircraft.

To compensate for the permanent loss of wetlands the City proposes to create and restore seasonal wetlands and open water habitat similar to those affected by the project. Mitigation could begin prior to the airfield improvements. Areas temporarily affected will be restored to pre-construction conditions. The City has selected potential mitigation sites that involve the restoration of palustrine transitional wetlands.

Open Water and Mudflats
The relocation of Tecolotito and Carneros Creeks will create **9.3 acres** of channel containing open water and mudflat wetlands. The relocated creeks will have the same width and depth as the existing creek channels, and the banks will be stabilized with native shrubs to prevent erosion. The new creeks will have annual grassland buffers, identical to the current creeks, except the relocated creeks will be farther from the runway.

Wetland Restoration
Wetland restoration on slough berms encompassing **12.7 acres** will include the removal of non-native species such as tree tobacco, Italian thistle, and poison hemlock. These non-native species (and their seed bank in the soil) will be removed from the tops and sides of the berms through a two-year series of "grow-kill" herbicide treatments. The tops of the berms will be treated to facilitate the establishment and long-term persistence of wetland species by increasing soil moisture conditions.

Shallow depressions (one inch in depth) would be graded on the tops of the berms. These depressions would increase percolation by rainfall and reduce runoff to Tecolotito Creek. The objective for the berm soils is to create soil saturation to within 6 inches of the surface for an

average of 14 days or more. In the winter following the last treatment, the berms will be revegetated to create seasonal wet grassland using species such as alkali weed, saltgrass, alkali mallow, creeping rye-grass, meadow barley, western ragweed, alkali heath and saltbrush.

This weed removal and restoration of the berms would remove the single largest source of weed seeds in Goleta Slough and replace this with habitat similar to that being affected by the runway safety area extension. The new habitats will benefit the adjacent tidal marsh habitat by creating native plant cover and food sources for use by wildlife, particularly the federally listed Belding's savannah sparrow which nests in the pickleweed marsh and forages in nearby native grassland and scrub areas.

Wetland Creation and Enhancement in "Area I"
New seasonal wetlands will be created in upland portions of "Area I", a 25 acre site owned by the airport located between the UC Santa Barbara bluffs and Tecolotito Creek. This location is dominated by a complex mixture of annual grassland, coyote brush scrub, poison oak stands, scattered ornamental trees, eucalyptus groves, and weedy patches (pampas grass). The area contains several small isolated wetlands. Much of the site was originally an upland that was lowered to construct the airfields during the 1940's. Portions of the site are highly disturbed by weeds, piles of rubble and secondary soil deposits, and the presence of an abandoned brick incinerator. A large storm drain empties into the site conveying runoff from UC Santa Barbara.

Two existing wetland patches in the middle of Area I will be enhanced by removing non-native plants and planting additional wetland plants such as spikerush, net-sedge, toad rush, bulrush, and pickleweed. Upland habitats will be retained in continuous patches at the site to retain wildlife habitat and movement corridors. Eucalyptus trees, poison oak and an abandoned incinerator will be removed. A total of **9 acres** of new seasonal wetlands will be created and **2.2 acres** of existing seasonal wetlands will be enhanced at the 25 acre site, and it will be protected for habitat purposes. It is situated adjacent to the UC Santa Barbara bluffs where an upland habitat restoration project was completed several years ago that includes an educational trail.

The wetlands would provide some secondary functions such as flood reduction by capturing and detaining more of the runoff from UCSB that empties into Goleta Slough, and the use of the area for research and public education projects that will facilitate new non-consumptive recreational uses.[12]

Area R-2
Adjacent to Tecolotito Creek, and south of runway 7/25, a small man made basin exists which contains non-tidal seasonal wetlands. After Tecolotito Creek is filled and re-routed in this location, the disturbed areas will be graded to match the elevation of Area R-2, which supports non-tidal wet grassland. These newly lowered areas will then be planted with pickleweed, alkali heath, alkali weed, sand spurrey, meadow barley and saltgrass, to create **2.2 acres** of new seasonal wetlands.

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12 Draft Conceptual Wetland Mitigation Plan for the Airfield Safety Projects, URS Corporation (2001)

Enlarged Sediment Basins
Existing sediment basins will be enlarged along Tecolotito and Carneros Creeks during the process of relocating the creeks. The enlarged basins will be designed to capture greater amounts of sediment, minimizing deposits in tidal wetlands of Goleta Slough that have affected tidal circulation and the conversion of wetlands to non-native uplands.

Seasonal Wetland Restoration at Tecolotito Creek Berms
Berms on both sides of Tecolotito Creek in the middle of Goleta Slough direct flood flows to the mouth of the slough, and function to protect the slough from sedimentation that would raise the elevation of the marsh and convert it to a non-tidal area. These earthen berms were constructed from on site material that appears to be sediment from the channel. The restoration in this area (12.7 acres) is described in the beginning of this section.

Tidal Restoration
An additional 13.30 acres of wetland mitigation will be provided in the form of tidal restoration through the implementation of the *Goleta Slough Tidal Restoration Project.* This project would restore tidal circulation to approximately 25 acres of degraded salt marsh, and enhance 13 acres of transitional and upland habitat. In the event this additional mitigation is not feasible, the City of Santa Barbara has committed to providing an additional 13.30 acres of in-kind mitigation for the impacts of the project.

Wetland Mitigation Summary

Mitigation	Location	Wetland Type	Acres
Create new seasonal wetlands	On berms next to Tecolotito Creek and tidal salt marsh	Non-tidal low growing wetland herbs , grasses and shrubs; palustrine persistent emergent wetlands	12.7
Create new seasonal wetlands	Area "I" in uplands and adjacent to tidal marsh	" "	9.0
Create new seasonal wetlands	Area R-2 in uplands and wetland grassland	" "	2.2
Enhance existing seasonal wetland	Area "I" in uplands and wetlands	" "	1.3
Create new tidal open water and mudflats	New Tecolotito and Carneros Creek channels	Estuarine inter-tidal aquatic bed and unconsolidated bottom	9.3
Restore Tidal Circulation	Goleta Slough locations	Previously degraded salt marsh	13.30
		Total	**47.80**

Performance Criteria
The City has included performance standards to measure the success of the proposed wetland mitigation plan that includes target hydrologic objectives, the establishment and maintenance of native wetland plants, target functions an values, and the reduction of non-native weedy species. Also included in this section is a maintenance and monitoring program that will provide for:

- A 2-year plant maintenance period and 5 year monitoring period.

- A provision to include an additional 3 year monitoring period after the end of any active management (such as irrigation, replanting, or substantial weed removal) to ensure that new habitats are self sustaining.
- A provision to extend the 7 year maintenance and monitoring period should the performance goals (target wetland vegetation goals) not be met by year 7.
- The Santa Barbara Airport will manage non-native weeding at the restoration sites in perpetuity.

* *Target Wetland Vegetation Goals at Year 7* included in this staff report identifies performance goals for native plant cover, the establishment of native wetland plant species, and acceptable cover percentages of non-natives for the mitigation areas (see Exhibit 21).

This mitigation plan included in the City of Santa Barbara's consistency certification incorporates acceptable mitigation ratio commitments and locations for impacts related to direct fill of wetlands. The City has further provided an implementation schedule, detailed monitoring methodology, performance measurements, contingency plans, and an annual reporting process which would contain a quantitative analysis of attainment of performance standards. The City has committed to provide additional information and provide a level of mitigation deemed satisfactory by the Commission staff biologist. At this time, the project satisfies the mitigation test of Section 30233(a) of the Coastal Act. Detailed design will follow and be the subject of the subsequent coastal development permit review stage, and if needed, further federal consistency review.

(e) Environmentally Sensitive Habitat

The FAA, as a co-lead agency on this project has consulted with the National Marine Fisheries Service (NMFS) pursuant to the Magnuson-Stevens Fishery Conservation and Management Act, which requires federal agencies to confer with the NMFS when an activity by a federal agency may have adverse impacts on designated "Essential Fish Habitat" (EFH). The EFH regulations define an adverse effect as "any impact which reduces quality and/or quantity of EFH. The occurrence of EFH within the project area is designated by the Pacific Fishery Management Council, and includes Pacific Groundfish, Pacific Salmon and Coastal Pelagic Species. The Groundfish EFH, a tidal portion of Tecolotito Creek within Goleta Slough, is within the EFH. Groundfish that occur in Goleta Slough for part of their life-cycle include the rex sole and starry flounder.

National Marine Fisheries Service Concurrence

The NMFS determined that the potential impacts to Essential Fish Habitat from the project could include construction related turbidity and sedimentation, indirect impacts from hydrologic changes, increased storm water run-off from the paved surfaces on the runway, the permanent loss of 13.3 acres of wetlands, and the temporary disturbance of 1.77 acres of wetlands. The NMFS concurred with FAA's determination that the project will not have permanent adverse effects on EFH, provided its Conservation recommendations are implemented.

EFH Conservation Recommendation Response
Section 305(b)(4)(B) of the Magnuson-Stevens Act requires the City/FAA to provide a detailed written response to the conservation recommendations made by the NMFS, including a description of measures adopted by FAA for avoiding, mitigating, or offsetting the impact of the project on EFH. Should the FAA response be inconsistent with the NMFS recommendations, the FAA must provide justification, including scientific evidence for any disagreements related to the anticipated effects of the project, and measures needed to avoid, minimize or mitigate such effects.

Fish Habitat
Construction impacts could potentially affect steelhead and Essential Fish Habitat in Goleta Slough because the relocation of Tecolotito Creek involves earthwork and a temporary stream diversion. Hydrologic impacts were modeled in November 2000 (URS)[13], to determine the effects of changes to creek elevation, channel geometry, and current and sediment transport. Modeling indicated that the project would not affect the hydraulic conditions or the ability of fish to migrate through the slough. The Biological Assessment for the Southern Steelhead Trout (2001) states that there have been no sightings or historic records of steelhead along Carneros or Tecolotito Creek, although it is possible for steelhead to migrate upstream on Tecolotito Creek in the winter.

In its review of the project (Section 404(b)(1) Evaluation) the Corps of Engineers stated that:

> *Although the realignment of the creek would permanently affect 4.93 acres of habitat (Pacific Groundfish Essential Fish Habitat) for fish and other aquatic organisms in portions of Tecolotito and Carneros Creeks, there would be a net gain of 4.34 acres of habitat for fish (the PGEFH) and other aquatic organisms due to the proposed lengthening and realignment of Tecolotito Creek.. Measures proposed to mitigate these impacts are included in the project (such as revegetation of the creek banks and overbank areas), and over time, habitat for fish and aquatic organisms is expected to improve as natural physical processes take place in the channel and in adjacent wetlands. Epifaunal and infaunal organisms are expected to recolonize the newly excavated channel as tidal action and/or flows from upstream areas bring aquatic species into the new channel.*

Under the alternative to construct a box culvert under the runway safety area (least preferred) the Corps stated:

> *There would be a net loss of 1.38 acres of creek habitat (the PGEFH). The concrete box culvert would eliminate sunlight and the earthen channel bottom and banks that currently support habitat for fish and aquatic organisms. The culvert is also expected to fragment aquatic habitats upstream and downstream from the runway safety area, and it is expected to present a significant barrier to movement of aquatic species.*

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13 Channel Modification Alternatives for the Runway Safety Area Extension Project, Master Drainage Plan, URS (2000)

The City of Santa Barbara's Biological Assessment for the Southern Steelhead Trout, prepared under Section 7 consultation with the NMFS states that:

> *Connecting the new channels to the existing ones will involve temporary stream diversions and cofferdams. The work would be accomplished in the summer when flows are minimal to absent, and during low tides. Under these conditions, steelhead would not be migrating upstream or downstream. The proposed channel relocation will not introduce any new passage impediments or barriers, nor will it exacerbate any existing impediments.*

State and Federal Endangered Species and Sensitive Species/Habitats
Special status plant and wildlife species, and their associated habitats, are legally protected under the Federal Endangered Species Act of 1973 and the California Endangered Species Act of 1984. Under both state and federal legislation, the California Department of Fish and Game, U.S. Fish and Wildlife Service and National Marine Fisheries Service are responsible for the management and protection of special status species. Any project that could potentially affect a special status plant or wildlife species, or its habitat, requires review and/or consultation with the previously mentioned agencies.

Section 7 Consultation
In addition, the FAA has been involved in informal Section 7 consultation with the U.S. Fish and Wildlife Service throughout the study process for the listed species. In accordance with Section 7 of the Endangered Species Act of 1973, the USFWS determined that the project, as proposed, is not likely to adversely affect the Belding's savannah sparrow, or any federally threatened or endangered species.

Plant Species
The City conducted field surveys to determine the presence of plant species of concern at the project site in 1996 and 2000. These initial aerial surveys were further supplemented with information from the previous Airport Master Plan EIR (1984), and an updated survey (2000) that mapped vegetation types and jurisdictional wetland habitats using the criteria of the U.S. Army Corps of Engineers and the California Coastal Commission. The findings of the 2000-URS surveys were consistent with earlier vegetation mapping and survey efforts of Ferren and Rinblaub (1983) identifying wetland and upland habitats and the occurrence of sensitive plant species. This baseline information was augmented with recent field observations (URS-2000).

The vegetation surveys determined that several sensitive plant species known or likely to occur on the airport property could be impacted by the proposed project. Two species, estuary seablite (*Suaeda esteroa)* and arrow grass (*Triglochin concinna* var. *concinna*), have been previously reported from upper marsh area of Goleta Slough but have not been observed recently[14]. These species are considered locally rare, although neither has been listed by the USFWS/CDFG or CNPS.

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14 Biological Assessment and Impact Analysis of the Proposed Santa Barbara Airport Aviation Facilities Plan (2001)

Salt Marsh Bird's Beak (*Cordylanthus maritimus* ssp. *maritimus)*
The Salt Marsh Bird's Beak is a state and federally listed endangered plant species that is found at Carpinteria Marsh and at Morro Bay, but nowhere else in between. It is partially parasitic on the roots of other marsh plants in the intertidal zone of southern and central California salt marshes. Although there are reports of this plant in Goleta Slough in various planning documents, no verified records or herbarium specimens have been found to substantiate its historical occurrence in Goleta Sough (Ferren 1994). The Biological Assessment notes that a search of herbarium specimens and records failed to yield any evidence of the plant's occurrence at Goleta Slough. In 1985 the USFWS identified Goleta Slough as a potential introduction site to promote recovery of the species. Because the Salt Marsh Bird's Beak is not located in the project vicinity or Goleta Slough, the project will not affect this species.

The USFWS stated that:

> *Although there have been anecdotal reports of the federally endangered salt marsh bird's beak existing historically in the project area, no records have been found to verify its presence in Goleta Slough and it is not expected to occur in the proposed project area.*

Southern Tarplant (*Hemizonia parryi* ssp. *australis)*
The Southern Tarplant, is a federal species of concern and a California Native Plant Society (CNPS) List 1B plant. It is a summer to fall flowering annual herb that occurs in relatively open, coastal habitats including grasslands, small drainages, or areas of seasonal ponding near the coast. It is found in numerous locations in Goleta Slough, in the area adjacent to the Tecolotito Creek sedimentation basin, and the disturbed uplands south of Tecolotito Creek. It has also been found within the runway safety areas, although not since the completion of a grading project that took place in 1999. The population in the vicinity of the Tecolotito Creek sediment basin would likely be affected by the project due to the proposed expansion of the sediment basin, access roads and creek excavation. Mitigation measures proposed by the City to address potential adverse impacts to the Tarplant would include the salvage of native plants and topsoil that would enable reestablishment of this species in other suitable areas of Goleta Slough.

Coulter's Goldfields (*Lasthenia glabrata* ssp. *coulteri*)
The Coulter's Goldfields, a federal Species of Concern, and a CNPS List 1B plant is located in an area associated with a diked basin adjacent to Tecolotito Creek, and in a narrow zone around the rims of several basins. The species is widely distributed in Southern California, but is restricted to rare habitats such as vernal pools, seasonally flooded playas and saline flats on the margins of estuaries. Additional populations of the species have been established within Goleta Slough as part of a mitigation/restoration project for a previous safety area grading project.

Impacts to the *Lasthenia* could occur at the diked basin during the excavation and realignment of Tecolotito Creek, grading of access roads adjacent to the creek, or modifications to existing berms along diked basins. Mitigation measures to minimize impacts would include the salvaging of native plants and topsoil that would promote the reestablishment of the species in Goleta Slough.

Wildlife

Listed and proposed species of wildlife that have a likelihood of occurrence in the project area include the California Brown Pelican (*Pelecanus occidentalis californicus)*, light-footed clapper rail (*Rallus longirostris levipes)*, Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), California red-legged frog (*Rana aurora draytonii*), tidewater goby (*Eucyclogobius newberryi*) and Southern California steelhead trout (*Oncorhyncos mykiss irieus).*

Critical habitat has been designated for the western snowy plover and proposed for the California Red-legged frog (CRLF). The designated critical habitat for the western snowy plover includes beaches adjacent to the UCSB Coal Oil Point Reserve, located 2 miles west/southwest of the airport property and the beach area west and east of the Santa Barbara Pier approximately 10 miles east of the airport[15]. The City states that:

> *The proposed critical habitat for the CRLF (Federal Register 1996, Vol. 61, No. 101, 25813) does not include any of the creeks that flow into Goleta Slough, nor is it expected that the CRLF would be found in the slough or in any affected area due to its inability to tolerate saline conditions.*

Southern California Steelhead (*Oncorhyncos mykiss irieus*)

The southern steelhead occurs in coastal streams and creeks of central and northern California and southern Oregon. Populations that occur between Los Angeles County and northern Santa Barbara County constitute the South Central California Coast Evolutionary Significant Steelhead trout (ESU), which has been designated as an endangered species by the NMFS.[16] The NMFS has designated certain rivers and streams as critical habitat for the southern steelhead, including all accessible streams along the South Coast of Santa Barbara County. Streams without impassable fish barriers within the historic range of the steelhead would be included. Tecolotito and Glen Annie Creek represent this critical habitat from the mouth of Goleta Slough to Glen Annie Dam.

In commenting on the draft EIS/R the National Marine Fisheries Service stated:

> *The proposed activities occur within the Southern California Evolutionary Significant Unit (ESU) for the Federally endangered steelhead (Oncorhynchus mykiss) and designated steelhead critical habitat. Steelhead migration may potentially be adversely affected by construction impacts related to the creek relocation. In addition, water quality impacts associated with improvements and modification to the AFP area related to construction, and overall increase of impervious surface areas, expanded airport operations, and storm water discharge, may potentially adversely affect steelhead migration.*

The National Marine Fisheries Service concurred with the City's determination that the proposed project will not adversely affect the Federally endangered steelhead provided the following

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15 Federal Register 2000, Vol. 64, No. 234, 68508

16 Biological Assessment for the Southern Steelhead Trout, Santa Barbara Airport Draft EIS/EIR for the Aviation Facilities Plan (2001)

special conditions are implemented. The NMFS further requires written documentation that the FAA/City of Santa Barbara will implement those conditions. Should the City choose not to modify the proposed project then formal section 7 consultation must be initiated.

1. The Carneros creek sediment basin should be enlarged according to the proposed plan described in URS Corporation's Proposed Enlargement of Carneros Creek Sediment Basin dated July 2001. The Tecolotito Creek sediment basin should also be enlarged as described in the DEIS/EIR.

2. The new channel should be completed before connecting to the existing channel to avoid the need for extensive stream diversions during construction.

3. Construction related to the connection of the new channel to the existing channel should only be conducted between July 15 and October 1 of any given year.

4. The applicant shall install silt fencing, temporary in-stream siltation basins, stream diversions and implement other best management practices to minimize downstream turbidity and sedimentation impacts.

The City has agreed to these conditions.

California Brown Pelican (*Pelecanus occidentalis californicus*)
The California Brown Pelican is a state and federal listed endangered species. It is a common year round species to coastal regions in Santa Barbara County, and they are known to breed at offshore islands such as Anacapa and the Channel Islands, from January to June. The Brown Pelican is often observed feeding and resting in lower Tecolotito Creek near Goleta Beach County Park. Although the California Brown Pelican is expected to occasionally fly near the project area, it generally feeds in near shore ocean waters, and rests on beaches and on Goleta Pier. Impacts to the Pelican are not likely to occur as a result of the project.

In reviewing the City's Biological Assessment, the U.S. Fish and Wildlife Service stated :

> *The only species currently found in the vicinity of the airport is the federally endangered brown pelican (Pelecanus occidentalis). The brown pelican is occasionally observed roosting near the mouth of Goleta Slough, approximately two miles away from the proposed runway expansion area. Therefore, we concur that the airport facilities plan as proposed, would not affect federally threatened and endangered species.*

Light-footed Clapper Rail (*Rallus longirostris levipes*)
The light-footed clapper rail typically resides in California coastal salt marshes from Carpinteria to San Diego. It is a state and federal listed endangered species that has historically been found in Goleta Slough, although the last record of this was a single individual reported in 1972. Surveys of pickleweed habitat in Goleta Slough found no evidence of the species, and did not report vocalizations (Holmgren 1995). Potential habitats for the species could be affected if transitional creek habitats are removed during excavation of Tecolotito Creek.

Belding's Savannah Sparrow (*Passerculus sandsichensis beldingi*)
The Belding's savannah sparrow is a state listed endangered species and a federal Species of Concern. It is a permanent resident of Goleta Slough and breeds with the slough's ecosystem. Surveys conducted by Holmgren and Burnell in 1992 recorded 72 pairs of breeding birds within Goleta Slough. The highest density of Belding's savannah sparrows (more than 3 pairs per hectare) was observed in the central slough basin, south of runway 7/25 and west of runway 15R/33L. During these surveys, the sparrow was observed foraging in areas dominated by pickleweed at low tides, in the grassy area near the runways, and at the west end of Goleta Beach County Park.

On October 10, 2001, the Commission staff received updated survey information on the sparrow. The City has been conducting surveys for the Belding's savannah sparrow for its bird strike hazard study and to provide accurate estimates of the population for the US Fish and Wildlife Service. A total of 68 individuals were sighted during the May 2001 survey. Exhibit # 22 an 23 illustrate the approximate location of the population, which is primarily located in basins A, B, and C.

Basin "A" thru "D": 59 Birds
Basin "E" and "F" : 4 Birds
Basin "G" : 2 Birds
Basin "L" and "M": 3 Birds

The results of these surveys were consistent with the previous surveys done in 1994. The sparrow is typically restricted to the pickleweed marsh areas of Goleta Slough, although it may forage in adjacent upland scrub and grassland areas. No individuals were sighted at the location of the proposed Taxiway M or runway safety area extension site, at the end of Runway 7-25.

The Biological Assessment for the project states:

> *Goleta Slough supports suitable habitat and all the life history function for Belding's savannah sparrow. At least 117 pairs of breeding savannah sparrows were recorded in Goleta Slough in 1994 (Holmgren and Kisner 1994).*
>
> *The proposed project would potentially affect and limit the distribution of this species in Goleta Slough because the existing undeveloped land west of runway 7/25 would become unavailable for life history functions (such as foraging) or restoration. However, relocation of Tecolotito Creek and restoration of native vegetation along the creek channel (see attached mitigation measures) would potentially provide a greater amount of higher quality suitable habitat for Belding's savannah sparrows over time.*

The California Department of Fish and Game stated in commenting on the DEIS/EIR:

> *the Department finds the project as proposed (Alternative 1, relocations of the western portion of Tecolotito and Carneros Creeks) will result in significant, but mainly mitigable*

> *impacts. The Department recommends the City select this alternative. The Department does not recommend selection of Alternative 2 (the box culverting of Tecolotito Creek) as this option would not fully mitigate for impacts to Belding's Savannah Sparrow as would be required by the California Endangered Species Act (CESA) The City will need to secure both an Incidental Take Permit for the Belding's Savannah Sparrow, and a Streambed Alteration Agreement for the relocation of Tecolotito and Carneros Creeks.*

Under the existing California Endangered Species Act (Section 2081 of the Fish and Game Code) the CDFG may authorize, by permit, the take of endangered species. To obtain a California Incidental Take Permit the applicant must show that the impacts will not jeopardize the continued existence of the species, the impacts of the "taking" are minimized and fully mitigated to the extent that it is "roughly proportional" to the impact of the taking on the species, the proposed mitigation shall be capable of successful implementation, and that the applicant provide adequate funding to implement necessary mitigation measures including monitoring compliance of the effectiveness of those measures.

Western Snowy Plover (*Charadrius alexandrinus nivosus*)
The western snowy plover is a federally listed threatened species and a state Species of Concern. Critical habitat for this species has recently been designated by the USFWS (Federal Register 2000, Vol. 64, No. 234, 68508), although the designation does not include any of the airport property. The nearest critical habitat is located some 2 miles west/south west of the airport near the Santa Barbara Harbor. Historic records indicate that Goleta Beach Park supported wintering and nesting snowy plovers before the 1950's, though nesting activity at the park has not been observed for many decades. Recent surveys of Goleta Slough and the airport property have not reported the presence of snowy plovers (Holmgren 1995).

California Red-legged Frog *Rana aurora draytonii*)
The California red-legged frog is a federal listed threatened species and a state Species of Concern. Although critical habitat has been proposed for the species, the critical habitat proposal does not include the airport property or any of the seven creeks that flow into Goleta Slough. The red-legged frog is a pond frog that frequents marshes, slow portions of streams, lakes and other permanent bodies of water. They are attracted to ponding areas which contain extensive plant cover including rushes and reeds. The City's Biological Assessment states that:

> *There are no records of the frog in Goleta Slough or in the project area, and it is not expected to occur in salt marshes due to its intolerance of saline conditions. Due to the absence of suitable or critical habitat for the CRLF in Goleta Slough and in the project area, the proposed project is not expected to affect this species or its habitat, therefore no mitigation is proposed*

Tidewater Goby (*Eucyclogobius newberryi*)
The tidewater goby is a federal listed endangered species and a state Species of Concern. It was recently proposed for de-listing (Federal Register Vol. 64, No. 121, June 24, 1999). The species inhabits coastal lagoons and other brackish habitats in coastal streams along the California coast.

In Santa Barbara County, this species presently occurs only in stream and river mouths, and coastal canyon lagoons that are brackish due to freshwater inflow; it is not found in either of the major structural basin estuaries (Goleta Slough, Carpinteria Marsh) which have high salinity and are dominated by tidal circulation in the lower reaches. These structural basins also have relatively narrow estuarine-fresh water transition areas. Locally, this species occurs in brackish lagoons at the mouths of Tecolote Creek, Bell Canyon Creek, Devereux Creek, Arroyo Burro Creek, Mission Creek and Sycamore Creek.

The tidewater goby has been reported from Goleta Slough, but no museum records exist to verify these reports. Sampling in 1987 and in 1993 failed to locate any tidewater gobies in Goleta Slough, and none are assumed to be present.

The City states that potential impacts from the proposed project could result in:

Sedimentation of downstream area of Tecolotito Creek near the mouth of Goleta Slough in the event that erosion control measures fail or are ineffective. The resultant (potential) change to the bathymetry of Goleta Slough (from sedimentation) may adversely affect the mouth of Goleta Slough. However, since the species has not been reported from Goleta Slough in recent survey efforts, the proposed projects direct and indirect effects on downstream portion of Goleta Slough are not expected to adversely affect potential habitat for tidewater goby, and due to the proposed longer channel, more habitat would be available for the species in the event it were to re-colonize Goleta Slough in the future.

Mitigation

Fish Habitat
To avoid impacts that could affect steelhead, estuarine fish and other aquatic species in Goleta Slough during the relocation of the channel in Tecolotito Creek, the excavation of the existing channel will be conducted without connecting the old and new channels until the new channel is completed and the bank slopes are stabilized. The channel will be connected using a temporary stream diversion and cofferdams, and these activities will take place during the summer, when minimal flows and low tides take place. With construction taking place during this period, steelhead are not expected to be present in Goleta Slough, nor are they expected to be affected by activities at the construction site.

Southern Tarplant-Coulter's Goldfields
Mitigation measures proposed for impacts to the Southern Tarplant and the Coulter's Goldfields include the salvaging of native plants and topsoil that would promote the reestablishment of this species in Goleta Slough. The establishment of a second population of the Coulter's goldfields is considered necessary to reduce the risk of local extinction, and to fully mitigate the potential impacts of the project. The cumulative loss of potential habitat for this species in Goleta Slough is considered an adverse impact, according to the City.

Belding's savannah sparrow
Additional areas of Potential habitat would be created for the Belding's savannah sparrow in a continuous corridor along the realigned creek. Reestablishment of bands of tidal marsh along creek banks and the restoration of tidal wetlands would take place. The city will monitor the restored areas to assess the success of the mitigation for 5 years following construction.

In addition to the measures above, the Biological Assessment for the project states that:

1. A wetlands biologist shall be retained by the Airport to design and oversee the implementation of the mitigation program for the project.

2. The biologist shall be responsible for the development of site-specific plan for revegetation and restoration activities for the wetlands and creek channel and banks.
3. The City will prepare pre-construction and post-construction monitoring reports of mitigation sites.

4. The City will monitor previously mapped wetlands and endangered species habitats adjacent to construction areas to confirm the avoidance of impacts to wetlands and species. Should impacts occur, they will be documented by the City and notification will be sent to other responsible agencies.

The City will also implement the following measures to mitigate potential impacts during construction:

1. Temporary fencing shall be installed to protect environmentally sensitive areas (ESA) and wetlands from incidental impacts.

2. Stockpiling of excavated soil and construction materials, and the haul routes for heavy equipment shall be confined to areas shown on grading plans to avoid ESA's.

3. Native plants and topsoil shall be salvaged from impact areas for use in revegetation. The project biologist shall select these areas and they will be depicted on grading plans, along with locations and methods for temporary storage.

4. Construction of individual projects shall use methods to avoid the nesting and breeding season from mid-march to the end of June, minimize compaction of soils during the wet season, and minimize erosion from barren areas into adjacent waters and wetlands.

5. Areas disturbed by construction shall be graded to encourage development of a water regime similar to the one that existed before the disturbance.

6. For impacts to the Belding's savannah sparrow, reestablishment of bands of tidal marsh along creek banks, and the restoration and enhancement of remnant or poorly

flushed tidal wetlands. The species use of these restored areas shall be monitored before and after the mitigation is implemented. Monitoring shall be combined with annual Slough-wide surveys to establish the status of the species, and shall continue for five years following construction.

7. The final design and limitations of construction activities shall minimize habitat loss and disturbance in the diked basin that supports Coulter's goldfields and Frost's tiger beetle. To minimize the possibility of local extinction of the Coulter's goldfields, the City will collect small amounts of seed from this species and establish new populations in other locations in Goleta Slough where similar habitat conditions are replicated.

8. Revegetation of disturbed areas and new creek alignments that impact the southern tarplant, horned seablite, and giant horsetail will include species specific seed collection for the establishment of new populations.

In conclusion, the City has incorporated avoidance, monitoring, and enhancement measures to avoid adversely affecting federally listed and other sensitive species. These measures were developed in consultation with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. With these measures, the Commission finds the project consistent with Section 30240 of the Coastal Act.

B. Stream Alteration.

The Coastal Act provides that:

> *Section 30236: Channelizations, dams, or other substantial alteration of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects; (2) flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development; or (3) developments where the primary function is the improvement of fish and wildlife habitat.*

The construction of the runway safety areas and the relocation of runway 7-25 and taxiway M under the "west creek realignment alternative" would combine Tecolotito and Carneros Creeks, rerouting Tecolotito Creek 2,000 feet to the west of the new runway area. Section 30236 of the Coastal Act allows for the alteration of rivers and streams if those alterations or channelizations are necessary to protect existing structures in the floodplain and such protection is necessary for public safety. To determine whether the alteration of Tecolotito Creek is necessary, the Commission will analyze, separately from the wetland alternatives analysis in the previous section of this report, alternative ways in which the airport's flood control objectives can be met.

Background

When the Santa Barbara Airport was constructed in the late 1920's, Tecolotito Creek was excavated and channelized numerous times to re-route floodwaters around the airport. The most recent projects have occurred between 1967 and 1975. In 1969 water completely surrounded the main terminal, although it did not enter the building. Other public buildings and structures are threatened with inundation during heavy rains, and the flooding of the runways presents a safety hazard that prevents planes from landing or taking off. In 1995 and 1998 all three runways were flooded and the airport was closed for several days. Damage and loss related to the most recent flooding was estimated to be $118,000 by FEMA.

Estimated Peak Flow Rates for Selected Design Events

Location	Peak Runoff (cfs)					
	2 Year Event	5 Year Event	10 Year Event	25 Year Event	50 Year Event	100 Year Event
Tecolotito Creek @ Hollister	300	1,000	1,500	2,5000	3,900	4,400
Carneros Creek @ Hollister	300	900	1,300	2,100	3,100	3,600
San Pedro Creek @ Hollister	600	1,500	2,200	3,400	5,000	5,700
San Jose Creek @ Hollister	1,100	2,200	2,800	4,400	6,400	7,200
IN-Flow from Goleta Slough (upstream of Ward Memorial)	2,200	5,700	7,800	12,800	19,200	21,800
OUT-Flow from Goleta Slough (downstream of Ward Memorial)	1,700	3,800	4,300	5,900	9,100	10,000

Historical Flooding of the Property

As an area of convergence of five major streams, the Santa Barbara airport has historically been subject to flooding. Most recent flooding has occurred due to flows exceeding the capacity of the stream channels. The combined watershed of these five streams is approximately 30,000 acres (46 square miles). The topography of the airport is generally flat, with little change in elevation between Hollister Avenue and the ocean. As flood flows over-bank the streams, the flow slows down and deposits sediment. During a flood event, the sediment is carried by these flows and deposited in stream channels reducing the channel capacity. The tables below illustrate the impacts of various 24 hour storm events relative to storage capacity.

Master Drainage Plan

In 1999 the Airport drafted a grant proposal to the FAA to provide funding to prepare a *Master Drainage Plan*. The problems experienced during the storms that created debilitating floods in the winter of 1995 and 1998 resulted in the extensive siltation of Tecolotito Creek, flooding and silt deposition of Runway 7-25 and Runway 15R-33L, and flooding of taxiway (A, B, C, D, and J). The proposal to create a *Master Drainage Plan* would:

> *Analyze the local watershed and existing drainage facilities, and develop a phased improvement plan that will reduce flooding of the Airport to an acceptable level.*

The *Master Drainage Plan* was funded by the FAA ($150,000 grant), with the express purpose of assessing flooding hazards at the Santa Barbara Airport, with particular emphasis on the relationship between potential Runway Safety Area alternatives and the drainage alternatives for Tecolotito Creek. The objectives of the plan included flood control measures to protect existing structures, a determination of the most effective method of conveying the creek around the safety area, development and selection of alternative channel designs, the simulation of hydraulic characteristics of such channel designs, and an evaluation of those alternatives. The grant was approved in January 2000, and the plan was completed in 2001.

