Appendix C

Biological Resources

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Table of Contents

C1 – Informal Section 7 Consultation Materials

C2 – Biological Assessment

C3 – Wetlands Assessment Survey Technical Memo

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Appendix C1

Informal Section 7 Consultation Materials

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United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

In Reply Refer to:
FWS-SDG-17B0117-21I0817

April 27, 2021
Sent Electronically

Michael Lamprecht
Federal Aviation Administration
Airport Planning and Environmental Division (APP-400)
800 Independence Avenue, S.W.
Washington, D.C. 20591

Subject: Informal Consultation for the San Diego International Airport Development Plan, San Diego County, California

Dear Michael Lamprecht:

This letter responds to your email, dated December 16, 2020, requesting consultation on the proposed San Diego International Airport (SDIA) Airport Development Plan (ADP) and its effects to the federally endangered California least tern [*Sternula antillarum browni* (*Sterna a. b.*); least tern], in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*). This consultation is based on: (1) the SDIA ADP Biological Assessment [BA; SDNHM 2020]; (2) previous consultations and coordination reports; (3) the U.S. Fish and Wildlife Service's (Service) Carlsbad Fish and Wildlife Office (CFWO) comments on the *Recirculated Draft Environmental Impact Report, San Diego International Airport Development Plan* (FWS-SDG-17B0117-20CPA0036); (4) SDIA least tern monitoring reports; and (5) meetings and email correspondence. A complete project file of this consultation is maintained at the CFWO.

The 600-acre SDIA is located northwest of downtown San Diego and is administered by the San Diego County Regional Airport Authority (SDCRAA). SDIA has a runway, three taxiways, two airport terminals, parking structures, and other ancillary facilities. The runway at SDIA supports about 500 flights each day between the hours of 6:30 am and 11:30 pm. SDIA also supports four least tern nesting ovals [Oval 1-South (O-1S), Oval 2-South (O-2S), Oval 3-South (O-3S), and Oval 4-South (O-4S); Figure 1].

The ADP would reconfigure, replace and/or relocate structures and functions within the SDIA (Figure 1). Implementation of the ADP would facilitate anticipated increase in flight frequency and use of the airport. This will occur in two phases, each subdivided into two sub-phases (i.e., Phase 1a and Phase 1b, Phase 2a and Phase 2b), beginning in 2021 and ending in 2026. Specific ADP project actions include:

1. **Improvements to Taxiway B**. Reconfiguration of Taxiway B to extend 37.5 feet south of its present location to achieve the Federal Aviation Administration (FAA)-recommended

separation standard of 400 feet from the runway, with a slight jog/curve to connect between Taxiway Connectors B4 and B3. The eastern portion of Taxiway B adjacent to O-3S will not be expanded to the south and will remain at its current alignment.

2. **Development of New Taxiway A**. Development of a new Taxiway A about 219 feet south of the realigned Taxiway B from the very west end of the runway up to Taxiway Connector B4. Taxiway A will not extend into O-3S, but will curve to the left to join Taxiway B.

3. **Replacement of Terminal 1 with a larger terminal.** Demolition of Terminal 1 (336,000 square feet, 19-gates) and replacement with a larger terminal (1,210,000 square feet, 30-gates). The new Terminal 1 will be a linear, three-story (90 feet high) building that encompasses the footprint of the existing Terminal 1 and extends to the southeast. The new Terminal 1 footprint will be at least 1,200 feet from O-3S.

4. **Apron improvements** Several apron improvements along the north and east side of the new Terminal 1 concourse, including: taxi lanes and area for aircraft parking positions surrounding the new Terminal 1 concourse; and a new aircraft remain overnight (RON) parking area to the east of the new Terminal 1 concourse. The RON parking area will be at least 1,200 feet from O-3S.

5. **Development of a new parking structure south of the new Terminal 1**. Construction of a new 5,500-space parking structure (2,250,000 square feet) with a maximum height of 60 feet for the main roof deck and 84 feet for the elevator penthouses and light poles.

6. **New airport access roadways.** Construction of a feeder roadway north of North Harbor Drive to accommodate westbound airport traffic from the intersection of Laurel Street. The new airport entry road will remain at the existing surface grade where it will pass about 75 feet to the south of the nesting ovals. The planned increase in elevation of the roadway will begin 195 feet to the south west of the nesting ovals. An outbound lane will also be constructed to accommodate airport shuttles and other certified vehicles.

7. **Storm water capture and re-use system.** Construction of an underground cistern with up to 3.4 million gallons of storage and a stormwater pump station from which storm water will be pumped to an existing treatment system. The cistern will be located approximately 1,200 feet west of O-3S. The capture and re-use system will also include construction of infiltration areas within the infield islands between the runway and taxiways (except those included in the nesting ovals).

8. **Bicycle and pedestrian pathway.** Development of a bicycle and pedestrian pathway along North Harbor Drive. The pathway will extend from a crossing at the intersection with Laurel Street along the north side of the new entry roadway. The pedestrian pathway will pass about 62 feet to the south of O-3S.

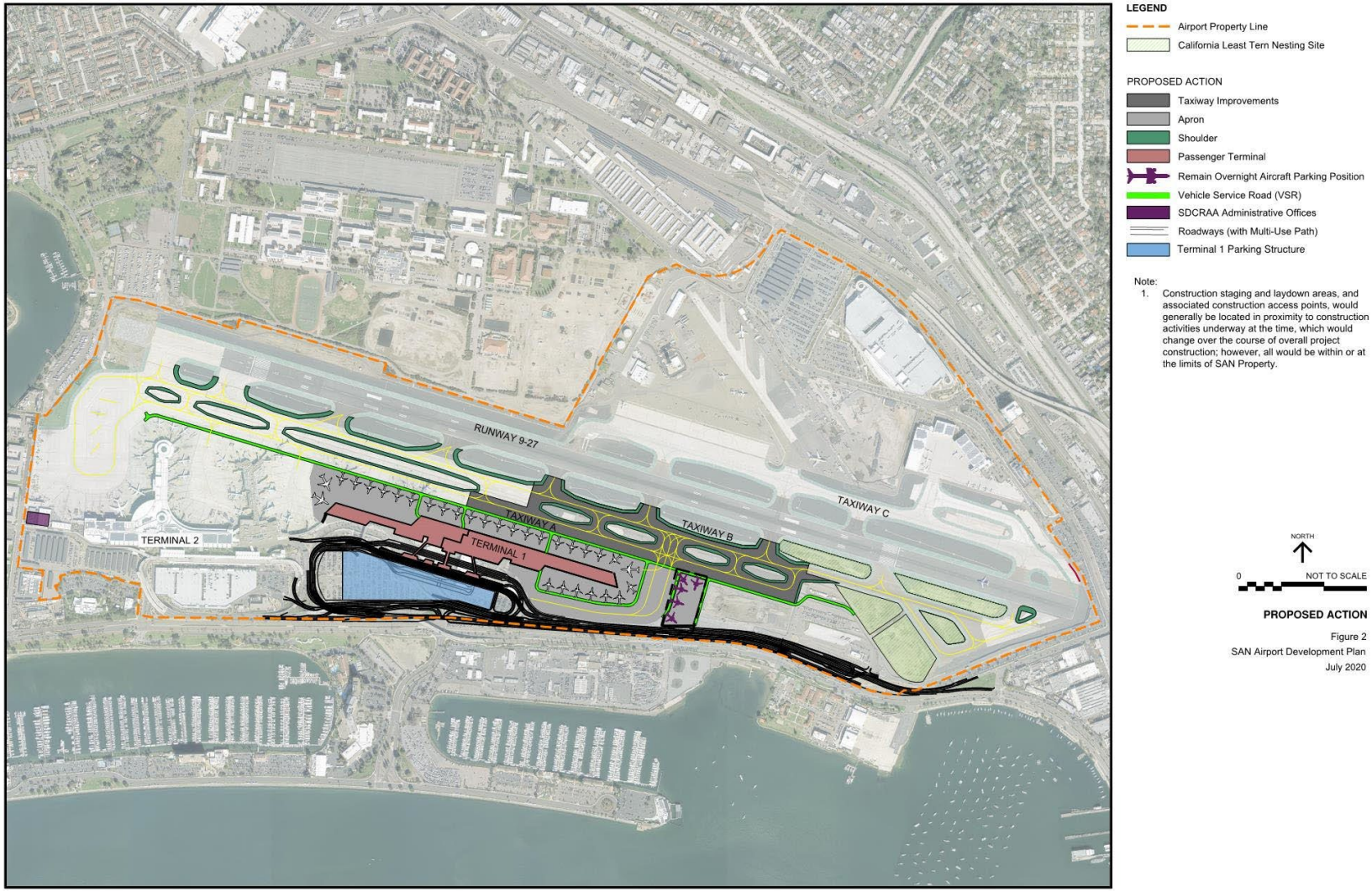

Figure 1. San Diego International Airport.

9. **Replacement of SDCRAA administrative office building.** Demolition of the airport administration office building (132,000 square feet), and construction of a new airport administration office building (150,000 square feet) near the intersection of McCain Road and Airport Terminal Road, more than 1 mile from O-3S. Three FAA sensors/antennas, which support Airport Surface Detection Equipment-Model X communications and are currently mounted on the existing SDCRAA administrative offices, would be relocated to a light pole at the existing Airline Support Building.

Project construction will include operation of electrical tools, excavators, cranes, jackhammers, front loaders, other noise and vibration-generating heavy equipment, and pedestrian activity on and around the worksite. Work will occur during the day and night.

Conservation Measures

The FAA and SDCRAA have coordinated with the CFWO and incorporated avoidance measures into the ADP design process, primarily by avoiding direct physical modification to, and siting improvements as far as feasible from, the nesting ovals. In addition, the FAA/SDCRAA will implement the following conservation measures (CMs) to avoid and minimize potential effects to the least tern:

Project Design Conservation Measures:

CM 1. New facilities will be designed to minimize potential perching locations for avian predators, and will include anti-perch structures and materials where appropriate. All structures taller than 10 feet that are necessary within 800 feet of the nesting ovals (including light poles, sign structures, and buildings) will incorporate treatments such as stainless-steel bird spike barriers (e.g., Nixalite®, Bird-be-gone), electrical strips, or other anti-perch materials to reduce potential perches for avian predators. SDCRAA will coordinate with the CFWO regarding anti-perch structures and materials.

CM 2. Permanent lighting and signage within 800 feet of the nesting ovals will be minimized to the extent consistent with public safety, including along the pedestrian pathway. In addition, lights within 800 feet of the nesting ovals will be fully downcast and of the minimum illumination necessary to meet public safety requirements. SDCRAA will coordinate with the CFWO regarding lighting and signage within 800 feet of the nesting ovals.

CM 3. SDCRAA will coordinate with the CFWO regarding landscaping proposed within 800 feet of the nesting ovals to ensure that selected landscaping plants and materials will include only plant species and materials not conducive to perching by avian predators. Plant species selected for landscaping in this area will be plants that grow to less than 6 feet high when mature.

Project Construction Conservation Measures:

CM 4. All project construction within 800 feet of the nesting ovals will occur between September 16 and March 31 to avoid the least tern nesting season.

CM 5. A least tern biologist (i.e., can identify the least tern, recognize their vocalizations, and identify agitated or distressed tern behavior) will monitor construction occurring between 800 and 1,200 feet of any nesting ovals during the least tern nesting season (April 1–September 15) to ensure that activities and personnel do not disrupt the least tern. For example, construction activities will be conducted in a manner that prevents individuals or groups of least terns from displaying agitated or stressed behavior and/or suddenly leaving their nest(s) and not resettling on the nest(s) within 5 minutes. The biologist will immediately notify the Resident Engineer (RE; or acting RE) of any construction activity that may disrupt least tern nesting. If the least tern biologist determines that construction has disrupted least terns, the RE will be notified and all project construction activities will cease immediately, except those activities necessary to make SDIA safe and operational. The least tern biologist, in coordination with the RE, will contact the FAA and CFWO immediately after stopping construction. Construction will not resume until approved by the FAA and CFWO.

CM 6. The least tern biologist will submit daily field reports to the FAA and CFWO on the status of the nesting activity, any construction-related incidents that disrupted least tern nesting, and any action taken by the RE to avoid further incidents, within 24 hours of each monitoring date. The least tern biologist will also submit a final summary report of monitoring to the FAA and CFWO S within 30 days of completing project construction.

CM 7. Trash will be properly disposed of, in covered trash receptacles. SDCRAA will require the contractor to provide trash dumpsters or other covered trash receptacles for use by construction personnel. All food items or containers that previously held food items obtained/handled/controlled by construction personnel will be immediately disposed of in these dumpsters or containers, so as not to attract avian or mammalian predators of the least tern.

CM 8. Construction personnel will not be permitted to feed cats, gulls, pigeons, ravens, or any other wildlife, as this may result in an increase in the numbers of these potential predators in the vicinity of least tern chicks and eggs.

CM 9. Crane booms or similar equipment that have heights of 25 feet or greater and are located between 800 feet to 1,200 feet of any nesting oval during the least tern nesting season (April 1–September 15) will be lowered at the close of each construction day.