Volume of Depression Storage Compared to Volume of 24-Hour Storm Event[17]

Location	Volume of Depression Storage (acre feet)	Total 24 Hour Storm Volume (acre feet)					
		2 Year Event	5 Year Event	10 Year Event	25 Year Event	50 Year Event	100 Year Event
Goleta Slough[18]	3,000	1,457	2,868	3,781	5,615	9,509	10,864
Carneros Creek[19]	148	206	430	578	858	1,446	1,650
Las Vegas Creek[20]	18	380	740	977	1,422	2,321	2,647

Location	Volume of Depression Storage (acre feet)	Percent of Total 24 Hour Storm Volume That could be Contained in Depression Storage					
		2 Year Event	5 Year Event	10 Year Event	25 Year Event	50 Year Event	100 Year Event
Goleta Slough	3,000	100%	100%	79%	53%	32%	28%
Carneros Creek	148	72%	34%	26%	17%	10%	9%
Las Vegas Creek	18	5%	2%	2%	2%	1%	1%

Floodplains

Flood hazard areas (floodplain) as defined by FEMA are areas subject to inundation by a 100 year flood. The floodplain is the land area susceptible to inundation during a given flood. The majority of the Airport property is within the 100 year FEMA floodplain. If Tecolotito and Carneros Creek are realigned around the proposed runway safety area (Realignment Alternative) the realigned creek would have a flow that equals or exceeds the flow capacity of the existing channel.

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17 Draft Final Master Drainage Plan Santa Barbara Municipal Airport, City of Santa Barbara (2001)

18 Location of storage is at Goleta and in at least 3,000 acre-feet. Storm volume includes flow from Tecolotito, Carneros, San Pedro/Las Vegas, and San Jose Creek watersheds.

19 Location of storage is upstream of US Highway 101 at Carneros Creek

20 Location of storage is upstream of US Highway 101 at Las Vegas Creek. Storm volume includes runoff volume from San Pedro and Las Vegas Creeks below their confluence.

Under the culvert alternative, there would be a significant overflow during a 100 year run-off event as much as two to three feet above the existing runway elevation. This same overflow would occur under the existing conditions. The use of a culvert may increase the likelihood of flooding because of the potential for plugging of the culvert due to sediment deposition. To accommodate the existing flow, the level of the culvert bottom would have to be placed at an elevation between minus 1 to minus 0 feet mean sea level datum. If a blockage of the culvert occurred during a flood event, this would result in major damage to the runway and safety area. The City's LCP further states that:

> *Sediment buildup threatens the water flow capacity of the sough and increases the existing flood hazard. Consequently, the Santa Barbara County Flood Control and Water Conservation District have widened the main channels draining into the slough and enlarged the sediment/debris silt basins. Two of the major threats to the slough's continued existence as a wildlife habitat are sedimentation and impaired tidal circulation.*
>
> *The Goleta Slough watershed floodwaters are channeled toward the sea, carrying upstream debris and sediment, which becomes deposited in the coastal plain. The accumulation of silt and the growth of vegetation narrows the slough channels to sluggish streams. Continued, unmanaged sedimentation would ultimately result in the destruction of the salt marsh habitat and significant alteration of the slough's flood carrying capacity.*
>
> *An estimated 15,000 cubic yards of silt enters the slough each year from Carneros and Tecolotito Creeks, although two silt basins have been installed in these creeks just below Hollister Avenue.*

Previous Projects

In the mid 1970's the Flood Control District widened and deepened sections of the slough's channel system. The project included widening the main channel from the confluence of Tecolotito and Carneros Creeks an estimated 0.875 miles into the marsh, and widening and deepening of the main channel near the slough's ocean outlet. This two-phase project created a more efficient flood control system, and a more biologically healthy salt marsh. The Flood Control District also installed a series of culverts and removed several levees to accommodate tidal flooding. This project had limited success in that culverts accumulated silt and vegetation, and minimal tidal circulation was achieved.

Sedimentation

Sedimentation from the upper portions of the slough can also negatively affect biological productivity. At the lower portion of Goleta Slough the mouth of the slough is tidally influenced, and a sand bar develops across the mouth as winter runoff declines. This sand bar is periodically breached by the flood control district to allow tidal flushing. Slough closure to tidal influences typically results in increased salinity that can dwarf plant growth and destroy both

plant and animal communities. If closure lasts more than three or four days, the waters become anaerobic and fish and other organisms begin to die[21].

Berm Formation

In 1995, flood waters laden with sediment spilled over creek banks at the point of constriction creating a "natural berm" that increased the elevation of the surrounding marsh plain. The elevated creek banks and marsh plain can impound floodwaters causing greater sedimentation in lower areas. Surveys by the City indicate that this process has raised elevations enough to completely eliminate tidal circulation from large areas. Vegetation in these locations is undergoing a transformation from tidal marsh, to transitional brackish wetland and upland habitat, and non-native brackish wetland and upland species are replacing native salt marsh vegetation.

The City proposes to incorporate the best mitigation measures feasible for the diversion of Tecolotito Creek around the proposed project. The City has consulted with the U.S Army Corps of Engineers and the U.S. Fish and Wildlife Service to evaluate the least environmentally damaging alternative to realigning Tecolotito Creek. The Corp stated in its review of the project that:

> *the longer channel would constrict the over-bank flow area which would increase water velocity and shear forces during extreme flooding events. This would result in a maximum rise in water surface elevation of 0.4 feet on Tecolotito Creek downstream of Hollister Avenue. The longer channel and expanded sediment basin on Tecolotito Creek would provide a larger storage volume and it is expected to result in a net decrease in the amount of sediment delivered to Goleta Slough.*

Flood Control Alternatives Analysis

The City of Santa Barbara has examined several alternatives to relieve flooding at the airport to determine the least environmentally damaging feasible alternative to accommodate drainage from Tecolotito and Carneros Creeks relative to the proposed safety area at the end of Runway 7-25, while minimizing the effects of sediment transport and reducing overbank flood hazards for the existing and future runway.

The City States that:

> *The west end of the airfield is susceptible to flooding due to several different factors. The primary contributing factor is the storm-related deposition of sediments in the creeks. Excessive sedimentation occurs along both creeks immediately downstream of Hollister Avenue due to a significant grade change as the creeks enter the flat and tidally influenced Goleta Slough. The Santa Barbara County Flood Control District has established sediment basins at these locations. However, these basins are often filled by the first major storm of the year, increasing water surface elevations upstream (which*

21 City of Santa Barbara Airport and Goleta Slough LCP (1982)

causes flooding on Hollister Avenue) and downstream (which causes overbank flooding of the airfield).

The second major factor is the effect of tides on conveyance capacity in Tecolotito Creek in the Goleta Slough. When high tides coincide with storm runoff, the capacity of the creek within the slough is severely lessened, causing overbank flooding along the creek in both airfield and salt marsh areas.

The third contributing factor is that the Tecolotito and Carneros creeks within the Airport only have a capacity to carry about a 10-year storm, estimated to be about 2,800 cubic feet per second. The creeks are relatively narrow with high flow resistance because they are earthen.

The City examined several options that would reduce flooding from these creeks and increase flood protection of the existing runway and safety area. The alternatives considered included the following:

1. Culvert Alternative

Under this alternative, Tecolotito Creek would be directed into a very long and wide concrete culvert (about 750 feet long, 80 feet wide, and 8 feet high) under the main runway, which would be shifted 800 feet to the west to accommodate the new safety areas. This alternative was rejected primarily because a culvert would accumulate sediments to a greater degree than an open creek channel, and therefore would exacerbate the flooding problems in the airfield and north onto Hollister Avenue. The build up of sediments in the culvert would create a more severe overbank flooding condition at the runway than under current conditions. In addition, there are severe logistical and safety issues with removing sediments from a long culvert with limited vertical clearance. Finally, the runway and taxiways would need to be raised one foot to accommodate the culvert.

2. Upstream Detention Basins

This alternative would involve construction of one or more detention basins upstream of the Airport in order to detain storm flows and reduce the peak runoff in both Tecolotito and Carneros creeks. The basins would reduce the frequency of overbank flooding in the airfield from both the existing and relocated creek channels. This alternative would also require the use of a culvert under the shifted runway or relocated creeks to meet the objectives of the AFP.

The most appropriate location for detention basins that provides the desired hydraulic benefits is between Highway 101 and Hollister Avenue. This alternative was rejected because it would require acquisition of private property and displacement of existing land uses in order to construct large basins sufficient to reduce the peak flows. For example, the estimated acreage required to reduce the peak flow of a 10-year event is estimated to be between 8 and 15 acres. It would be impractical to construct larger basins for a higher level of flood protection due to land costs and environmental impacts.

3. Levee Alternative

Under this alternative, berms or small levees would be constructed along both sides of Tecolotito and Carneros creeks (about 2-3 feet in height) between Hollister Avenue and the south side of the main runway to provide additional channel conveyance through the airfield.

This alternative was rejected for several reasons. The berms would inherently conflict with the safety area requirements at the end of the main runway where a flat surface is required for the safety area. As such, the extended safety area could not be constructed if the creeks remained in their current locations.

Should the berms be constructed in combination with the culvert or creek relocation alternative, the engineered berms would displace wetlands along the margins of the creeks, and therefore would require additional wetland mitigation. Once the water surface elevation reaches the tops of the berms in a 10-year event or larger, it is likely that flows would escape from the creeks upstream of the Airport. This would result in offsite flooding which would cross Hollister Avenue and impinge on the airfield. Hence, the benefits of the berms would be negated.

Flows leaving the bermed creeks downstream of the runway would have a higher water surface elevation than flows in the creeks under current conditions. Because of the higher water surface elevation, these flows would likely spill into salt marsh areas adjacent to the creek, thereby increasing sediment deposition of the salt marsh. The berms would require continual maintenance, which would involve vegetation and rodent management in the Goleta Slough.

4. Creek Relocation

This alternative was evaluated and selected as the preferred option because it involves the least environmental disturbance, provides the greatest functional reliability, and reduces flooding hazards. The relocated creeks, in combination with the enlarged existing sediment basins, will slightly reduce water surface elevations in flows up to the 10-year event. In addition, the existing floodplain along the relocated creeks is slightly higher and narrower than along the existing creeks due to higher ground elevations in this part of the airfield. The higher and narrower floodplain will reduce the width of flooding when flows overtop the banks.

The conveyance capacity of the relocated creeks was designed specifically to match existing creeks in order to prevent increased sedimentation that could fill Goleta Slough. However, the higher floodplain along the new creek alignment will protect the existing and future runway from flooding to a greater degree than under existing conditions. The new level of protection cannot be quantified; however, hydraulic modeling indicates that flows from a 10-year event in the existing channels will impinge on the runway. In contrast, the same flows in the relocated creek channels would not affect the runway or

the safety area. As such, the relocated creeks will increase flood protection for both existing and future facilities.

Preferred Alternative Design

The City further states that the primary design guideline used to identify the preferred alignment of the relocated channel was to minimize modifications to the existing hydraulic conditions along Tecolotito Creek within Goleta Slough. The proposed alignment of Carneros and Tecolotito creeks is the simplest and most efficient method of conveying flows around the new safety area with the minimal hydraulic transitions and channel bends. For example, the extension of Carneros Creek is aligned with the existing channel to maintain existing flow velocities. The alignment of Tecolotito Creek around the extended safety area involves three channel bends, which are purposely designed to be gradual.

The proposed channel dimensions will match the existing channel dimensions along Tecolotito and Carneros creeks (i.e., 60 feet wide at the top, and 45 feet wide on the bottom, 2H:1V slopes) in order to avoid changes in hydraulic characteristics of the creeks. The objective was to maintain existing flow velocities in this portion of the slough to the extent feasible in order to avoid increased sedimentation upgradient of the runway. Additional sedimentation in the creek would increase overbank flood hazard, as well as increase downstream sediment deposition in Goleta Slough. A wider channel was not proposed because sediments would accumulate as flow velocities decrease. Maintenance requirements for a wider channel would also become greater and would result in more frequent disturbances to the channel habitats.

It should be noted that relocating the creeks will increase flood protection for the existing runway independent of the proposed safety area extension because overbank flooding from the relocated creeks under a 10-year event would not impinge on the runway as it does under current conditions.

Flood Protection Alternative Analysis

Alternative	Feasibility Evaluation Criteria			
	Economic	Environmental	Social	Technological
Culvert Under Runway	• $4.5 million capital cost • $1.6 million wetland mitigation costs. • Excessive annual maintenance costs	• Loss of valuable tidal open water habitat, • Potential fish passage impediment. • Fragmentation of aquatic habitat	• Exacerbates flooding, • Possible violation of flood control ordinance	• Low reliability during flood events, • increased potential for overbank flooding including catastrophic events, • unsafe maintenance and work conditions
Upstream Retention Basins	• $4-15 million capital costs for estimated 12 acre basin. (property acquisition-construction-relocation and culvert /creek relocation costs) • Increased annual maintenance costs	• Displacement of current and future planned land uses. • Loss of upland habitat • Reduced sediment loading to the Slough. (considered beneficial)	• Disruption of planned land uses. • Loss of affordable housing opportunities	• Feasible and effective for reducing peak flows and sediment loading • Infeasible unless combined with culvert or creek relocation alternative
Berms on Tecolotito Creek	• $2,800 capital costs for berms and creek relocation. • $1,000,000 wetland mitigation costs. • Undetermined annual maintenance costs	• Loss of 3-4 acres of seasonal non-tidal wetlands. • Creation of artificial landform in slough. • Possible increase in sediment loading downstream tidal areas	• Exacerbates flooding, • Potential violation of flood control ordinance	• Increased potential for overbank flooding upstream and down stream of the airfield. • Infeasible unless combined with culvert or creek relocation alternative.
Creek Relocation and Enlarged Sediment Basins	• $1.3 million capital costs • $900,000 wetland mitigation costs. • Minor increase in annual maintenance costs	• Reduced sedimentation to Goleta Slough. • Increase in tidal open water and mudflat habitats. • Loss of 3 acres of seasonal non-tidal wetlands	• No direct social effects	• Effective and reliable solution with no adverse hydraulic impacts

The Commission finds that the project: (1) is an allowable use for stream alteration under Section 30236; (2) provides commitments to mitigation measures to protect wetland and sensitive habitat resources; and (3) has examined feasible alternatives and proposes the least environmentally damaging feasible alternative.

Additionally, the Commission notes its conclusions are based on the commitments and information submitted to date. Detailed designs and plans will follow and be the subject of the subsequent coastal development permit application to the City of Santa Barbara, and the Commission (and, possibly, on appeal to the Commission). Further, any modifications to any of these commitments may also trigger the need for additional federal consistency review by the Commission.

C. Public Access and Recreation.

The Coastal Act provides that:

> *Section 30210: In carrying out the requirement of Section 4 of Article X of the California Constitution ,maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*
>
> *Section 30212(a): Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where:*
>
> > *(1) It is inconsistent with public safety, military security needs, or the protection of fragile coastal resources,*
> >
> > *(2) Adequate access exists nearby*
>
> *Section 30212.5: Whenever appropriate and feasible, public facilities, including parking areas or facilities, shall be distributed throughout an area so as to mitigate against the impacts, social and otherwise, of overcrowding or overuse by the public of any single area*
>
> *Section 30252: The location and amount of new development should maintain and enhance public access to the coast by (1) facilitating the provision or extension of transit service, (2) providing commercial facilities within or adjoining residential development or in areas that will minimize the use of coastal access roads, (3) providing non-automobile circulation within the development, (4) providing adequate parking facilities or providing substitute means of serving the development with public transportation, (5) assuring the potential for public transit for high density uses such as high rise office buildings, and by (6) assuring that the recreational needs of new residents will not overload nearby coastal recreation areas by correlating the amount of development with local park acquisition and development plans with the provision of onsite recreational facilities to serve the new development.*

The proposed airfield safety projects are designed to ensure public safety by meeting the current FAA design standards and minimizing runway incursions. Expansion of the airline terminal building is designed to meet the projected passenger needs in the Santa Barbara coastal zone through 2015, and the proposed safety projects and terminal expansion will help provide maximum public access to the coastal zone. As the southern California coastal region becomes increasingly populated, the necessity for improving the distribution of public transportation throughout the region will become more critical.

Typically, many Santa Barbara bound tourists drive from Los Angeles area airports, adding to traffic congestion and affecting air quality along the coast. Improved facilities would lessen

these impacts and provide relief to air quality and traffic impacts. Section 30252 further identifies the connection between efficient transportation modes and maximum coastal access. In past actions, the Commission has considered traffic congestion in recreation areas to be an impact on public access to the shoreline.

Goleta Beach County Park is adjacent to the southern boundary of the Santa Barbara Airport. The 29 acre park includes almost a mile of sandy beach, picnic and day use areas, and the Goleta Pier which is used for boat launching, fishing and strolling. Several hiking trails are proposed near the airport property as well as a trail corridor at the foot bridge crossing Goleta Slough. A class one bicycle trail borders the airport property on Carneros Road, continues through the UC Santa Barbara Campus, and eastward across airport property to the mouth of Goleta Slough at Goleta Beach County Park. The City is encouraging the use of areas surrounding the airport for the development of trails, and passive recreational opportunities are encouraged and provided for in the Airport Goleta Slough LCP.

The proposed project is consistent with Sections 30210-30212 and 30252 of the Coastal Act in that it will improve public access to the shoreline through efficient and modern commercial facilities (airline operations, the provision of public modes of transportation, essential public services and adequate parking facilities), and promotes recreational opportunities in the areas adjacent to Goleta Slough.

D. Water Quality

The Coastal Act provides that:

> *30231: The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling run-off, preventing depletion of groundwater supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitat, and minimizing alteration of natural streams.*

The City states that:

> *Relocating runway 7/25 800 feet to the west under either alternative, could result in temporary impacts to water quality. Construction could affect local waterways, increase sedimentation, create toxic discharges due to in-channel construction, vehicle maintenance, asphalt operations or accidental spills. Degradation of Goleta Slough could also occur from non-point source pollutant runoff. Storm water run-off from the runway and safety area is conveyed to twenty-four 24" drain inlets. The inlets are connected to twenty-six 36" diameter reinforced concrete pipes that then convey storm water to various outlets to Tecolotito Creek or Goleta Slough.*

the increased length of the channel and the expanded sediment basin on the Creek would provide a larger water storage capacity, resulting in a net decrease in sediment transported downstream into Goleta Slough..

An increase in the amount of impervious surfaces on the airport property will occur due to the extension of the paved surfaces of runway 7/25 and Taxiway A and the construction of Taxiway M. The safety area at the western end of runway 7/25 will be compacted with gravel, which will permit groundwater infiltration and aquifer recharge, but the RSA at the eastern end will remain a paved surface. The realignment and lengthening of Tecolotito Creek channel and expanded sediment basin will not alter the aquifer recharge capacity compared to existing conditions. The creek channels are inundated perennially, from either tidal action or flows entering the channel from upstream areas. Short term construction impacts could include: erosion due to clearing and grading resulting in sedimentation of adjacent waterways, toxic discharges from equipment and accidental spills, ground disturbances, and the potential to encounter sub-surface contamination.

The majority of the impacts to water quality would likely occur during construction, and the potential exists for encountering sub-surface contamination during earth moving activities. However, these impacts will be further regulated by a stormwater NPDES permit because the area of disturbance constitutes an area greater than 5 acres. The City describes numerous mitigation and containment measures including:

1. A drainage and erosion control plan to be developed for each area of construction to mitigate erosion and address sedimentation impacts to Goleta Slough;
2. Scheduling construction to minimize graded soil exposure;
3. Minimum curing times for concrete to avoid contact with the aquatic environment;
4. Limitations on grading activities to dry weather conditions, the use of silt fences, straw bales and other measures to control siltation;
5. Disturbed areas will be seeded and planted with native vegetation immediately following construction activities;
6. Protection of new storm drain outlets to prevent scouring at the point of discharge;
7. A contingency Plan will be developed to address migration of contamination if it is encountered during construction;
8. The Airport will obtain a construction NPDES permit as required for projects that disturb an area of 5 acres or more;
9. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared detailing specific erosion and sediment controls to minimize turbidity and total suspended solids; and
10. Silt and grease traps will be installed in paved areas.

The SWPPP that will be prepared as part of the storm water permitting process will include pollution prevention control measures to achieve water quality standards, monitoring of stormwater discharges, and the maintenance of monitoring records. The plan must include BMP's and a description of erosion and sediment control measures such as soil stabilization, seeding, vegetative buffer strips, detention basins, straw bale dikes, silt fences, storm drain inlet

protection, velocity dissipators, earthen dikes, check dams, sediment basins and other controls. The SWPPP will also include:

> *Non-storm water management*-measures to eliminate or reduce discharge of pollutants from point sources such as equipment and dewatering operations;
>
> *Post-construction storm water management*-measures to reduce sedimentation from the site after construction;
>
> *Waste disposal*-procedures to remove all construction wastes from the site;
>
> *Inspection, maintenance and repair*-procedures to inspect, maintain, and repair all erosion and sediment control devices after construction.

Based on the City's commitment to the above measures, adverse impacts to water quality and biological productivity of the Slough will be mitigated, with details to be specified through the permitting process.

During the process of relocating the creeks, enlarged basins will be designed to capture greater amounts of sediment, minimizing deposits in tidal wetlands of Goleta Slough that have affected tidal circulation and the conversion of wetlands to non-native uplands. The increased length of the channel and the expanded sediment basin on the Creek would provide a larger water storage capacity, resulting in a net decrease in sediment transported downstream into Goleta Slough. Given that these measures will reduce impacts to water quality resources, the Commission finds that the proposed project is consistent with Section 30231 of the Coastal Act.

E. Archaeological Resources.

Section 30244 provides for the protection of archaeological resources of the coastal zone in that:

> *Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.*

The City of Santa Barbara has conducted an archaeological assessment, prehistoric background study, a review of historic maps and aerial photographs, and a review of historic sites listed on the National Register of Historic Places. Four prehistoric sites (CA-SBA-46, CA-SBA-52, CA-SBA-1694 and SAIC-93-1) are described in the Draft EIS/R.

The Area of Potential Effect (APE) for cultural resources within the Santa Barbara Airport Aviation Facilities Plan boundary has been defined by the FAA as the entire airport property boundary, in accordance with 36 CFR Part 800.2. Archaeological surveys and excavations (1993) within this area have recorded four prehistoric Native American sites. These areas, including major village sites, are characterized by high artifact densities, house remains, exotic trade goods, and cemeteries.

Mescalitan Island (CA-SBA-46), located near the southeast corner of the property is most notable as it contained two major sites associated with the historic Chumash village of *Helo'*. Historical perspectives of the area have associated *Helo'* with a wealthy village that functioned as a regional political, economic, and ceremonial center between the Channel Island and mainland Chumash[22].

During the original construction of the airport, an estimated 50 to 75 percent of the island was bulldozed, and then used as fill when the airport was constructed. Although portions of *Helo'* remain intact, artifacts from Mescalitan Island and other prehistoric archaeological sites have been relocated or re-deposited throughout many areas of the airport. This combination of events has made the contextual relationship of the artifacts difficult to assess. The City describes these resources as:

> *one location of high prehistoric and historic Native American sensitivity, four areas of moderate sensitivity, and four areas categorized as low sensitivity. Two major prehistoric village sites have been recorded within the Aviation Facilities Plan area. One village site, CA-SBA-52, was leased to the Santa Barbara Indian Center in the early 1980's to provide a re-burial area for Native American burial disturbed by other construction projects.*

Archaeological Resources within the Santa Barbara Airport APE

Resource	Type	Integrity
CA-SBA-46	Prehistoric village of *Helo'* (Mescalitan Island)	25-25 percent intact
CA-SBA-52	Prehistoric village and reburial area	85 percent intact
CA-SBA-1694	Prehistoric artifact scatter	Unknown
SAIC-93-1	Prehistoric artifact scatter	Heavily disturbed, Redeposited, some intact areas

The City describes the following potential impacts:

> *The realignment of Tecolotito Creek would require ground disturbances 50 feet away from moderate sensitivity zones and 150 feet away from the high sensitivity zones associated with SBA-52. Accidental construction equipment encroachment could disturb significant deposits. The southern airline terminal wing extension will extend to within 50 feet of the (moderate archaeological sensitivity) prehistoric and historic Native American sensitivity zone. An estimated 140 feet of the southern extension of the new terminal access road would also fall within the moderate sensitivity zone. Grading for the new parking area and future garage site would be adjacent to a moderate sensitivity zone.*

[22] Phase 1 Archaeological Assessment, Santa Barbara Municipal Airport, City of Santa Barbara (Snethkamp and Associates-1993)

To mitigate for these impacts the City will maintain 50 foot buffer areas from the moderate archaeological sensitivity zone associated with SBA 52 to ensure avoidance of prehistoric remains. The area will be inspected by a qualified archaeologist, and visually marked to reduce the possibility of intrusion into the high sensitivity area by construction personnel and equipment. Prior to the start of any activities such as vegetation removal, demolition, trenching or grading, personnel will be alerted to the possibility of uncovering subsurface archaeological artifacts. If such cultural resources are encountered or suspected, work shall be halted and a qualified archaeologist will be consulted. If a discovery consists of potentially human remains, The Santa Barbara County Coroner and the California Native American Heritage Commission shall also be contacted.

Before any construction activities take place, the airport shall assure that all ground disturbances within the low Prehistoric and Historic Native American sensitivity zone north of Runway 7/25 and east of Runway 15R/33L shall be monitored by a City qualified archaeologist and Native American Observer.

The Office of Historic Preservation concurred with the City's determination of archeological resources in the project area and stated:

> *The FAA has provided evidence that adequate measures were taken to include interested persons in the planning process, and that Native American monitors will be present at areas previously determined to be archeologically sensitive should ground disturbance occur. Should the FAA identify archeological resources during project implementation, it will have additional responsibilities as defined by 36 CFR 800.11.*

With these proposed mitigation and avoidance measures, the project will protect archaeological and paleontological resources. Therefore, the Commissions finds the proposed project is consistent with the archaeological resource policy (Section 30244) of the Coastal Act.

F. Visual Resources

Section 30251 provides for the protection of scenic and visual qualities of coastal resources in that:

> *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect view to and along the ocean and scenic coastal area, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding area, and where feasible, to restore and enhance visual quality in visually degraded areas.*

The proposed project is located in an area described by the city as one of five design areas included in the *Airport Development Design Guidelines* which were adopted as part of the LCP for the airport. The "South Ramp Terminal Area" referenced in these design guidelines include the terminal, its associated parking and all of the development to the south of the terminal along William Moffett Place. These guidelines recommend that new development and renovations of existing structures adjacent to the terminal building be consistent with the El Pueblo Viejo Landmark District Design

Guidelines. Expansion of the Terminal has been designed to continue the Spanish Colonial Revival architecture of the existing terminal.

The City states that the design of the terminal additions will be visually compatible with the character of the surrounding area in that:

> *The views of the terminal from UCSB would not be impacted and the proposed structures would not be located within sensitive view corridors. Public views from William Moffett Place would be most changed by construction of the new buildings. However, the appearance would be enhanced with the demolition of the Pilot House Motel and other structures built during World War II by the U.S. Marine Corps.*
>
> *Views from public roadways and bicycle paths were taken from various vantage points representing views that would potentially be affected by the additions to the terminal, the new air cargo building and the parking garage. No photographs were taken from Goleta Beach or Fairview Avenue as the terminal building cannot be seen from these locations. The view from Goleta Beach is blocked by Ward Memorial Highway, and the view from Fairview Avenue is blocked by a wooden fence.*
>
> *The new parking structure (240 feet by 325 feet) and the air cargo building (70 feet by 220 feet) have yet to be designed. However, the structures would be designed to be consistent with the terminal architecture. None of the new buildings will block views of the mountains or ocean from public viewing areas.*

The project is consistent with the visual resources policy of the Coastal Act, because design options and treatments will be visually compatible with the existing architecture, and initial visual impacts will be temporary in nature. Future projects components not yet designed will be subject to further review by the Commission through the permit appeals process. Based on the information now available, the Commission therefore concludes that the project is consistent with the requirements of Section 30251 of the Coastal Act.

VIII. Substantive File Documents

City of Santa Barbara Coastal Plan, Airport and Goleta Slough
City of Santa Barbara, 1982.

Santa Barbara Airport Final Environmental Impact Statement/Environmental Impact Report for the Aviation Facilities Plan
U.S. Department of Transportation Federal Aviation Administration/City of Santa Barbara, 2001.

Section 404(b)(1) Assessment
US Army Corps of Engineers (1996)

Biological Assessment and Impact Analysis
Federal Aviation Administration and City of Santa Barbara (2001 URS Corp)

Biological Assessment for the Southern Steelhead Trout
Santa Barbara Municipal Airport (2001 URS Corp)

Master Drainage Plan, Santa Barbara Municipal Airport-Drainage Assessment for Airport Facility
URS Corporation, 2001

Essential Fish Habitat Assessment
Santa Barbara Municipal Airport (2001 URS Corp)

Santa Barbara Municipal Airport: Runway 7-25 Alternatives
Hodges and Shutt, 1995.

Federal Aviation Administration Advisory Circular 150/5300-13
U.S. Department of Transportation Federal Aviation Administration, 1997.

Alternatives Study for the Runway Safety Area Extension Project Master Drainage Plan Santa Barbara Airport
URS Corporation, 2001.

Draft Aviation Facilities Plan
City of Santa Barbara Airport Department, 2001.

Draft Final Conceptual Wetland Mitigation Plan for the Airfield Safety Projects, Santa Barbara Airport
URS Corporation, 2001.

Supporting Environmental Information for the Safety Area Grading Project Santa Barbara Municipal Airport
Woodward-Clyde, 1996.

Staff Report and Recommendation on Consistency Determination No. CD-70-92
California Coastal Commission, 1992.

Proposed Findings on Consistency Certification No. CC-064-99
California Coastal Commission, 1999.