CM 10. All contractor personnel and construction staff will be required to attend a pre-construction briefing to ensure their awareness of least tern nesting and

specific minimization measures required during construction. Project status meetings will be regularly held to remind personnel of the measures required to protect the tern as well as any modifications made to ensure their effectiveness. The CFWO will be notified of the date and time of the preconstruction and status meetings in order to attend, if needed or desired. Contractor personnel and construction staff required to attend the meeting include all those involved with project activities between 800 and 1,200 feet of the nesting ovals during the least tern nesting season (April 1- September 15).

CM 11. The SDCRAA will schedule nighttime construction to occur more than 1,200 feet from Oval O-3S, where feasible; however, it is possible that some nighttime construction between 800 and 1,200 feet from the nesting ovals will be unavoidable. For nighttime construction that is necessary during the least tern nesting season (April 1–September 15), and will occur between 800 feet and 1,200 feet from the nesting ovals, a least tern biologist will be onsite and perform the duties specified above.

CM 12. Night lighting for project construction occurring between 800 feet and 1,200 feet of the nesting ovals will be kept to a minimum during the least tern nesting season, and will not be used unless active construction or other essential work is occurring. Should such nighttime construction or other essential work be conducted, all lighting associated with the work will be shielded from or directed away from the nesting ovals.

CM 13. Equipment will be staged at least 1,200 feet from the nesting ovals.

Operations and Site Enhancement Conservation Measures:

CM 14. Diligent maintenance of fencing around the perimeter of the nesting ovals shall continue in order to shield the least terns from lighting, predators, and unauthorized human access.

CM 15. SDCRAA will implement annual habitat management for least terns on nesting ovals, including maintenance of a chick fence, annual application of herbicide, and removal of vegetation to support a vegetation cover goal of less than 20 percent vegetative cover during the nesting season. Work will be done in coordination with the biological monitor, and close attention will be paid to precipitation patterns to maximize effectiveness of vegetation management.

CM 16. SDCRAA will implement least tern habitat enhancement on O-3S on an annual basis and in coordination with the CFWO, biological monitors, and airfield operation personnel. Least tern habitat enhancement will occur only where consistent with airfield operations, and may include application of sand, shell or pebble material, and appropriate chick shelters or native vegetation to help shield chicks.

CM 17. SDCRAA will monitor illumination that results from necessary lighting, and address any unanticipated illumination of the least tern nesting area in coordination with the Service, biological monitors, and airfield operation personnel.

California Least Tern

The least tern is a small migratory seabird that nests in California and Baja, Mexico. Limited observations of least terns during the non-breeding season indicate that the species winters in southern Mexico and Central and South America (Service 2020); however, few observations have been confirmed. Least terns return to breeding season habitat in California and Baja California during April, and exhibit a high degree of nest site fidelity from year to year. Individuals often return to breed where they previously bred successfully or to their natal sites (i.e., where they hatched) significantly more than would be predicted if birds nested randomly (Atwood and Massey 1988; Ryan 2021). Least terns nest on the sand in a scrape or depression that birds sometime adorn with small fragments of shell or pebbles. Chicks are able to move from the nest scrape after several days, but remain dependent on the parents for food until they are able to fly (about 28 days) and forage efficiently. Parent birds also protect eggs and chicks from weather and predators.

Least terns feed primarily on small, slender-bodied fish captured in shallow water in estuaries, embayments, and nearshore waters, particularly at or near estuary and river mouths (Massey and Atwood 1982). Least terns typically forage within 1 to 2 miles of their nest site, and make frequent trips to find smaller fish needed by the chicks during brood rearing (Atwood and Minsky 1983). If suitable prey close to the nest site is limited, least terns can travel farther distances to obtain prey offshore; however, distance foraging reduces parental attendance of eggs and chicks and appears to reduce productivity (Robinette and Rice 2021).

The least tern population increased between 1984 and 2009. The observed increase was attributed to site management (e.g., fencing, predator control) and habitat restoration and conservation of nesting habitat (Service 2006). In 2009, the California Department of Fish and Wildlife (CDFW) estimated that 7130-7352 pairs of least terns nested in the U.S., and about 62 percent of the population (4482–4539 pairs) occurred in San Diego Counties (Marschalek 2010). Between 2009 and 2018, the least tern population declined significantly (Figure 2), and in 2018, an estimated 3545–4447 pairs of least terns nested in the U.S. and about 56 percent of the population (2004–2489 pairs) nested in San Diego County (CDFW 2020). The recent decline in the least tern population occurred during a period of low productivity throughout the species' range (Frost 2017). Low productivity can result from predation by non-native and native predators, changes in prey availability during critical phases of nesting and chick-rearing, and disruptions during nesting.

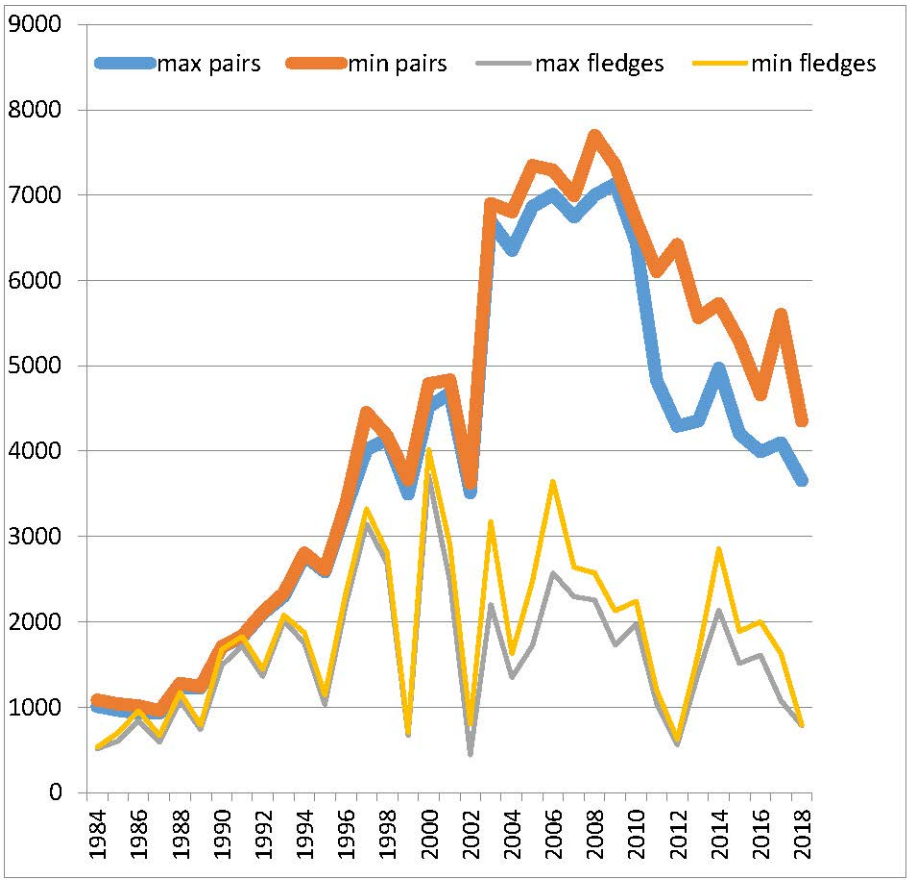

Figure 2. Least tern State-wide breeding pair and fledgling estimates, 1984–2018.

Twenty nine nesting areas (approx. 1,204 acres of occupied least tern nesting habitat; Service 2020) have been identified and most are currently managed for the benefit of the least tern. Long-term management will be required in most conserved areas to address the threats posed by predators, changes in vegetation, and disturbance. Some long-term management actions that will address these threats include education programs (for activities adjacent to occupied habitat), fence maintenance, control of human access to nesting sites, predator control, reduction of perching opportunities for raptors within and adjacent to nesting sites, reduction of illumination within and adjacent to nesting sites, and routine vegetation/substrate management. Monitoring of the species' abundance and distribution over time will assist in determining the effectiveness of management actions and facilitate adaptive management in the event that threats have not been adequately reduced. In addition, the least tern now faces threats associated with changing ocean conditions and resulting changes in prey availability and sea level rise (Service 2020).

Likely due to its location adjacent to the historic mouth of the San Diego River and San Diego Bay, sandy substrate, and flat topography, SDIA has supported least tern nesting since at least the 1970's (Bender 1974). Least terns nested at various locations at SDIA (then named Lindberg Field) in the early 1970's (Bender 1974). To reduce conflicts with air operations while continuing to meet endangered species conservation responsibilities, the four nesting ovals were established

and are maintained, managed (including predator management), and monitored in perpetuity, pursuant to the 1993 biological opinion on the *Lindberg Field Facilities Immediate Action Program* (BO 1-6-93-F-29; Service1993).

Least terns nesting at SDIA are subject to visual stimuli, vibrations, and sounds associated with aircraft traffic because the least tern nest site is adjacent to Taxiway B. Nesting periodically occurs in each of the four nesting ovals; however, most nests are established in O-3S over 100 feet from Taxiway B (Figure 3). The southern and western edge of O-3S is adjacent to the Vehicle Service Road and recently constructed Terminal Link Roadway, which experience regular use. The heavily travelled North Harbor Drive is approximately 110 feet, and a pedestrian pathway is about 75 feet, from O-3S.

SDRAA and the FAA coordinate closely with the CFWO in an effort to retain site suitability for least tern nesting, even as airport activity and infrastructure increases. Many airport projects identify and implement conservation measures to reduce the potential for impacts to the least tern nesting area. However, similar to the U.S. rangewide trend, the number of least terns nesting at SDIA has declined in recent years (Figure 4).

Effects to least tern

Construction-Related Disturbance

Construction of the ADP will require significant operation of heavy equipment, movement of soils and materials, and pedestrian activity. Construction activities will result in noise, vibration, and visual changes in the vicinity of the least tern nesting ovals. These stimuli could disrupt least tern breeding and nesting; however, when least terns are present all construction activities will occur at least 800 feet, and equipment staging will be at least 1,200 feet, from the nesting ovals (CM 4 and 13). This will significantly reduce the potential for construction impacts to least terns, since noise and vibration will attenuate over 800 feet from the distant disruptive activities. Project-generated noise, vibration, and disturbance could extend into the nesting ovals, but activities (other than those necessary to make SDIA safe and operational) will cease if a biological monitor detects disruption of the nesting least terns (CM 5). Construction will not resume until approved by the FAA and CFWO. With implementation of these measures, noise, vibration and visual stimuli associated with the project are not likely to adversely affect the least tern.

Construction of the ADP could entail periodic use of night time illumination. Illumination could affect least tern behavior, and reduce use of the nesting ovals. It may also increase the visibility of least terns roosting onsite at night, thereby increasing their vulnerability to nocturnal predators. However, no illumination will occur within 800 feet of the least tern nesting ovals and all lighting associated with the work will be shielded from or directed away from the nesting ovals (CM 12). If construction activities occur within 800 to 1,200 feet of the least tern nesting ovals at night, a least tern biologist will be onsite to monitor for disruption to or illumination of least terns (CM 11). If the monitor detects impacts to the nesting least terns, night time operations will cease and will not resume until approved by the FAA and CFWO (CM 5). With implementation of these measures, construction-related illumination is not likely to adversely affect the least tern.

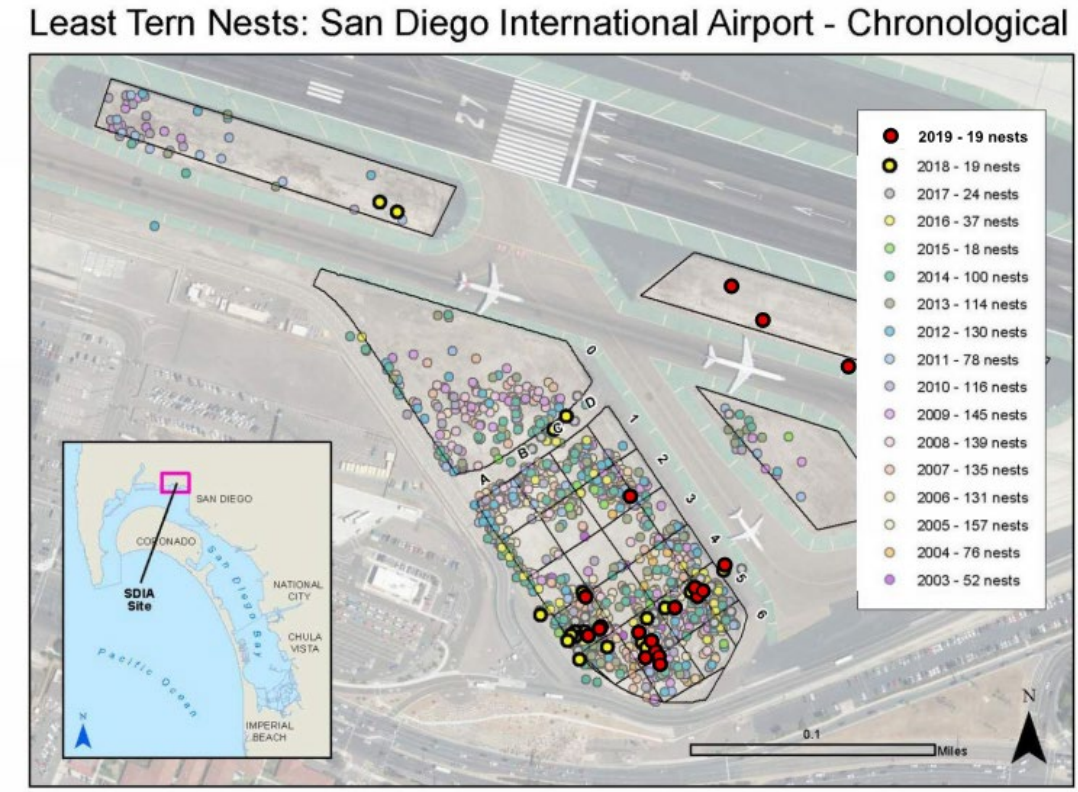

Figure 3. California least tern nest distribution at SDIA 2003–2019. *Figure from BA*.