Staff Report: Application No. 4-97-134
California Coastal Commission, 1997

IX. List of Exhibits

Exhibit		Description
1		Project Location Map CC-058-01
1A	Figure 2-6	Santa Barbara Airport Terminal Expansion Project
2	Figure I-2	Proposed Projects
3	Figure 2-3	Alternative 1: West Creek Realignment Alternative
4	Figure 3	Proposed Creek Realignment and New RSA
5	Figure 2-4	Alternative 2: West Creek Culvert Alternative
6	Figure 2-7	Proposed Terminal Renovation
7	Figure 3.13-2	Flood Hazard Areas
8	Figure 3.7-2	Stormwater Drainage System
9	Figure 3.2-5	Existing and Proposed Bikeways in the Project Area
10	Figure 10	Coastal Zone Boundaries
11	Figure 7A	Permanent Wetland Impacts in the RSA Extension Area
12	Table 3	Detailed Impacts to Coastal Act Wetlands
13	Table 4A	Summary of Impacts to Coastal Act Wetlands
14	Figure 7A	Future Wetlands in the RSA Extension Area
15		Wetland Impacts Along Taxiway M
16	Figure 11	Berms to be Restored
17	Figure 13	Cross Sections of Berm Habitat Restoration
18	Figure 15	Topographic Map of Wetland Restoration Site
19	Figure 19	Cross Section of Habitat Restoration
20	Figure 18	Proposed Habitat Restoration at "Area I"
21	Table 11	Target Wetland Vegetation Goals at Year 7
22	Update on Surveys for the Belding's Savannah Sparrow (URS 2001	
23	GSEMP Habitat Planning Units	
24	Figure 3.11-2	Distribution and Density of Belding's Sparrows in Goleta
25	National Marine Fisheries Service: Informal Section 7 Consultation Correspondence (2001)	
26	Federal Aviation Administration: Conclusion of Section 7 Consultation (2001)	
27	California Department of Fish and Game: Comments on the Santa Barbara Airport EIS/EIR for the Aviation Facilities Plan (2001)	
28	US Fish and Wildlife Service: Section 7 Consultation (2001)	
29	Runway Capacity Factors-Draft Aviation Facilities Plan, City of Santa Barbara (2001)	
30	Airport Capacity and Delay-FAA Advisory Circular No. 150/5060-5 U.S. Department of Transportation (1983)	
31	Federal Aviation Administration, Advisory Circular No. 150/5220-22, Engineered Material Arresting Systems (EMAS) for Aircraft Overruns (1998)	
32	Letter to Peter Douglas, Executive Director, Re: Consistency Certification CC-058-01 City of Santa Barbara, Santa Barbara Channel Keeper (2002)	
33	Letter to California Coastal Commission, Re: Consideration of the Engineered Material Arresting System (EMAS) as a viable alternative, City of Santa Barbara (2002)	

34 Letter to Karen Ramsdell, Airport Director, Re: The suitability of the Engineered Material Arresting System (EMAS) as a viable alternative, U.S. Department of Transportation Federal Aviation Administration (2002)

CALIFORNIA
COASTAL
COMMISSION

PROJECT LOCATION MAP
CC-058-01

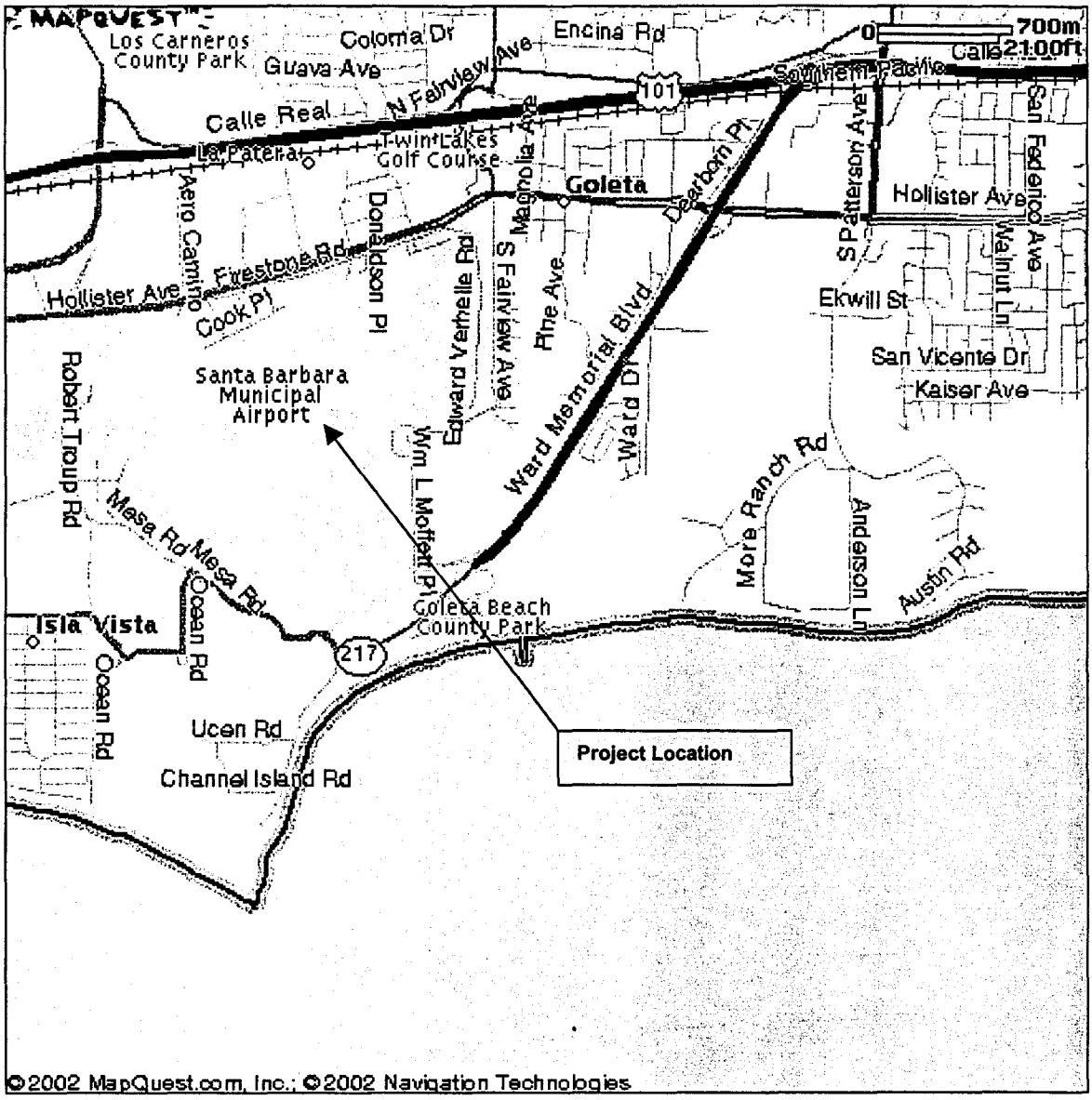
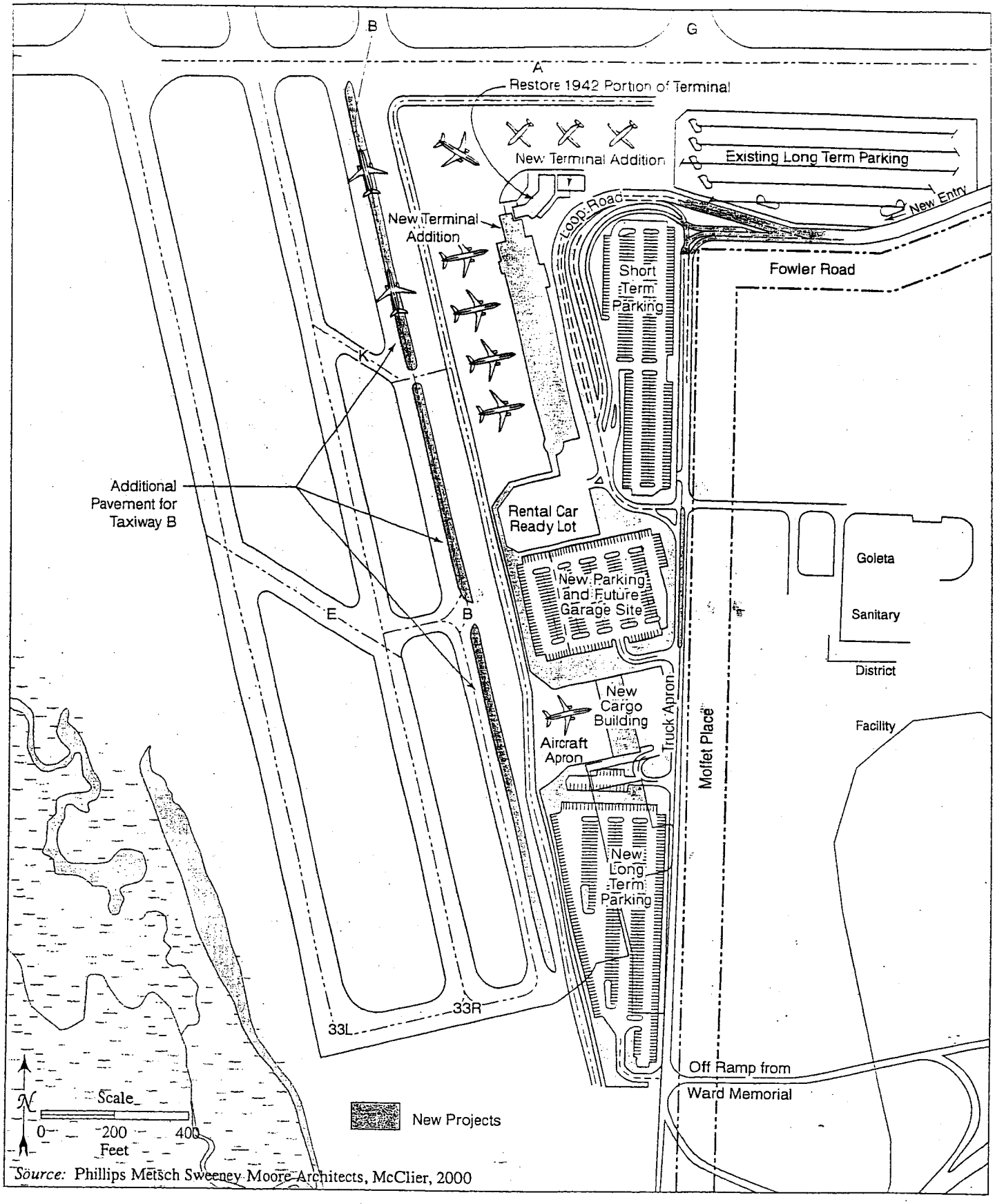


EXHIBIT NO. 1

APPLICATION NO. CC-058-01
California Coastal Commission



Source: Phillips Metsch Sweeney Moore Architects, McClier, 2000

Figure 2-6. Santa Barbara Airport Terminal Expansion Project

EXHIBIT NO. 1A

APPLICATION NO. CC-058-01

California Coastal Commission

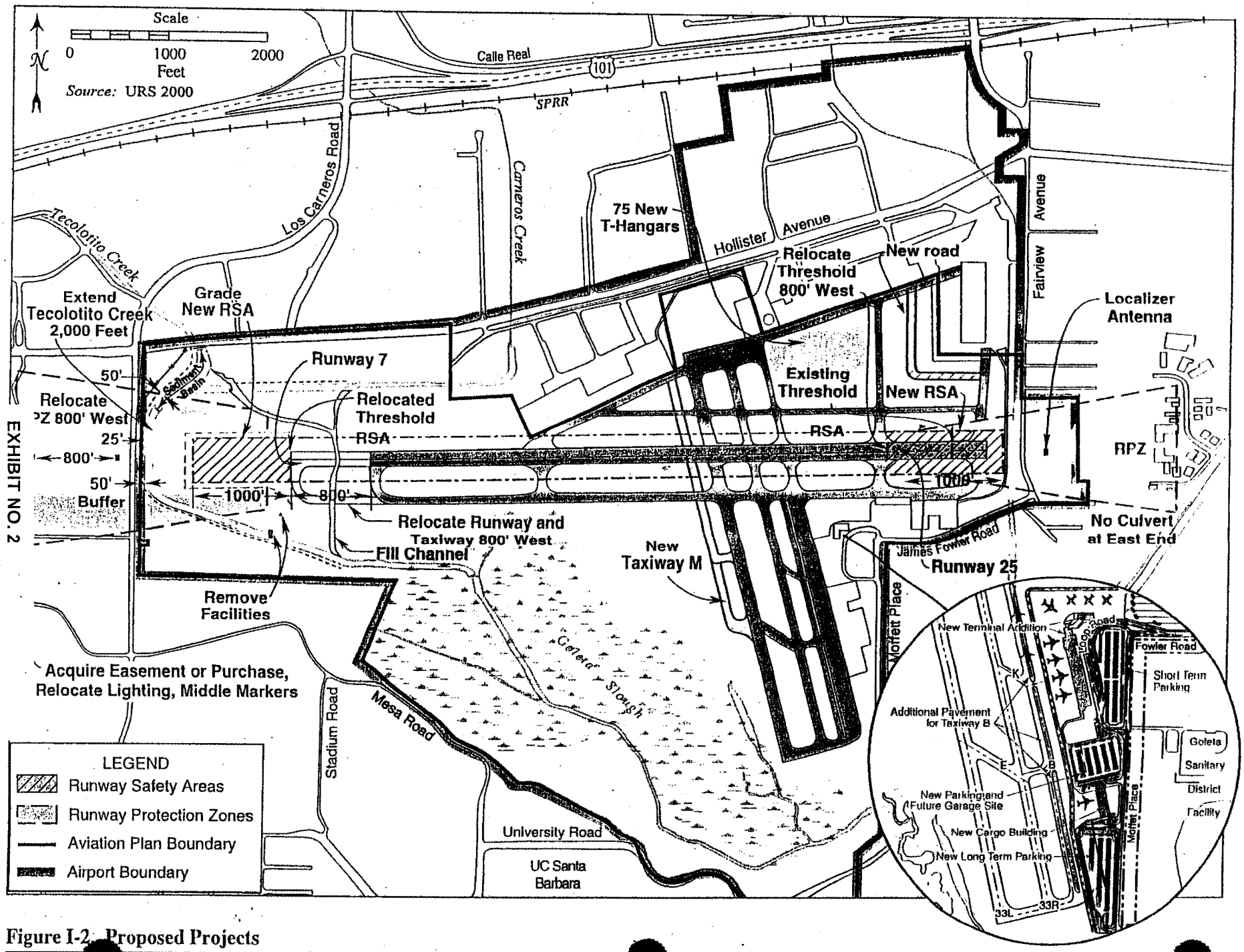


Figure I-2. Proposed Projects

EXHIBIT NO. 2
APPLICATION NO. CC-058-01

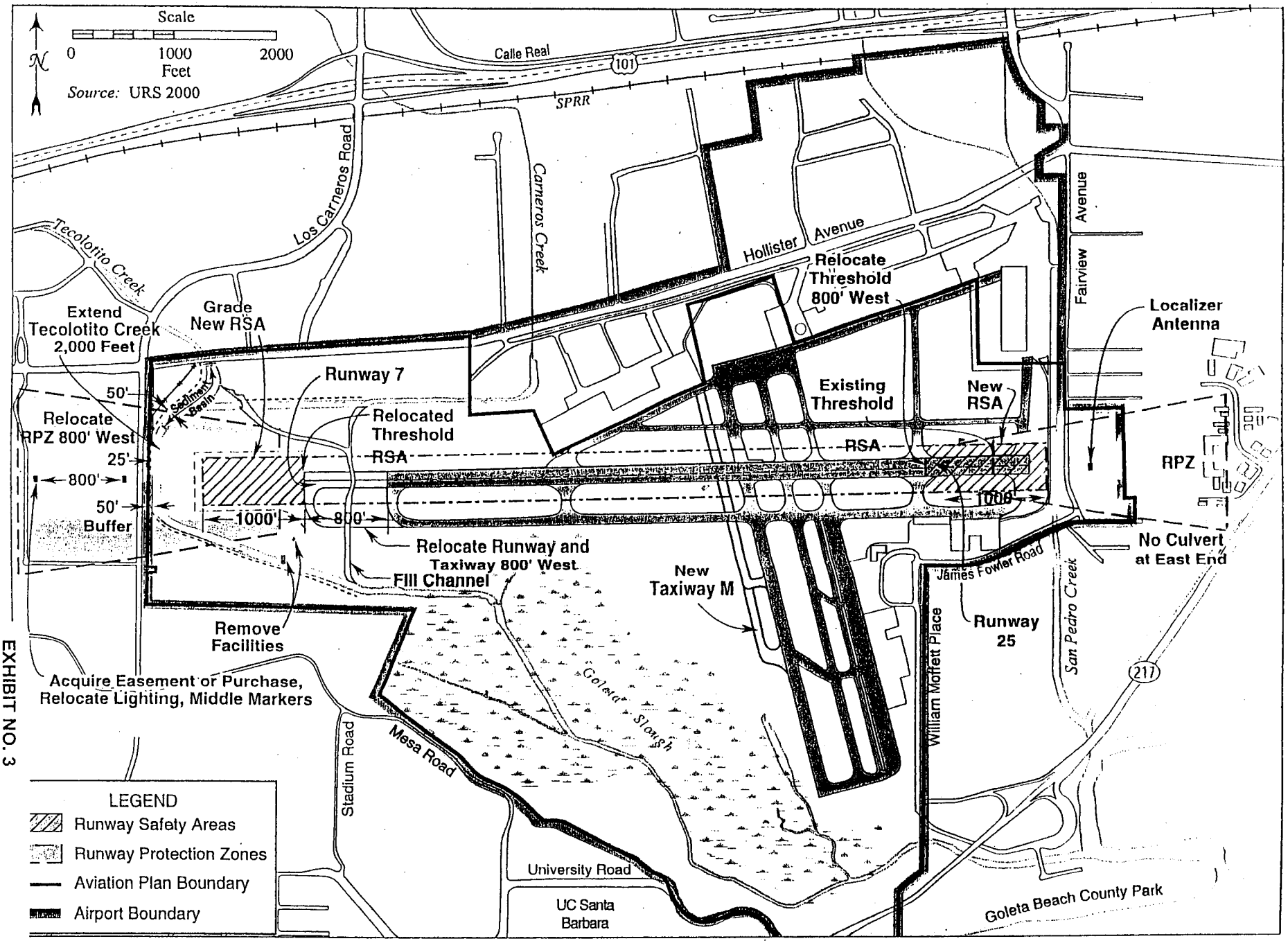


Figure 2-3. Alternative 1, West Creek Realignment Alternative

EXHIBIT NO. 3
APPLICATION NO. CC-058-01

California Coastal Commission

EXHIBIT NO. 4
APPLICATION NO. CC-058-01

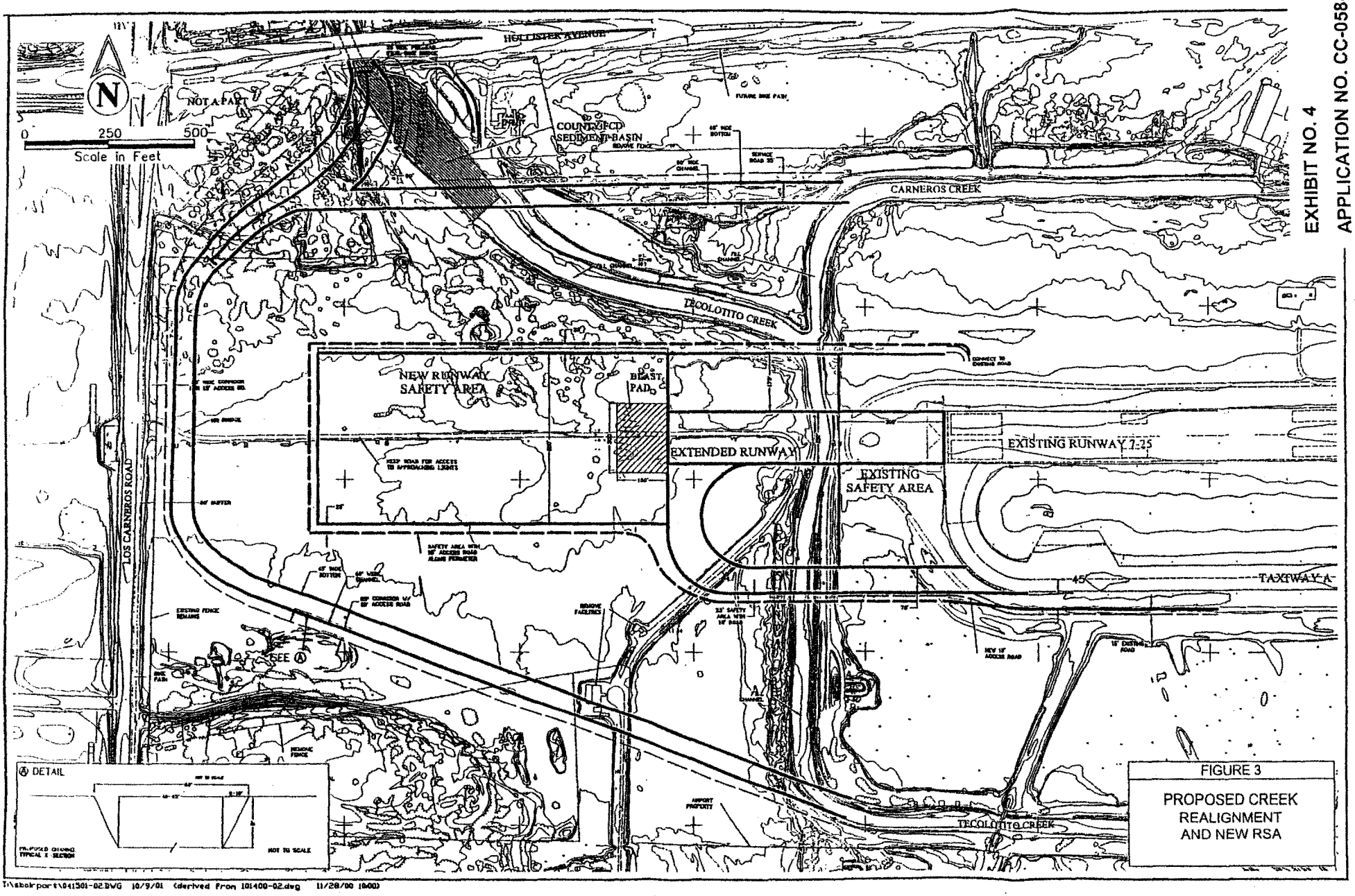
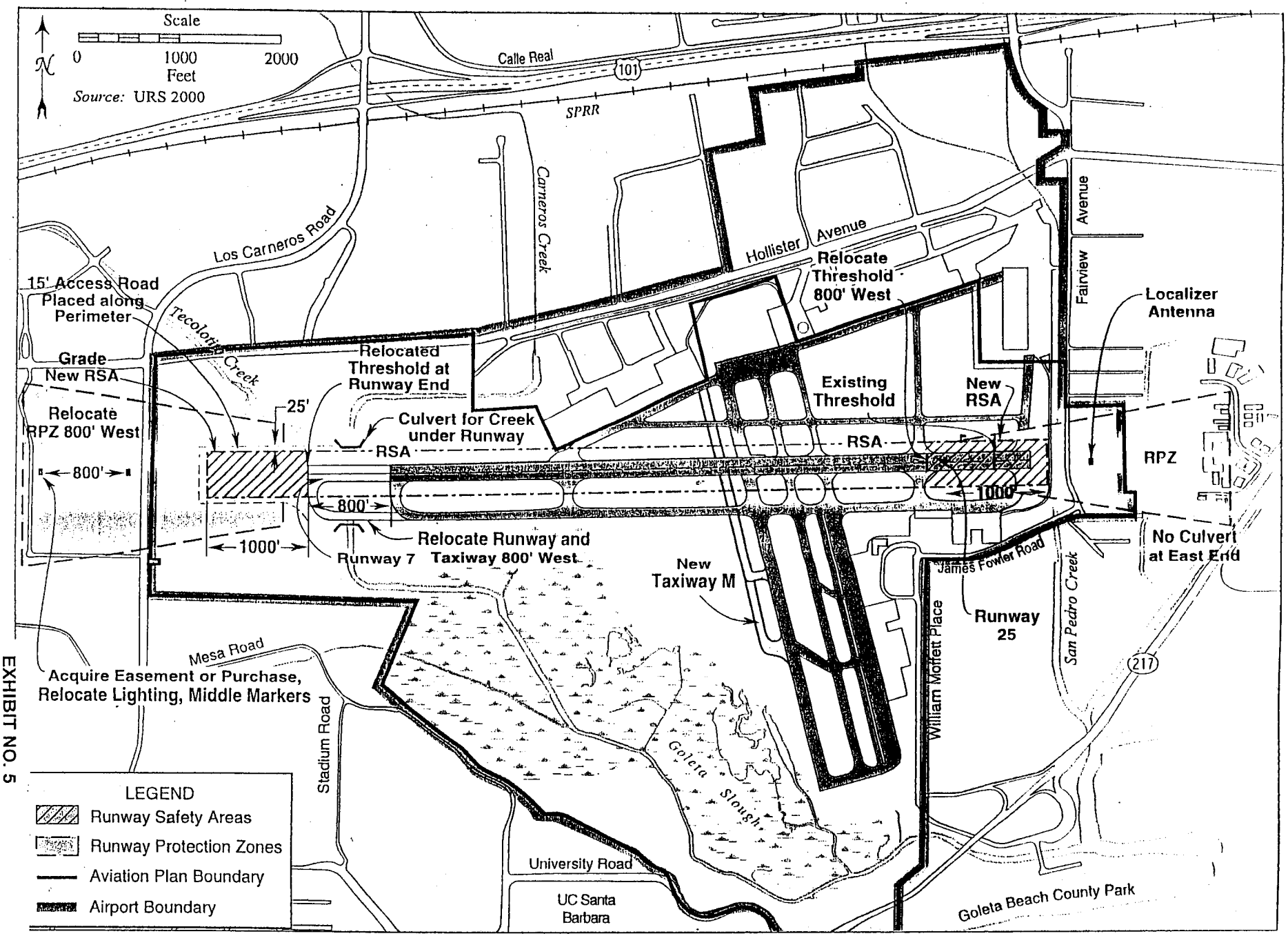


FIGURE 3

PROPOSED CREEK REALIGNMENT AND NEW RSA

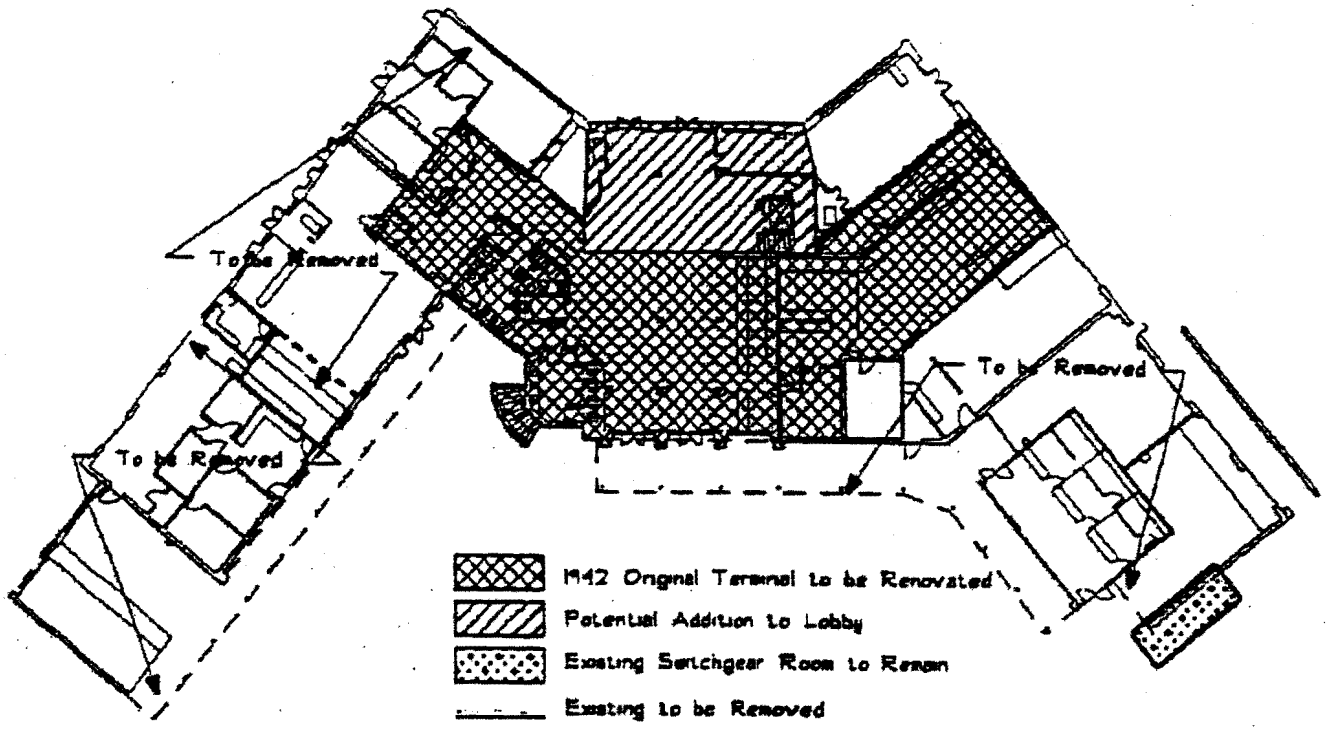
T:\sbairport\041501-02.DWG 10/9/01 (derived From 101400-02.dwg 11/28/00 10:00)



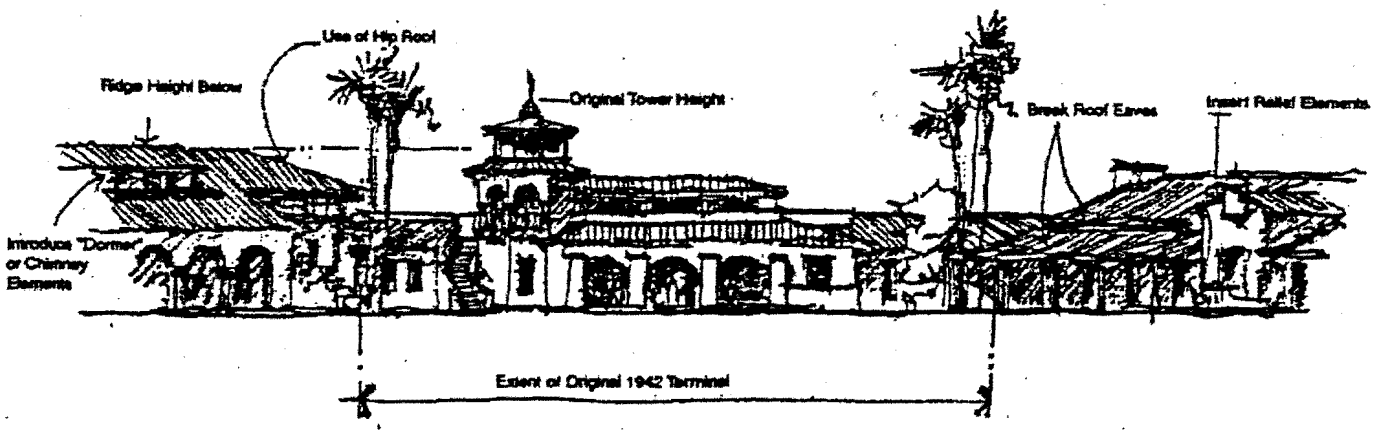
igure 2-4. Alternative 2, West Creek Culvert Alternative

EXHIBIT NO. 5
APPLICATION NO. CC-058-01

California Coastal Commission



Proposed Terminal Renovation



Conceptual Elevation Sketch Denoting Visual Separation of the 1942 Airline Terminal from the Proposed New Additions

Source: Phillips Metsch Sweeney Moore Architects McClier, 2000

Figure 2-7. Proposed Terminal Renovation

EXHIBIT NO. 6

APPLICATION NO. CC-058-01

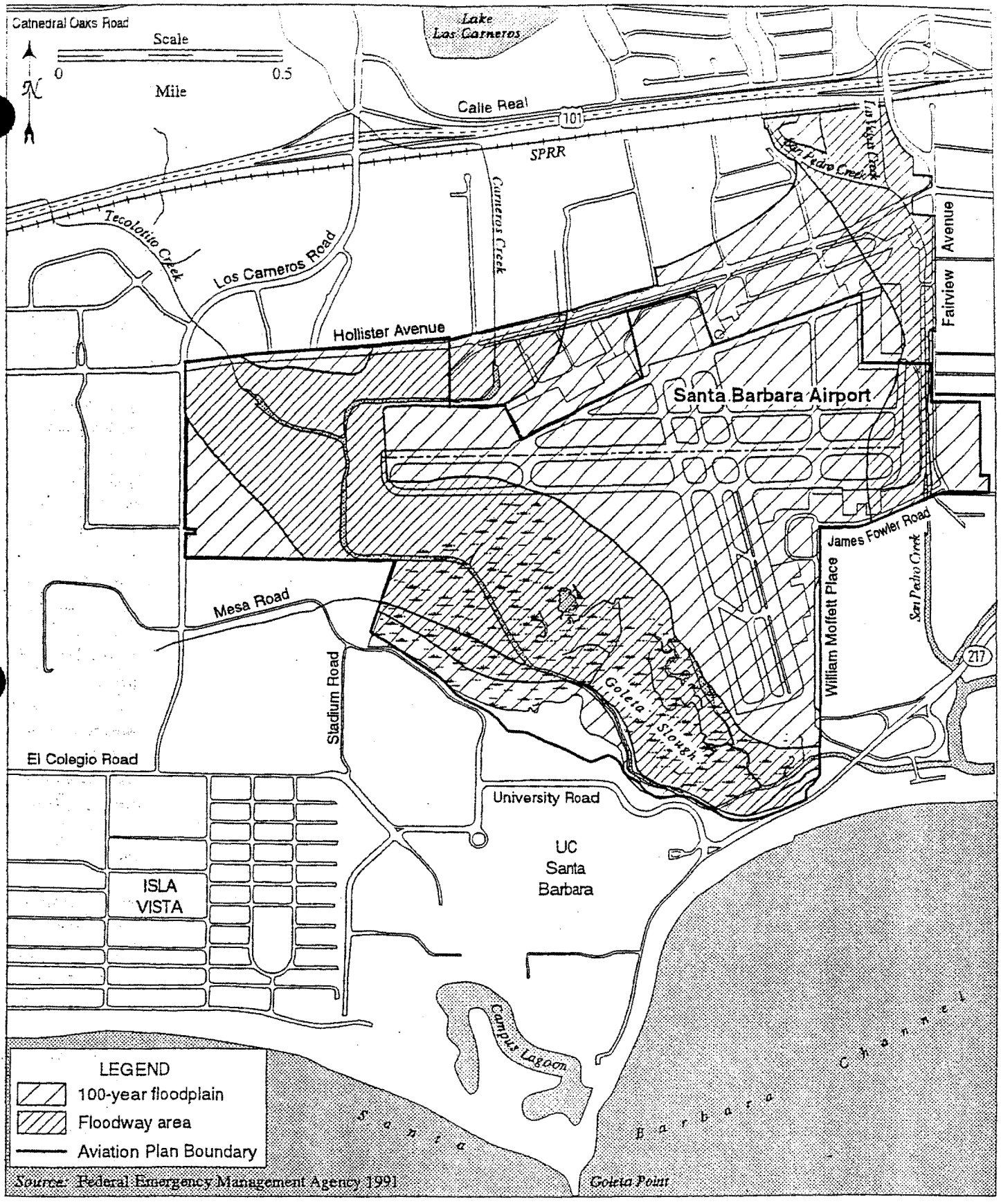


Figure 3.13-2. Flood Hazard Areas

EXHIBIT NO. 7

APPLICATION NO. CC-058-01

California Coastal Commission

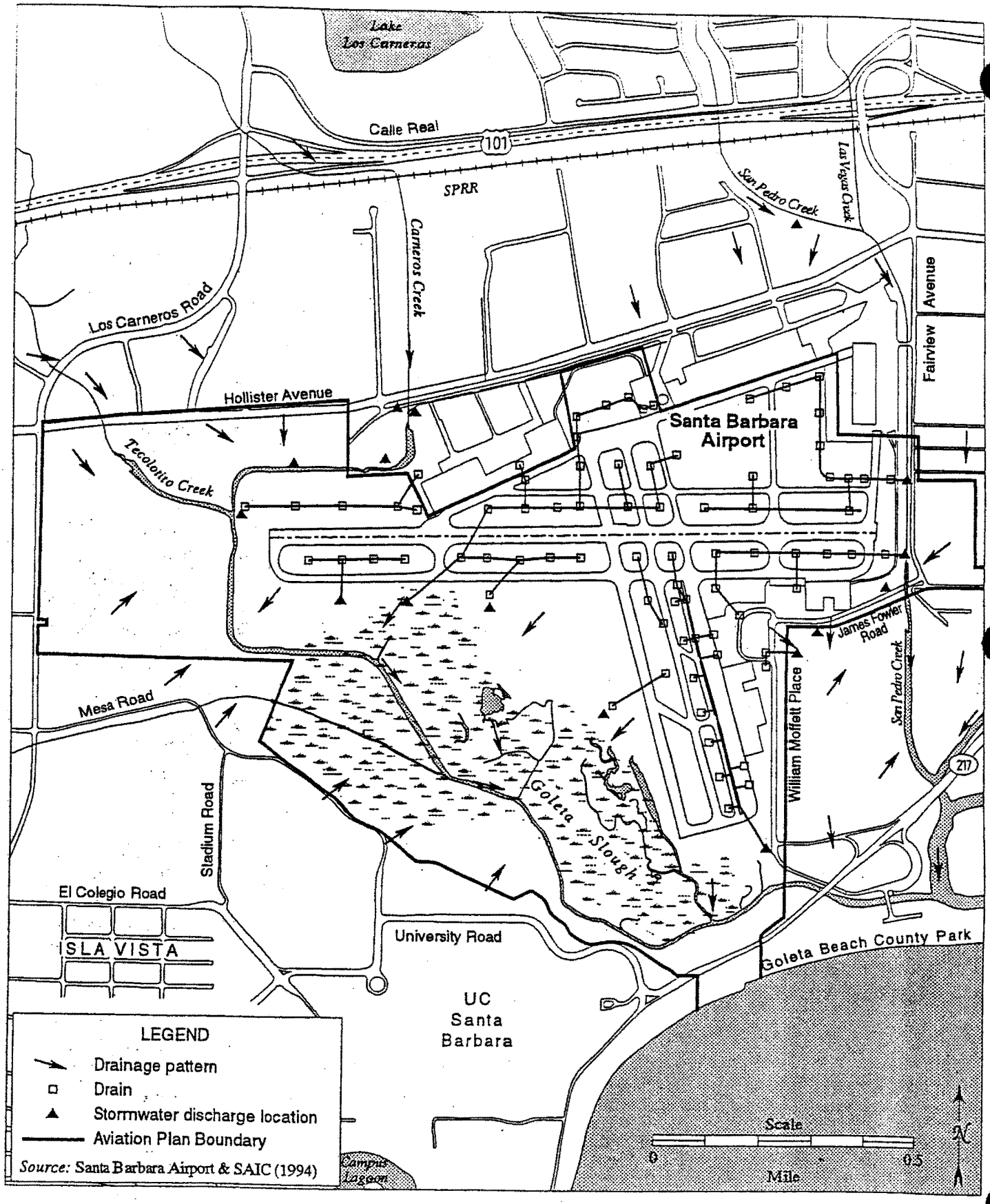


Figure 3.7-2. Stormwater Drainage System

EXHIBIT NO. 8

APPLICATION NO. CC-058-01

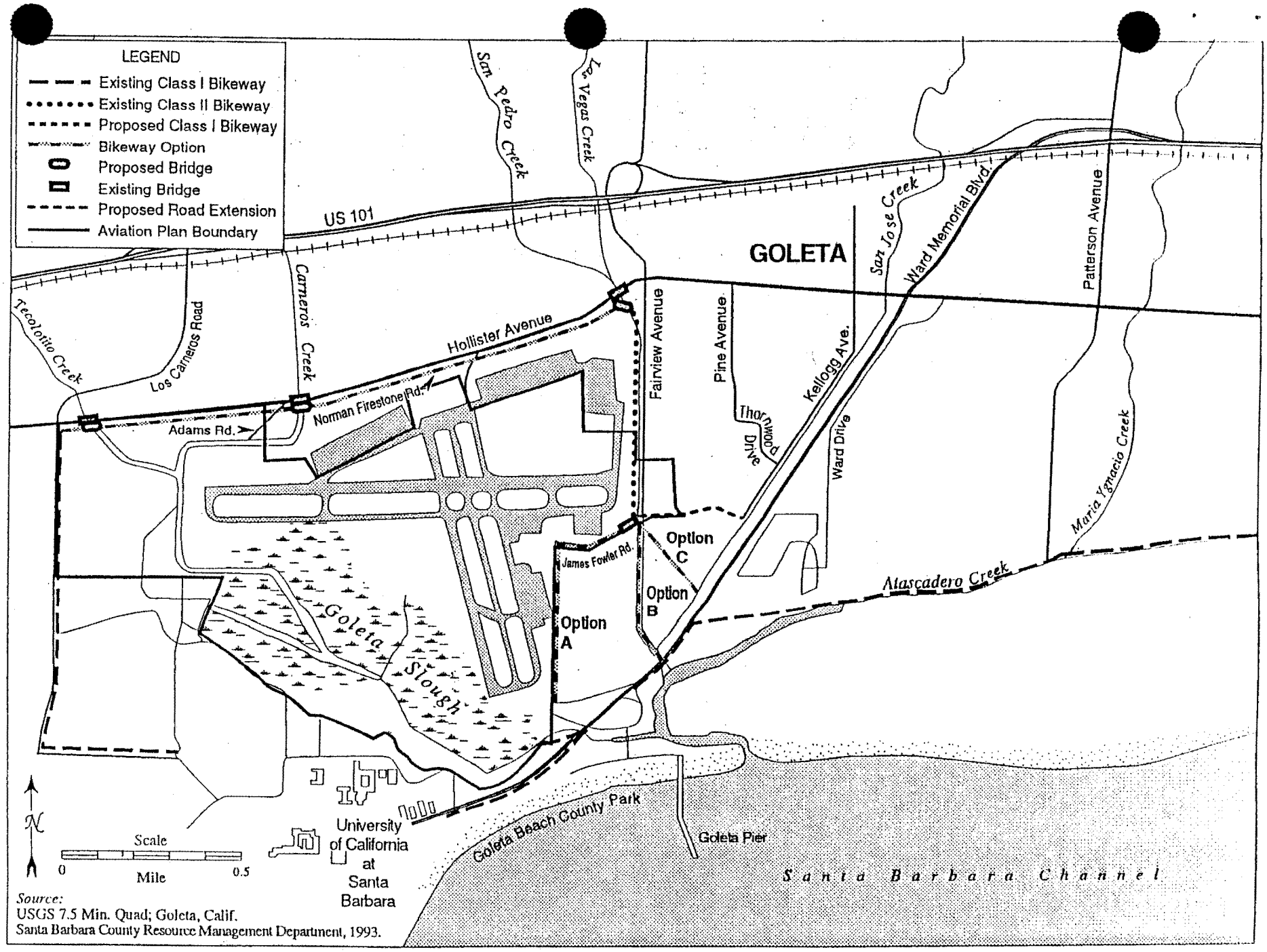


Figure 3.2-5. Existing and Proposed Bikeways in the Project Area

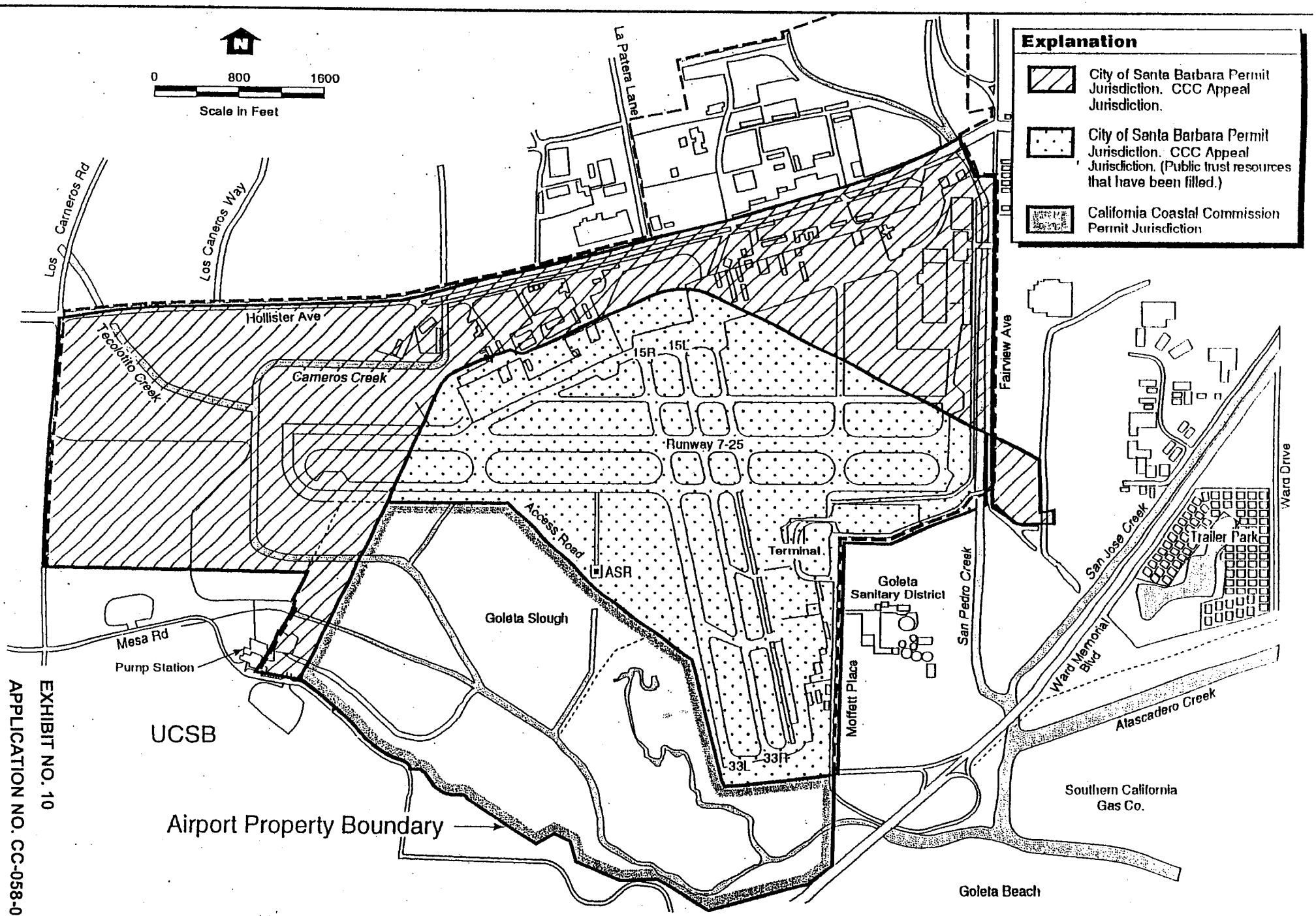


Figure 10. Coastal Zone Boundaries

EXHIBIT NO. 10
APPLICATION NO. CC-058-01

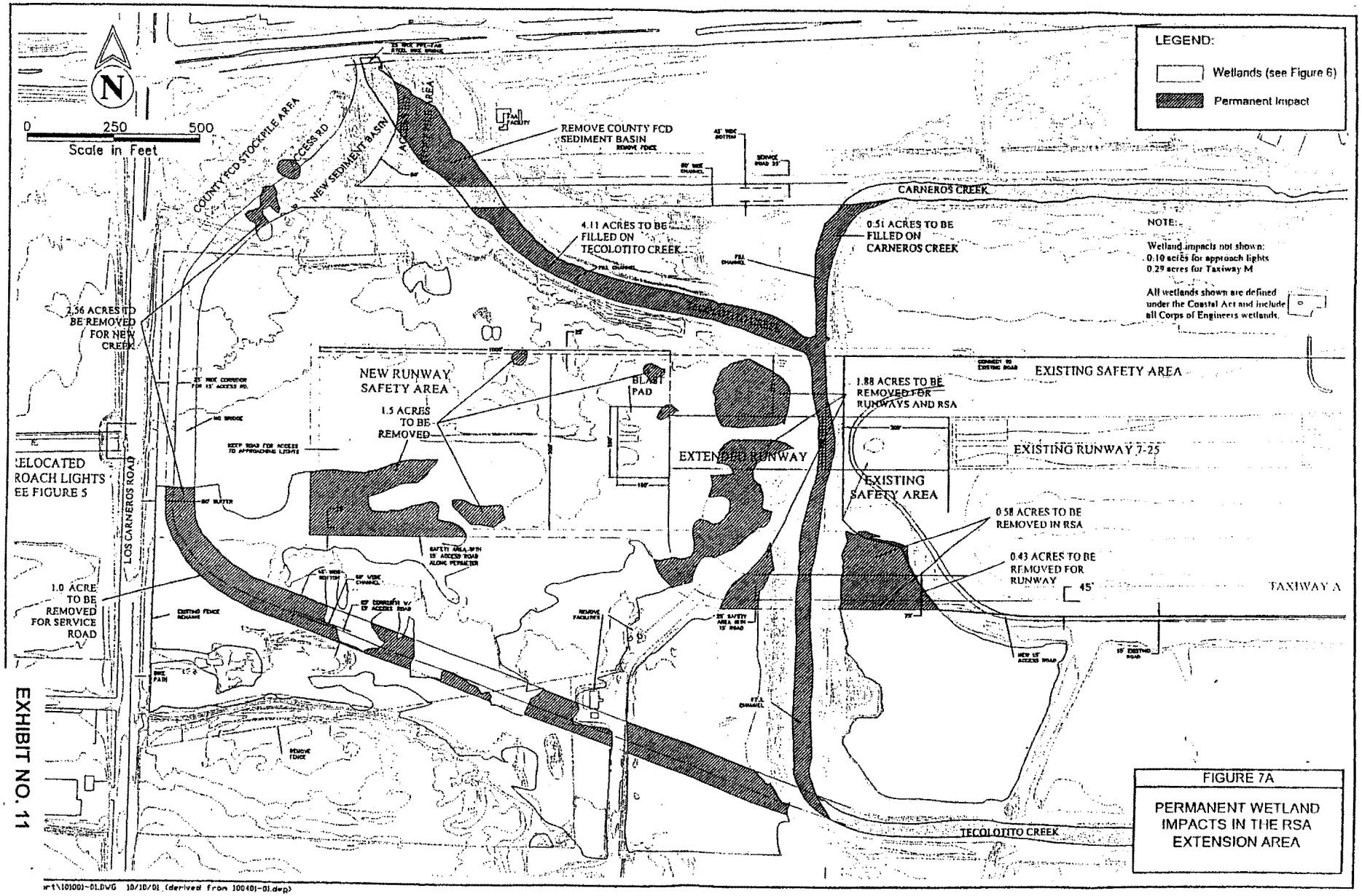


FIGURE 7A

PERMANENT WETLAND IMPACTS IN THE RSA EXTENSION AREA

EXHIBIT NO. 11

APPLICATION NO. CC-058-01

California Coastal Commission

TABLE 3A
DETAILED IMPACTS TO COASTAL ACT WETLANDS

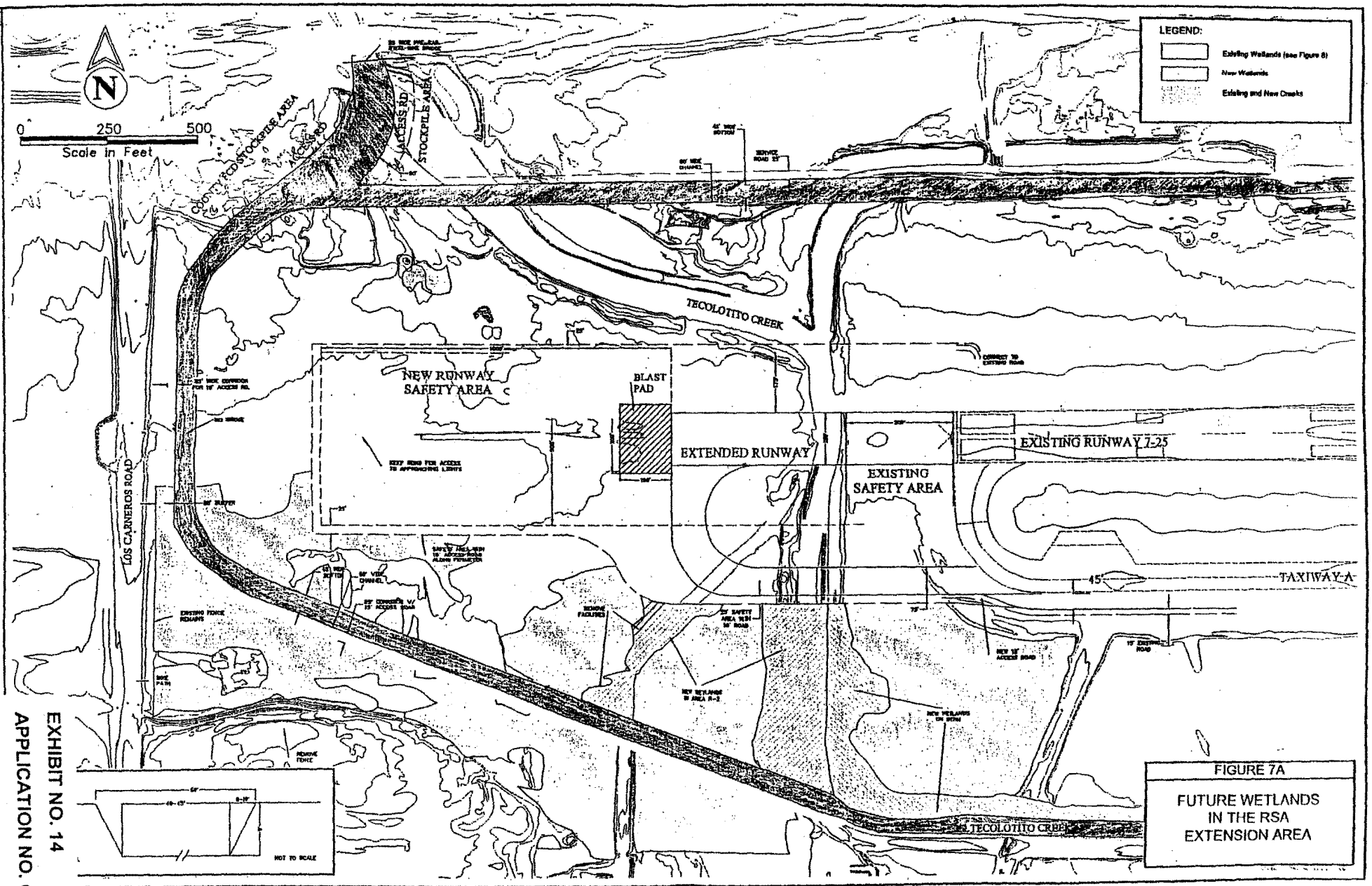
Map Code	Vegetation Series	Acres of permanent effect (removal due to paving or creek construction, or conversion to other habitat types)												
		Ex. Carneros Ck to be filled	Ex. Tec. Ck to be filled	New Carneros Ck channel	New Tec. Ck channel	Service Road along Tec. Ck. S. of Sed. Basin	New RSA (500x1000') at end of Runway	New Runway and Taxiway W. of Tec. Ck.	Other New RSA areas W. of Tec. Ck	New Runway and Taxiway E. of Tec. Ck.	New RSA areas E. of Tec. Ck.	New Approach Lights on Sares-Regis	Taxiway M	Total
*Wetland Vegetation (dominated by hydrophytes)**														
1	Pickleweed				0.09	0.12				0.43	0.58		0.02	1.24
1H	Pickleweed-Mediterranean barley				0.22	0.01								0.23
1HB	Pickleweed-Mediterranean barley-brass buttons												0.11	0.11
1HC	Pickleweed-Mediterranean barley-alkali weed				0.40	0.08		0.06	0.06					0.60
3	Saltgrass						0.54							0.54
3CF	Saltgrass-alkali weed-alkali heath						0.25							0.25
4C	Curly dock-alkali weed						0.02		0.08					0.10
4FD	Curly dock-alkali heath-saltgrass					0.10		0.04	0.05					0.19
4P	Curly dock-bristly ox-tongue				0.02									0.02
7ER	Spikerush-curly dock												0.04	0.04
8	Arroyo willow				0.17		0.04							0.21
11	Italian ryegrass											0.10		0.10
11LC	Italian ryegrass-alkali weed				0.03	0.05								0.08
11LCF	Italian ryegrass-alkali weed-alkali heath					0.08								0.08
11LCT	Italian ryegrass-alkali weed-wild lettuce							0.03	0.03					0.06
11LCR	Italian ryegrass-alkali weed-curly dock							0.11	0.15					0.26
11LFR	Italian ryegrass-alkali weed-alkali heath-curly dock					0.07	0.14						0.12	0.33
11LFRD	Italian ryegrass-alkali heath-curly dock-pickleweed						0.08							0.08
11LSC	Italian ryegrass-pickleweed-alkali weed				0.20	0.21		0.11						0.52
14R	Cocklebur-curly dock							0.09	0.42					0.51
14RMC	Cocklebur-curly dock-alkali mallow-alkali weed								0.24					0.24
22LR	Alkali weed-Italian ryegrass-curly dock						0.17							0.17
22LFR	Alkali weed-Italian ryegrass-alkali heath-curly dock							0.14	0.24					0.38
22LFRS	Alkali weed-Italian ryegrass-alkali heath-curly dock-saltgrass				1.03	0.27	0.11							1.41
22S	Alkali weed-pickleweed				0.08									0.08
22XM	Alkali weed-cocklebur-alkali mallow								0.03					0.03
24	Heliotrope						0.15							0.15
Subtotal=		0	0	0.00	2.24	0.99	1.50	0.58	1.30	0.43	0.58	0.10	0.29	8.01
*Non-vegetated Areas Seasonally Inundated or Saturated**														
19	Salt flats			0.34	0.32	0.01								0.67
*Open Water and Mudflats in Tecolotito and Carneros Creeks**														
21	Open water - channels filled for RSA	0.51	4.11											4.62
Total Coastal Act Wetland Impacts=		0.51	4.11	0.34	2.56	1.00	1.50	0.58	1.30	0.43	0.58	0.10	0.29	13.30

*= Areas considered "wetlands" as defined in the Coastal Act, including non vegetated areas subject to periodic inundation and open water

TABLE 4A
SUMMARY OF IMPACTS TO COASTAL ACT WETLANDS

Map Code	Wetland Type (Vegetated or Non-vegetated)	Permanent Effect* (acres)	Temporary Impacts (acres)
Coastal Act Wetlands (Vegetated wetlands) - RSA Extension and Creek Relocation Impacts			
1	Pickleweed Series	2.05	0.18
3	Saltgrass Series	0.79	0.06
4	Curly Dock Series	0.31	0.21
7	Spikerush Series	0.00	0.11
8	Arroyo Willow Series	0.21	0.00
11	Annual Grassland Series (wetland affinities)	1.29	0.73
14	Cocklebur Series	0.75	0.00
22	Alkali Weed Series	2.07	0.23
24	Heliotrope Series	0.15	0.00
Subtotal=		**7.62**	**1.52**
Coastal Act Wetlands (Unvegetated) - RSA Extension and Creek Relocation Impacts			
19	Salt flats (periodically inundated, no drainage)	0.67	0.00
Subtotal=		**0.67**	0.00
Coastal Act Wetlands (Unvegetated Open Water & Mudflats) - RSA Extn. & Ck Relocation			
21	Open water and mudflats (filling Carneros Creek for RSA)	0.51	0.03
21	Open water and mudflats (filling Tecolotito Creek for RSA)	4.11	0.03
Subtotal=		**4.62**	**0.06**
Coastal Act Wetlands (Vegetated) - Taxiway M			
1	Pickleweed Series	0.13	0.06
7	Spikerush Series	0.04	0.02
11	Annual Grassland (wet affinities)	0.12	0.06
Subtotal=		**0.29**	**0.14**
Coastal Act Wetlands (Vegetated) - Approach Light on Sares-Regis			
11	Annual Grassland (wet affinities)	0.10	0.05
Subtotal=		**0.10**	**0.05**
TOTAL COASTAL ACT WETLANDS=		15.30	1.77
TOTAL COASTAL ACT VEGETATED WETLANDS=		8.01	1.71

** Permanent effect = loss due to paving or creek construction, or conversion to another habitat type. Hence, some wetlands will be converted to upland habitat.*



401-01 (derived from 082101-01 & 081501-01.dwg)

FIGURE 7A

FUTURE WETLANDS IN THE RSA EXTENSION AREA

EXHIBIT NO. 14

APPLICATION NO. CC-058-01

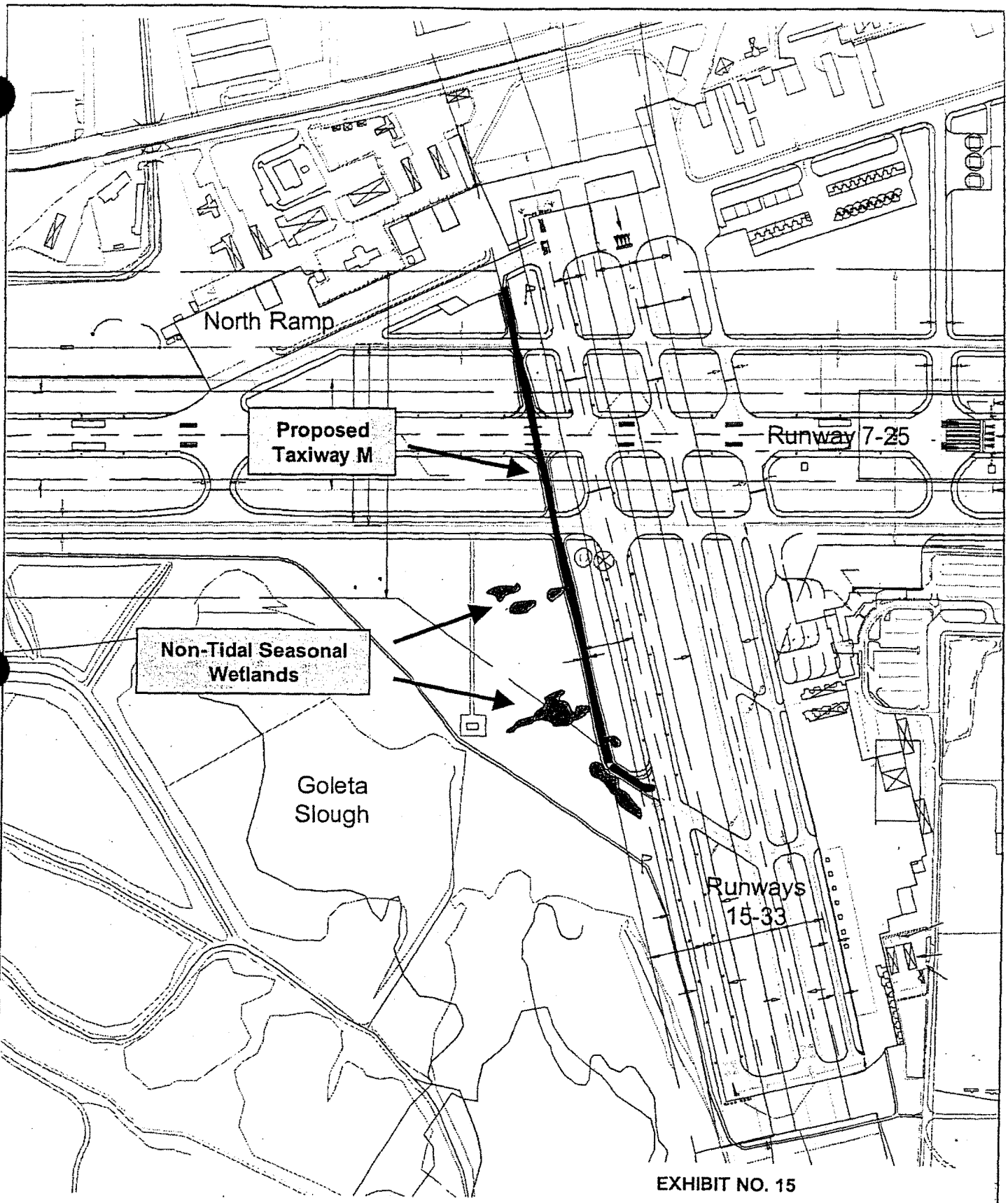


EXHIBIT NO. 15

APPLICATION NO. CC-058-01

California Coastal Commission

NORTH

No Scale

Wetland Impacts Along Taxiway M

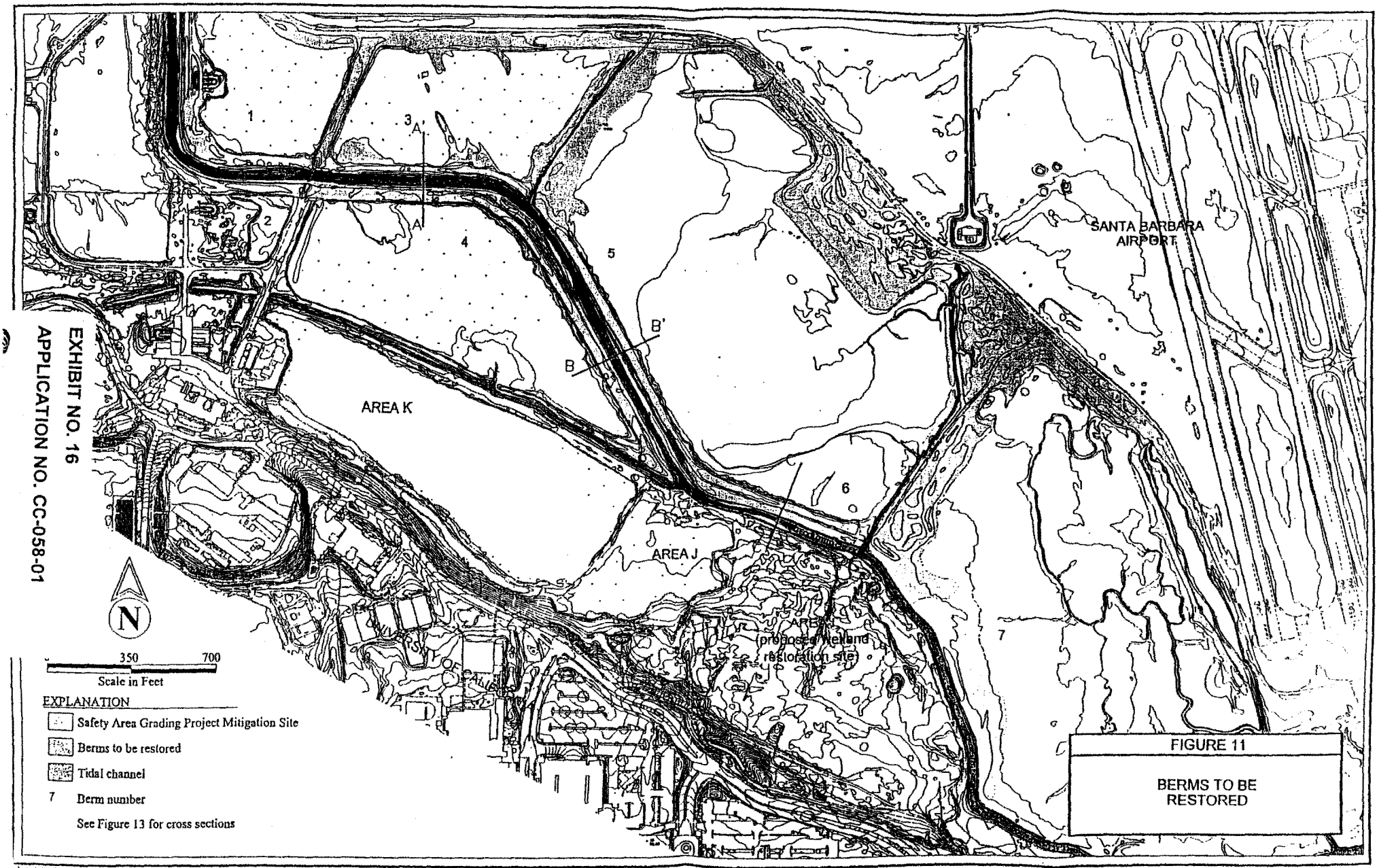


EXHIBIT NO. 16
APPLICATION NO. CC-058-01

FIGURE 11

BERMS TO BE RESTORED

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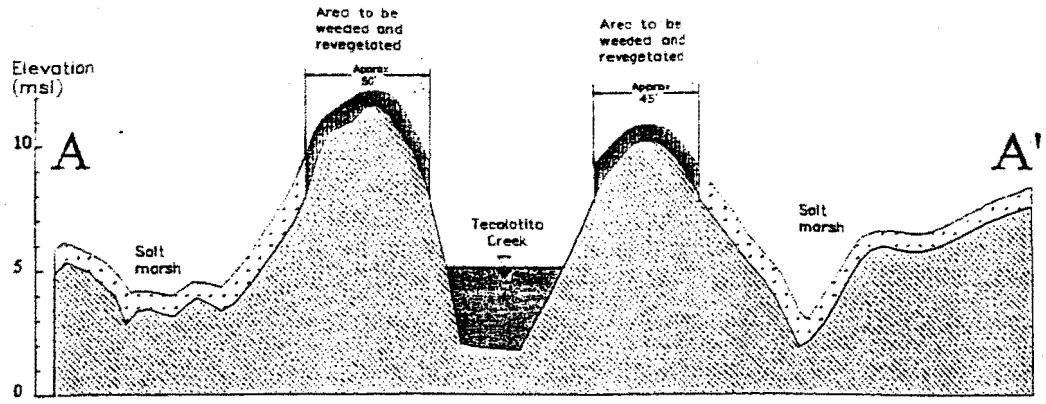