Figure 4. California least tern breeding pair estimates at SDIA, 2003–2018.

The presence of people and associated food resources could attract egg/chick predators (e.g. crows, western gulls, roof rats) to the worksite, and tall construction equipment such as cranes may provide perches for avian predators. SDCRAA/FAA will reduce the potential for attraction of egg/chick predators by requiring education of the construction crew about the least tern and conservation needs (CM 10), ensuring that trash is managed properly (CM 7), and that construction personnel do not feed wildlife (CM 8). In addition, cranes that are in use during the nesting season will be lowered at the end of each work day to reduce the potential for impacts from avian predators (CM 9). With implementation of these measures, the potential for an increase in egg and chick predators from human presence and equipment is significantly reduced.

Reduced Habitat Suitability Associated With Infrastructure and Operations

Construction of the ADP may incrementally degrade the habitat suitability of the least tern nesting ovals. The anticipated increase in flight frequency, perching opportunities for predatory birds, and permanent lighting associated with the project, may discourage least terns from nesting, increase local abundance of predators, and/or reduce incubation/parental attendance by those least terns that continue to nest onsite. To retain the suitability of the nesting ovals to the maximum extent possible, FAA/SDCRAA is incorporating the following measures developed in coordination with the CFWO into the ADP design and future operation of SDIA: (1) the proposed elevated portion of the new on-airport roadway has been moved to the west to maintain line of sight visibility between the least tern nesting ovals and foraging areas in San Diego Bay; (2) the 3.4 million gallon cistern, originally proposed for construction beneath the least tern nesting ovals, will be constructed 1,200 feet from the nesting ovals; (3) SDCRAA will coordinate with the CFWO to ensure new facilities will be designed to minimize potential perching locations for avian predators and will include anti-perch structures and materials where appropriate (CM 1); (4) SDCRAA will coordinate with the CFWO to ensure all structures that exceed 10 feet in height within 800 feet of the nesting ovals will incorporate anti-perch materials (CM 2); (5) SDCRAA will coordinate with the CFWO to ensure that landscaping plants and materials will include only plant species and materials not conducive to perching by avian predators (CM 3); and (6) SDCRAA will reduce illumination of the nesting ovals by minimizing lighting, consistent with safety requirements, within 800 feet of the nesting ovals and ensuring that all lights within 800 feet of the nesting ovals will be downcast to avoid illumination of the tern nest site (CM 2).

SDCRAA will also continue to monitor the site, maintain protective fencing, manage vegetation and substrate, and address unanticipated increases in illumination (CM 14, CM 15, and CM 17). In addition, SDCRAA will coordinate with the CFWO annually to, where consistent with safety considerations, enhance the substrate to make the site attractive to, and improve nesting conditions for least terns (CM 16).

In summary, the SDCRAA will implement significant conservation measures as part of the project to avoid and minimize potential impacts to the least tern. Based on the site and species information described above and SDCRAA's commitment to implement the conservation measures, we concur that project impacts to the least tern will be avoided or reduced to a level of insignificance supporting a determination that the ADP project is not likely to adversely affect the least tern.

Therefore, the interagency consultation requirements of section 7 of the Act have been satisfied. Should project plans change or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered and further section 7 consultation may be required.

The ADP is a significant step in the long range planning and future development at SDIA, and we appreciate the efforts of the SDCRAA to continue the contribution of this site to the future of the least tern. We recommend continued close coordination between our agencies to evaluate the status of the least tern at this site, habitat conditions, and possible means of enhancing the site and/or ensuring continued availability of nesting habitat. During consultation, we discussed the possibility of incorporating "rooftop habitat" onto various buildings included in the ADP. Rooftop nesting by another least tern subspecies (*Sternula antillarum antillarum*) has been observed in the southeastern U.S., but this behavior has not been observed by the California least tern. We would consider further exploration of rooftop nesting in addition to the existing nesting ovals should SDCRAA and FAA be interested in pursuing it in the future. We have also previously recommended the SDCRAA: (1) consider re-surfacing the buffer area at the western edge of the nesting ovals, and (2) enhance a portion of the Teledyne Ryan site for least tern nesting. To date, implementation of these recommendations has not been possible; however, we recommend that SDCRAA continue to consider these means of enhancing nest oval suitability.

Thank you for your coordination on this project, and your continued efforts to conserve the least tern at SDIA. If you have any questions or concerns regarding this consultation, please contact Sandy Vissman[1] at 760-431-9440.

Sincerely,

DAVID ZOUTENDYK

Digitally signed by DAVID ZOUTENDYK
Date: 2021.04.27 09:00:52 -07'00'

for Jonathan D. Snyder
Assistant Field Supervisor

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Ted Anasis, SDCRRA
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Appendix C2

Biological Assessment

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Biological Assessment

SAN DIEGO INTERNATIONAL AIRPORT
AIRPORT DEVELOPMENT PLAN

October 2, 2020

Prepared for:

Federal Aviation Administration
Contact: Gail Campos

Planning & Environmental Affairs Department
San Diego County Regional Airport Authority
Contact: Ted Anasis, AICP, Manager, Airport Planning

Prepared by:

BioServices, San Diego Natural History Museum
1788 El Prado, San Diego, CA 92101
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TABLE OF CONTENTS

List of Tables iii
List of Figures iii
Executive Summary 1
1.0 Introduction 2
1.1 Purpose of the Biological Assessment 2
1.1.1 Federally Threatened and Endangered Species 2
1.1.2 Critical Habitat 3
1.2 Proposed Action 3
1.2.1 Project Description 4
1.3 Description of the Action Area 6
2.0 Species Considered 9
2.1 Listed Species Potentially Affected 9
2.2 Listed Species Not Present 10
3.0 Environmental Setting 11
4.0 Status of the Species in the Action Area 11
4.1 Biology, Ecology, and Status of California Least Tern 11
4.2 Potential for Occurrence of California Least Tern 12
5.0 Existing Conditions 14
6.0 Cumulative Effects 15
6.1 Cumulative effects analysis 26
7.0 Effects of the Action 29
7.1 Airfield Improvements 29
7.2 Replacment of Terminal 1 29
7.3 Development of a Parking Structure Adjacent To Terminal 1 30
7.4 Ground Transportation Improvements 30
7.5 Replacement of SDCRAA's Administrative Offices 32
7.6 Noise 39
7.7 Proposed Avoidance, Minimization, and Compensation Measures 39
7.7.1 Avoidance and Minimization Measures During Construction 39
7.7.2 Avoidance and Minimization Measures During Operations 40

8.0 Conclusion 42
9.0 References Cited 43
Appendix A. USFWS Species List 45
Appendix B. Focused Nuttall's Acmispon Survey Report 46

LIST OF TABLES

Table 1. Federally Listed Species' Potential to Occur in the Vicinity of the San Diego International Airport, San Diego, California 9
Table 2. Cumulative Projects 16
Table 3. Effects Determination 42

LIST OF FIGURES

Figure 1. San Diego International Airport, Airport Development Plan Regional Location Map. 7
Figure 2. Proposed Action 8
Figure 3. California Least Tern Nests at SAN 2003-2019 13
Figure 4. Cumulative Projects map. 21
Figure 5. Stormwater Capture and Reuse System 24
Figure 6. Least Tern Nesting View Graphic with Cross Sections. 34
Figure 7. Least Tern Nesting View Elevations. 35
Figure 8. Least Tern Nesting View Graphics: Photo Rendering Looking South. 36
Figure 9. Least Tern Nesting View Graphics: Photo Rendering Looking Southwest. 37
Figure 10. Least Tern Nesting View Graphics: Photo Rendering Looking West-Southwest. 38

Executive Summary

This Biological Assessment (BA) reviews and analyzes the proposed Airport Development Plan (ADP) (Proposed Action) at the San Diego International Airport (SAN) to determine the extent to which the Proposed Action may affect federally threatened or endangered species and designated or proposed critical habitats protected under the Federal Endangered Species Act (FESA) of 1973. This BA has been prepared for the San Diego County Regional Airport Authority (SDCRAA), the Federal Aviation Administration (FAA), and the United States Fish and Wildlife Service (USFWS), pursuant to Section 7 of the FESA.

The primary elements of the ADP include: 1) airfield improvements; 2) replacement of Terminal 1 with up to 30 gates; 3) development of a parking structure adjacent to Terminal 1; 4) ground transportation improvements including new airport access roadways and an associated bicycle and pedestrian pathway; and 5) replacement of SDCRAA's administrative offices.

The San Diego Natural History Museum (SDNHM) obtained a species list from the USFWS Carlsbad Office (see Appendix A) and searched multiple databases for known occurrences of federally listed plant and animal species in the project vicinity. From these sources, SDNHM developed a list of 10 federally threatened and endangered species that occur or may occur in the vicinity of the Proposed Action. No designated or proposed critical habitat occurs within the Proposed Action Area. Based on a review of the distribution and habitat requirements of these species and the habitat available at the project site, SDNHM determined that 9 (4 plants and 5 animals) of the 10 federally listed species are not likely to occur on the project site. The analysis concluded the California Least Tern (*Sterna antillarum browni*; CLT) needed to be evaluated in more detail to determine whether this species may be affected by the Proposed Action.

With implementation of the avoidance, minimization, and compensation measures identified in this BA, the Proposed Action is not expected to directly or indirectly reduce, in any appreciable manner, the likelihood of survival or recovery of California Least Tern by reducing their reproduction, numbers, or distribution. The measures proposed to offset anticipated effects provide reasonable protections to minimize adverse effects of the Proposed Action. After reviewing the current status of the species; the effects of the Proposed Action; and built-in measures proposed to avoid, minimize, and compensate for effects to CLT; we have determined that the Proposed Action may affect, and is not likely to adversely affect, California Least Tern.

Cumulative effects are defined as environmental change that results from the incremental effects of several projects that may be individually minor, but which become significant when considered collectively. Future projects that are reasonably certain to occur adjacent to the Proposed Action Area are discussed. These projects include apartment buildings, retail, hotels, condominiums, a fire station, residential units, and a gas station. Of those projects, the closest project to the CLT nesting ovals is the recently completed Laurel Pacific Valero gas station approximately 1,600 feet to the east. The primary activity conducted by CLT outside the airport property is foraging in northern San Diego Bay and traveling from foraging grounds to the nesting ovals at the southeastern corner of SAN. Given the known or anticipated projects, no disruption of foraging or commuting by CLT that are nesting at SAN is anticipated. In addition to those projects, there are certain improvements that would occur at SAN in conjunction with development of the ADP, but would proceed independently pursuant to Section 163 of

the FAA Reauthorization Act of 2018. For reference, Section 163 now limits the FAA's review of amendments to Airport Layout Plans to those proposed projects that (1) materially impact the safe and efficient operation of aircraft at, to, or from the airport, (2) would adversely affect the safety of people or property on the ground adjacent to the airport as a result of aircraft operations, or (3) adversely affect the value of prior Federal investments to a significant extent.[1] Planned projects at SAN that are not subject to such FAA review and approval of Airport Layout Plans include: 1) utilities and stormwater capture and reuse improvements; and 2) other improvements, consisting of improvements to the SAN Central Utility Plant and establishment of shuttle service between the Old Town Transit Center and SAN. Similar to the off-airport projects described above, those additional projects occurring within the boundary of SAN are included in the cumulative projects evaluation.

1.0 INTRODUCTION

1.1 PURPOSE OF THE BIOLOGICAL ASSESSMENT

The purpose of this BA is to review and analyze the proposed ADP (Proposed Action) at SAN to determine the extent to which the Proposed Action may affect federally threatened or endangered species and designated or proposed critical habitats protected under the FESA of 1973. This BA has been prepared for the SDCRAA, FAA, and USFWS, pursuant to Section 7 of the FESA. This BA is prepared in accordance with legal requirements set forth under regulations implementing Section 7 of the FESA (50 Code of Federal Regulations [CFR] 402; 16 United States Code [U.S.C.] 1536 (c)).

1.1.1 Federally Threatened and Endangered Species

The federally listed species addressed in this BA consist of the following:

- Pacific Pocket Mouse (*Perognathus longimembris pacificus*) – federally endangered
- California Least Tern (*Sterna antillarum browni*) – federally endangered
- Coastal California Gnatcatcher (*Polioptila californica californica*) – federally threatened
- Least Bell's Vireo (*Vireo bellii pusillus*) – federally endangered
- Southwestern Willow Flycatcher (*Empidonax trailii extimus*) – federally endangered
- Western Snowy Plover (*Charadrius nivosus nivosus*) – federally threatened
- Orcutt's Spineflower (*Chorizanthe orcuttiana*) – federally endangered
- San Diego Ambrosia (*Ambrosia pumila*) – federally endangered
- San Diego Button-celery (*Eryngium aristulatum* var. *parishii*) – federally endangered
- San Diego Thornmint (*Acanthomintha ilicifolia*) - federally threatened

Section 2.0 contains a more detailed discussion of federally listed species considered during preparation of this BA.