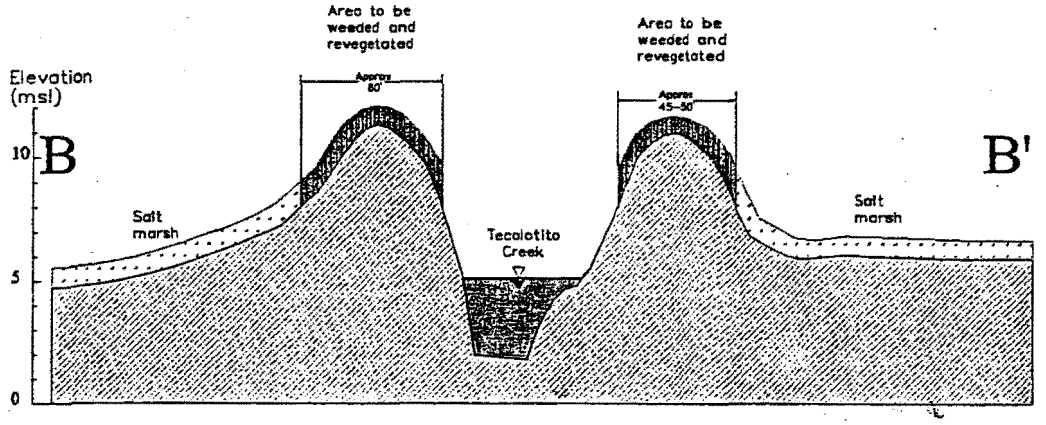

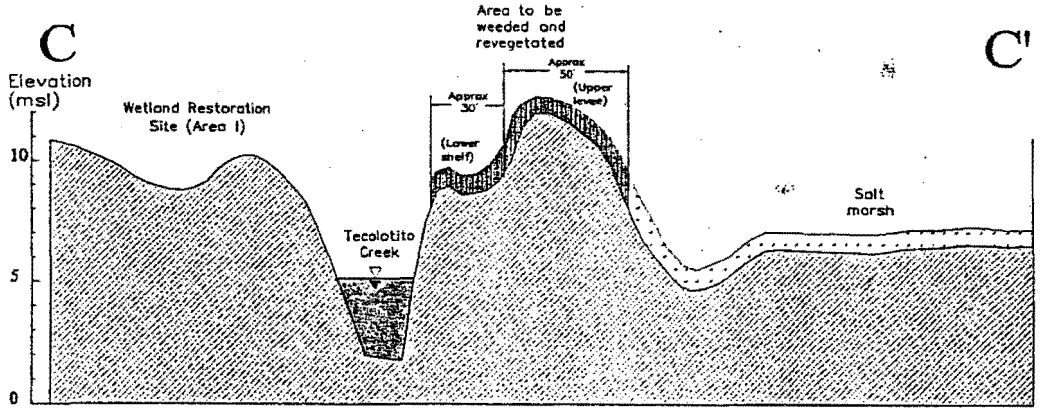

EXPLANATION

Dense, 6'-high mustard stands

Cross section locations shown on Figure 11

0 80 160

Horizontal Scale in Feet
Vertical exaggeration 10 times

EXHIBIT NO. 17

APPLICATION NO. CC-058-01

California Coastal Commission

FIGURE 13

CROSS SECTIONS OF BERM HABITAT RESTORATION

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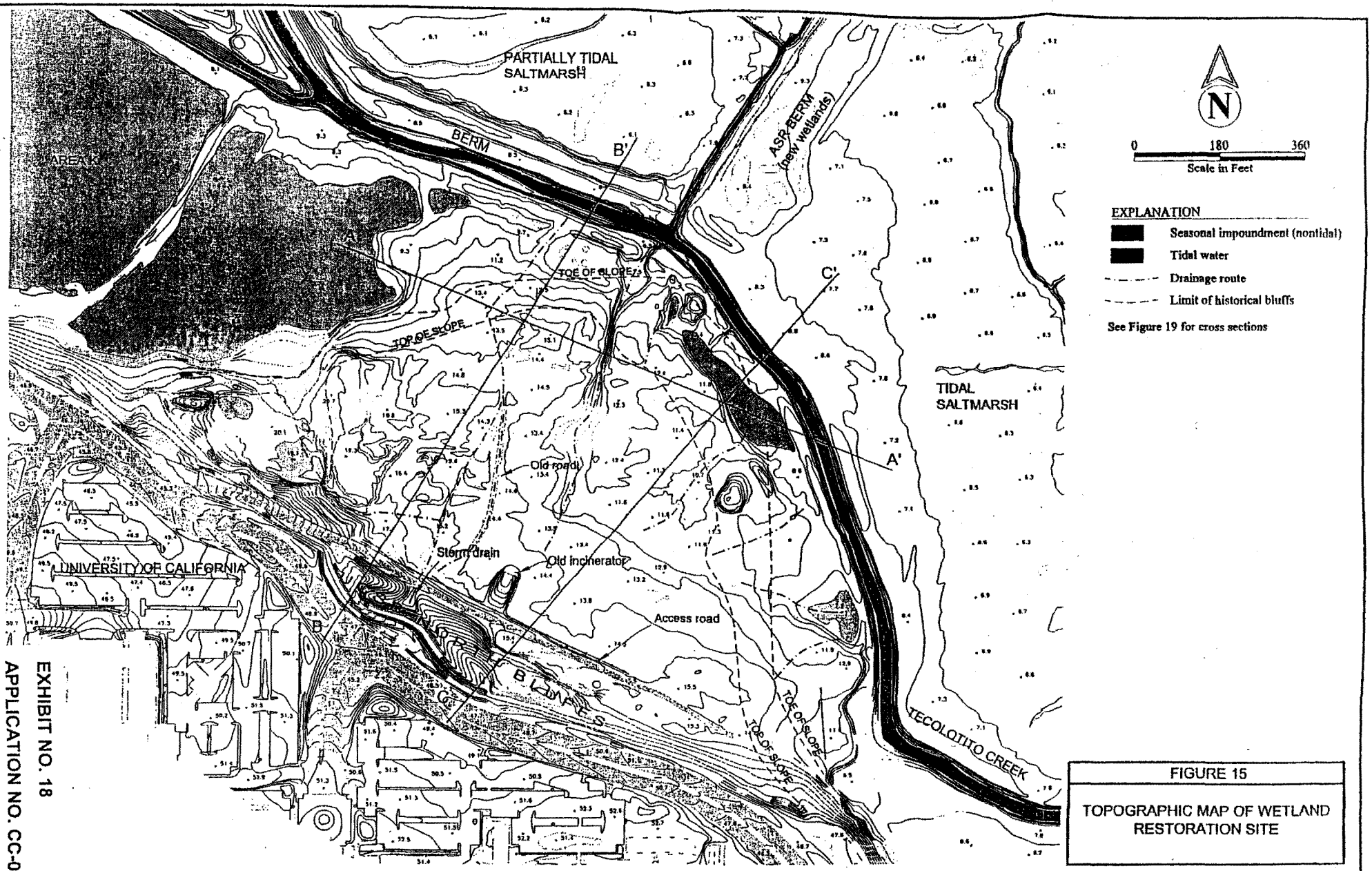


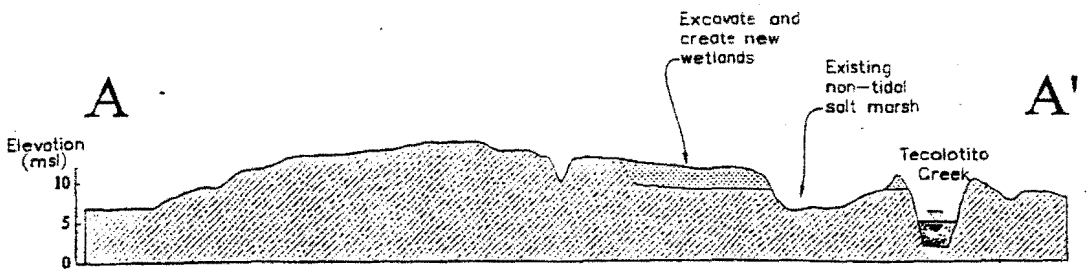
FIGURE 15

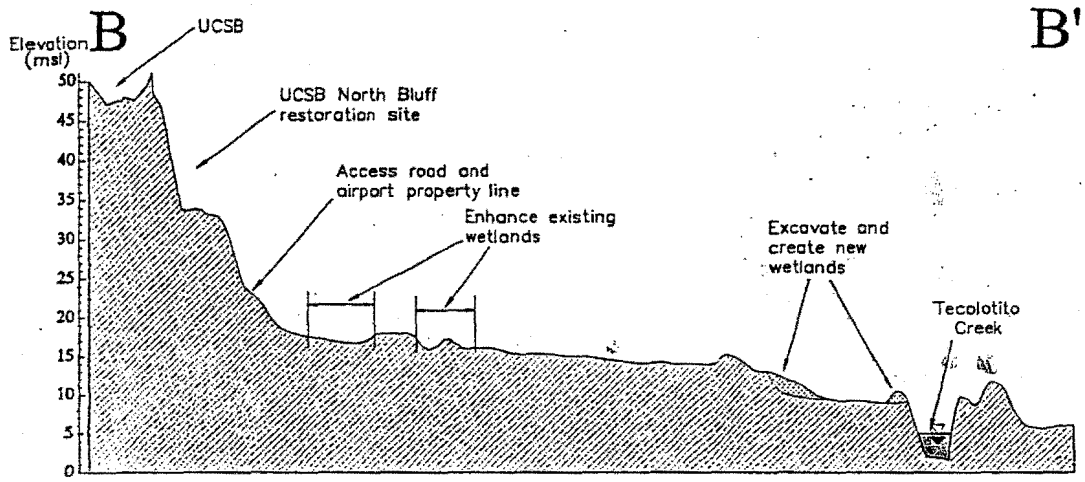
TOPOGRAPHIC MAP OF WETLAND RESTORATION SITE

wetlandrestoration 4/17/01

EXHIBIT NO. 18

APPLICATION NO. CC-058-01





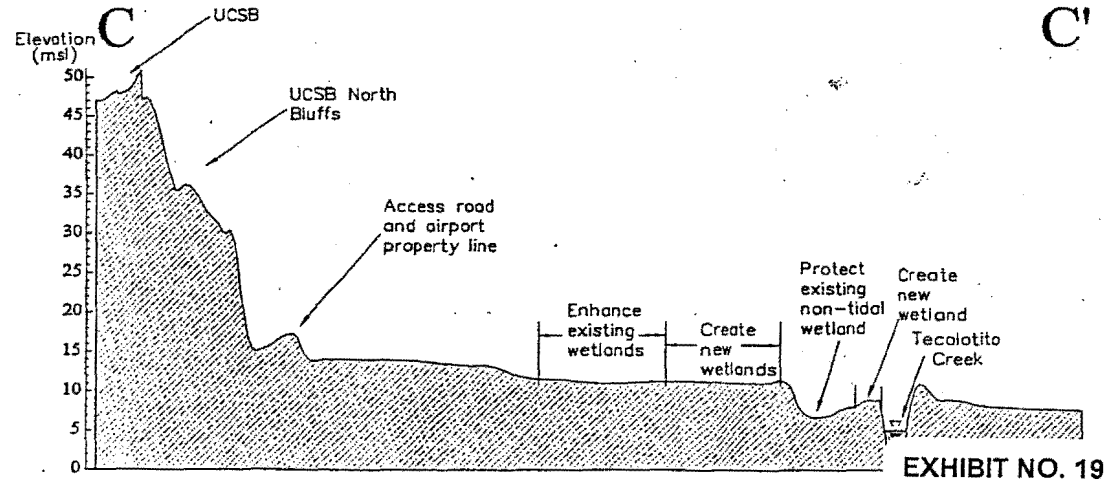


EXHIBIT NO. 19

APPLICATION NO. CC-058-01

California Coastal Commission

Cross section locations shown on Figure 15

0 250 500

Horizontal Scale in Feet
Vertical exaggeration 10 times

FIGURE 19

CROSS SECTIONS OF HABITAT RESTORATION

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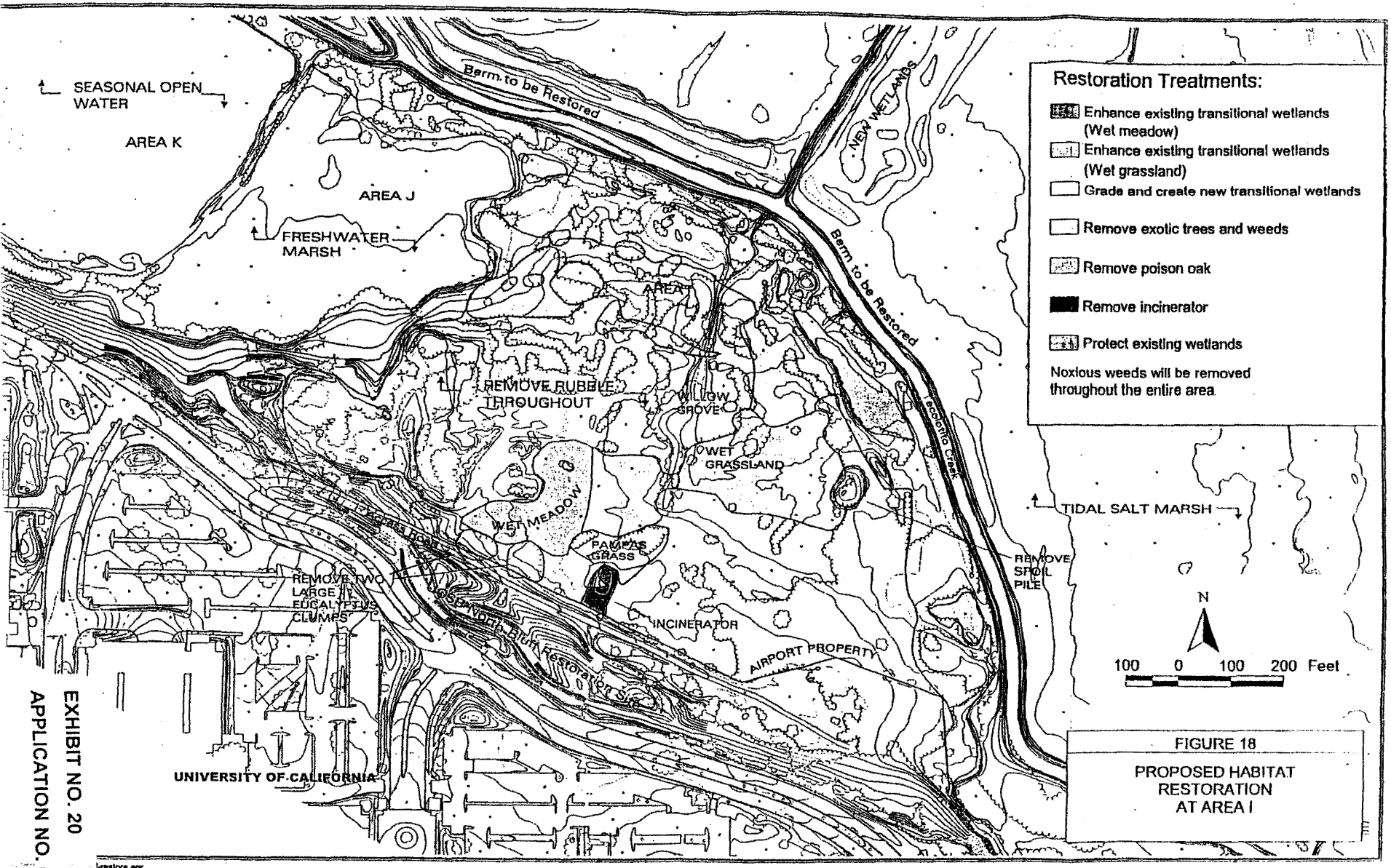


FIGURE 18

PROPOSED HABITAT RESTORATION AT AREA I

EXHIBIT NO. 20

APPLICATION NO. CC-058-01

Table 11 will be modified as shown below to provide more accurate and measurable performance goals:

TABLE 11
TARGET WETLAND VEGETATION GOALS AT YEAR 7*

Restoration Site	Type of Wetland	Acres	Minimum Total Percent Native Plant Cover by 7 Years	Minimum Number of Native Wetland Plant Species Successfully Established by 7 Years	Maximum Percent Cover of Non-native Weedy Species by 7 Years**
On berms next to Tecolotito Ck and tidal salt marsh	Non-tidal low-growing wetland herbs, grasses, & shrubs; palustrine persistent emergent wetlands	12.7	85	At least 3 species from the following list: alkali weed, saltgrass, alkali mallow, creeping rye-grass, meadow barley, western ragweed, woolly sea-blight, and alkali heath	10
In Area I, amongst uplands and adjacent to tidal marsh	Non-tidal low-growing wetland herbs and grasses; palustrine persistent emergent wetlands	11.6	75	At least 5 species from the following list: spikerush, nut-sedge, toad rush, bulrush, pickleweed, alkali heath, alkali weed, sand spurrey, meadow barley, and saltgrass	10
In Area R-2, amongst upland and wetland grassland mosaic	Non-tidal low-growing wetland herbs and grasses; palustrine persistent emergent wetlands.	2.2	75	At least 4 species from the following list: spikerush, nut-sedge, toad rush, bulrush, pickleweed, alkali heath, alkali weed, sand spurrey, meadow barley, and saltgrass	10
New channels for Tecolotito and Carneros Cks	Estuarine intertidal aquatic bed and unconsolidated bottom.	9.3	10	At least 2 species from the following list: bulrush, pickleweed, alkali heath , and jaumea	10

* The period to measure performance may be extended if goals are not achieved, or three consecutive years since the last active management have not occurred.

**Does not include common naturalized species that are not aggressive, such as Italian ryegrass or brass buttons.

URS

October 10, 2001

Santa Barbara Airport
601 Firestone Road
Santa Barbara, California 93117

Attention: Mr. John Ledbetter

Re: Update on Surveys for the Belding's Savannah Sparrow
Santa Barbara Airport, Aviation Facilities Plan

Dear Mr. Ledbetter,

Per your request, we are summarizing our most recent surveys of the state endangered Belding's savannah sparrow in Goleta Slough at the Santa Barbara Airport. URS Corporation is currently studying bird strike hazards for the Airport. We have been conducting various bird surveys in and around the airfield since April 2001. On May 21, 2001, Mr. Dave Compton, the senior ornithologist on our team, conducted a special early morning survey for the Belding's savannah sparrow as part of our study. In addition, the survey was conducted to provide an estimate of the population for the US Fish and Wildlife Service.

The savannah sparrow resides in tidal pickleweed marsh habitat in Goleta Slough. Scientists at UC Santa Barbara Museum of Vertebrate Biology conducted two previous studies of this species in 1992 and 1994. The studies demonstrated that a moderate sized population is present, primarily located in basins A, B, and C (see attached map). The occurrence of the savannah sparrow was recently summarized in the EIR/EIS for the Aviation Facilities Plan (page 3-210, and Figure 3.11-2) based on these studies.

A total of 68 individuals were sighted during our May 2001 survey, including 43 territorial males. Fifty-nine birds were sighted in basins A through D, and four were sighted in basins E and F. Two individual were sighted in basin G and three were sighted in basin L/M. These results are completely consistent with the previous surveys. The savannah sparrow is highly restricted to the pickleweed marsh areas. No individuals were sighted at the location of the proposed Taxiway M or runway safety area extension site at the end of Runway 7-25. Although it may forage in adjacent upland scrub and grassland areas, this species is not expected to occur at the above locations.

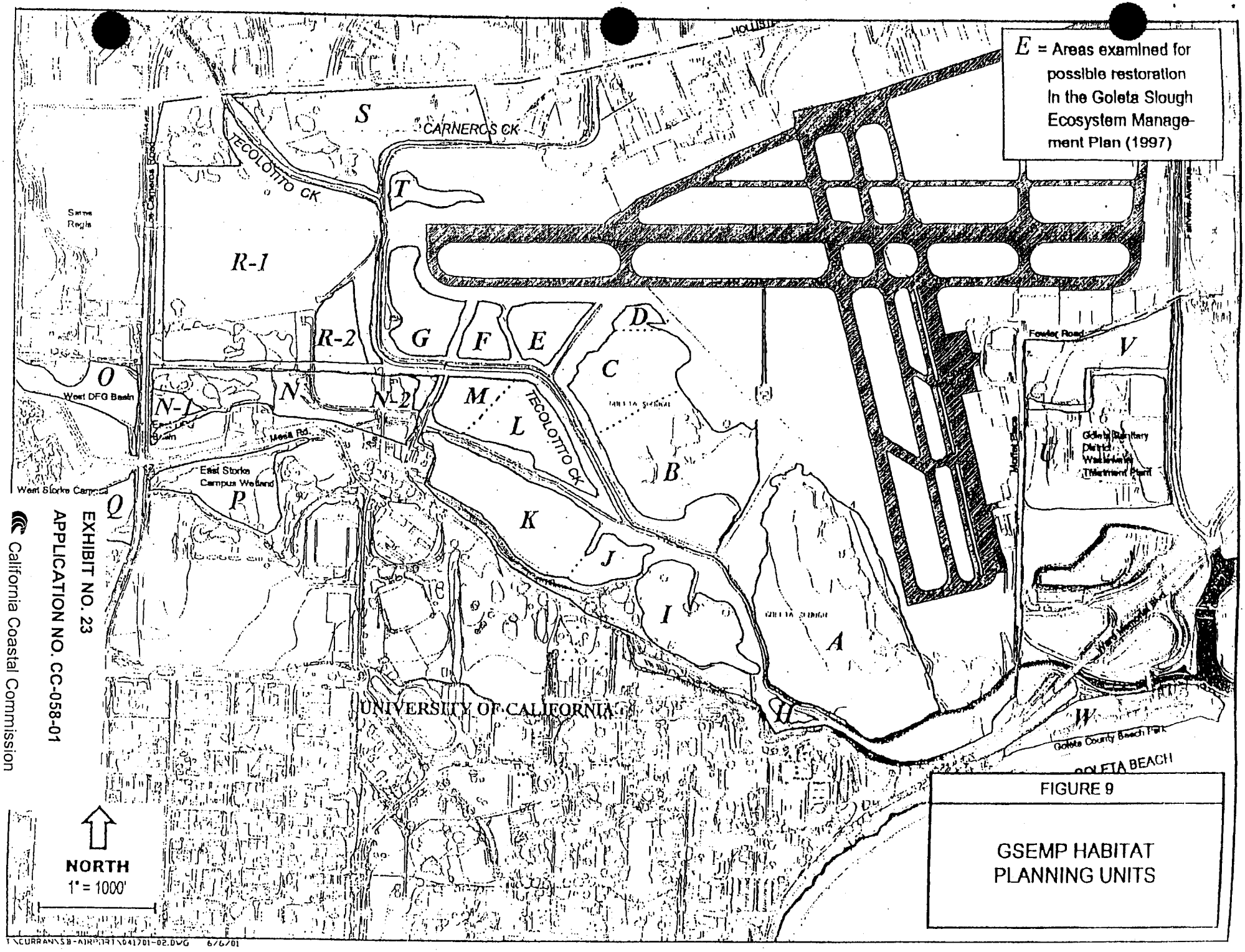
Please call me if you have any questions or need additional information. Thank you.

Sincerely,

John T. Gray, Ph.D.
Manager of Environmental Services

Encls.

URS Corporation
130 Robin Hill Road, Suite 100
Santa Barbara, CA 93117
Tel: 805.964.6010
Fax: 805.964.0259


E = Areas examined for possible restoration in the Goleta Slough Ecosystem Management Plan (1997)
S
CARNEROS CK
TECOLOTTO CK
T
R-1
R-2
G
F
E
D
C
O
West DFG Basin
N-1
N
N-2
M
L
TECOLOTTO CK
B
Q
P
K
J
I
A
H
V
W
Fowler Road
Modoc Road
Marsh Road
East Storke Campus Wetland
West Storke Campus
UNIVERSITY OF CALIFORNIA
Goleta County Beach Park
GOLETA BEACH
NORTH
1" = 1000'
EXHIBIT NO. 23
APPLICATION NO. CC-058-01
California Coastal Commission
FIGURE 9
GSEMP HABITAT PLANNING UNITS

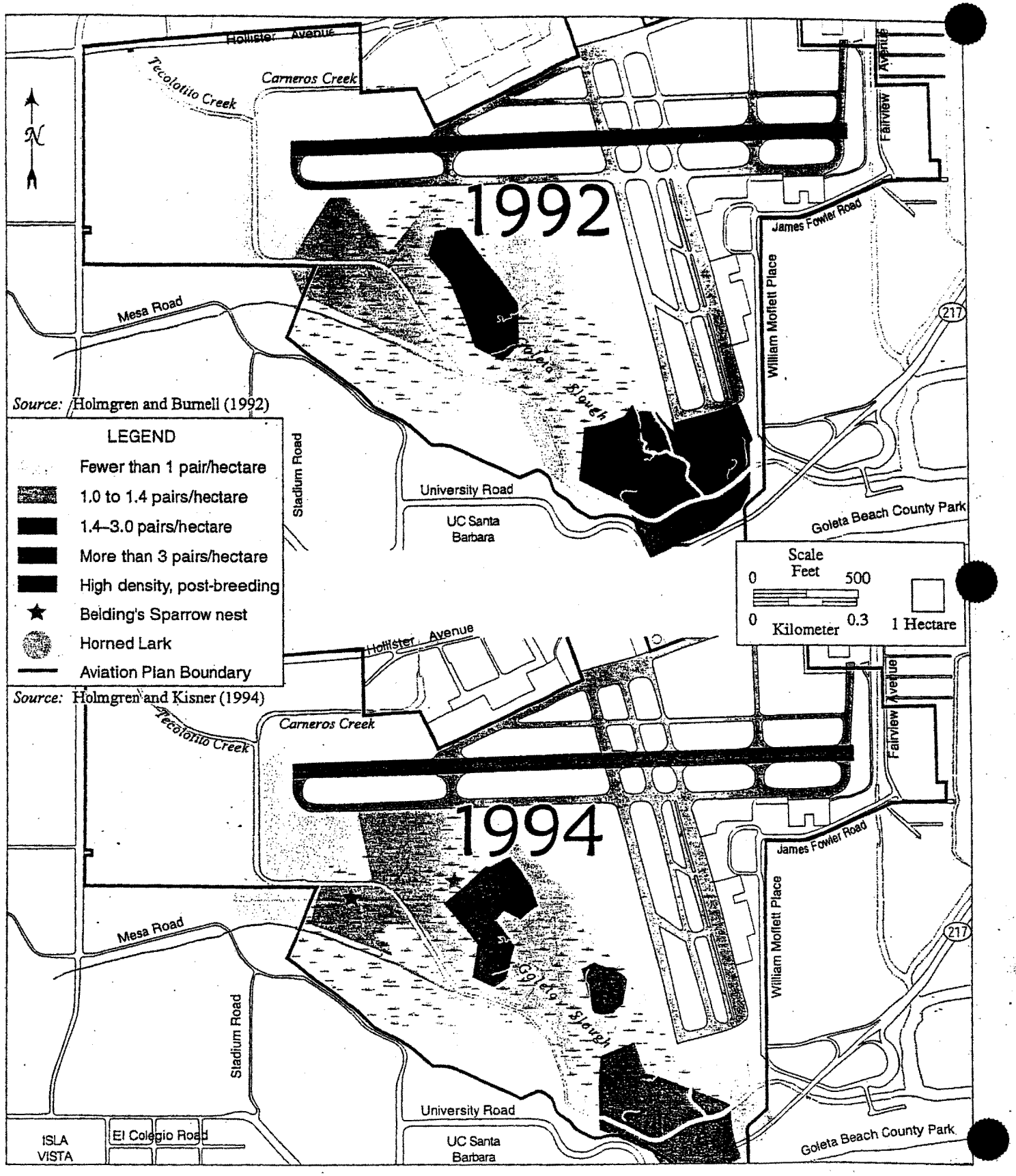


Figure 3.11-2. Distribution and Density of Belding's Sparrows in Goleta Slou

EXHIBIT NO. 24

APPLICATION NO. CC-058-01

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

F/SWR4:WBC
151422SWR01HC441
HCD_J150

OCT 26 2001

David B. Kessler, AICP
U.S. Department of Transportation
Federal Aviation Administration
P.O. Box 92007
Worldway Postal Center
Los Angeles, California 90009

Dear Mr. Kessler:

The National Marine Fisheries Service (NMFS) has reviewed the Santa Barbara Airport Draft Environmental Impact Report/Environmental Impact Statement (DEIR/EIS) for the Aviation Facilities Plan (AFP), the Biological Assessment for the Southern Steelhead Trout (BA), the Essential Fish Habitat Assessment (EFHA), the Goleta Slough Tidal Restoration Feasibility and Bird Strike Study, the Proposed Enlargement of Carneros Creek Sedimentation Basin, the Draft Final Wetlands Mitigation Plan, and various correspondence between NMFS, the Federal Aviation Administration (FAA), and the City of Santa Barbara (City). All of these documents refer to the City of Santa Barbara (City) and FAA's proposed project involving the extension of Runway Safety Areas for Runway 7/25, expansion of the Airline Terminal Building, New Air Cargo Building, New and Improved Taxiways, additional T-hangars, and a new road. NMFS offers the following comments pursuant to the Endangered Species Act (ESA) and the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA).

Endangered Species Act (ESA) Comments

The proposed activities occur within the Southern California Evolutionary Significant Unit (ESU) for the Federally endangered steelhead (*Oncorhynchus mykiss*) and designated steelhead critical habitat. Activities that may potentially adversely affect steelhead and its critical habitat are described below.

One of the primary elements of the AFP is to modify the airfield to meet requirements of the FAA for Runway Safety Areas (RSAs). The RSA is the land surrounding a runway that must be smoothed and compacted such that damage to airplanes that overrun the paved surface would be minimized. Currently, the existing RSAs for Runway 7/25 do not meet FAA requirements. In order to comply with these requirements, the Airport has identified a preferred RSA extension alternative, which is described in Section 2.0 of the DEIR/EIS as 'Alternative 1 - West Creek Realignment'. For this alternative, Tecolotito Creek combined with Carneros Creek would be realigned. Specifically, the creek would be rerouted 2,000 feet to the west so that it would flow around the westerly end of the newly extended RSA. Due to the significant earthwork, steelhead

migration may potentially be adversely affected by construction impacts related to the creek relocation.

In addition, water quality impacts, associated with improvements and modifications to the AFP area related to construction, an overall increase of impervious surface areas, expanded Airport operations, and storm water discharge, may potentially adversely affect steelhead migration. The FAA has determined that the proposed project will not adversely affect the Federally endangered steelhead. NMFS concurs with this determination provided the following special conditions are implemented.

1. The Carneros Creek sediment basin should be enlarged according to the proposed plan described in URS Corporation's Proposed Enlargement of Carneros Creek Sedimentation Basin dated July 31, 2001. The Tecolotito Creek sediment basin should also be enlarged as described in the DEIS/EIR. Enlarging these basins will reduce the frequency of emergency dredging during times when steelhead may be present in Tecolotito and Carneros Creek.

2. The new channel should be completed before connecting to the existing channel to avoid the need for extensive stream diversions during construction. This reduces the time period when steelhead migration may be impacted.

3. Construction related to the connection of the new channel to the existing channel should only be conducted between July 15 and October 1 of any given year. During this time period, the likelihood of any adult or juvenile steelhead being present in the project vicinity is minimal.

4. The applicant should install silt fencing, temporary instream siltation basins, stream diversions and implement other Best Management Practices (BMPs) to minimize downstream turbidity and sedimentation impacts.

If the FAA modifies the proposed action as identified above and then determines that the modified proposal action is not likely to adversely affect listed species or critical habitat, this letter will constitute a written concurrence that the proposed action is not likely to adversely affect listed species or critical habitat pursuant to 50 C.F.R. section 402.12(b). Please provide documentation, either by written notice or by copy of the permit, of your decision to modify the proposed action as we have requested. If, however, the FAA chooses not to modify the proposed action as above, the FAA must then initiate formal section 7 consultation.

This concludes the informal section 7 consultation for this proposed action. Consultation must be reinitiated where discretionary federal agency involvement or control over the action has been retained (or is authorized by law) and; (1) if new information becomes available revealing effects of the action on listed species in a manner or to an extent not previously considered, (2) if project plans change, (3) if the agency action is subsequently modified in a manner that causes an effect to listed species that was not considered, or (4) if a new species or critical habitat is designated that may be affected by this action.

Essential Fish Habitat Comments

The proposed project occurs within Essential Fish Habitat (EFH) for the Coastal Pelagics and Pacific Groundfish Fishery Management Plans. Potential impacts to EFH related to this project include construction related turbidity and sedimentation, indirect impacts from hydrologic changes, increased stormwater runoff from an increased paved surface on the runway, the permanent loss of 13.3 acres of wetlands, and the temporary disturbance of 1.77 acres of wetlands. The FAA has determined that the proposed project will not have permanent adverse effects on EFH. NMFS concurs with this determination provided the following recommendations are implemented.

EFH Conservation Recommendations

1. In order to reduce adverse effects associated with increased stormwater runoff, the Airport should utilize BMPs to control industrial stormwater pollution and to monitor stormwater quality. After the Regional Water Quality Control Board approves the newly updated Stormwater Pollution Prevention Plan (SPPP) for the new facilities, the Airport should submit a copy of the SPPP to NMFS.

2. Due to the valuable ecosystem functions that wetlands provide, the Airport should mitigate for the loss of wetlands associated with this project. Specifically, the Airport should mitigate at a 2:1 ratio in accordance with the procedures described in the Draft Final Wetlands Mitigation Plan. Copies of the monitoring reports should be forwarded to NMFS.

3. NMFS believes that out-of-kind habitat replacement, which involves restoring tidal circulation to closed basins in the Goleta Slough, would be beneficial to EFH. However, the FAA has concerns about the effect of increased tidal water on bird strike hazards at the airport. Therefore, the Airport should implement a tidal restoration feasibility and bird strike study to evaluate the effects of increased tidal circulation on bird strike hazards. Once completed, a copy of the study and its recommendations for the future should be forwarded to NMFS.

Section 305(b)(4)(B) of the Magnuson-Stevens Act requires FAA to provide NMFS with a detailed written response to these EFH Conservation Recommendations, including a description of measures adopted by FAA for avoiding, mitigating, or offsetting the impact of the project on EFH. In the case of a response that is inconsistent with NMFS's recommendations, FAA must explain its reasons for not following the recommendations, including the scientific justification for any disagreements with NMFS over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects (50 CFR 600.920(j)).

Thank you for consulting with NMFS. If you have any questions related to this project, please contact Bryant Chesney at (562) 980-4037 or bryant.chesney@noaa.gov.

Sincerely,

Rodney R. McInnis
Acting Regional Administrator

cc:
John Ledbetter, Santa Barbara Airport
Sarah Iza, Santa Barbara Airport

U.S Department of Transportation
Federal Aviation Administration

Western-Pacific Region
Airports Division

Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

November 26, 2001

Mr. Bryant Chesney
U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

Dear Mr. Chesney:

Santa Barbara Airport
Santa Barbara, California
Draft Environmental Impact Report/Environmental Impact Statement
Conclusion of Consultation

The Federal Aviation Administration (FAA) and the city of Santa Barbara (City) have had the opportunity to review the National Marine Fisheries Service (NMFS) letter to us dated, October 26, 2001. This letter was responding to the FAA's determinations pursuant to the Endangered Species Act (ESA) Section 7 and Magnuson Stevens Fisheries Conservation and Management Act - Essential Fish Habitat (EFH) Consultations related to the proposed Aviation Facilities Plan (AFP) at Santa Barbara Airport. The AFP is currently under environmental review pursuant to the National Environmental Policy Act of 1969 (NEPA) and the California Environmental Quality Act of 1970 (CEQA).

Endangered Species:

The proposed projects occur within the range of the Southern California Evolutionary Significant Unit (ESU) for the Federally Endangered Southern Steelhead Trout and designated Steelhead Critical Habitat. The primary element of the Aviation Facilities Plan for Santa Barbara Airport is the enlargement of the Runway Safety Areas that surround Runway 7/25. These Safety Areas currently do not meet the minimum design standards established by the FAA. The preferred alternative, as identified in the corresponding Draft Environmental Impact Statement/ Environmental Impact Report (EIS/EIR) would involve the relocation of Tecolotito and Carneros Creeks in order to accommodate these safety areas. The NMFS is concerned that the significant earthwork and modification of critical habitat may potentially affect steelhead migration. The NMFS has proposed the following special conditions, which the Airport and the FAA have agreed to follow:

1. The Carneros Creek sediment basin will be enlarged according to the proposed plan as described in the URS Corporation's Proposed Enlargement of Carneros Creek Sedimentation Basin, dated July 31, 2001. In addition, the Tecolotito Creek sediment basin will be enlarged, as outlined in our previous correspondence.