[1] In addition to FAA review of projects that relate to Airport Layout Plans, FAA's review also includes review of projects that involve the use of FAA/federal funds, as in the case of the proposed SAN ADP Terminal 1 parking structure, the on-airport roadways and bicycle and pedestrian path, and the replacement SDCRAA administration building.

1.1.2 Critical Habitat

The USFWS is required under Section 4 of the FESA to designate critical habitat for federally listed species. No critical habitat has been designated within the Action Area.

1.2 PROPOSED ACTION

The SDCRAA is proposing terminal, airside, and landside improvements at SAN, in accordance with a new ADP. Figure 1 shows the location of SAN, and Figure 2 depicts the improvements of the Proposed Action. As further described below (Section 1.2.1), the primary elements of the ADP include: 1) airfield improvements; 2) replacement of Terminal 1 with up to 30 gates; 3) development of a parking structure adjacent to Terminal 1; 4) ground transportation improvements including new airport access roadways and an associated bicycle and pedestrian pathway; and, 5) replacement of SDCRAA's administrative offices. (Figure 2).

Recent changes in federal law have required the Federal Aviation Administration (FAA) to revisit whether FAA approval is needed for certain types of airport projects throughout the nation. On October 5, 2018, HR 302, the "FAA Reauthorization Act of 2018" (the Act) was signed into law (P.L. 115-254). In general, Section 163(a) limits the FAA's authority to directly or indirectly regulate an airport operator's transfer or disposal of certain types of airport land. However, Section 163(b) identifies exceptions to this general rule. The FAA retains authority:

1. To ensure the safe and efficient operation of aircraft or safety of people and property on the ground related to aircraft operations;

2. To regulate land or a facility acquired or modified using federal funding;

3. To ensure an airport owner or operator receives not less than fair market value (FMV) in the context of a commercial transaction for the use, lease, encumbrance, transfer, or disposal of land, any facilities on such land, or any portion of such land or facilities;

4. To ensure that that airport owner or operator pays not more than fair market value in the context of a commercial transaction for the acquisition of land or facilities on such land;

5. To enforce any terms contained in a Surplus Property Act instrument of transfer; and

6. To exercise any authority contained in 49 U.S.C. § 40117, dealing with Passenger Facility Charges.

In addition, Section 163(c) preserves the statutory revenue use restrictions regarding the use of revenues generated by the use, lease, encumbrance, transfer, or disposal of the land, as set forth in 49 U.S.C. §§ 47107(b) and 47133.

Section 163(d) of the Act limits the FAA's review and approval authority for Airport Layout Plans (ALPs) to those portions of ALPs or ALP revisions that:

1. Materially impact the safe and efficient operation of aircraft at, to, or from the airport;

2. Adversely affect the safety of people or property on the ground adjacent to the airport as a result of aircraft operations; or

3. Adversely affect the value of prior Federal investments to a significant extent.

There are certain improvements that would occur at SAN in conjunction with development of the ADP that would proceed independently pursuant to Section 163 of the FAA Reauthorization Act of 2018. Planned projects at SAN that are not subject to such FAA review and approval of Airport Layout Plans include: 1) utilities and stormwater capture and reuse improvements; and 2) other improvements, consisting of improvements to the SAN Central Utility Plant, and establishment of shuttle service between the Old Town Transit Center and SAN. These additional projects occurring within the boundary of SAN, along with other projects at SAN that are completely separate from the ADP and not within the authority of the FAA, are included in the cumulative projects evaluation.

1.2.1 Project Description

AIRFIELD IMPROVEMENTS

The Proposed Action would include improvements to Taxiway B. Existing Taxiway B is south of, and parallel to, Runway 9-27 and extends the runway's full length with a minimum pavement width of 75 feet with a 362.5-foot centerline separation distance from Runway 9-27. The FAA-recommended separation standard for air carrier runways with Approach Category C & D aircraft operations is 400 feet from runway centerline to parallel taxiway centerline. The Proposed Action includes relocation of Taxiway B 37.5 feet south of its present location, which would correct the runway separation "modification-to-standard" issue that currently exists (i.e., with relocation, would meet the FAA-recommended separation standard of 400 feet). However, because the California least tern (federally and state listed endangered species) nesting habitat is located east of Taxiway Connector B4, the relocation would occur from the west until this point to avoid disturbing the bird's habitat. Reconstruction of the taxiway in the area outside the bird habitat with relocation to enable spacing at 400 feet from the centerline of the runway would enable much of the existing taxiway system to meet FAA design standards. The eastern portion of Taxiway B that lies within the California least tern nesting habitat would not be relocated and would remain at its current spacing of 362.5 feet from the runway with a slight jog/curve to connect between Taxiway Connectors B4 and B3.

The Proposed Action would also include development of a new Taxiway A about 219 feet south of the realigned Taxiway B from the very west end of Runway 9 up to Taxiway Connector B4. The addition of a new taxiway would improve airfield efficiency by allowing bidirectional flow of aircraft taxiing between the terminals and runway (Note: Taxiway A would not extend into California least tern habitat area). Taxiway A would help avoid aircraft blocking Taxiway B, when they are pushed back from the gates of the proposed replacement Terminal 1. Construction of a new Taxiway A is proposed to precede the Taxiway B relocation, which would facilitate access to the east end of the runway while Taxiway B is temporarily taken out of service for relocation/reconstruction.

REPLACEMENT OF TERMINAL 1 WITH 30 GATES

The Proposed Action would entail the demolition of the existing Terminal 1 and replacement with a new facility. The existing Terminal 1 has two levels, with approximately 336,000 square feet of floor area and 19 narrow-body jet gates. As shown on Figure 2, the new Terminal 1 would be a linear building that encompasses the footprint of the existing Terminal 1 and the area to the southeast. The height of the new Terminal 1 would be up to a maximum 90 feet at the terminal façade/ticketing lobby and have three levels. It would include landside (passenger processor) and airside functions. Arrivals, including baggage claim, would be located on the lower level. The arrivals level would also include the baggage

make-up area, mechanical systems, apron and airline operations, ground support equipment, and loading dock functions. The upper levels would include ticketing/check-in, security screening checkpoint (SSCP) functions, and concessions. The upper level would also include the concourses with components such as aircraft gates, seating areas, and associated passenger boarding bridges. At build-out, the replacement Terminal 1 would have 30 gates and be approximately 1,210,000 square feet. The gates associated with the new Terminal 1 would be connected to SAN's hydrant fueling system.

Apron improvements are proposed along the north side of the new Terminal 1 concourse include taxi lanes and area for aircraft parking positions along with the provision of a new aircraft remain overnight (RON) area to the east of the new concourse. These apron improvements would complement the realignment of Taxiway B and construction of a new Taxiway A proposed north and east of the new Terminal 1, as described above.

DEVELOPMENT OF A PARKING STRUCTURE ADJACENT TO TERMINAL 1

Construction of a new 5,500-space parking structure is proposed south of the new Terminal 1. The 5,500-space parking structure would be a maximum of approximately 2,250,000 square feet, with up to five levels and a maximum height of 60 feet for the main roof deck and 84 feet for the elevator penthouses and light poles.

GROUND TRANSPORTATION IMPROVEMENTS INCLUDING NEW AIRPORT ACCESS ROADWAYS AND AN ASSOCIATED BICYCLE AND PEDESTRIAN PATHWAY

The Proposed Action would include a feeder roadway north of North Harbor Drive that removes all westbound airport traffic near the intersection of Laurel Street and distributes it to both terminals. An outbound lane would be constructed to remove SAN shuttles and other certified vehicles from the city streets and would preserve additional right-of-way for other ground transportation needs. These improvements would improve circulation and enhance vehicle travel to the terminals from North Harbor Drive.

In conjunction with the new on-airport entry roadway, the Proposed Action would include development of safe, recognizable, and continuous connections for bicycles and pedestrians along North Harbor Drive and to SAN terminals. Existing pedestrian and bicycle connections would be retained, while new connections would be added. For westbound passengers accessing SAN, at the intersection of North Harbor Drive and Laurel Street, a pedestrian/bicycle crossing would be provided along the on-airport entry ramp. From the entry ramp, pedestrians and bicycles could travel on a multi-use path along the north side of the on-airport entry roadway. At the intersection of North Harbor Drive and Terminal Link Road, the multi-use path would cross under the on-airport entry road where it would continue along the north side of North Harbor Drive. At the intersection of North Harbor Drive and Harbor Island Drive, there would be a crossing that connects to the Terminal 1 Parking Structure. From there, pedestrians and bicyclists could access all new Terminal 1 facilities.

REPLACEMENT OF SDCRAA'S ADMINISTRATIVE OFFICES

The Proposed Action would include demolition of the former 132,000-square-foot Commuter Terminal, where SDCRAA's administrative offices are currently located, and construction of a new 150,000-square-foot airport administration office building near the intersection of McCain Road and Airport Terminal Road. Parking for the new airport administration building would be at the existing surface lot located at

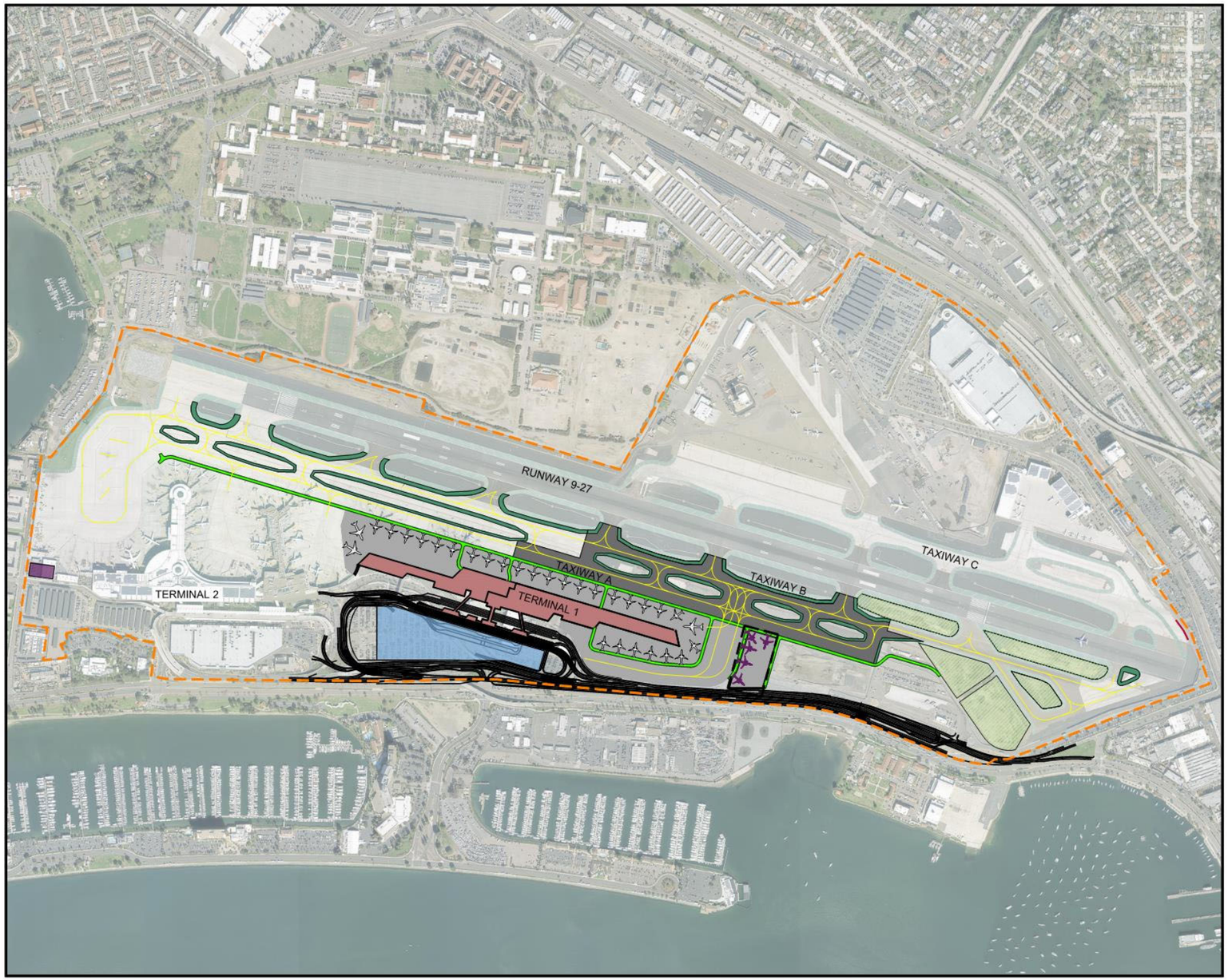
the current Terminal 2 Parking Lot at McCain Road and Airport Terminal Road. The lot would be resurfaced and reconfigured. The new SDCRAA administration building would be 84 feet tall.