2. To avoid the need for extensive stream diversions during construction, the new channel will be completed prior to connection with the existing channel. This will reduce the opportunity for interruption during steelhead migration.

3. Construction related to the connection of the new channel to the existing channel will be completed between July 15 and October 1 of each year. This schedule will minimize the potential for adult or juvenile steelhead to be in the project area.

4. To minimize downstream turbidity and sedimentation impacts, silt fencing, temporary in stream siltation basins, stream diversions, and other Best Management Practices (BMPs) will be used.

These statements hereby modify the proposed project as requested by NMFS; the adherence to these conditions concludes the informal Section 7 consultation for this proposed action.

Essential Fish Habitat:

Pursuant to Section 305(b)(4)(B) of the Magnuson-Stevens Act for EFH consultation, the following statements outline the FAA's commitment to the adherence of the each of the Special Conditions and Conservation Recommendations outlined your October 26, 2001, letter.

The proposed project is also located within the Essential Fish Habitat (EFH), for the Coastal Pelagics and Pacific Groundfish Management Plans. Potential impacts to EFH related to this project include; Increased turbidity and sedimentation, indirect impacts from hydrologic changes, increased stormwater runoff, permanent loss of 13.3 acres of wetlands, and the temporary disturbance of 1.77 acres of wetlands. The FAA is committed to following the NMFS's proposed conservation recommendations pursuant to your letter dated October 26, 2001.

1. To reduce the adverse effects associated with increased stormwater runoff, the FAA will utilize BMPs to control industrial stormwater pollution and to monitor stormwater quality. The Airport will also submit a copy of the Stormwater Pollution Prevention Plan for the new facilities once, once it is approved by the Regional Water Quality Control Board.

2. The Airport will mitigate for wetlands at a 2.7:1 ratio, as described in the Proposed Final Wetlands Mitigation Plan. The 2.7:1 ratio is clearly higher than the 2:1 ratio as described in the Draft Wetlands Mitigation Plan. Copies of the monitoring plans will be forwarded to NMFS as the projects progress.

3. While the FAA concurs with the NMFS assertion that out-of-kind replacement would be beneficial to EFH, the FAA has concerns regarding tidal restoration and bird strike hazards. Currently, a tidal restoration feasibility/bird strike study is underway at the Goleta Slough to evaluate the effects of increased circulation on bird strike hazards. Once completed, a copy of the study and its recommendations will be forwarded to NMFS.

These measures are conditions of the permit as described in the October 26, 2001 letter. The statements above hereby coincide with the NMFS Conservation Recommendations related to the proposed projects.

Please call me at 310/725-3615 if you have any questions concerning this matter.

Sincerely,

David B. Kessler, AICP
Environmental Protection Specialist

cc: John Ledbetter, Santa Barbara Airport
Owen Thomas, Santa Barbara Airport

STATE OF CALIFORNIA-THE RESOURCES AGENCY GRAY DAVIS, Governor

DEPARTMENT OF FISH AND GAME
South Coast Region 5
4949 Viewridge Avenue
San Diego, California 92123
(619) 467-4201

July 8, 2001

Jon Ledbetter, AICP
Airport Planner
Santa Barbara Airport
City of Santa Barbara
601 Firestone Road
Goleta, California 93117

SANTA BARBARA AIRPORT JOINT EIR/EIS FOR AVIATION FACILITIES PLAN

This Draft EIR/EIS evaluates the impacts resulting from the extension of the Runway Safety Areas for Runway 7/25 to meet current Federal Aviation Administration (FAA) design standards, the construction of Taxiway M adjacent to Runway 15R-33L, the expansion of the Airline Terminal Building and associated automobile parking facilities, and the improvement of Taxiway B, aircraft parking aprons, air cargo processing facilities, 75 aircraft T-hangars, and a new on-airport service road. The project is located in the Southcoast region of Santa Barbara County, and is owned and operated by the City of Santa Barbara. The project is located within and adjacent to the Goleta Slough Ecological Reserve, an area designated and defined under the California Code of Regulations, Title 14 section 630. The project has the potential to impact up to 8.36 acres of wetland habitats, a state listed species ,*Passerculus sandwichensis beldingi*(Belding's savannah sparrow), and alter lands or boundaries within the Goleta Slough Ecological Reserve.

The following statements and comments have been prepared pursuant to the California Department of Fish & Game's (The Department) authority as Trustee Agency with jurisdiction over natural resources affected by the project (CEQA Section 15386) and pursuant to our authority as a Responsible Agency under CEQA Section 15381 over those aspects of the proposed project that come under the purview of the California Endangered Species Act (Fish and Game Code Section 2050 et seq) and Fish and Game Code Section 1600 et seq, and as manager of the Goleta Slough Ecological Reserve.

The Department has worked over the years with the Airport, the City and other members of the Goleta Slough Management Committee(GSMC) to evaluate and shape the proposed project design as it relates to impacts to wildlife and their habitats both within the Ecological Reserve and the surrounding watershed. On the whole the Department finds the project as proposed (Alternative 1, relocations of the western portion of Tecolotito and Cameros Creeks) will result in significant, but mainly mitigable impacts. The Department

EXHIBIT NO. 27

APPLICATION NO. CC-058-01

recommends the City select this alternative. The Department does not recommend the selection of Alternative 2 (the box culverting of Tecolotito Creek as this option would not fully mitigate for impacts to Belding's Savannah Sparrow as would be required by the California Endangered Species Act(CESA). In addition this alternative does not offer as wide as range of wetland mitigation options, and could create a passage barrier for Southern Steelhead .

The Department finds the wetland mitigation plan for the project acceptable, but is very concerned about the emphasis placed on giving the FAA's consultant Wildlife Services (WS) ultimate approval authority over mitigation and restoration actions within the Slough. The Department understands the FAA's concern about bird strike hazard, and realizes the importance of maintaining a safe airport operation, but the Department feels that the overall mission and qualifications of WS does not provide for an objective or ecologically sound approach to management of the Ecological Reserve. The Department hopes the Airport will continue to utilize the GSMC as the primary sounding board for review of activities impacting wildlife and their habitats within the slough and it's watershed. Use of this well established and watershed based process may help the City avoid the need for additional mitigation measures to compensate for actions proposed by WS.

Typically the Department would ask for mitigation ratios higher than 2:1 for impacts to wetland resources such as those proposed by the project. Because the City has been the main funding source for the GSMC management plan, and plans to continue the process the Department is willing to allow a lower mitigation ratio. Though this is not a standard procedure the Department feels the GSMC process has resulted (and will result) in an overall benefit to the health of the Slough and Ecological Reserve.

> MIT RATIOS

The City will need to secure both an incidental take permit for Belding's Savannah Sparrow.,and a Streambed Alteration Agreement for the relocation of Tecolotito and Carneros Creeks. The Department encourages the City to begin these processes soon, so construction can occur according to schedule. The Department will provide the City or Airport planners with the appropriate information to initiate the processes. The City will need to provide proof of payment of CEQA filing fees for both the SAA and the incidental take permit.

2 REQ PERMITS

On the whole the Department finds the Draft EIR/EIS for the Airport Facilities plan to be one of the most thorough and well presented CEQA documents they have reviewed. The Department believes the GSMC process was instrumental in helping develop this level of clarity and thoroughness. If you have any questions regarding these comments please contact Morgan Wehtje at 805-491-3571.

Sincerely

Morgan Wehtje
ESIV Supervisor

JL

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

September 24, 2001

David Kessler
Federal Aviation Administration
U.S. Department of Transportation
P.O. Box 92007
Los Angeles, California 90009-2007

Subject: Proposed Santa Barbara Municipal Airport Aviation Facilities Plan and the Need for Section 7 Endangered Species Act Consultation, Santa Barbara County, California

Dear Mr. Kessler:

We received a letter, dated January 30, 2001, and received by us on February 1, 2001, from John Ledbetter of the City of Santa Barbara Municipal Airport requesting consultation pursuant to section 7(a)(2) of the Endangered Species Act of 1973, as amended (Act), on behalf of the Federal Aviation Administration (FAA).

The City of Santa Barbara (City) is preparing an Aviation Facilities Plan to meet the aviation needs at the airport through the year 2015. As part of this facilities plan, the current airport runway will need to be expanded to meet FAA safety regulations for runway overruns. An additional 1,000 feet of safety overrun would be required over and above the existing runway. A total of 20.66 terrestrial acres would be affected by the proposed project.

The biological assessment conducted for the project notes that, no federally listed threatened or endangered species are likely to be affected by the proposed project. The only listed species currently found in the vicinity of the airport is the federally endangered brown pelican (*Pelecanus occidentalis*). The brown pelican is occasionally observed roosting near the mouth of the Goleta Slough, approximately two miles away from the proposed runway expansion area. The City asserts that brown pelicans would not be affected either directly or indirectly by the proposed project because they only occasionally roost at Goleta Slough, and the proposed project is nearly two miles from the roosting location. Although there have been anecdotal reports of the federally endangered salt marsh bird's beak (*Cordylanthus maritimus* ssp. *maritimus*) existing historically in the project area, no records have been found to verify its presence in Goleta Slough and it is not expected to occur in the proposed project area. Goleta Slough historically supported the federally endangered light-footed clapper rail (*Rallus longirostris levipes*), but the species has not been observed since 1972 and is not expected to inhabit the proposed project area. The habitat in

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APPLICATION NO. CC-058-01

the proposed project area offers limited potential habitat for light-footed clapper rails. The federally endangered tidewater goby (*Eucyclogobius newberryi*) has also been reported from Goleta Slough, but no records have been found to verify their presence. Surveys conducted in 1995 did not find tidewater goby in Goleta Slough. Furthermore, the tidewater goby has not been found, nor is it expected to be found, in Tecolotito Creek (Lafferty pers. comm. 2001).

We do not expect that salt marsh bird's beak, light-footed clapper rail, or tidewater goby inhabit the Goleta Slough area. Therefore, we concur that the airport facilities plan, as proposed, would not affect federally threatened and endangered species. If federally listed species are subsequently detected in the project area, you must contact us to determine whether further compliance with the Endangered Species Act of 1973, as amended, is required. If you have any further questions please contact Lisa Roberts of my staff at (805) 644-1766.

Sincerely,

for Diane K. Noda
Field Supervisor

cc: John Ledbetter, Santa Barbara Airport

velocity are tied to the approach category (the approach speed) and design group (wingspan) of the aircraft using the airport as defined above. In general, the faster and larger the aircraft, the more crosswind it can tolerate. Also, most aircraft can tolerate stronger crosswinds on takeoff than on landing. Exhibit 5F indicates the maximum crosswind components considered acceptable for various aircraft categories.

Exhibit 5F
Acceptable Crosswind Velocities (in knots)
1.0 knot = 1.15 mph

Design Group	Approach Category		
	A	B	C
I	10.5	10.5	16.0
II	13.0	13.0	16.0
III	16.0	16.0	16.0
IV	20.0	20.0	20.0

Source: Airport Design Advisory Circular (AC 150/5300-13)

Current and projected future aircraft use of Santa Barbara Airport runs the full range of this approach category and design group spectrum. Data on crosswind coverage at various velocities are thus significant. Analysis of wind data for the Airport (see Wind Rose, Exhibit 3D in Chapter 3) indicates that winds from the southwest, south, and southeast are common, they mostly remain below 12.0 mph. The east/west primary runway thus has very good (98.9%) coverage even at a low crosswind tolerance of 10.5 knots (12.0 mph). When combined with the coverage provided by the crosswind (parallel) runway alignment, the airfield provides nearly 100% coverage.

The conclusion drawn from this data is that, although not essential for crosswind coverage purposes, the two north-south runways are well aligned for the common, mild southerly winds. The more important function of the north-south runways is for operational capacity and flexibility as outlined in the following discussion.

Operational Capacity

Adequate capacity to accommodate the projected volume of aircraft operations is a primary design consideration. Airfield capacity is generally measured in terms of the number of aircraft operations the runway and taxiway system can accommodate without unreasonable delay in an hour or over a year. Calculation of airfield capacity is dependent upon various physical and operational factors as shown in Exhibit 5G.

Exhibit 5G
Runway Capacity Factors

- Runway configuration
- Location of runway exits
- Frequency in which different combinations of runways are used
- Mix of aircraft types using the airport (including helicopters)
- Amount of touch-and-go training activity
- Wind conditions and the degree of airfield wind coverage
- Existence of air traffic control facilities and navigational aids
- Extent of instrument vs. visual weather conditions
- Peaking conditions (i.e., hourly, daily, and seasonal variations in traffic demand)
- Proximity of nearby airports and other factors affecting airspace

Source: Airport Design Advisory Circular

At airports with instrument approach capabilities, such as Santa Barbara, hourly capacity is often measured separately for instrument flight rules (IFR) versus visual flight rules (VFR) weather conditions. IFR conditions are when weather conditions are below the minimum for flight under visual flight rules. IFR conditions, limiting operations to a single runway, occur 10% of the time.

Most of the input data required for determining the Santa Barbara Airport runway capacities was originally documented in the 1990 Draft Airport Master Plan Update. This data has been reviewed as part of the present study and the most important information is brought forward into the analyses below.

Peak Hour Capacity

The FAA defines peak hour activity as being the busiest or peak hour of an average day of the peak month of the year. With respect to determining hourly capacity at Santa Barbara Airport, the following is assumed:

- The peak hour activity typically occurs between 5:00 and 6:00 p.m;
- Arrivals represent 45% of peak hour operations under VFR (or visual) conditions and 50% during IFR (or instrument) conditions;
- Large aircraft represent 5% of the VFR peak hour operations and 6% of the IFR peak hour operations;
- Touch-and-goes account for about 15% of the peak hour operations;
- All operations by airline and general aviation jets, commuter airline turboprops, and fire attack aircraft are on the primary runway;
- About 65% of general aviation propeller airplane operations, including some twins, are on the north-south runways;
- Simultaneous use of the two north-south is permitted under FAA air traffic control guidelines. However, because of the close spacing between the two runways, such operations are allowed only by small, single-engine airplanes maintaining two-way communications and only under VFR conditions; and
- Runway exits are optimally located to provide maximum capacity.

Given these assumptions, the hourly capacity of the Santa Barbara Airport runway system is calculated at approximately 180 operations during VFR or visual conditions. This capacity is provided only when wind conditions and the air traffic mix permit near simultaneous use of Runways 15R/L or 33L/R with limited use of Runways 7 or 25. The need for coordination of operations on the intersecting runways means that a heavy traffic volume by large aircraft on Runway 7-25 reduces the capacity available for the north-south.

At present, the Airport is operating at well below this theoretical capacity. The 1993 VFR peak-hour air traffic volume was 65 operations/hour. The number of peak hour operations has not been calculated since 1993, however, informal discussions with Air Traffic Control staff indicate that the 65 operations/hour is probably a realistic peak for 2001. This demand is projected to increase only to 77 operations per hour, still less than half of the potential capacity. Consequently, the operational constraints described above, specifically, light aircraft operations limited mostly to the north-south runways, are seldom necessary. The spacing of aircraft operations on Runway 7-25 is such that the delays to aircraft using Runways 15 or 33 are minimal.

Instrument flight rules or IFR capacity is calculated at 60 operations/hour. Although instrument departures can be made from any runway, all approaches are to Runway 7-25 even if some aircraft land on the north-south runways. In effect, under IFR conditions, only one aircraft at a time is able to operate. No projection has been made of hourly IFR demand, but it is certainly well below the hourly IFR capacity.

Annual Capacity

Theoretically, annual capacity might be calculated simply by multiplying hourly capacity by the number of hours in a year. Such a number would be meaningless, however, because demand at most airports drops nearly to zero during nighttime hours and also varies substantially from month to month. Calculation of annual capacity therefore greatly depends upon assumptions regarding the relationships between peak hour and annual demand. In recognition of the variability introduced by these assumptions, the FAA uses the term annual service volume to represent a "reasonable" annual capacity.

Additional assumptions for the calculation of the annual runway capacity for Santa Barbara Airport include the following:

- Wind and weather conditions allow the optimum-capacity runway combinations (i.e., all three runways in use and most operations on the north-south runways);
- Instrument conditions, limiting operations to a single runway, occur 10% of the time;
- The Airport is below operating minimums (i.e., effectively closed to all operations) 2% of the time; and
- Historically, peak month (August) activity has equaled 9.3% of the year and the peak hour has represented 9.8% of the average day of the peak month.

These assumptions yield an annual service volume of approximately 475,000 operations. Higher off-peak usage would increase this capacity by 10% or more. However, even the 475,000-operations capacity is well above both the projected 218,000 annual aircraft operations volume indicated in Chapter 4 and the historical (1984) peak of some 241,000 operations. Total annual aircraft operations counts averaged just less 170,000 during the 1995 to 1999 period.

When the tower is closed (11 pm to 6 am), the Los Angeles Center handles approach/departure control. As is common throughout the United States where airports do not have a 24-hour tower, pilots communicate with each other using the Common Traffic Advisory Frequency or CTAF of 119.7. Pilots announce their intentions and call their position as they transition in and out of the Airport.

Runway Length

For the purpose of assessing runway length requirements, the FAA considers only the aircraft types that conduct at least 250 operations per year on that runway or are forecasted to do so in the future. Of the many aircraft types regularly flown at Santa Barbara Airport, airline jets operating in scheduled service are the most affected by runway length limitations and are therefore deemed the critical aircraft group. Generally, the higher the temperature, the lighter the load the aircraft can carry in order to takeoff safely. Because these aircraft operate at

U.S. Department of Transportation
Federal Aviation Administration

Airport Capacity and Delay

AC: 150/5060-5
Date: 9-23-83

Advisory Circular

EXHIBIT NO. 30
APPLICATION NO. CC-058-01

California Coastal Commission

U.S. Department of Transportation
Federal Aviation Administration

Advisory Circular

Subject: AIRPORT CAPACITY AND DELAY | Date: 9/23/83 | Initiated by: AAS-100 | AC No: 150/5060-5 | Change:

1. PURPOSE. This advisory circular (AC) explains how to compute airport capacity and aircraft delay for airport planning and design.

2. CANCELLATIONS. This publication cancels the following Federal Aviation Administration (FAA) Advisory Circulars (ACs):

a. AC 150/5060-1A, Airport Capacity Criteria Used in Preparing the National Airport Plan, dated July 8, 1968, and

b. AC 150/5060-3A, Airport Capacity Criteria Used in Long Range Planning, dated December 24, 1969.

3. BACKGROUND. Changes in the composition of the nation's aircraft fleet together with improvements in air traffic control (ATC) practices have outdated capacity calculations contained the cancelled ACs. An FAA contractor reexamined the procedures for determining airport capacity and suggested improvements to update them. This AC implements these improvements. In addition, this AC refines definitions of capacity and delay. CAPACITY is the throughput rate, i.e. the maximum number of operations that can take place in an hour. DELAY is the difference in time between a constrained and an unconstrained aircraft operation. These definitions take into account that delays occur because of simultaneous demands on the facility. The acceptable level of delay will vary from airport to airport.

4. APPLICATION TO AIRPORT DESIGN. To apply these procedures, a reasonable understanding of the aeronautical activities being conducted at, or projected for, the airport is required. Care should be exercised in using available data so as to avoid data which represents a level of activity occurring sporadically during the year—unless it is intended to examine that specific condition. Since few airports operate at "peak demand" levels for more than two or three consecutive hours in any one day and demand fluctuates throughout a period even as short as one hour, some delay will occur during a typical hours operations. It is suggested that airport design be based on an hourly demand which can be expected to occur at least on a weekly basis.

REFERENCE. Report No. FAA-RD-74-124, Techniques for Determining Airport Airside Capacity and Delay, dated June 1976 is available from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161, telephone (703) 557-4650. The NTIS reference number is AD-A032 475.

Leonard E. Mudd

LEONARD E. MUDD
Director, Office of Airport Standards

CHAPTER 1. AIRPORT CAPACITY AND AIRCRAFT DELAY

1-1. GENERAL. Hourly airport capacities and annual aircraft delay computations are needed to design and evaluate airport development and improvement projects. The method for computing airport capacity and aircraft delay is the throughput method provided in this AC.

a. Background. The throughput method for calculating airport capacity and average delay per aircraft is derived from computer models used by the Federal Aviation Administration (FAA) to analyze airport capacity and reduce aircraft delay. Calculations of hourly capacity are needed to determine average delay. Since airport and airport component hourly capacities vary throughout the day due to variations in runway use, aircraft mix, ATC rules, etc., a number of calculations may be needed.

b. AC Organization.

(1) Chapter 1 provides an overview of airport capacity and aircraft delay analyses.

(2) Chapter 2 contains calculations for computing airport capacity, annual service volume (ASV), and aircraft delay for long range evalnations.

(3) Chapter 3 contains more detailed computations suitable for a wide range of airport design and planning applications.

(4) Chapter 4 contains special computations of capacity relating to:

(i) Periods of poor visibility and ceiling conditions.

(ii) Airports without radar coverage and/or an instrument landing system (ILS).

(iii) Airports with parallel runways when one runway is limited to use by small aircraft.

(5) Chapter 5 identifies computer models which may be used to further refine runway capacity and aircraft delay analyses.

(6) The appendices contain examples applying chapter 2, 3, and 4 calculations.

c. Units. Since FAA operational standards for spacing aircraft taking-off and landing are in customary units (feet, knots, etc.), it is expedient to perform capacity and delay computations in the same units.

1-2. AIRPORT COMPONENTS.

a. Runway. The term runway includes the landing surface, plus those portions of the approach and departure paths used in common by all aircraft.

b. Taxiway. The term taxiway includes the parallel taxiways, entrance-exit taxiways, and crossing taxiways, recognizing that a capacity limiting condition may exist where an arriving or departing stream of aircraft must cross an active runway.

c. Gate Group. The term gate group identifies the number of gates located in the terminal complex which are used by an airline, or shared by two or more airlines, or other aircraft operating at the airport on a regularly scheduled basis. In most cases the terminal gates are not used by general aviation aircraft.

1-3. CAPACITY TERMS. The following subpargraphs define terms used herein. Symbols used in this AC are defined in Appendix 4, Glossary of Symbols/Terms.

a. Aircraft Mix. Aircraft mix is the relative percentage of operations conducted by each of the four classes of aircraft (A, B, C, and D). Table 1-1 identifies physical aspects of the four aircraft classes and their relationship to terms used in the wake turbulence standards.

Table 1-1. Aircraft classifications

Aircraft Class	Max. Cert. T.O. Weight (lbs)	Number Engines	Wake Turbulence Classification
A	12,500 or less	Single	Small (S)
B		Multi	
C	12,500 - 300,000	Multi	Large (L)
D	over 300,000	Multi	Heavy (H)

b. Annual Service Volume (ASV). ASV is a reasonable estimate of an airport's annual capacity. It accounts for differences in runway use, aircraft mix, weather conditions, etc., that would be encountered over a year's time.

c. Capacity. Capacity (throughput capacity) is a measure of the maximum number of aircraft operations which can be accommodated on the airport or airport component in an hour. Since the capacity of an airport component is independent of the capacity of other airport components, it can be calculated separately.

d. Ceiling and Visibility. For purposes of this AC, the terms VFR, IFR, and PVC are used as measures relating to the following ceilings and visibilities.

(1) Visual flight rule (VFR) conditions occur whenever the cloud ceiling is at least 1,000 feet above ground level and the visibility is at least three statute miles.

(2) Instrument flight rule (IFR) conditions occur whenever the reported cloud ceiling is at least 500 feet but less than 1,000 feet and/or visibility is at least one statute mile but less than three statute miles.

(3) Poor visibility and ceiling (PVC) conditions exist whenever the cloud ceiling is less than 500 feet and/or the visibility is less than one statute mile.

e. Delay. Delay is the difference between constrained and unconstrained operating time.

f. Demand. Demand is the magnitude of aircraft operations to be accommodated in a specified time period.

g. Gate. A gate is an aircraft parking position used by a single aircraft loading or unloading passengers, mail, cargo, etc. A parking position which is regularly used by two aircraft at the same time is two gates for capacity calculations.

(1) Gate type is the size of the gate. A Type 1 gate is capable of accommodating all aircraft, including widebodies such as the A-300, B-747, B-767, DC-10, L-1011. A Type 2 gate will accommodate only non-widebodied aircraft.

(2) Gate mix is the percent of non-widebodied aircraft accommodated by the gate group.

2-3. ASV ASSUMPTIONS. The ASV values in figure 2-1 are based on the assumptions of paragraph 2-2, Table 2-1, and the following:

a. Weather. IFR weather conditions occur roughly 10 percent of the time.

b. Runway-use Configuration. Roughly 80 percent of the time the airport is operated with the runway-use configuration which produces the greatest hourly capacity.

2-4. AIRPORT CAPACITY AND ANNUAL SERVICE VOLUME. Calculate the approximate hourly capacities and the ASV as follows:

a. Determine the percentage of aircraft classes C and D using, or expected to use, the airport.

b. Select the runway-use configuration from figure 2-1 that best represents the airport. Runway-use configurations 9 through 19 show by means of arrows the predominant direction of runway operations. When no direction is specified, the direction of operation is not critical. Runway-use configurations 14 through 19 indicate by dashed lines the limit of the range of runway orientation. For airports having three or more runway orientations (consider parallel runways as one runway orientation), identify the two-runway orientation that is operated most frequently. To adjust for staggered thresholds see paragraph 4-6.

c. Calculate the mix index.

d. Read the approximate VFR and IFR hourly capacities and the ASV directly from figure 2-1.

2-5. AIRCRAFT DELAY. Calculate the aircraft delay as follows:

a. Estimate annual demand using current or historical information or projections of future traffic.

b. Calculate the ratio of annual demand to ASV.

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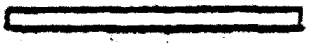
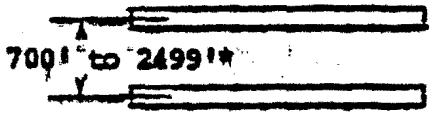
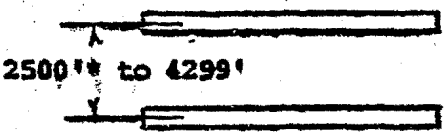
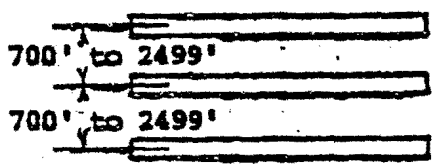
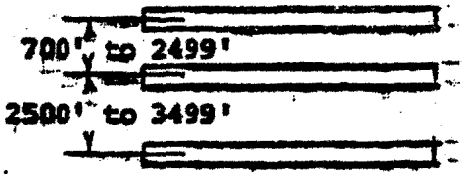
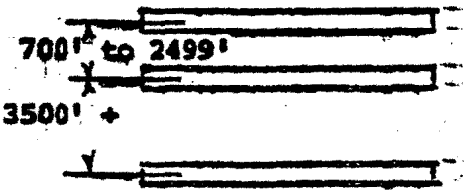
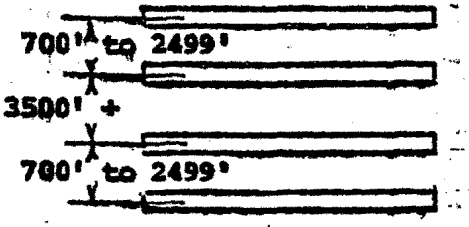
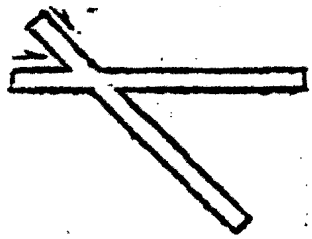
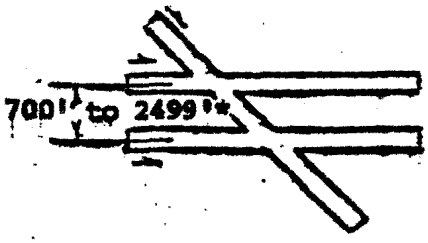
No.	Runway-use Configuration	Mix Index %(C+3D)	Hourly Capacity Ops/Hr VFR	Hourly Capacity Ops/Hr IFR	Annual Service Volume Ops/Yr
1.		0 to 20	98	59	230,000
		21 to 50	74	57	195,000
		51 to 80	63	56	205,000
		81 to 120	55	53	210,000
		121 to 180	51	50	240,000
2.	 700' to 2499'*	0 to 20	197	59	355,000
		21 to 50	145	57	275,000
		51 to 80	121	56	260,000
		81 to 120	105	59	285,000
		121 to 180	94	60	340,000
3.	 2500'* to 4299'	0 to 20	197	62	355,000
		21 to 50	149	63	285,000
		51 to 80	126	65	275,000
		81 to 120	111	70	300,000
		121 to 180	103	75	365,000
4.	 4300' +	0 to 20	197	119	370,000
		21 to 50	149	113	320,000
		51 to 80	126	111	305,000
		81 to 120	111	105	315,000
		121 to 180	103	99	370,000
5.	 700' to 2499' 700' to 2499'	0 to 20	295	62	385,000
		21 to 50	213	63	305,000
		51 to 80	171	65	285,000
		81 to 120	149	70	310,000
		121 to 180	129	75	375,000

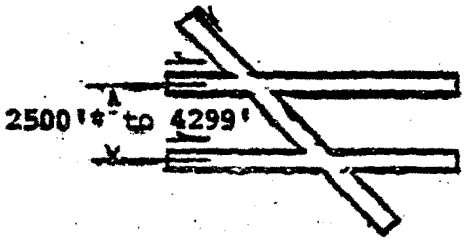
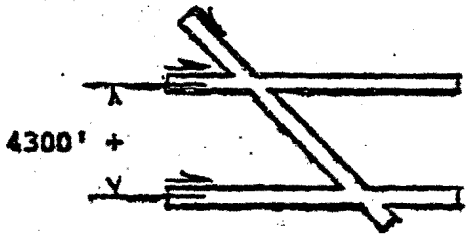
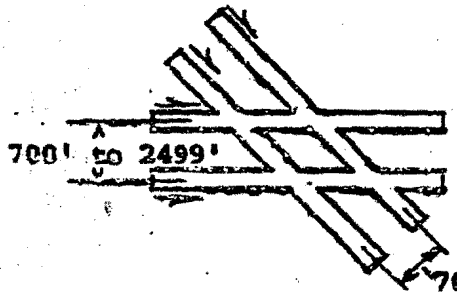
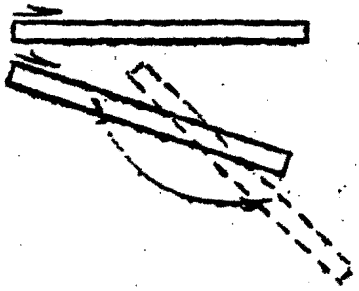
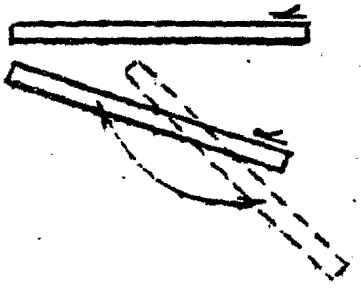
* Staggered threshold adjustments may apply, see paragraph 4-6.

Figure 2-1. Capacity and ASV for long range planning

No.	Runway-use Configuration	Mix Index % (C+3D)	Hourly Capacity Ops/Hr VFR	IFR	Annual Service Volume Ops/Yr
6.		0 to 20	295	62	385,000
		21 to 50	219	63	310,000
		51 to 80	184	65	290,000
		81 to 120	161	70	315,000
		121 to 180	146	75	385,000
7.		0 to 20	295	119	625,000
		21 to 50	219	114	475,000
		51 to 80	184	111	455,000
		81 to 120	161	117	510,000
		121 to 180	146	120	645,000
8.		0 to 20	394	119	715,000
		21 to 50	290	114	550,000
		51 to 80	242	111	515,000
		81 to 120	210	117	565,000
		121 to 180	189	120	675,000
9.		0 to 20	98	59	230,000
		21 to 50	77	57	200,000
		51 to 80	77	56	215,000
		81 to 120	76	59	225,000
		121 to 180	72	60	265,000
10.		0 to 20	197	59	355,000
		21 to 50	145	57	275,000
		51 to 80	121	56	260,000
		81 to 120	105	59	285,000
		121 to 180	94	60	340,000

*Staggered threshold adjustments may apply, see paragraph 4-6.

Figure 2-1. Capacity and ASV for long range planning (cont.)

No.	Runway-use Configuration	Mix Index %(C+3D)	Hourly Capacity Ops/Hr VFR	Hourly Capacity Ops/Hr IFR	Annual Service Volume Ops/Yr
11.		0 to 20	197	62	355,000
		21 to 50	149	63	285,000
		51 to 80	126	65	275,000
		81 to 120	111	70	300,000
		121 to 180	103	75	365,000
12.		0 to 20	197	119	370,000
		21 to 50	149	114	320,000
		51 to 80	126	111	305,000
		81 to 120	111	105	315,000
		121 to 180	103	99	370,000
13.		0 to 20	197	59	355,000
		21 to 50	147	57	275,000
		51 to 80	145	56	270,000
		81 to 120	138	59	295,000
		121 to 180	125	60	350,000
14.		0 to 20	150	59	270,000
		21 to 50	108	57	225,000
		51 to 80	85	56	220,000
		81 to 120	77	59	225,000
		121 to 180	73	60	265,000
15.		0 to 20	132	59	260,000
		21 to 50	99	57	220,000
		51 to 80	82	56	215,000
		81 to 120	77	59	225,000
		121 to 180	73	60	265,000

*Staggered threshold adjustments may apply, see paragraph 4-6.

Figure 2-1. Capacity and ASV for long range planning (cont.)

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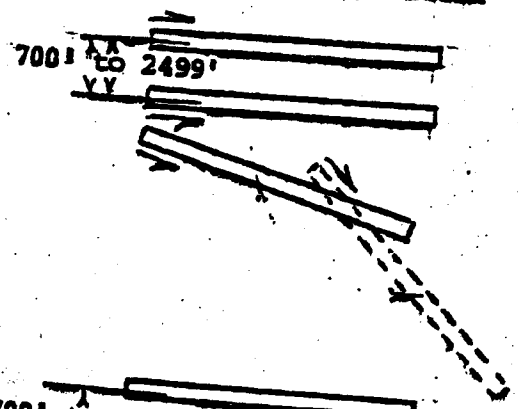
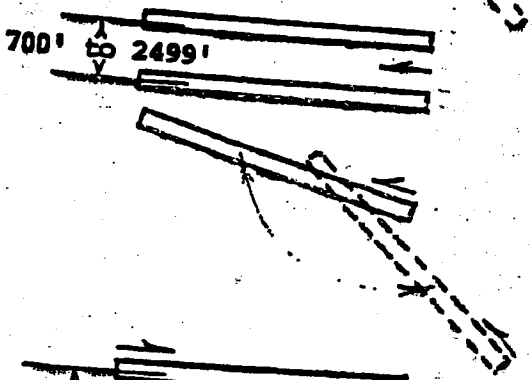
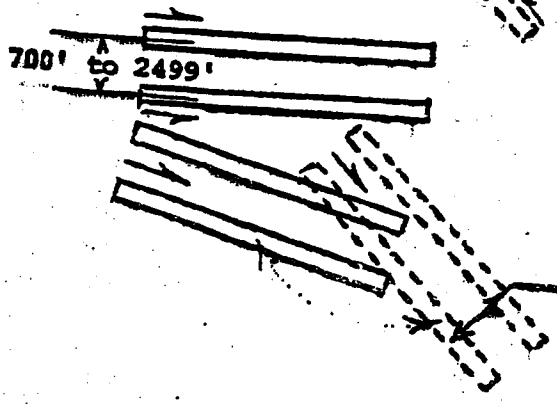
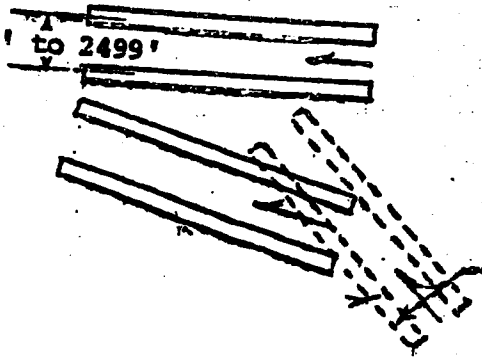
No.	Runway-use Configuration	Mix Index #(C+3D)	Hourly Capacity Ops/Hr VFR	IFR	Annual Service Volume Ops/Yr
16.		0 to 20	295	59	385,000
		21 to 50	210	57	305,000
		51 to 80	164	56	275,000
		81 to 120	146	59	300,000
		121 to 180	129	60	355,000
17.		0 to 20	197	59	355,000
		21 to 50	145	57	275,000
		51 to 80	121	56	260,000
		81 to 120	105	59	285,000
		121 to 180	94	60	340,000
18.		0 to 20	301	59	385,000
		21 to 50	210	57	305,000
		51 to 80	164	56	275,000
		81 to 120	146	59	300,000
		121 to 180	129	60	355,000
19.		0 to 20	264	59	375,000
		21 to 50	193	57	295,000
		51 to 80	158	56	275,000
		81 to 120	146	59	300,000
		121 180	129	60	355,000

Figure 2-1. Capacity and ASV for long range planning (cont.)

c. Calculate the component quotients by dividing each components capacity by its demand ratio.

d. Identify the airport hourly capacity, i.e., the lowest quotient calculated in c above.

3-6. ANNUAL SERVICE VOLUME (ASV). Calculate the ASV as follows:

a. Calculate the weighted hourly capacity (C_w) for the runway component as follows:

(1) Identify the different runway-use configurations used over the course of a year.

(2) Determine the percent of time each runway-use configuration is in use (P_1 through P_n). Include those times when the hourly capacity is zero, i.e., the weather conditions are below airport minimums or the airport is closed for other reasons. If a runway-use configuration is used less than 2 percent of the time, that time may be credited to another runway-use configuration.

(3) Calculate the hourly capacity for each runway-use configuration (C_1 through C_n).

(4) Identify the runway-use configuration that provides the maximum capacity. Generally, this configuration is also the configuration most frequently used.

(5) Divide the hourly capacity of each runway-use configuration by the hourly capacity of the runway-use configuration that provides the maximum capacity.

(6) Determine the ASV weighting factor (W_1 through W_n) for each runway-use configuration from Table 3-1.

Table 3-1. ASV Weighting Factors

Percent of Maximum Capacity	Weighting Factors			
	VFR	IFR		
		Mix Index (0-20)	Mix Index (21-50)	Mix Index (51-180)
91+	1	1	1	1
81-90	5	1	3	5
66-80	15	2	8	15
51-65	20	3	12	20
0-50	25	4	16	25

(7) Calculate the weighted hourly capacity (C_w) of the runway component by the following equation:

$$C_w = \frac{(P_1 \cdot C_1 \cdot W_1) + (P_2 \cdot C_2 \cdot W_2) + \ldots + (P_n \cdot C_n \cdot W_n)}{(P_1 \cdot W_1) + (P_2 \cdot W_2) + \ldots + (P_n \cdot W_n)}$$

b. Calculate the ratio of annual demand to average daily demand during the peak month (D). Typical annual demand to average daily demand ratios are provided in table 3-2.

c. Calculate the ratio of average daily demand to average peak hour demand during the peak month (H). Typical average daily to average peak hour demand ratios are provided in table 3-2.

Table 3-2. Typical Demand Ratios

Mix Index	Daily (D)	Hourly (H)
0-20	280-310	7-11
21-50	300-320	10-13
51-180	310-350	11-15

d. Calculate ASV by the following equation:

$$ASV = C_w \cdot D \cdot H$$

3-7. HOURLY DELAY TO AIRCRAFT ON THE RUNWAY COMPONENT. Hourly delay calculations described in this paragraph apply to those hours when the hourly demand does not exceed the hourly capacity of the runway component. For those hours when the hourly demand exceeds the hourly capacity of the runway component, paragraph 3-9 calculations apply. Calculate hourly delay as follows:

a. Calculate the hourly capacity of the runway component for the specific hour of interest.

b. Identify from figure 3-2 the figure number for delay (for the arrival delay index (ADI) and the departure delay index (DDI)).

c. Identify the hourly demand (HD) and the peak 15 minute demand (Q) on the runway component.

d. Calculate the ratio of hourly demand to hourly capacity (D/C).

e. Determine the arrival delay index (ADI) and departure delay index (DDI).

EXAMPLE 5. Determine the ASV of the example airport assuming there are 219,750 annual operations, 690 average day operations and 50 peak hour operations.

SOLUTION: The work sheet on page 12 illustrates one method of recording data.

1. Calculate C_w.

a. Runway-use Configuration. Identify the different runway-use conditions used over the course of a year and the mix index for each use. Enter in columns 1 through 4.

b. Percent of Use (P). Identify the percent of the time each configuration is used and enter in column 5. The figures shown on the work sheet in column 5 are hypothetical.

c. Runway Hourly Capacity (C). Calculate the hourly capacities of operating conditions as in example 1 and enter in column 6. Example 1 data are used for operating conditions 1 and 2.

d. Maximum Capacity Configuration. Identify the runway-use configuration that provides the maximum capacity.

e. Percent of Maximum Capacity. Divide the hourly capacity of each runway-use configuration by the capacity of the configuration that provides the maximum capacity and enter in column 7.

Operating condition	1	89/89	= 100
" "	2	51/89	= 57
" "	3	62/89	= 70
" "	4	52/89	= 58
" "	5	59/89	= 66
" "	6	46/89	= 52

f. ASV Weighting Factor (W). From Table 3-1, identify the weighting factor (W) for each operating condition and enter in column 8.

Table 3-1. ASV Weighting Factors

Percent of Maximum Capacity	Weighting Factors			
	VFR	IFR		
		Mix Index (0-20)	Mix Index (21-50)	Mix Index (51-180)
91+	1	1	1	1
81-90	5	1	3	5
66-80	15	2	8	15
51-65	20	3	12	20
0-50	25	4	16	25

Figure A2-5. Annual service volume

Operating Condition No.	Weather	Runway Diagram	Mix Index	Percent of Time (T)	Hourly Capacity (C)	Percent Maximum Capacity	Weighting Factor (W)
1	2	3	4	5	6	7	8
1	VFR		62	74	89	100	1
2	IFR		91	5	51	57	20
3	VFR		62	5	62	70	15
4	IFR		91	5	52	58	20
5	VFR		62	4	59	66	15
6	IFR		91	4	46	52	20
7	IFR	Below Minimums		3		-	25

Work sheet for ASV factors.

g. Weighted Hourly Capacity (C_w). Calculate the weighted hourly capacity using the following equation:

$$C_w = \frac{(P_1C_1W_1) + (P_2C_2W_2) + \cdots (P_nC_nW_n)}{(P_1W_1) + (P_2W_2) + \cdots (P_nW_n)}$$

$$C_w = \frac{(.74 \cdot 89 \cdot 1) + (.05 \cdot 51 \cdot 20) + (.05 \cdot 62 \cdot 15) + (.05 \cdot 52 \cdot 20) + (.04 \cdot 59 \cdot 15) +}{(.74 \cdot 1) + (.05 \cdot 20) + (.05 \cdot 15) + (.05 \cdot 20) + (.04 \cdot 15) +}$$

$$\frac{(.04 \cdot 46 \cdot 20) + (.03 \cdot 0 \cdot 25)}{(.04 \cdot 29) + (.03 \cdot 25)}$$

$$C_w = \frac{287.56}{5.64} \text{ or 51 operations per hour.}$$

2. Daily Demand Ratio (D). Calculate D using the equation:

$$D = \frac{\text{Annual}}{\text{Average Day—peak month}} = \frac{219,750}{690} = 318$$

3. Hourly Demand Ratio (H). Calculate H from the equation:

$$H = \frac{\text{Average Day—peak month}}{\text{Average Peak Hour—peak month}} = \frac{690}{50} = 14$$

4. Calculate ASV. ASV is calculated from the equation $ASV = C_w \cdot D \cdot H$

$$ASV = 51 \cdot 318 \cdot 14 = 227,052 \text{ operations per year.}$$

5. Conclusion. ASV is an indicator of the annual operational capability of an airport adjusted for differences in hourly capacities which occur over the course of a year. In this example, the airport theoretically could have accommodated and additional 7,302 operations during the year.

Figure A2-5. Annual service volume (cont.)

U.S. Department of Transportation

Federal Aviation Administration

Advisory Circular

Subject: Engineered Materials Arresting Systems (EMAS) for Aircraft Overruns

Date: 8/21/98 **AC No:** 150/5220-22

Initiated by: AAS-100 **Change:**

1. PURPOSE. This advisory circular (AC) contains standards for the planning, design, and installation of Engineered Materials Arresting Systems (EMAS) in runway safety areas. Engineered Materials means high energy absorbing materials of selected strength, which will reliably and predictably crush under the weight of an aircraft.

2. BACKGROUND. Aircraft can and do overrun the ends of runways, sometimes with disastrous results. An overrun occurs when an aircraft passes beyond the end of a runway during an aborted takeoff or while landing. The majority of such overruns by air carrier aircraft come to rest within 1000 feet of the runway end and between the extended edges of the runway. Data on aircraft overruns over a 12-year period from 1975 to 1987 indicate that a large majority of all overruns (approximately 90%) occur at exit speeds of 70 knots or less (Reference 7, Appendix 2). In order to minimize the hazards of overruns, the Federal Aviation Administration (FAA) incorporated into airport design standards the concept of a safety area beyond the runway end. To meet the standards, the safety area must be capable, under normal (dry) conditions, of supporting aircraft that overrun the runway without causing structural damage to the aircraft or injury to its occupants. Besides enhancing airport safety, the safety area provides greater accessibility for emergency equipment after an overrun incident. There are many runways, particularly those constructed prior to the adoption of the safety area standards, where natural obstacles (bodies of water or sharp drop-offs), local development (roads and railroads), or environmental constraints (wetland encroachment), make the construction of a standard safety area impracticable. There have been accidents at some of these airports where the ability to stop an overrunning aircraft within the runway safety area would have prevented major damage to aircraft and injuries to passengers.

Recognizing the difficulties associated with achieving a standard safety area at all airports, the FAA undertook research programs on the use of various materials for arresting systems and, in conjunction with industry, conducted a series of field tests utilizing an instrumented Boeing 727 aircraft. As a result of the data obtained from these test programs, the Port Authority of New York and New Jersey (PANY/NJ), in 1997, installed an EMAS comprised of cellular cement on the Runway 4R safety area at John F. Kennedy International Airport. This prototype system is being monitored to provide information on system longevity.

3. APPLICATION. At some airports, reconstruction of a runway requires its safety areas to be brought up to current standards to the extent practicable. Of course, conformance with current standards is desirable at all airports, even when not required by regulation. Occasionally, however, it may not be practicable to achieve a standard safety area as specified in Tables 3-1, 3-2, and 3-3 of AC 150/5300-13, *Airport Design*. In these situations, Appendix 14, *Declared Distances,* of that AC provides an alternative means of enhancing safety. The declared distance alternative allows an airport owner to declare what portions of an operational runway are available to satisfy the aircraft's accelerate-stop and landing distance requirements, with runway beyond these "declared distances" available as runway safety area. However, the use of declared distances at some airports may result in the inability to accommodate aircraft that are currently in use at that airport. In such a situation, installing an EMAS may be another way of enhancing safety. An EMAS is **NOT** a substitute for, nor equivalent to, any length or width of runway safety area and does not affect declared distance calculations. An EMAS is also not intended to meet the definition of a stopway as provided in AC 150/5300-13.

EXHIBIT NO. 31
APPLICATION NO.
CC-058-01

The guidelines and standards contained herein are recommended by the FAA for the design of EMAS. This AC is not mandatory and does not constitute a regulation. It is issued for guidance purposes and to outline a method of compliance. One may elect to follow an alternate method, provided it is also found by the Federal Aviation Administration (FAA) to be an acceptable means of complying with Title 14, Code of Federal Regulations (CFR), Chapter I, FAA. Therefore, mandatory terms such as "shall" or "must" used herein apply only to those who seek to demonstrate compliance by use of the specific method described by this AC, or for those for whom the use of these guidelines is mandatory, such as those installing an EMAS funded under Federal grant assistance programs.

4. RELATED READING MATERIAL. Appendix 2 contains a listing of documents with supplemental material relating to EMAS. These documents contain certain information on materials evaluated, as well as design, construction, and testing procedures utilized to date. Testing and data previously generated under FAA studies referenced in Appendix 2 may be used as input to an EMAS design without further justification.

5. PLANNING CHARTS. The purpose of Figures A1-1 through A1-4 is to allow a preliminary analysis, providing sufficient information to determine whether to proceed with a detailed engineering design of an optimum EMAS installation. They are intended to be used as a preliminary screening tool only. They are not sufficient for final design, which must be customized for each installation. The charts illustrate estimated EMAS stopping distance capabilities for various aircraft types. The design used in each chart is optimized specifically for the aircraft noted on the chart and assumes the availability of brakes and reverse thrust. It should be noted that the absence of either would result in longer stopping distances.

a. Example 1. Assume a candidate runway has a runway safety area that extends 500 feet beyond the end of the runway and the design aircraft is a DC-9 (or similar). Figure A1-1 shows that an EMAS 500 feet in length (including a 100' jet blast buffer) is capable of stopping a DC-9 within the confines of the system at runway exit speeds of up to 94 knots.

b. Example 2. Assume the same runway safety area but assume the design aircraft is a DC-10 (or similar). Figure A1-3 shows an EMAS of the same length, but designed for larger aircraft, can stop the DC-10 within the confines of the system at runway exit speeds of up to 72 knots.

6. SYSTEM DESIGN REQUIREMENTS. For purposes of design, the EMAS can be considered fixed by its function and frangible since it is designed to fail at a specified impact load. Therefore, an EMAS is not considered an obstruction under 14 CFR Part 77, *Objects Affecting Navigable Airspace.* The following system design requirements shall prevail for all EMAS installations.

a. Concept. An EMAS is designed to stop an overrunning aircraft by exerting predictable deceleration forces on its landing gear as the EMAS material crushes. It must be designed to minimize the potential for structural damage to aircraft, since such damage could result in injuries to passengers and/or affect the predictability of deceleration forces.

b. Location. An EMAS is located beyond the end of the runway, centered on the extended runway centerline. It will usually begin at some distance from the end of the runway to avoid damage due to jet blast and short landings (Figure 1). This distance will vary depending on the available area and the EMAS materials.

c. Design Method. An EMAS design shall be supported by a validated design method, which can predict the performance of the system. The design aircraft is defined as that aircraft using the associated runway that imposes the greatest demand upon the EMAS. To the extent practicable, however, the EMAS design should consider the range of aircraft expected to operate on the runway. In some instances, this may be preferable to optimizing the EMAS for the design aircraft. The design method shall be derived from field or laboratory tests. Testing may be based on passage of either an actual aircraft or equivalent single wheel load through a test bed. The design must consider multiple aircraft parameters, including but not necessarily limited to allowable aircraft gear loads, gear configuration, tire contact pressure, aircraft center of gravity, and aircraft speed. The model must calculate imposed aircraft gear loads, g-forces on aircraft occupants, deceleration rates, and stopping distances within the arresting system. Any rebound of the crushed material that may serve to lessen its effectiveness must be considered.

d. Operation. The EMAS shall be a passive system.

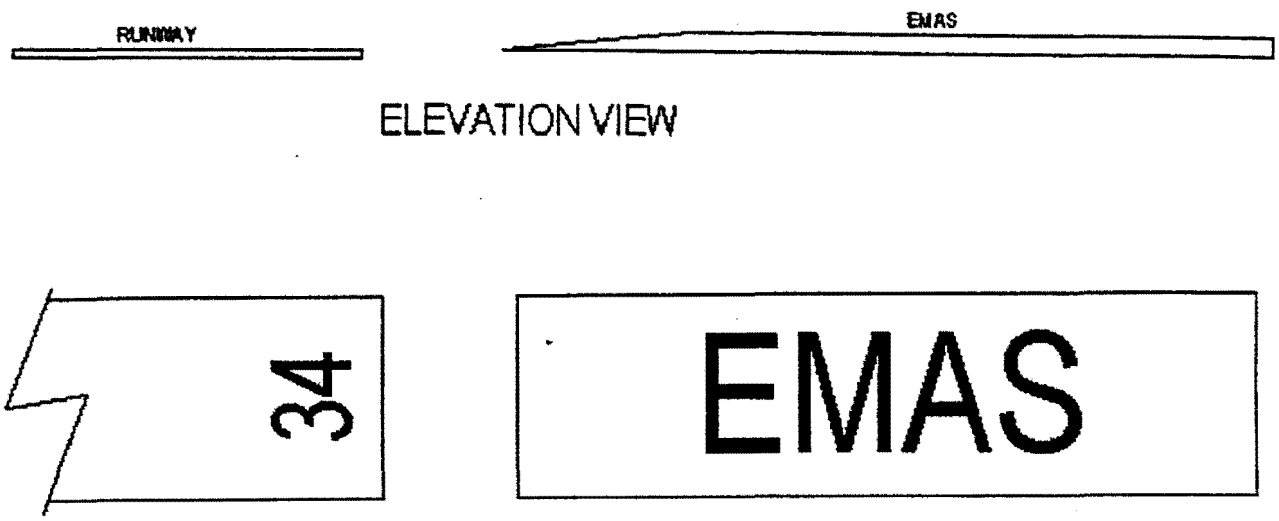


Figure 1. Typical EMAS (Not to Scale)

e. Width. The minimum width of the EMAS shall be the width of the runway (plus any sloped area as necessary – see paragraph 6.h below).

f. Base. The EMAS shall be constructed on a surface capable of supporting the occasional passage of the critical design aircraft using the runway and fully loaded Aircraft Rescue and Fire Fighting (ARFF) vehicles without deformation of the base surface or structural damage to the aircraft or vehicles. It shall be designed to perform satisfactorily under all local weather, temperature, and soil conditions. It shall provide sufficient support to facilitate removal of the aircraft from the EMAS. Full strength runway pavement is not required.

g. Entrance Speed. To the maximum extent possible within the available safety area, the EMAS shall be designed to decelerate all air carrier aircraft expected to use the runway at exit speeds of 70 knots or less without imposing loads that exceed the aircraft's design limits, causing major structural damage to the aircraft, or imposing excessive forces on its occupants. For design purposes, it shall be assumed that the aircraft has all of its landing gear in full contact with the runway and is traveling within the confines of the runway and parallel to the runway centerline.

h. Aircraft Evacuation. The EMAS shall be designed to enable safe ingress and egress as well as movement of ARFF equipment (not necessarily without damage to the EMAS) operating during an emergency. If the EMAS is to be built above existing grade, sloped areas sufficient to allow the entrance of ARFF vehicles from the front and sides must be provided. Provision for access from the back of the EMAS may be provided if desirable, but will result in a shorter effective length. Maximum slopes should be based on the EMAS material and performance characteristics of the airport's ARFF equipment.

i. Maintenance Access. The EMAS shall be capable of supporting regular pedestrian traffic for the purposes of maintenance of the arresting material and co-located navigation aids without surface damage. An EMAS is not intended to support vehicular traffic for maintenance purposes.

j. Undershoots. The EMAS shall be designed so as not to cause control problems for aircraft undershoots touching down in the arresting system. Fulfillment of this requirement may be based solely on flight simulator tests. Materials of density and strength greater than those shown by flight simulator tests not to cause control problems for aircraft undershoots will be deemed acceptable.

k. Navigation Aids. The EMAS shall be constructed to accommodate approach lighting structures and other approved facilities within its boundaries. It shall not cause visual or electronic interference with any air navigation aids. All navigation aids within the EMAS must be frangible as required by 14 CFR Part 139, *Certification and*

Operations: Land Airports Serving Certain Air Carriers. To meet the intent of this regulation, approach light standards must be designed to fail at two points. The first point of frangibility shall be zero to three inches above the top of the EMAS. The second point of frangibility shall be zero to three inches above the expected residual depth of the EMAS after passage of the design aircraft.

l. Drainage. The EMAS shall be designed such that water will not accumulate on its surface or any portion of the runway or runway safety area.

m. Jet Blast. The EMAS shall be designed and constructed so that it will not be damaged by expected jet blast.

n. Repair. The EMAS must be designed to be repaired to a usable condition within 45 days of use by the design aircraft at the design entrance speed. It should be noted that this is a design requirement only – not an operational requirement.

7. MATERIAL QUALIFICATION. The material comprising the EMAS shall have the following requirements and characteristics:

a. Material Strength and Deformation Requirements. Materials must meet a force vs. deformation profile within limits having been shown to assure uniform crushing characteristics, and therefore, predictable response to an aircraft entering the arresting system.

b. Material Characteristics. The materials comprising the EMAS must:

(1) Be water-resistant to the extent that the presence of water does not affect system performance.

(2) Not attract vermin, birds, or other creatures.

(3) Be non-sparking.

(4) Be non-flammable.

(5) Not promote combustion.

(6) Not emit toxic fumes or malodorous fumes in a fire environment after installation.

(7) Not support unintended plant growth with proper treatment.

(8) Have constant strength and density characteristics during all climatic conditions within a temperature range appropriate for the locale as specified by the airport owner.

(9) Be resistant to deterioration due to:

(a) Salt.

(b) Typical aircraft and runway deicing fluids.

(c) Aircraft fuels, hydraulic fluids, and lubricating oils.

(d) Sunlight.

(e) Water.

(f) Freeze/thaw, if installed where freezing is possible.

(g) Blowing sand.

8. DESIGN PROPOSAL SUBMITTAL. The EMAS design shall be submitted to the FAA, Office of Airport Safety and Standards, through the responsible FAA Airports Regional or District Office, for review and approval and shall be certified as meeting all the requirements of this AC. The submittal shall include all design assumptions and data utilized in its development as well as proposed construction procedures and techniques.

9. INSTALLATION.

a. Material Conformance Requirements. A material sampling and testing program shall be established to verify that all materials are in conformance with the previously qualified force vs. deformation profile/limits. The sampling and testing program must be submitted to and approved by the FAA, Office of Airport Safety and Standards. Materials failing to meet requirements based on the testing program shall not be used.

b. Construction. A quality assurance program, submitted to and approved by the FAA, Office of Airport Safety and Standards, shall be implemented to ensure that construction is in accordance with the approved design.

10. MARKING. An EMAS is marked as an area unusable for landing, takeoff, and taxiing with yellow chevrons in accordance with AC 150/5340-1, *Standards for Airport Markings.*

11. MAINTENANCE. An inspection and maintenance program, submitted to and approved by the FAA, Office of Airport Safety and Standards, shall be established and carried out by the airport sponsor to ensure original specified density and strength are maintained throughout the operating life of the EMAS. The program shall include any necessary procedures for preventive maintenance and unscheduled repairs, particularly to weatherproofing layers. Airport personnel must be notified that the EMAS is designed to fail under load and that precautions should be taken when activities require personnel to be on, or vehicles and personnel to be near, the EMAS.

12. AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF).

a. Access. As required by paragraph 6.h, an EMAS is capable of supporting typical ARFF equipment. However, as the sides of the system are typically steeply sloped, and the system will be severely rutted after an aircraft arrestment, ARFF vehicles so equipped should be shifted into all-wheel-drive prior to entering and maneuvering upon an EMAS.

b. Tactics. Any fire present after the arrestment of an aircraft will be three-dimensional due to the rutting and breakup of the EMAS material. A dual-agent attack and/or other tactics appropriate to this type of fire should be employed.

13. NOTIFICATION. Upon installation of an EMAS, its length, width, and location shall be included as a remark in the Airport/Facility Directory. The following is an example of a typical entry:

"Engineered Materials Arresting System, 400'L x 150'W, located at departure end of runway 16."

DAVID L. BENNETT

Director of Airport Safety and Standards

NOTES:
1. ARRESTOR INCLUDES A 100'-0" PAVED LEAD-IN RIGID RAMP.
2. PERFORMANCE BASED ON WET LEAD-IN RAMP CONDITIONS.

PLANNING PURPOSES ONLY
NOT TO BE USED FOR DESIGN - SEE PARAGRAPH 5

DC-9
GW = 114,000 lbs.
MAXIMUM THRUST REVERSE & BRAKING

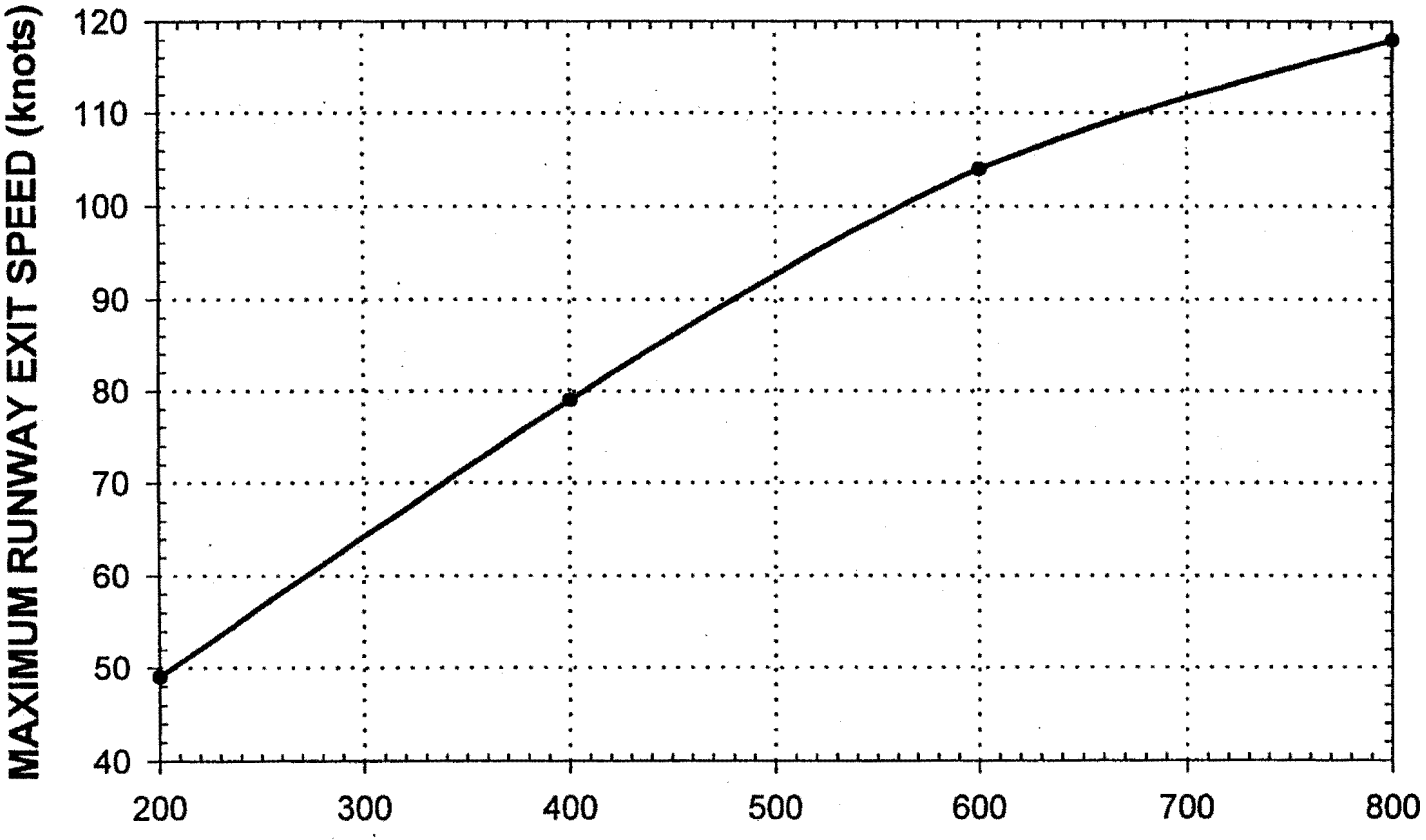


FIGURE A1-1

NOTES:
1. ARRESTOR INCLUDES A 100'-0" PAVED LEAD-IN RIGID RAMP.
2. PERFORMANCE BASED ON WET LEAD-IN RAMP CONDITIONS.

PLANNING PURPOSES ONLY
NOT TO BE USED FOR DESIGN - SEE PARAGRAPH 5

B727-200
GW = 209,000 lbs.
MAXIMUM THRUST REVERSE & BRAKING

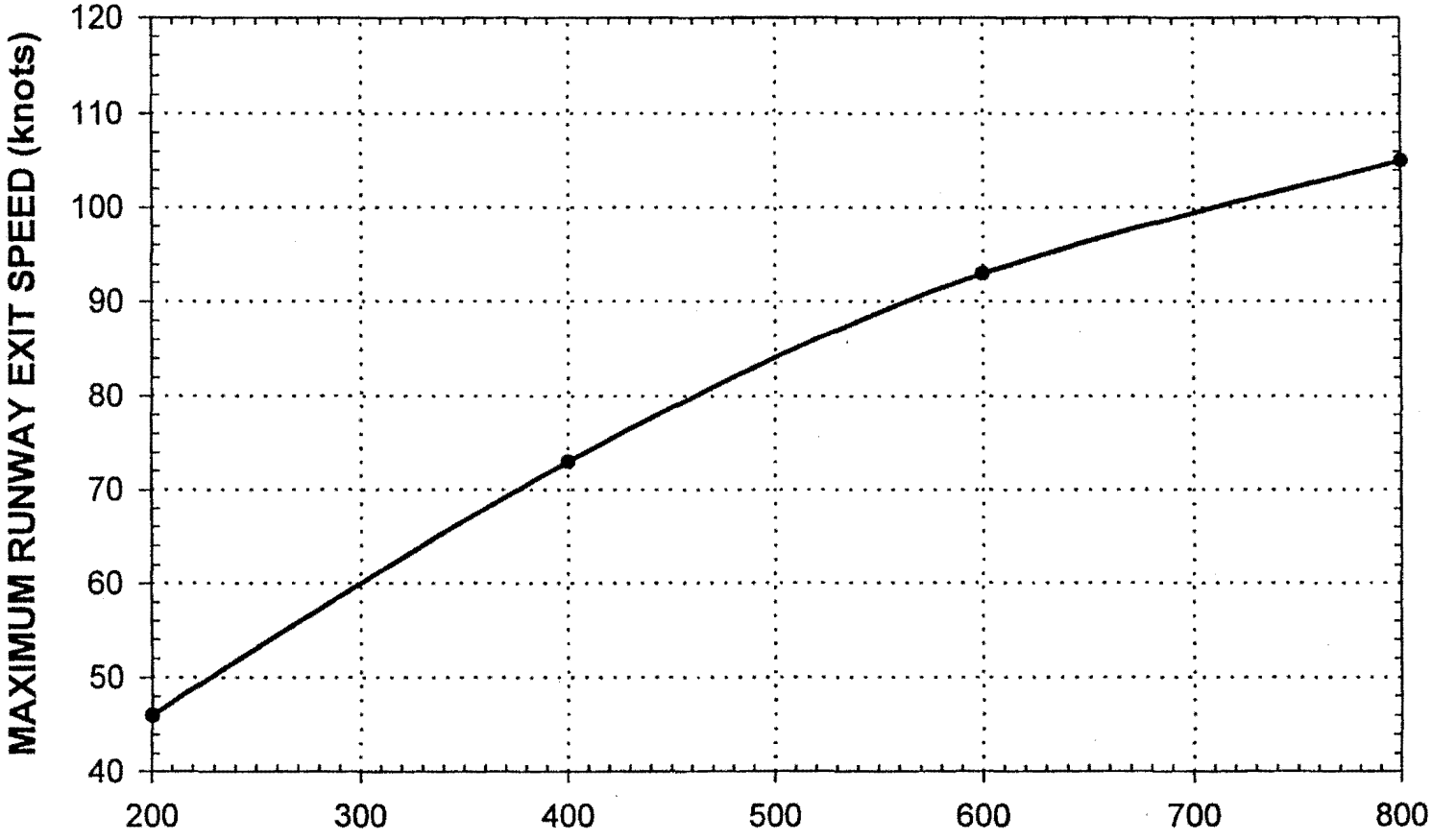


FIGURE A1-2

NOTES:
1. ARRESTOR INCLUDES A 100'-0" PAVED LEAD-IN RIGID RAMP.
2. PERFORMANCE BASED ON WET LEAD-IN RAMP CONDITIONS.