1.3 DESCRIPTION OF THE ACTION AREA

For the purposes of this BA, the Action Area was defined by analyzing the potential extent of effects of the Proposed Action in the context of the existing airport land use, extent of onsite and adjacent natural habitats, and species sensitivity. As all project components are proposed to occur within the active/developed airport area, and as all potential effects to listed species are anticipated to occur on SAN property (see further discussion below), the Action Area here is considered to be equivalent to the boundaries of SAN (see Figure 1). No change to airfield operations and associated noise and disturbance are anticipated due to the Proposed Action. As all components of the Proposed Action are contained onsite and consist of construction of facilities, no off-site effects are anticipated on listed species due to ongoing aircraft movements and other operational activities on the airfield as well as the extensively urbanized area surrounding SAN with the existing high level of noise, illumination, and other factors occurring within the developed area around SAN.

Source: CDM Smith, 2019. Aerial source: SDCRAA, 2016.

FIGURE 1. SAN DIEGO INTERNATIONAL AIRPORT, AIRPORT DEVELOPMENT PLAN REGIONAL LOCATION MAP.



LEGEND

- Airport Property Line
- California Least Tern Nesting Site

PROPOSED ACTION

- Taxiway Improvements
- Apron
- Shoulder
- Passenger Terminal
- Remain Overnight Aircraft Parking Position
- Vehicle Service Road (VSR)
- SDCRAA Administrative Offices
- Roadways (with Multi-Use Path)
- Terminal 1 Parking Structure

Note:

1. Construction staging and laydown areas, and associated construction access points, would generally be located in proximity to construction activities underway at the time, which would change over the course of overall project construction; however, all would be within or at the limits of SAN Property.

NORTH

0 NOT TO SCALE

PROPOSED ACTION

Figure 2
SAN Airport Development Plan
July 2020

FIGURE 2. PROPOSED ACTION

2.0 SPECIES CONSIDERED

2.1 LISTED SPECIES POTENTIALLY AFFECTED

The SDNHM developed a list of 10 federally threatened or endangered species that occur or may occur in the vicinity of the Action Area. This list was developed based on the species list obtained from USFWS Carlsbad Office (see Appendix A), database searches, a literature review, and results of field surveys. SDNHM searched the following databases for known occurrences of federally listed plant and animal species in the project vicinity: California Natural Diversity Database (California Department of Fish and Wildlife [CDFW] 2019), California Native Plant Society's Inventory of Rare and Endangered Plants of California (2019), iNaturalist (2019), California Consortium of Herbaria (2019), eBird (2019), and VertNet (2019). Additional sources of information include SDNHM biologists' professional knowledge of federally listed species' occurrence in the area and a literature review (Unitt 2004, Tremor et al. 2017, Rebman and Simpson 2014). Annual monitoring of nesting California Least Tern occurs at SAN and the results are summarized in annual reports (e.g., Patton 2016). The status, habitat requirements, and potential for occurrence within the Action Area of these species are summarized in Table 1.

TABLE 1. FEDERALLY LISTED SPECIES' POTENTIAL TO OCCUR IN THE VICINITY OF THE SAN DIEGO INTERNATIONAL AIRPORT, SAN DIEGO, CALIFORNIA

Species (Common and Scientific Name)	Federal Status	Habitat	Potential for Occurrence within Action Area
PLANTS			
Orcutt's Spineflower *Chorizanthe orcuttiana*	Endangered	Weathered bluffs or within maritime chaparral. Elevation 7 – 468 feet. Annual herb, blooms March – May.	**None:** Maritime chaparral not present. Bluffs not present.
San Diego Ambrosia *Ambrosia pumila*	Endangered	Sandy loam soils in open floodplain terraces, openings in grasslands and coastal sage scrub, and adjacent to vernal pools. Elevation below 1,600 feet. Perennial herb, blooms April – October.	**None:** Floodplain terraces, grassland, coastal sage scrub, or vernal pools not present.
San Diego Button-celery *Eryngium aristulatum* var. *parishii*	Endangered	Vernal pools. Elevation 37 – 2,907 feet. Perennial herb, blooms April – June.	**None:** Vernal pools not present.
San Diego Thornmint *Acanthomintha ilicifolia*	Threatened	Clay soils in openings of chaparral, coastal sage scrub, native grassland and vernal pools. Elevation 33 – 3,150 feet. Annual herb, blooms April-June.	**None:** Clay soils not present. Chaparral, coastal sage scrub, grassland, and vernal pools not present.
BIRDS			
California Least Tern *Sterna antillarum browni*	Endangered	Nests on beaches, mudflats, and sand dunes with access to open ocean for foraging. Breeding range is the Pacific Coast of	**Occurs:** Breeds annually at protected nesting areas on the southeast portion of SAN.

TABLE 1. FEDERALLY LISTED SPECIES' POTENTIAL TO OCCUR IN THE VICINITY OF THE SAN DIEGO INTERNATIONAL AIRPORT, SAN DIEGO, CALIFORNIA

Species (Common and Scientific Name)	Federal Status	Habitat	Potential for Occurrence within Action Area
		California from San Francisco to Baja California.	
Coastal California Gnatcatcher *Polioptila californica californica*	Threatened	Resident of coastal sage scrub habitats in southern California and northern Baja California.	**None:** Suitable scrub habitat not present.
Least Bell's Vireo *Vireo bellii pusillus*	Endangered	Dense riparian vegetation for nesting and foraging. Breeds in southern California and northwestern Baja California.	**None:** Suitable riparian habitat not present.
Southwestern Willow Flycatcher *Empidonax trailii extimus*	Endangered	Breeds in dense riparian vegetation near rivers or wetlands throughout the American southwest.	**None:** Suitable riparian habitat not present.
Western Snowy Plover *Charadrius nivosus nivosus*	Threatened	Coastal beaches and salt ponds with little or no vegetation. Requires sandy or gravelly substrate for nesting. Breeding range is from southern Washington to southern Baja California.	**None:** Not documented during annual California Least Tern monitoring. No known nesting locations in project vicinity.
MAMMAL			
Pacific Pocket Mouse *Perognathus longimembris pacificus*	Endangered	Sandy substrates within coastal sage scrub along the coast. Patchily- distributed along the immediate coast of southern California.	**None:** Lack of suitable vegetation. Cracked asphalt with sand and gravel in matrix not suitable for burrowing

As shown in Table 1, based on a review of the distribution and habitat requirements of these species and the habitat available within the Action Area, SDNHM determined that 9 (4 plants and 5 animals) of the 10 federally listed species considered are not likely to occur in the Action Area (see Section 2.2). The analysis concluded the California Least Tern needed to be evaluated in more detail to determine whether this species may be affected by the Proposed Action. Therefore, this BA has been prepared to address the potential effects of the Proposed Action on the California Least Tern.

2.2 LISTED SPECIES NOT PRESENT

As discussed above, SDNHM determined that 9 of the 10 species considered are not expected to occur in the Action Area.

The absence of coastal sage scrub, chaparral, grassland, and vernal pools precludes the occurrence of all four plant species: Orcutt's spineflower (*Chorizanthe orcuttiana*), San Diego ambrosia (*Ambrosia pumila*), San Diego button-celery (*Eryngium aristulatum* var. *parishii*), and San Diego thornmint (*Acanthomintha ilicifolia*). In addition, a focused plant survey was conducted for the rare, but not

federally listed Nuttall's acmispon (*Acmispon prostratus*) on March 31, 2018 within the California Least Tern nesting area, the only undeveloped area within the Action Area (Appendix B). No Nuttall's acmispon or any rare plants were found during the surveys because of a lack of suitable habitat. The substrate of the sites is primarily old cracked asphalt, with a mix of sand and gravel forming a matrix between the asphalt cracks. See Appendix B for a letter report with a summary of the findings and a list of plants found during the survey.

California Gnatcatcher, Least Bell's Vireo, Southwestern Willow Flycatcher, and Pacific Pocket Mouse are not expected to occur onsite because of the absence of appropriate habitat.

The last documented nesting event of Western Snowy Plover at SAN occurred in 1979 when a single pair nested (Page and Stenzel 1981). Annual monitoring of California Least Tern nesting areas at SAN has not documented the presence of Western Snowy Plover since this date. Therefore, the Western Snowy Plover is presumed absent from the Action Area due to the lack suitable habitat for nesting and foraging and lack of observations of this species within the Action Area.

In summary, the site's highly developed landscape has resulted in the removal of native plant communities in which these species occur. The California Least Tern breeds annually at protected nesting areas on the southeast portion of SAN and is discussed further below.

3.0 ENVIRONMENTAL SETTING

SAN is situated at the north end of San Diego Bay (see Figure 1). To the west is the Navy Boat Channel, a dredged and rip-rapped navigation channel connecting several small marinas and boat docks to the bay. To the north is the U.S. Marine Corps Recruit Depot (MCRD) San Diego, a developed Department of Defense facility, and surrounding densely developed land uses. To the east is Interstate 5 and surrounding densely developed commercial uses. The entire Action Area within SAN is extensively developed with only limited vegetation present within the CLT nesting ovals (see further discussion below in Existing Conditions).

4.0 STATUS OF THE SPECIES IN THE ACTION AREA

4.1 BIOLOGY, ECOLOGY, AND STATUS OF CALIFORNIA LEAST TERN

The California Least Tern is the smallest of the North American terns and is found along the Pacific Coast of California, from San Francisco southward to Baja California. This migratory tern nests in colonies on bare or sparsely vegetated beaches adjacent to open water foraging areas where they feed on small fish and shrimp. The California Least Tern is present from mid-April through late September at their nesting colonies. The USFWS listed the California Least Tern as endangered in 1970 (USFWS 1973) and the CDFW in 1971 (CDFW 1976) primarily because of a loss of nesting habitat. As a result of human development, dams, and channelization of coastal waters, the majority of California Least Terns have been restricted to degraded habitat on beaches surrounded by human activity (e.g., military lands, airports). Since 1970, the population has increased from approximately 600 pairs to the most recent estimate of between 4,097 and 5,598 pairs in 2017 (CDFW 2017). The California Least Tern's population increase is largely attributed to site management (e.g., fencing, predator control) and habitat restoration and conservation of nesting habitat (USFWS 2006).

4.2 POTENTIAL FOR OCCURRENCE OF CALIFORNIA LEAST TERN

The California Least Tern has nested at SAN continuously since at least 1969 when nesting was first recorded at the site (Craig 1971). Field monitoring data regarding California Least Terns at SAN and state-wide has been compiled, tracked, and reported annually by CDFW SAN since 1976. Between 2004 and 2015, the number of California Least Tern breeding pairs has fluctuated between a low of 9-10 in 2015 to a high of 122-124 in 2008 (Patton 2016; Figure 3; note the figure depicts nests rather than pairs). The close proximity of the nesting sites to foraging areas in San Diego Bay is an important factor in the attraction of CLT to SAN. Multiple studies have shown that travel distance and energy expenditure while transiting from nesting to foraging areas are a primary determinant of colony nesting success among a wide variety of seabirds, including the California Least Tern (e.g., Ainley et al. 2003, Atwood and Minsky 1983). Fluctuations in the number of breeding pairs has resulted from several regional and local factors including the long-term overall decline in the tern population, limited prey availability resulting from above-average water temperatures, changes in habitat suitability of nearby tern nesting sites, predation, and disturbances during the early formative period of colony establishment.