PLANNING PURPOSES ONLY
NOT TO BE USED FOR DESIGN - SEE PARAGRAPH 5

DC-10
GW = 455,000 lbs.
MAXIMUM THRUST REVERSE & BRAKING

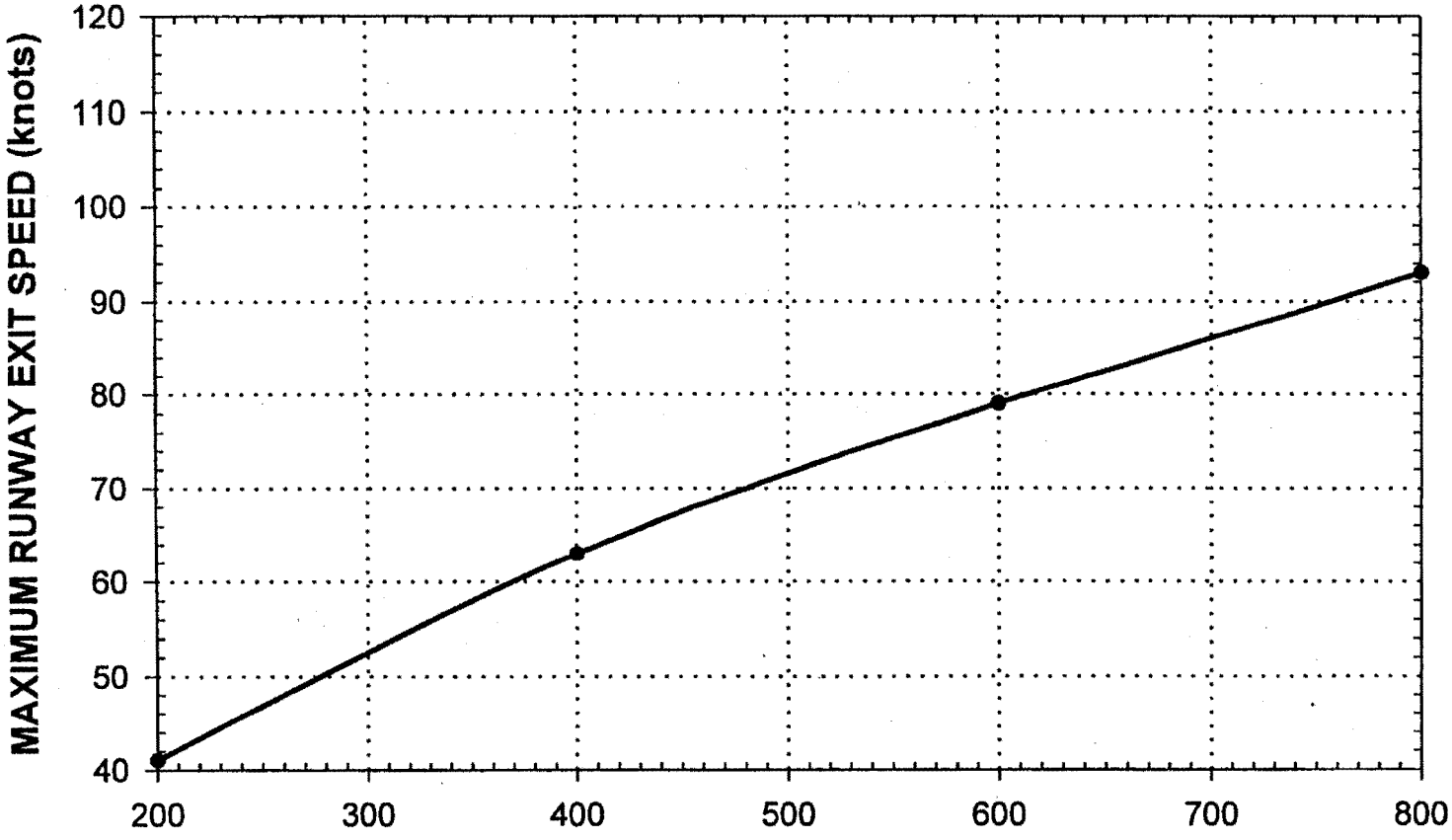


FIGURE A1-3

NOTES:
1. ARRESTOR INCLUDES A 100'-0" PAVED LEAD-IN RIGID RAMP.
2. PERFORMANCE BASED ON WET LEAD-IN RAMP CONDITIONS.

PLANNING PURPOSES ONLY
NOT TO BE USED FOR DESIGN - SEE PARAGRAPH 5

B747
GW = 820,000 lbs.
MAXIMUM THRUST REVERSE & BRAKING

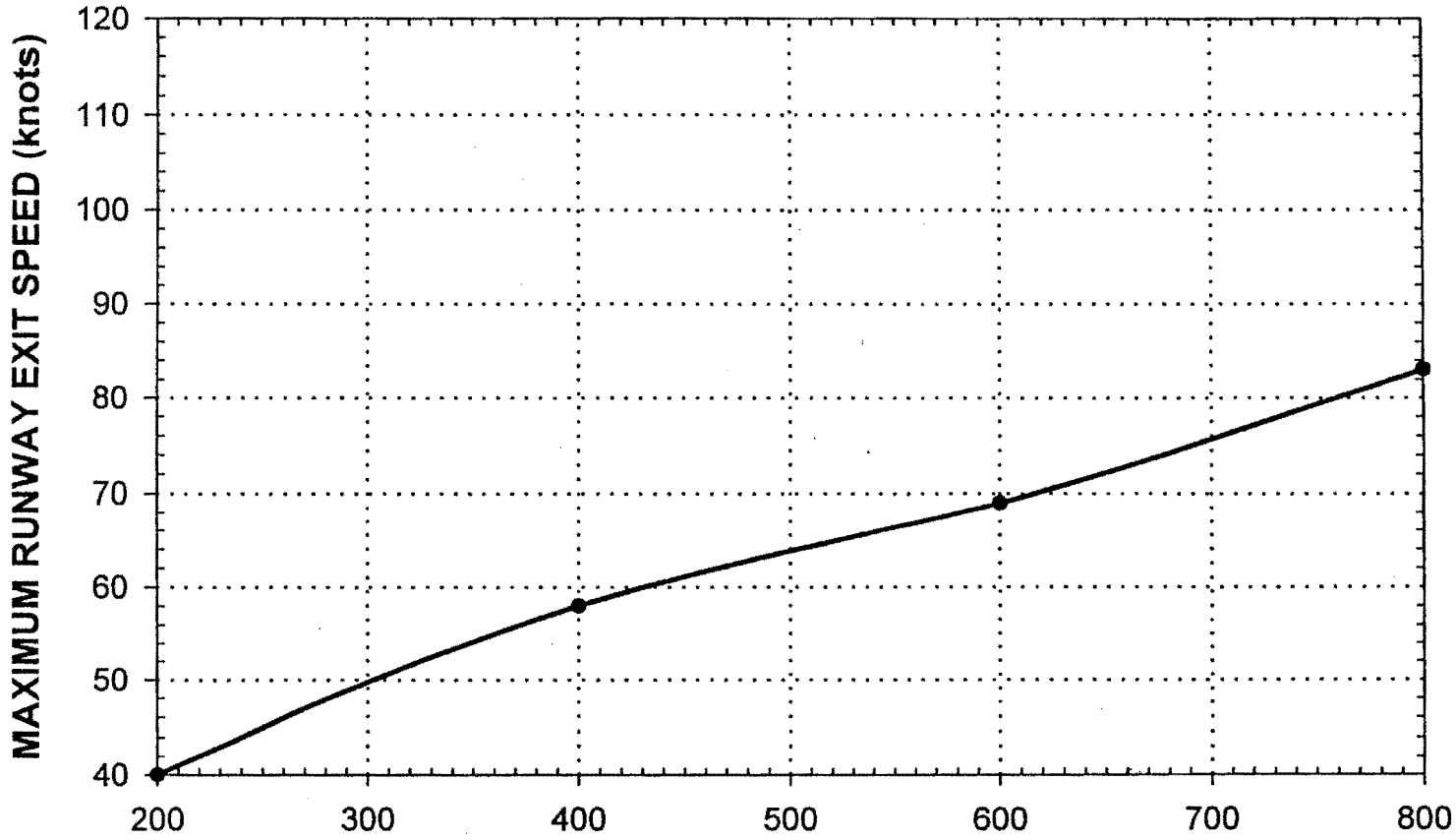


FIGURE A1-4

APPENDIX 2. RELATED READING MATERIAL.

This appendix contains a listing of documents with supplemental material relating to the subject of EMAS. These documents contain certain information on materials evaluated as well as design, construction, and testing procedures utilized to date. These publications may be obtained from the National Technical Information Service (NTIS), Springfield, VA 22151.

1. DOT/FAA/PM-87/27, *Soft Ground Arresting Systems*, Final Report-Sept. 1986 - Aug. 1987, published Aug. 1987 by R.F. Cook, Universal Energy Systems, Inc., Dayton, OH.

2. 2. DOT/FAA/CT-93/4, *Soft Ground Arresting Systems for Commercial Aircraft* - Interim Report-Feb. 1993 by Robert Cook.

3. DOT/FAA/CT-93/80, *Soft Ground Arresting Systems for Airports* - Final Report - Dec. 1993 by Jim White, Satish K. Agrawal, and Robert Cook.

4. Draft Report - DOT/FAA/CT-95, *Preliminary Soft Ground Arrestor Design for JFK International Airport* - March 1995.

5. Draft Test Report - *Soft Ground Arresting System Using Cellular Concrete* - Nov. 1994.

6. DOT/FAA/AOV 90-1 - *Location of Commercial Aircraft Accidents/Incidents Relative to Runways*, July1990.

7. UDR-TR-88-07, Cook, R.F., *Evaluation of a Foam Arrestor Bed for Aircraft Safety Overrun Areas*, University of Dayton Research Institute, Dayton, Ohio. 1988.

EXHIBIT NO. 32
APPLICATION NO.
058-01

March 12, 2002

Peter M. Douglas, Executive Director
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

Re: Consistency Certification CC-058-01 (Santa Barbara Airport)

Dear Peter:

On behalf of Santa Barbara ChannelKeeper, I write to express our views regarding Consistency Certification CC-058-01, the Santa Barbara Airport Project (the "Project"). At the January 7 hearing on this matter, we were pleased that Coastal Commission Staff recommended that the issue be heard in April 2002 in Santa Barbara. We are hopeful that before April, the City will commit to restoring tidal function at the Goleta Slough. All of the experts who have commented on this issue are in agreement that restoration of tidal circulation to the Goleta Slough is: (1) the best mitigation for this project; and (2) absolutely essential if the Goleta Slough ecosystem is to survive.

ChannelKeeper believes that the Staff Recommendation on Consistency Certification (No. CC-058-01, "Staff Recommendation") was biased in favor of the project. Had the City refused to allow the matter to be continued, the Commissioners would have been forced to vote for or against consistency. Given how one-sided the Staff Recommendation read, it would have been very difficult for them to vote to deny consistency. We hope that the report prepared for the April hearing will present both sides of the key issues.

While we disagree with the some of the positions Commission staff has taken in its Recommendation, we would like to acknowledge at the outset that staff has consistently maintained a very courteous and professional attitude. Staff has been willing to talk about these issues at length on the telephone, and to provide documents as requested.

Project Impacts on Goleta Slough

The Goleta Slough is an Environmentally Sensitive Habitat Area ("ESHA"). The *Santa Barbara Airport Proposed Final Environmental Impact Statement/Environmental Impact Report* ('EIS/EIR') calls the Slough "the major environmentally sensitive habitat area in the Goleta Valley's coastal zone." A substantial portion of the Goleta Slough ecosystem is also a State Ecological Reserve – we believe the Staff Recommendation should reflect this fact and discuss its significance. Seven major creeks and several minor creeks flow from the Santa Ynez Mountains into the 430-acre Slough. An estimated 279 species have been reported in the Goleta Slough, which was recently designated a "Globally Important Bird Area."

Local experts from UCSB report that in 1983, the following species could be seen in the Goleta Slough: the black-tailed jackrabbit, gray fox, badger, long-tailed weasel, spotted skunk,

American bittern, California quail, greater roadrunner, Western screech-owl, short-eared owl, horned lark, white-breasted nuthatch, yellow warbler, Wilson's warbler, tricolored blackbird, arboreal salamander, red-legged frog, and the two-striped garter snake.

Today, according to these UCSB scientists, none of these species can be seen at Goleta Slough. In less than 20 years, all of them have disappeared. As Wayne Ferren stated at the January 7 hearing, the Goleta Slough ecosystem will be dead before long if tidal function is not restored.

Coastal Act Section 30236

This Project violates Section 30236 of the Coastal Act, which provides as follows:

> "Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat."

All parties agree that the Project constitutes an "alteration" of a stream as contemplated by Section 30236. The only issues are: (1) whether the Project is a water supply, flood control, or wildlife habitat improvement project; and (2) whether the Project incorporates the "best mitigation measures feasible."

Is the Project a water supply, flood control, or wildlife habitat improvement project?

The purpose of this project is not for water supply, flood control, or wildlife enhancement. The purpose of this project is to extend a runway.

According to the Staff Recommendation, however, the Project "is an allowable use for stream alteration under Section 30236" because it is a flood control project. The City has been working on the Project for two decades. Yet, to our knowledge, the City has never characterized this project as a flood control project. In fact, the City's stated position is that the Project is consistent with Section 30236 because it is "necessary for public safety" and because it "would result in the improvement of fish and wildlife habitat in the mitigation areas." Staff was right in rejecting these two bases. Section 30236 does not have an exception for public safety. And whether habitat is improved in the mitigation areas is irrelevant.

We do not think it is appropriate for Coastal Commission staff to manufacture a reason why this project is consistent with the Coastal Act, particularly where the reason is one that the project proponent itself has never advanced.

To define the Project as either a flood control project is to eviscerate Section 30236. While the legislature clearly provided some "wiggle room" in Section 30233 by crafting the "incidental public services" exception, the legislature equally as clearly provided no such leeway

in Section 30236. The legislature intended that streams be filled only in three very limited circumstances. A runway extension is not such a circumstance.

If the Coastal Commission considers this Project a flood control project, any project that fills in a stream could be considered a flood control project. Streams convey floodwater. Therefore, any project that fills in a stream creates a need to deal with the floodwater that the stream conveys. If a condominium developer wishes to extend a wing of condos on top of an adjacent stream, that developer will of course need to provide a mechanism to deal with the resulting flooding issues. That does not convert the project – a condominium expansion project – into a flood control project. Nor is this Project – a runway expansion project – converted into a flood control project merely because flooding issues are addressed in the EIS/EIR.

Again, we believe staff has an obligation to explain this to the Commissioners.

Does the Project employ the best mitigation measures feasible?

In drafting Section 30236, the legislature also saw fit to require that any project that alters a stream employ the "best mitigation measures feasible." This is the strongest mitigation language in the Coastal Act. Whereas Section 30233 requires that projects employ "feasible mitigation measures," Section 30236 requires the best mitigation feasible. As staff knows, this is a critical distinction. All of the experts who have commented on this Project agree that restoring tidal function is the best mitigation measure that can be done to ensure the Slough's long-term survival. Indeed, experts have testified that without this mitigation measure, the Goleta Slough ecosystem will collapse. The Staff Recommendation failed to point this out to the Commissioners.

In an EIS/EIR comment letter to the City dated July 9, 2001, noted UCSB wetlands experts Wayne Ferren and David Hubbard, stated:

> "The proposed actions will have substantial impacts on the ecosystem, but the proposed mitigation does not directly address the fundamental estuarine processes. The ecological integrity of the Goleta Slough Ecological Reserve and the whole estuary is dependent on tidal circulation. Some rare species are tide dependent including California listed species Belding's Savanna Sparrow.
>
> The proposed actions are unlikely to provide a substantial long-term benefit to the system and will not balance the loss of seasonal wetlands at a distant from sediment sources." (EIS/EIR, Volume 2, Appendices, Local Organizations)

The Staff Recommendation included copies of many of the EIS/EIR comment letters, but this one from Messrs. Ferren and Hubbard was conspicuously omitted. We feel the Commissioners should have an opportunity to hear this view.

Even the EIS/EIR itself notes that:

> "In comments to the City and the FAA following the scoping hearing, the National Marine Fisheries Service, the Santa Barbara Audubon Society, and the Goleta Slough Management Committee, while recognizing the bird strike issue, urged thorough consideration of tidal restoration to diked basins on the airport property.
>
> A long-term goal of restoration in the Goleta Slough is to create a self-sustaining and enhanced estuarine system. However, due to uncertainties regarding bird strike hazards as a consequence of tidal restoration in the Slough, the Airport is not proposing to mitigate project-related impacts by restoring tidal action . . . ." (EIS/EIR, p. 3-191)

The Goleta Slough Ecosystem Management Plan also acknowledges that the restoration of tidal flow is the most important restoration measure that could be performed to preserve the Slough. Even the Santa Barbara City Council Agenda Report acknowledged this point: "The restoration of tidal circulation to the Goleta Slough is one action that would have broad ecological benefits. Improvement of tidal circulation is one of the central tenets of the Goleta Slough Ecosystem Management Plan."

The EPA submitted an EIS/EIR comment letter as well. It stated: "We have environmental concerns regarding the adequacy of mitigation proposed to compensate for unavoidable loss of wetlands and other waters of the United States due to the placement of dredged or fill material, and increased water pollution loading." The Staff Recommendation did not include or reference this letter either.

Clearly, restoring tidal function is the best mitigation for this project. The only remaining question is whether it is feasible. The City bears the burden of establishing that the restoration of tidal function to the Goleta Slough is *infeasible*. (See *Citizens for Goleta Valley v. Board of Supervisors (Goleta I)*, 197 Cal.App.3d at p. 1181.) The City has failed to meet this burden. The City conceded this failure in the EIS/EIR:

> "In order to determine the feasibility of restoring historic tidal habitats in Goleta Slough as described in the GSEMP [Goleta Slough Ecosystem Management Plan], the City is conducting a focused 2-3 year pilot study of tidal restoration and bird use in on [sic] the airport property, the *Tidal Circulation and Bird Strike Study*." (EIS/EIR, p. 3-191)

From conversations we have had with City staff, it appears that the City believes that FAA will withdraw funding for the Project if the City attempts to restore tidal function to the Goleta Slough. Coastal Commission and City staff apparently believe that the FAA is concerned about bird strikes. The Staff Recommendation states that "bird use of wetlands in the area surrounding Goleta Slough is a concern to the FAA, and to the City of Santa Barbara, due to the hazards birds pose to aircraft."

Evidence in the record indicates clearly that restoring tidal function <u>is feasible</u>. As Wayne Ferren's testimony explains, prior restoration efforts in other portions of the Slough have restored tidal flow, and have proven to be both feasible and effective. This was not discussed in

the Staff Recommendation. Staff should contact Mr. Ferren, the leading expert on the Goleta Slough, and one of the leading wetland biologists in the country, to confirm these facts.

Instead of dealing head on with the issue of feasibility of tidal function restoration, City and Coastal Commission staff make vague assertions about concerns expressed by FAA regarding the possibility of bird strikes. Coastal Commission staff should squarely address this issue. Has the City demonstrated that tidal restoration is infeasible and, if so, on what basis?

Bird Strike Hazards

The best evidence that exists regarding the risk of bird strikes at the airport is contained in a study commissioned by the City entitled *Wetlands Mitigation Feasibility Study and Wildlife Hazard Assessment*. Completed by Levine Fricke in May 2000, the study unequivocally concluded that tidal restoration would reduce the risk of hazardous bird strikes:

> "Based on these findings, the restoration of tidal processes to portions of the Goleta Slough as mitigation for loss of wetlands will reduce the level of hazards presented by birds at SBMA [the airport]. The existing conditions actually pose a greater risk of bird strike events due to the attractiveness of the current conditions for birds." (p. xi, see also p. 54)

The report's recommendations section states that "restoration of tidal processes to the Goleta Slough will result in better drainage of the diked subareas. It will reduce standing, open, fresh water ponds, thereby reducing attractive habitats for waterfowl, gulls, and other problematic birds." (p. 55)

This study represents the best evidence available regarding the issue of bird strike hazards. Yet, the Staff Recommendation made no reference to it. This is true despite the fact that I called it to Staff's attention during a telephone conversation in December. Staff agreed to look into it, but did not obtain a copy of the study, and instead relied on the City's description of the study.

The best mitigation for this Project – restoring tidal function – is feasible and is critical for the survival of the Goleta Slough. For 60 years the airport has been primarily responsible for the destruction of the Slough. Now is the time to require that the appropriate restoration of it be performed if further destruction – the filling in and degrading of over 32 acres – is to be allowed.

Coastal Act Section 30233

Section 30233 of the Act only allows wetlands to be filled, diked or dredged for a limited number water-dependent activities. These water-dependent activities include:

1. commercial fishing facilities
2. navigational channels
3. boat launching facilities
4. public piers

5. restoration
6. nature study

There is an additional exception for "incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines." The Staff Recommendation argues strongly that this Project falls under this exception. We believe that reasonable minds can differ on this point. We understand that staff is free to urge whatever position it determines is appropriate. However, we believe the Commissioners should at least be presented with the opposing viewpoint.

The Commission's interpretive guidelines state that the only allowable "incidental public service" activities are those that "temporarily impact the resources of the area." (Statewide Interpretive Guidelines, App. A, p. 105.) Filling in two creeks with concrete is not temporary. The Staff Recommendation should explain this fact. The footnote to this section of the guidelines indicates that "limited expansion of roadbeds and bridges necessary to maintain existing traffic capacity may be permitted." Dicta in the *Bolsa Chica* opinion cited to this language.

Capacity

All parties agree that a project that expands "capacity" cannot fall within the "incidental public service" exception of Section 30233. An important question, therefore, is whether this project expands capacity. First, we believe that, in answering this question, the Commission must look at the whole project, not just the runway portion of it. Taken as a whole, the project before the Commission clearly expands the airport's capacity to handle airport traffic. The project contemplates the following additions:

	Existing Facility	**Proposed Project**	**% Expansion**
• Terminal Area	43,500 Sq. Ft.	95,360 Sq. Ft.	**+119%**
• Parking Spaces	1,690 spaces	2,636 spaces	**+ 56%**
• T-Hangars	55 T-Hangars	130 T-Hangars*	**+136%**
• Passenger Gates	4 gates	9 gates	**+125%**

A strong argument can also be made that the runway portion of the project also expands capacity. John Ledbetter stated at the January 7 hearing that this project would not expand capacity. Mr. Ledbetter stated that Santa Barbara will not service "fully loaded 747's bound for Tokyo or Paris." He stated this twice in his testimony. This may be true, but what about planes that are larger and heavier than those that currently use the airport? If this project will allow larger or heavier planes to land, a strong argument can be made that this is an increase in capacity.

In December, Santa Barbara ChannelKeeper contacted the FAA's Flight Safety Division office in Van Nuys to clarify this matter. We spoke to an Operations Inspector, and asked him if the City's proposed runway modifications would allow larger or heavier planes to land and takeoff. He stated unequivocally that larger and heavier planes could use the Airport if: (1) additional paved or graded surface were added to the ends of the runway; or (2) if the runway were moved further away from obstructions. This Project would add 1,500 feet of paved or graded surface to the end of the runway, and it would move the runway 800 feet to the West, away from obstructions to the East.

Similarly, Captain Pete Evans, a local pilot with 34 years' experience flying jumbo jets for Continental Airlines, testified on January 7 that adding more paved surface to the ends of the runway, and shifting the runway away from obstructions, would allow larger and heavier planes to use the airport.

The runway extension will allow larger and heavier planes to land. Therefore, a strong argument can be made that this project represents an increase in capacity because more people can be transported, and planes can fly to more distant destinations.

Staff focused on only one very narrow aspect of capacity, what the FAA calls "runway capacity." That type of capacity involves the number of planes that can use a runway. ChannelKeeper concedes that the proposed project would not increase that type of capacity. Increasing the length of the runway will of course not allow more planes to land. However, it is disingenuous to treat this definition as some sort of trump card that establishes beyond doubt that this project does not increase capacity

"Capacity" has numerous definitions. ChannelKeeper directs staff's attention to www.onelook.com, an online resource that searches dozens of dictionaries. In addition, California Public Utilities Code Section 21664.5 defines "airport expansion." That definition plainly is intended to include projects like this one. This should be pointed out to the Commissioners.

Mitigation Ratios

The Project will impact over 32 acres. Commissioner McCoy asked John Gray, the City's biologist, whether the Project included any mitigation for the 18 acres of upland habitat that would be impacted by the project. Mr. Gray answered "No." The City plans to do no mitigation for the over 18 acres of upland habitat impacted by this project. The Staff Recommendation failed to highlight this very important point.

Mr. Gray stated that the City decided not to mitigate for upland losses because it wanted to focus its mitigation efforts on the wetland impacts. However, the proposed mitigation ratios are an anemic 2:1 for impacts to creeks and open channels and 2.9:1 for impacts to wetlands. The Coastal Commission usually requires a 4:1 mitigation ratio for wetland impacts, although the Staff Recommendation failed to note this. Applying Mr. Gray's logic, the City should be doing greater than 4:1 mitigation for creeks and wetlands since it is doing no mitigation for the

upland habitat it seeks to pave over. Rather than exceeding that ratio, the City proposes a mitigation figure that's barely half of the amount that the Commission ordinarily requires. Why is the City receiving special treatment?

According to Wayne Ferren, the mitigation proposed in the EIS/EIR is wholly insufficient. Mr. Ferren testified that the proposed mitigation is like putting Band-Aids on a patient that needs quadruple bypass surgery. The Goleta Slough is one of the most important remaining coastal wetlands in California.

Safety

ChannelKeeper's staff, members, and supporters are as concerned about safety as everyone else. We certainly don't want to take any action that would put people at risk. However, we respectfully disagree with those who characterize this project as primarily a safety project. As the City made clear at the January 7 hearing, if the proposed runway extension does not occur, the City and FAA plan to continue to allow the same aircraft to land at the airport. This includes those aircraft that the City and FAA claim are so dangerous as to require this Project. If the airport is currently unsafe, we would expect that the City and the FAA would refuse to allow those planes that they claim are dangerous to use the airport. They would place a moratorium on all planes over a certain size or weight.

Moreover, because the extension of paved surface will allow larger planes to land, the consequences of a catastrophic accident will be that much greater.

The Commission's mandate is to protect our coastal resources. It is the FAA's mandate to ensure the safety of commercial aviation. The FAA has many tools available to it to ensure the safety of passengers that use the Santa Barbara Airport. Extending the runway into the Slough is only one of those options (see *Alternatives* section below). The FAA should look to one of the other options. If the West end of the runway were bordered by the ocean, rather than the Goleta Slough, the FAA would not be considering that option because it would view it as impractical. We believe FAA should view an extension into the Slough as equally impractical.

LCP Amendment

ChannelKeeper will address this issue in more detail in a separate letter. However, at this point, we wish to note that the City proposes a very disturbing and unacceptable amendment to *The Airport and Goleta Slough Local Coastal Plan*. Page 4-3 of that LCP currently provides that "no development is allowed within the Slough except that which is designed to maintain the Slough as a natural preserve." In order to accommodate the Project, the City proposes to amend this language to read as follows: "no development is allowed within the Slough except that which is designed to maintain the Slough as a natural preserve *or that which is found to be consistent with PRC Section 30233*."

As discussed earlier, Section 30233 provides a list of activities that can take place in coastal wetlands. One of those is an exception for "incidental public service purposes." By this amendment, it appears that the City wishes to grant itself pre-approval of any project that it finds

has an incidental public service purpose. If the extension of a runway into the Slough and the doubling of the size of the airport terminal are "incidental," it is difficult to conceive of any public project that the City would find is *not* incidental.

The Commission should reject this proposed amendment. If the Commission is inclined to entertain an amendment to this section of the LCP, at a minimum, the Commission should require that the amendment be narrowly tailored to allow for this Project.

Alternatives

The Coastal Act requires that the project proponent examine all "feasible alternatives." Here, the City performed no meaningful analysis of potentially feasible alternatives, including moving the runway to the East so as to avoid the Goleta Slough. It summarily discounted this alternative, with no discussion at all. Similarly, the City did not discuss the possibility of installing an Engineering Material Arresting System, or EMAS. The Goleta Valley Voice recently reported that this substance is being used at other airports. We have heard that the Burbank Airport recently installed it. We encourage staff to look into this.

Coastal Act Section 30240

Section 30240(a) of the Act states that ESHAs like the Goleta Slough "shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas." The EIS/EIR itself finds that the Project's impacts to the Goleta Slough are significant. Runways and taxiways clearly are not dependent on wetland resources.

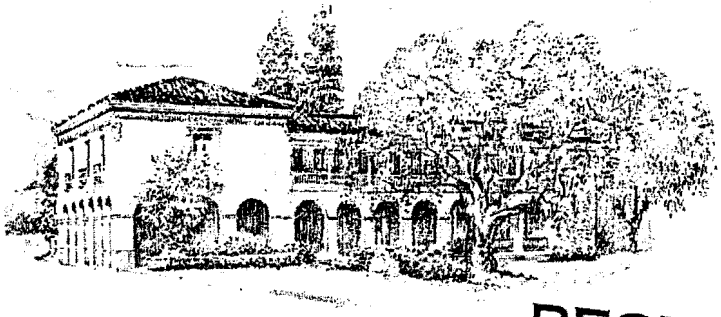
Thank you very much.

Cordially,

Drew Bohan
Executive Director

Cc: John Ledbetter, Project Planner

CITY OF SANTA BARBARA



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Tu5a
IN FAVOR

April 4, 2002

The Honorable Sara Wan and
Members of the California Coastal Commission
Federal Consistency Unit - California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco CA 94105-2219

RE: Aviation Safety and Facilities Plan - Santa Barbara Airport

Dear Chairwoman Wan and Commission Members:

After ten years of community workshops, detailed study, environmental review and careful planning to ensure the safety of those who fly in and out of the Santa Barbara Airport, as well as those on the ground, our Aviation Safety and Facilities Plan is before you for a Federal Consistency finding.

This Aviation Safety and Facilities Plan comes to you after approvals by the City of Santa Barbara Planning Commission and City Council, and the Santa Barbara County Airport Land Use Commission.

Your staff is to be commended for the excellent job they did prior to our hearing in January in preparing a solid staff report. And they have done so again for the April 9 meeting with the exception of a misunderstanding concerning the use of EMAS as an alternative for a Runway Safety Area.

Your staff's analysis of our need to control flooding, the mitigations to improve the wetlands are very well done. The confusion and misunderstanding about EMAS is understandable. Upon first looking at EMAS nearly eight years ago, our first impression was that it could be a viable alternative.

Yet, after careful consideration at the outset of our Environmental Review process EMAS was rejected. The FAA does not consider EMAS a substitute for a standard safety area and does not consider it an option for the Santa Barbara Airport. It is important to note that EMAS is not a new technology; it is decade old technology and yet the FAA has only approved its use at a handful of U.S. Airports where there is no other option. Even in these cases the EMAS is not expected to provide the benefit of a standard safety area.

EXHIBIT NO. 33
APPLICATION NO.
CC-58-01

The FAA does not consider EMAS as a viable alternative because:

1. EMAS ***does not*** provide the safety needed
   (Just 20% to 30% of the area needed).

2. EMAS ***does not*** work for lighter General Aviation aircraft.
   (70% of aircraft operations at Santa Barbara)

3. EMAS ***does not*** work for undershoots on landings
   (50% of operations)

4. EMAS ***does not*** allow access by emergency equipment in most likely crash areas on both sides of the creek.

This decision gives you two choices: A vote that finds the proposed standard RSAs consistent with the Coastal Act provides safety for the flying public and improvements that will help restore the health of the Goleta Slough.

OR

A vote that finds the proposed standard RSAs not consistent with the Coastal Act denies more than 730,000 people who fly in and out of the Airport each year the safety they deserve and denies the environmental benefits that come with the RSA project.

Included with this letter are the following for your review:

- Letter from the FAA concerning Tidal Restoration dated March 12, 2002
- Letter from the FAA concerning EMAS dated March 28, 2002
- An upland habitat mitigation plan
- A booklet fully explaining our proposal

On behalf of the City of Santa Barbara and the hundreds of thousands of people who fly in and out of the Santa Barbara Airport I thank you for your time and request a positive vote that will meet three important objectives – safety, the environment, and flood control.

Sincerely,

Karen Ramsdell

Karen Ramsdell
Director, Santa Barbara Airport

ENCLOSURES

CC: Coastal Commission Staff

U.S Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
Airports Division

Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

MAR 28 2002

RECEIVED
APR 5 2002
CALIFORNIA
COASTAL COMMISSION

Ms. Karen Ramsdell
Airport Director
Santa Barbara Airport
601 Firestone Boulevard
Goleta, California 93117

Dear Ms. Ramsdell:

This letter is in response to your correspondence dated March 15, 2002, regarding the Federal Aviation Administration's (FAA) position on the use of Engineered Materials Arresting Systems (EMAS) at Santa Barbara Airport (SBA). As you know, the FAA's primary mission is to ensure the safe and efficient use of navigable airspace including the airport's aircraft movement area. To that end, that FAA does not consider EMAS an acceptable substitute for meeting FAA Airport design standards for Runway Safety Areas. The FAA does not consider EMAS an equivalent to any length or width of a standard Runway Safety Area. Accordingly, EMAS does not result in a runway safety area that would be considered to meet dimensional requirements. Therefore, EMAS would not meet the objective of the proposed safety enhancement project at SBA.

A Runway Safety Area is a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. At SBA, Tecolotito Creek is located 300 feet west of the approach end of Runway 7. San Pedro Creek is located 215-feet east of the approach end of Runway 25 with Fairview Avenue located 230-feet east of the runway end. The current proposal to shift Runway 7/25 800 feet to the west, to construct standard safety areas, will enhance overall airport safety by providing a full 1,000 feet of runway safety area at each runway end to accommodate the aforementioned scenarios. Further there is concern that EMAS would not enhance the safety of aircraft operations in the event of an undershoot, where an aircraft would encounter either creek before reaching the EMAS. The installation of EMAS, without relocating the physical features described, would not provide the level of safety that would be realized by the proposed project.

Therefore, given the fact that EMAS does not meet the project objective, and there are numerous unique physical constraints that would not be addressed by the installation of EMAS, the Western-Pacific Region does not consider EMAS to be a viable alternative to constructing a Runway Safety Area that meets Airport Design Standards at Santa Barbara Airport.

If you have any questions or would like to discuss this further, please contact Kevin Flynn of my staff at (310) 725-3632.

Sincerely,

Herman C. Bliss

Herman C. Bliss

EXHIBIT NO. 34
APPLICATION NO.
CC-058.01