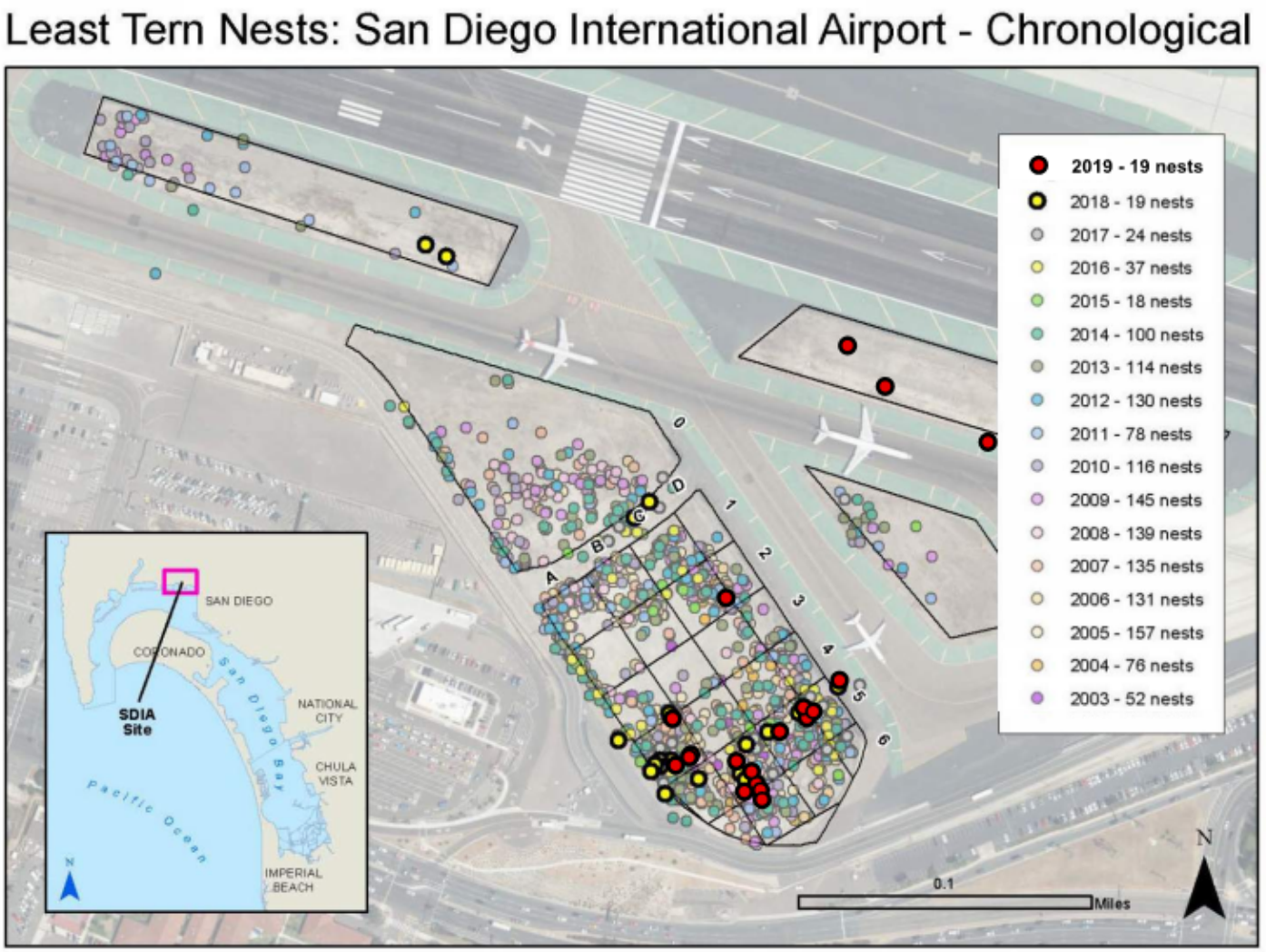


FIGURE 3. CALIFORNIA LEAST TERN NESTS AT SAN 2003-2019

5.0 EXISTING CONDITIONS

The primary past and present human activities in the Action Area potentially affecting the California Least Tern are those related to the ongoing operations and maintenance at SAN. Since SAN is a major international airport with continual airfield operations, infrastructure maintenance and improvement projects, ongoing aircraft activity, airfield support vehicle activity, and ambient noise levels are high. California Least Terns are exposed to near continuous noise and light disturbance associated with airfield movements, landings, and takeoffs, and have habituated to this baseline level. Cars and trucks traveling on the nearby Pacific Highway, Interstate 5, and North Harbor Drive are another continual source of noise disturbance.

The ambient environmental conditions in the CLT nesting ovals have been extensively studied (e.g., Ricondo & Associates, Inc. 2017). This study found that CLT establish their nests in an area subject to high ambient winds, with recorded wind gusts reaching 28 miles per hour (mph) during the peak of CLT egg laying and incubation period, which occurs in May and June. During the five-year period analyzed (2012–2016), peak wind gusts during the months of May were recorded at speeds between 25 and 29 mph, and at speeds between 21 and 26 mph in the months of June over the same period based on available historical data.

The Ricondo study also included a noise contour model that projected that nesting ovals O-1S, O-2S and O-4S are located entirely within the 75 dB CNEL (Community Noise Equivalent Level) contour, whereas portions of Oval O-3S are located within both the 70 dB CNEL and 75 dB CNEL contours. CLT therefore have long nested in areas subject to sustained aircraft noise levels throughout the day associated with arriving, departing and taxiing aircraft operations.

Over the years, CLT have established nests in close proximity to Taxiway B, the busiest taxiway at SAN. An average of 11 departures per hour and a peak number of 25 departures per hour (or approximately four operations every 10 minutes at peak) takes place at SAN for which the aircraft have taxied along Taxiway B for departure. Ovals O-1S and O-4S are also located in close proximity of Runway 9-27 on which an average of 13 daily arrivals or a peak number of 23 arrivals per hour (or approximately four operations every 10 minutes at peak) take place.

The habitat surrounding and including SAN supports a limited number of biological resources because much of the area is already extensively developed. Except as noted below, the entire area within the perimeter of the SAN boundary is developed or disturbed in some manner, with no native vegetation existing on the site. Land cover in the ovals between taxiways, the runway, and service roads is composed of paved surfaces. However, there are four ovals south of the runway and east of taxiway crossing B4 that consist primarily of bare soil, gravel, and non-contiguous patches of low, sparse vegetation. The substrate of these four ovals is primarily poorly-graded sand, gravel, and old cracked asphalt, with a mix of sand and gravel forming a matrix between the asphalt cracks. The vegetation of the ovals is dominated by filaree (*Erodium moschatum*), Heermann's acmispon (*Acmispon heermannii* var. *heermannii*), cut-leaf evening-primrose (*Oenothera laciniata*), white sweet clover (*Melilotus albus*), and wild heliotrope (*Heliotropium curassavicum* var. *oculatum*; Appendix B).

6.0 CUMULATIVE EFFECTS

Section 7 (FESA) regulations require the federal action agency to provide an analysis of cumulative effects when requesting initiation of formal consultation. Cumulative effects include the effects of future state, tribal, local, or private actions, not involving a federal action that are reasonably certain to occur in or adjacent to the project site. Future federal actions that are unrelated to the Proposed Action are not considered in this analysis, because they require separate consultation pursuant to Section 7. Federal actions may include granting a permit for a project, authorizing funds for a project, or actually implementing a project.

For the purposes of this BA, cumulative effects are defined as environmental change that results from the incremental effects of several non-federal actions/projects that may be individually minor, but which become significant when considered collectively. Future projects that are reasonably certain to occur near the Action Area are summarized in Table 2 and shown on Figure 4.

As described earlier in the Executive Summary, there are certain airport improvement projects that would occur within the boundary of SAN concurrent with development of the ADP, but would proceed independently pursuant to Section 163 of the FAA Reauthorization Act of 2018. Those projects are identified first in Table 2 and are further described below. Additional planned development projects at SAN not related to the ADP but that are also not subject to FAA review and approval of Airport Layout Plans per Section 163, are also included in Table 2.

Additionally, specific development projects proposed off-airport, but in the general SAN area, were identified by Civic San Diego and by the City of San Diego Planning Department as recently constructed or reasonably certain to occur (Table 2). Those off-airport projects are also listed in Table 2 and include individual non-airport-sponsored projects in various stages of planning, construction, or final completion. These projects include apartment buildings, retail, hotels, condominiums, a fire station, residential units, and a gas station.

Table 2. Cumulative Projects

Project Name and Location	Brief Description	Current Status	Estimated Construction Start	Estimated Construction Completion
ON-AIRPORT DEVELOPMENT PROJECTS				
Agency Name: San Diego County Regional Airport Authority (SDCRAA)				
SAN Utilities and Stormwater Capture and Reuse Improvements	Various utilities improvements related to development of the Terminal 1 Replacement Project, and a Stormwater Capture and Reuse System.	Approved	2021	2026
Other Improvements	Improvements to the Central Utility Plant. Establishment of shuttle service between the Old Town Transit Center and SAN	Approved	2021	2026
Airport Support Facilities	Several existing Airport Support Facilities provide critical airport and airline operations, but are located in aging, outdated structures and inefficient locations. Existing Airport Support Facilities are proposed to be relocated or reconstructed in energy efficient structures and locations to provide operations in areas designated for Airport Support uses long-term. The existing Airport Support Facilities to be relocated or reconstructed within the airport site's total 661 acres are as follows: a. Facilities Management Department (FMD) which provides offices, warehouse, machine/ maintenance shops, and parking/storage for maintenance equipment, airport fleet vehicles, and staff vehicles on the north side of the airport; b. Aircraft Fueling Operations which provide dispatch office, maintenance, and parking facilities for aircraft refueling trucks on the north side of the airport; c. Relocate the Rental Car Center Bus Parking facility;	Approved and in process	2020	2021

Table 2. Cumulative Projects

Project Name and Location	Brief Description	Current Status	Estimated Construction Start	Estimated Construction Completion
	d. Relocate the storage of solid waste/recycled materials and connections to the sanitary sewer for the disposal of lavatory waste (also referred to as a triturator) to two enclosures located on the south side of the airport – an east location serving Terminal 1 and a west location serving Terminal 2; and e. Relocate the building referred to as the United Airlines Hangar and Terminal (UAHT), which is used for the storage and maintenance of ground support equipment (GSE), to a site in the northern portion of the airport. As part of the Airport Support Facilities' environmental regulatory compliance, a 3-million gallon underground cistern will be installed next to the new FMD facility for storm water capture and reuse purposes.			
Additional Fuel Tanks Project	Construction of additional aviation fuel tanks at the existing fuel farm on the north side of the airport to meet industry standards for on-airport aviation fuel reserves. The Additional Fuel Tanks Project will address deficiencies in aviation fuel reserves for existing aircraft operations and will also allow for, as needed, repair of the fuel storage and conveyance system to occur without compromising fuel service. This project will also reduce the need for trucked fuel deliveries to supplement on-airport fuel shortfalls in the event of interruption of the airport fuel delivery pipeline supplying the fuel farm or the temporary shutdown of one of the existing fuel tanks due to maintenance needs or emergency stoppage.	Approved and in process	2020	2022
Palm Street Park	As part of the airport's north side construction program, an observation park is being planned on a 0.9-acre remnant parcel at the corner of Palm Street and Admiral Boland Way.	Approved	2024	2026
OFF-AIRPORT DEVELOPMENT PROJECTS				

Table 2. Cumulative Projects

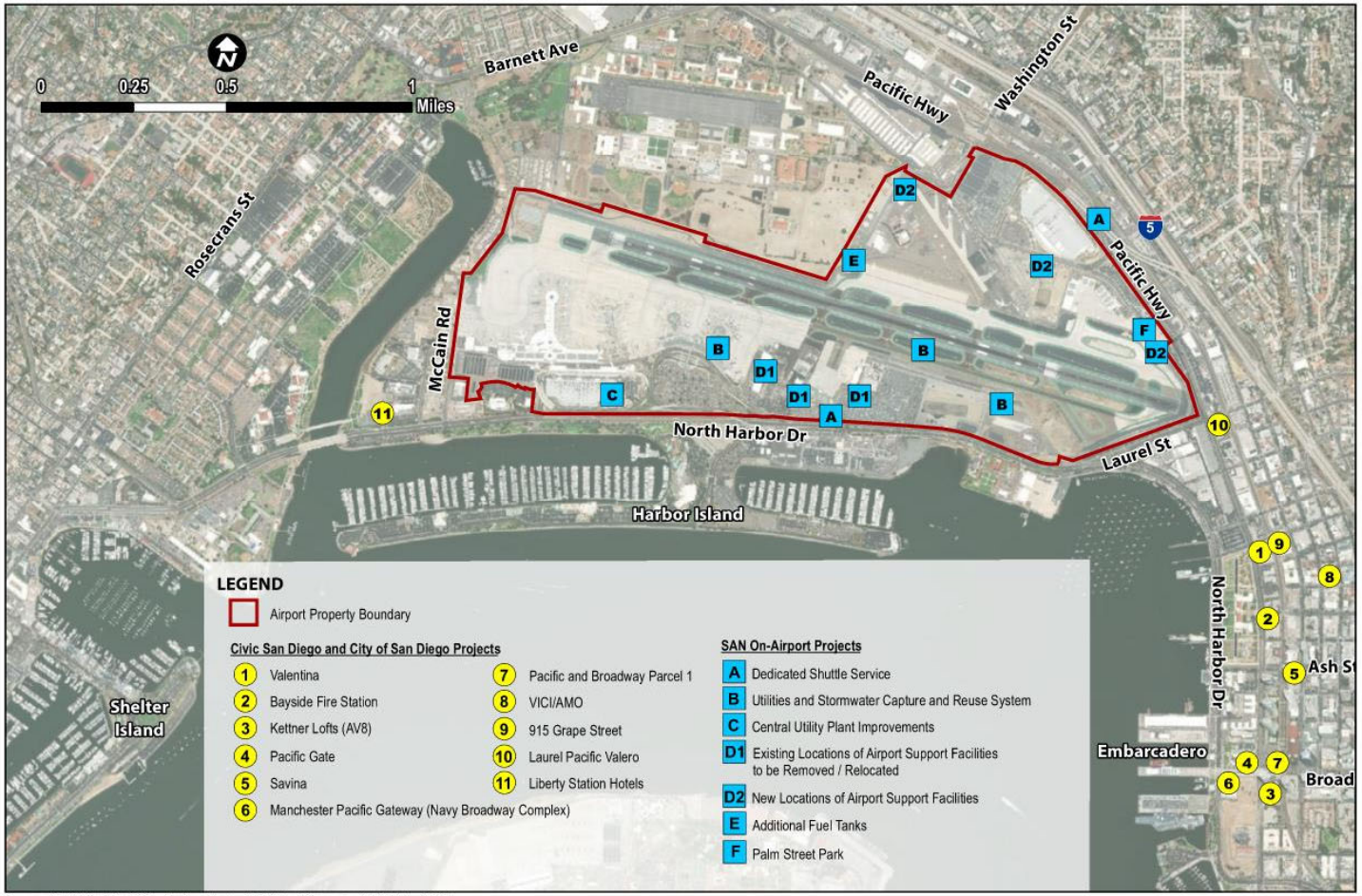
Project Name and Location	Brief Description	Current Status	Estimated Construction Start	Estimated Construction Completion
Agency Name: Civic San Diego				
VALENTINA East side of Pacific Highway between Cedar and Grape	110 Apartments	Completed	04/2017	2019
Bayside Fire Station Southeast corner of Pacific Highway and Cedar	Fire Station	Completed	04/2016	06/2018
Kettner Lofts (AV8) East side of Kettner between Hawthorn and Ivy	133 Apartments 10,000 square feet of Retail	Completed	05/2016	05/2018
Pacific Gate Pacific Highway/Broadway, E St/Rail Corridor	232 Condominiums 16,000 square feet of Retail	Completed	12/2014	04/2018
Savina Southwest corner of Kettner and Ash	285 Condominiums 12,000 square feet of Retail	Completed	03/2016	06/2019
Manchester Pacific Gateway (Navy Broadway Complex) Broadway/Harbor/Pacific Highway	855,000 square feet of Office 372,000 square feet of Navy Office 1,360 Hotel Rooms 391,000 square feet of Retail/Restaurant	Under construction	06/2018	2020-2022
Pacific & Broadway Parcel 1 Northeast corner of Pacific Highway and Broadway	306 Condominiums 15,000 square feet of Retail	Pending completion of Building Plans	Not Available[1]	Not Available[1]
VICI/AMO India/Date/Columbia	VICI (North Side) -94 Apartments -14,000 square feet of Retail AMO (South Side) -28 Apartments -3,000 square feet of Retail	Completed	11/2014	06/2018
915 Grape Street Southwest corner of Grape and California	70 Apartments 1,000 square feet of Retail	Under construction	12/2017	Late 2020
Laurel Pacific Valero	4,000-square-foot gas station	Completed	05/2018	Spring 2019

Table 2. Cumulative Projects

Project Name and Location	Brief Description	Current Status	Estimated Construction Start	Estimated Construction Completion
Southeast corner of Pacific Highway and Laurel				
Ballpark Village Parcel C[2] Park Blvd and 12th Avenue	646 Residential Units 41,505 square feet of Retail Space	Completed	05/2015	12/2018
Carte Hotel[2] 401 W. Ash Street	239 Hotel Rooms 4,000 square feet of Retail	Completed	05/2017	05/2019
Moxy Hotel[2] East side of 6th Avenue between E Street and F Street	126 Hotel Rooms	Completed	04/2017	10/2018
AC Hotel Seventh Avenue and G Street/743 5th Avenue	147 Hotel Rooms 1,200 square foot Restaurant Space	Under construction	08/2019	07/2021
TownePlace Suites by Marriott[2] East side of 6th Avenue between Ash Street and Beech Street	98 Hotel Rooms	Completed	09/2016	06/2018
Agency Name: City of San Diego Planning Department				
Liberty Station Hotels North Harbor Drive at Kincaid Rd.	3 hotels: Marriott TownePlace Suites - 222 Suites; Hampton Inn - 181 Rooms; and Embassy Suites (Springhill Suites)– 247 Rooms	2 Hotels Completed: Hampton – March 2019; Marriott –August 2019; Embassy Suites (Springhill Suites) – Approved 2015	Hampton and Marriott - 2018 Embassy (Springhill) Suites – 2024/2025	Hampton and Marriott - 2019 Embassy (Springhill) Suites – 2025/2026

Table 2. Cumulative Projects

Project Name and Location	Brief Description	Current Status	Estimated Construction Start	Estimated Construction Completion
Sources: Civic San Diego and City of San Diego Planning Department, 2018, City of San Diego Development Services Department, 2020, and City of San Diego Urban Division, 2020, as updated by field reconnaissance March 2020 and internet sources: http://www.manchesterpacificgateway.com/updates/; https://www.marriott.com/hotels/travel/santa-towneplace-suites-san-diego-airport-liberty-station/; https://www.sandiego.org/members/hotels-resorts/hampton-inn-suites-by-hilton-san-diego-airport-liberty-station.aspx; The Daily Transcript, "Developers Bringing Branded Hotels to Liberty Station", August 19, 2016. Available: https://www.atlashospitality.com/developers-bringing-trio-branded-hotels-liberty-station/; https://www.sandiegouniontribune.com/business/growth-development/sd-fi-ballpark-village-petco-park-development-20190319-story.html. Notes: [1] Designation in the City of San Diego's July 2020 Downtown Development Status Log; no further information is available at this time and providing more specific dates would be speculative. For this BA, to be conservative, it is assumed the Pacific & Broadway Parcel 1 project would be completed within 5 years from initiation or completion of the Proposed Action. [2] Not shown on Figure 4; projects are located in downtown San Diego, farther southeast of the Proposed Action site and beyond the aerial base map shown.				



Source: CDM Smith, 2020, Kimley-Horn, 2018. Aerial source: SDCRAA, 2020.

Figure 4
CUMULATIVE PROJECTS MAP

FIGURE 4. CUMULATIVE PROJECTS MAP.

ON-AIRPORT DEVELOPMENT PROJECTS

Development projects occurring on-airport would include certain improvements located in closer proximity to the CLT nesting ovals than the aforementioned off-airport projects. The following describes the on-airport development projects.

UTILITIES AND STORMWATER CAPTURE AND REUSE

Underground utilities required for SAN facilities include: electric; natural gas; water; sanitary sewer; heating, ventilation, and air conditioning (HVAC); telecommunications; and stormwater. In conjunction with implementation of the Proposed Action, improvements to existing utilities serving the project area would occur. The proposed improvements would require removing existing underground utility lines to accommodate the new and modified structures and installing new lines and new connections to connect the new and modified structures with the existing lines. Utility improvements would occur in coordination with the applicable service provider.

- Electricity – an existing 12kV underground feeder would be re-routed and some portions would be removed. A new primary duct bank would be installed that is generally parallel to the new on-airport access roadway. It would connect to a secondary duct bank that extends along the Airport Terminal Road between the new Terminal 1 and Terminal 1 Parking Structure.
- Natural Gas – existing 1-inch pipelines east of the existing Terminal 1 and east of the (former) Commuter Terminal would be removed and new 1-inch and 3-inch pipelines would be installed to connect the new Terminal 1 and Terminal 1 Parking Structure with existing pipelines along North Harbor Drive.
- Water – existing pipelines that vary in size from 8-inches to 16-inches located east and southeast of the existing Terminal 1 and west and east of the (former) Commuter Terminal would be removed. New domestic water and fire water pipelines that vary in size from 2-inches to 16-inches would be installed to connect the new Terminal 1 and Terminal 1 Parking Structure to existing pipelines, including connections to existing lines along North Harbor Drive and Airport Terminal Road.
- Sewer – existing 8-inch sewer lines east and southeast of the existing Terminal 1 and near the (former) Commuter Terminal would be removed and new 8-inch lines would be installed to connect existing lines within the SAN boundary.
- HVAC – new hydronic heating water piping and chilled water piping would be installed to connect the new Terminal 1 and the Terminal 1 Parking Structure with existing piping east of the Terminal 2 Parking Plaza.
- Stormwater – existing storm drains east of the existing Terminal 1 and north of the (former) Commuter Terminal would be removed. New stormwater piping and trench drains would be constructed between the runway and the new Terminal 1 and along the new Terminal 1 and Terminal 1 Parking Structure.

To comply with the Clean Water Act and state/local post-construction stormwater treatment control requirements, the proposed stormwater drainage system improvements would include expansion of the capture area of the SAN Stormwater Capture and Reuse System. Figure 5 presents an overview of the subject system. When completed, the system would capture runoff from approximately 200 acres of SAN's 661-acre site. The SAN Stormwater Capture and Reuse System would reduce the amount of

potable water currently used for non-potable purposes at SAN. In addition, the SAN Stormwater Capture and Reuse System would reduce the discharge of stormwater runoff from SAN into San Diego Bay. All the stormwater improvements are located west of, and away from, the infield islands at the east end of SAN that are used by the CLT for nesting.

Key elements of the expanded SAN Stormwater Capture and Reuse System include: 1) the construction of an underground cistern with approximately 3.5 million gallons of storage and a stormwater pump station from which stormwater is pumped to an existing treatment system and used to replace potable water at the existing CUP or other SAN operations or facilities; 2) construction of several infiltration areas within the infield islands between the runway and taxiways (excluding, specifically, the airfield islands that are CLT nesting habitat); 3) construction of an underground infiltration area below the relocated airfield vehicle service road (VSR); 4) installation of oversized storm drain pipes that provide temporary storage as stormwater is pumped to the existing treatment system for use at the CUP or other SAN operations or facilities; 5) construction of underground storage tanks or pipelines at the Terminal 1 parking structure from which stormwater is pumped to the existing treatment system for use at the CUP, similar to the existing Terminal 2 Parking Plaza facilities; 6) construction of an infiltration area within the Terminal 1 roadway loop ramp; 7) construction of a controlled-flow roof drain system that would provide temporary rooftop storage of stormwater within the interstitial space of natural or man-made materials (often referred to as a "blue roof") and either allow stormwater to evaporate or be sent through the existing treatment system to replace the use of potable water; and 8) construction of an injection well to route stormwater into an underlying confined groundwater aquifer. Opportunities for stormwater reuse would include: 1) CUP cooling towers; 2) onsite irrigation; 3) Rental Car Center (RCC) car wash; and/or 4) possible reuse for toilet flushing by dual plumbing at Terminal 1.

The element of the SAN Stormwater Capture and Reuse System closest to the on-airfield CLT nesting habitat would be the underground infiltration feature below the relocated airfield VSR and would be approximately 60 feet from the habitat. Construction of any part of the proposed expansion of the SAN Stormwater Capture and Reuse System that is within 800 feet of the nesting habitat would be completed during the five-and-a-half-month period outside the CLT breeding season. There would be no construction within 800 feet of the habitat during the breeding season (which is April 1 – September 15), unless authorized in advance by the USFWS.

Constructing the elements of the SAN Stormwater Capture and Reuse System would require excavation of approximately 140,000 to 180,000 cubic yards of soil to allow for construction of the 3.5-million gallon underground cistern, airfield island and underground infiltration and storage areas, and the deep well injection site. The system would also require the installation of approximately 30,000 linear feet of storm drain pipe. At final build-out, the project-specific total storage capacity of the SAN Stormwater Capture and Reuse System would be approximately 9 to 18 million gallons.

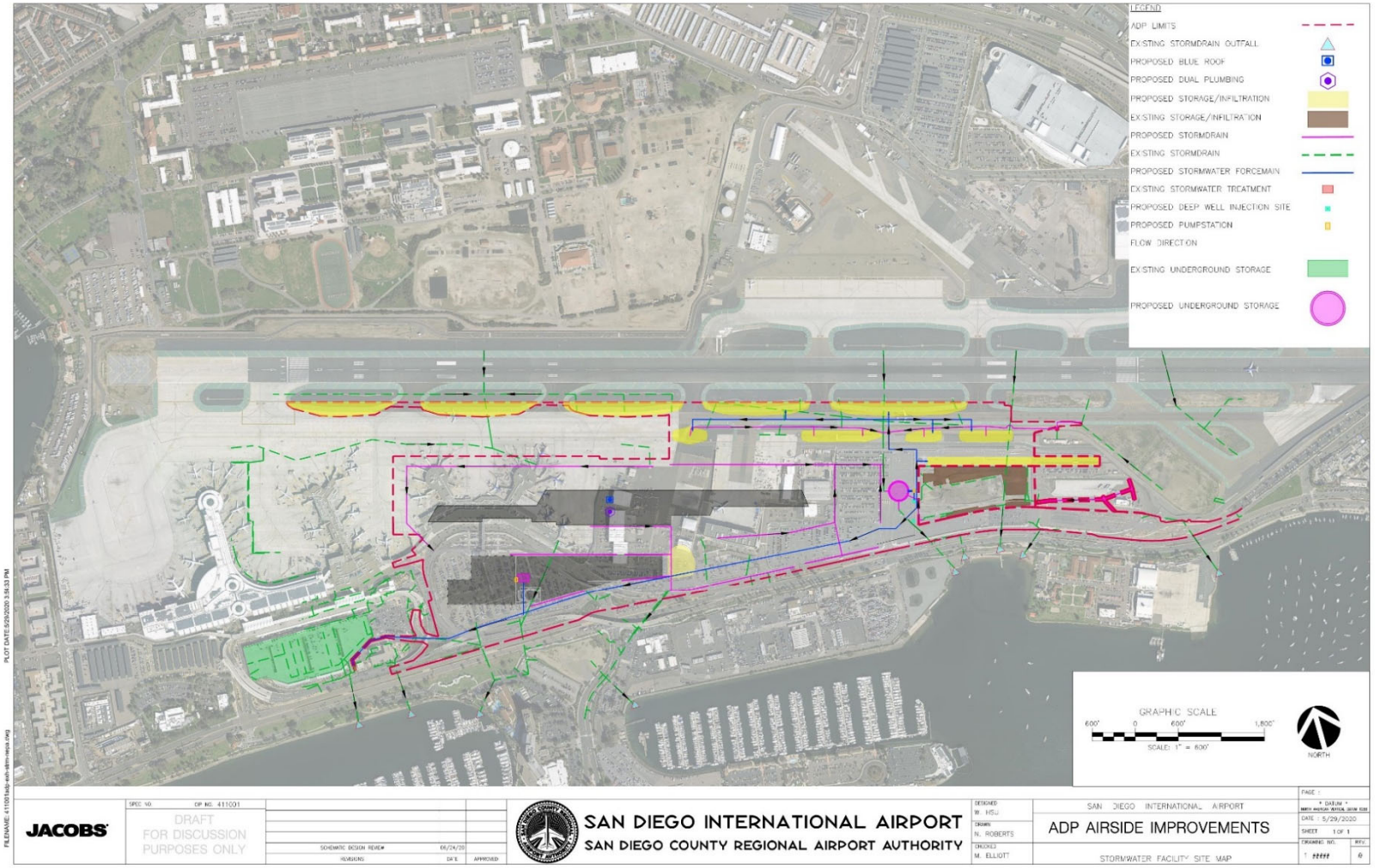


FIGURE 5. STORMWATER CAPTURE AND REUSE SYSTEM

OTHER IMPROVEMENTS

CENTRAL UTILITY PLANT IMPROVEMENTS

Improvements are proposed to be made to the SAN Central Utility Plant including replacement of the existing boilers and chillers, which would increase the heating and cooling capacity at SAN, improve efficiencies, and reduce energy consumption compared to the existing system.

DEDICATED AIRPORT SHUTTLE SERVICE

A dedicated airport shuttle service between the Old Town Transit Center and SAN would be established to provide improved access to local and regional transit for airport passengers and employees. A shuttle bus would operate daily between the Old Town Transit Center and Terminals 1 and 2 during the same hours as the San Diego Trolley. The trolley currently operates from approximately 5 AM to 1 AM daily. On Weekdays, the service would operate at 15-minute frequency from 5 AM to 9 PM, and at 30-minute frequency from 9 PM to 1 AM. On Weekends, the service would operate at 15-minute frequency from 5 AM to 7 PM, and at 30-minute frequency from 7 PM to 1 AM.

Shuttles would be all-electric zero-emission-vehicles (ZEVs), accommodate up to 20 passengers, and use the following routes, estimated at 3.8 miles one-way:

Shuttle Route between the SAN Terminals and Old Town Transit Center: The shuttle bus would depart the terminals heading east on North Harbor Drive, access the Terminal Link Road at the U.S. Coast Guard crossing, and exit onto Pacific Highway at the intersection with Palm Street. The shuttle bus would continue north on Pacific Highway to the Old Town Transit Center where it would use the curb-front located on either the west or east curb at the Old Town Transit Center located at 4005 Taylor Street.

Shuttle Route from Old Town Transit Center to SAN Terminals: The shuttle bus would depart the Old Town Transit Center at 4005 Taylor Street by proceeding south on Pacific Highway. At the intersection with Palm Street, the shuttle bus would access the gated Terminal Link Road, continue west on North Harbor Drive, and proceed to Terminals 1 and 2.

AIRPORT SUPPORT FACILITIES

Several existing Airport Support Facilities provide critical airport and airline operations, but are located in aging, outdated structures and inefficient locations. Existing Airport Support Facilities are proposed to be relocated or reconstructed in energy efficient structures and locations to provide operations in areas designated for Airport Support uses long-term. The existing Airport Support Facilities to be relocated or reconstructed within the airport site's total 661 acres are as follows:

a. Facilities Management Department (FMD) which provides offices, warehouse, machine/ maintenance shops, and parking/storage for maintenance equipment, airport fleet vehicles, and staff vehicles on the north side of the airport;
b. Aircraft Fueling Operations which provide dispatch office, maintenance, and parking facilities for aircraft refueling trucks on the north side of the airport;
c. Relocate the Rental Car Center Bus Parking facility;
d. Relocate the storage of solid waste/recycled materials and connections to the sanitary sewer for the disposal of lavatory waste (also referred to as a triturator) to two enclosures located on the south side of the airport – an east location serving Terminal 1 and a west location serving Terminal 2; and

e. Relocate the building referred to as the United Airlines Hangar and Terminal (UAHT), which is used for the storage and maintenance of ground support equipment (GSE), to a site in the northern portion of the airport.

As part of the Airport Support Facilities' environmental regulatory compliance, a 3-million gallon underground cistern will be installed next to the new FMD facility for storm water capture and reuse purposes.

ADDITIONAL FUEL TANKS PROJECT

Construction of additional aviation fuel tanks at the existing fuel farm on the north side of the airport to meet industry standards for on-airport aviation fuel reserves.

PALM STREET PARK

As part of the airport's north side construction program, an observation park is being planned on a 0.9-acre remnant parcel at the corner of Palm Street and Admiral Boland Way.

6.1 CUMULATIVE EFFECTS ANALYSIS

ON-AIRPORT DEVELOPMENT PROJECTS

UTILITIES AND STORMWATER CAPTURE AND REUSE

Underground utilities required for SAN facilities include electric; natural gas; water; sanitary sewer; heating, ventilation, and air conditioning (HVAC); telecommunications: and stormwater. In conjunction with implementation of the Proposed Action, improvements to existing utilities serving the project area would occur. The proposed improvements would require removing existing underground utility lines to accommodate the new and modified structures and installing new lines and new connections to connect the new and modified structures with the existing lines.

The Proposed Action-related element of the SAN Stormwater Capture and Reuse System closest to the on-airfield CLT nesting habitat would be the underground infiltration feature below the relocated airfield VSR and would be approximately 60 feet from the CLT nesting oval O-3S. No surface or subsurface disturbance to the CLT nesting habitat would occur. There would be no construction within 800 feet of the CLT breeding areas during the breeding season (which is April 1 – September 15), unless authorized in advance by the USFWS.

As all construction within 800 feet of the nesting areas would occur outside of the CLT breeding season, and no surface or subsurface disturbance to the CLT nesting habitat would occur, no effect from this Proposed Action-related element is anticipated.

OTHER IMPROVEMENTS

CENTRAL UTILITY PLANT IMPROVEMENTS

As the Central Utility Plant is located over one mile west of the tern nesting areas, no effect from this airport development project is anticipated.

DEDICATED AIRPORT SHUTTLE SERVICE

The Terminal Link Road immediately adjacent to the south end of the nesting oval currently supports Rental Car Center buses on approximate five-minute intervals, or 12 buses per hour. The new dedicated airport shuttle service between the Old Town Transit Center and SAN would increase the frequency by

four shuttle bus trips per hour on the Terminal Link Road. The existing Rental Car Center buses are proposed to be converted from the current compressed natural gas engines to electric motors, which would reduce the ambient noise level adjacent to the CLT colony. The proposed dedicated airport shuttle service between the Old Town Transit Center and SAN would also use all-electric buses. This modest increase in vehicle frequency on the Terminal Link Road is not expected to inhibit CLT commuting over the Terminal Link Road to the foraging areas in San Diego Bay.

AIRPORT SUPPORT FACILITIES

Existing Airport Support Facilities are proposed to be relocated or reconstructed in energy efficient structures and locations to provide operations in areas designated for Airport Support uses long-term. These facilities are proposed to be moved primarily to the north side of the airport, in a direction the terns do not normally fly. Therefore no effects from these north side projects are anticipated.

One of these projects includes re-siting facilities on the south side of the airport, and is analyzed here in more detail. This project proposes to relocate the storage of solid waste/recycled materials and connections to the sanitary sewer for the disposal of lavatory waste (also referred to as a triturator) to two enclosures located on the south side of the airport – an east location serving Terminal 1 and a west location serving Terminal 2. The east location is approximately 282 feet to the west of tern nesting oval O3-S. The fully enclosed Trash Facility building will have four walled sides and a pitched roof. The building features rapid-roll-up doors. The building is approximately 33 feet tall; the Triturator/Wash Bay building is approximately 21 feet tall. The main entrance and exit to the building is through two rapid-roll-up doors on the west side of the building. There is a third rapid-roll-up door on the runway-side of the building at an approximately 45 degree angle to tern nesting oval 03-S. This runway-side door will generally be used outside the tern nesting season. The triturator in the Liquid Waste Facility is isolated in a second building that sits west of the Trash Facility building, farther away from the nesting ovals.

Design features of the proposed transfer station facility include the following:

- All vehicles will enter and exit both buildings through rapid, roll-up doors.
- All waste will be processed in an enclosed building that maintains negative air pressure to prevent odors from escaping while building doors are open. In addition, exhaust air from the Trash Facility building will be treated using an odor neutralizing system.
- All waste will leave the facility in sealed, leak-proof containers, and all containers will enter and exit through rapid, roll-up doors.
- All vehicles will be cleaned prior to exiting the building.
- SAN will develop an integrated wildlife hazard management plan (IWHMP) that focuses on the facility during both construction and full operation. It will be specific enough to accomplish the goals it identifies and include the following key elements:
    a. Identify personnel responsible for implementing each phase of the plan,
    b. Identify and provide information on hazardous wildlife attractants on or near the facility,
    c. Identify appropriate wildlife management techniques to minimize the wildlife hazard(s) observed,
    d. Prioritize appropriate management measures,
    e. Recommend necessary equipment and supplies,

f. Identify training requirements for the wildlife damage management personnel who will implement the IWHMP, and
g. Identify when and how the IWHMP will be reviewed and updated.

- SAN will hire or contract for a full-time, dedicated wildlife biologist who is trained and equipped to proactively mitigate bird use of the facility as issues develop.
- SAN will plan to eliminate ledges and other perching sites in the building design as much as possible. For example, do not use raised letters for signage on the building as any projections from the building provide perching and nest sites.
- SAN will install anti-perching devices on the building roofs, pilings, and other surfaces where birds may perch. SAN should assess the need for such devices on adjacent buildings, as well.
- SAN will hire or contract for a full-time, dedicated wildlife biologist who is trained and equipped to proactively mitigate bird use of the facility as issues develop.
- SAN will monitor trash containers to ensure no trash is extruding from them before they leave the Trash Facility building.

Incorporation of these design features and measures will reduce the attractiveness of the solid waste transfer site to gulls, corvids, rats, and other species that may also serve as predators to terns and their eggs or chicks.

The USFWS Carlsbad office concurred with these incorporated design features to reduce the potential impacts of this facility on the California least tern nesting area in writing on March 5, 2020.

ADDITIONAL FUEL TANKS PROJECT

The Additional Fuel Tanks Project is proposed at a site over 3,000 feet to the northwest of primary tern nesting oval O3-S, in a direction the terns do not normally fly. Therefore no effect from this project is anticipated.

PALM STREET PARK

As the Palm Street Park is proposed at a site over 1,800 feet to the northeast of nesting oval O3-S, in a direction the terns do not normally fly, no effect from this proposed project is anticipated.

OFF-AIRPORT DEVELOPMENT PROJECTS

Construction and operation of the off-airport development projects near the California Least Tern nesting ovals could pose the potential for indirect impacts to the tern at SAN. However, the closest such project to the CLT nesting ovals is the recently completed Laurel Pacific Valero gas station approximately 1,600 feet to the east, a considerable distance for a low-rise structure. The nearest residential or apartment buildings would be approximately 3,000 feet to the southeast (Valentina Apartments and 915 Grape Street Apartments; Figure 4). These locations all currently support nearby multi-story structures which have the potential to serve as predator perches, though perches much closer to the nesting ovals also currently exist. Therefore, the addition of these structures at these distances from the nesting ovals would not create additional predator threats to the nesting terns.

The primary activity conducted by CLT outside SAN property is foraging in northern San Diego Bay and traveling from foraging grounds to the nesting ovals at the southeastern corner of SAN. The direction of

flight from the nesting ovals is generally to the southeast, south, or southwest, where they can access San Diego Bay within several hundred feet of the nesting areas. Other than the Laurel Pacific Valero gas station discussed above, all off-airport projects listed in Table 2 are located either far to the southeast of the airport in downtown San Diego, or to the west of the airport at Liberty Station (see Figure 4). None of the projects is located at a site that would potentially interfere with CLT flight patterns. Given the above list of known or anticipated projects, no disruption of foraging or commuting by CLT that are nesting at SAN is anticipated.

Additional projects in the region include those considered in the Port District's Master Plan Update. Within Harbor Island sub plan area, the potential growth identified included 1,100-2,200 additional hotel rooms, 60,000-210,000 square feet of additional retail, and a 15-20 percent increase in vessel berthing over the next 10+ years. The general nature of these development goals and lack of specific locations make any additional effects analysis on the CLT nesting ovals impossible.

7.0 EFFECTS OF THE ACTION

Only one listed species has been identified as having potential to occur within the Action Area, therefore, the following analysis of the effects of the Proposed Action focuses solely on the California Least Tern.

The Proposed Action incorporates a number of separate but connected airport improvements that are each analyzed below.

7.1 AIRFIELD IMPROVEMENTS

The Proposed Action includes development of a new Taxiway A about 219 feet south of the realigned Taxiway B from the very west end of Runway 9 to up to Taxiway exit B4. Taxiway A would not extend into California least tern nesting area, and would terminate over 470 feet to the west of nesting oval O-3S. As the existing Taxiway B allows for aircraft to move directly adjacent to the CLT nesting areas, the construction of Taxiway A would not alter the existing aircraft movement patterns adjacent to the nesting areas to which the terns have become habituated. The closest portion of Taxiway A would be farther from the nesting areas than the centerline of Runway 9, on which aircraft move at a much higher rate of speed and produce significantly more noise than would aircraft on Taxiway A. Thus, the existing aircraft operations on Runway 9 and Taxiway B dominate the existing and future visual and noise environment of the CLT nesting areas. Therefore, aircraft use of Taxiway A with the Proposed Action, at slower speeds and greater distance, would not appreciably add to this ambient environment.

7.2 REPLACMENT OF TERMINAL 1

The eastern end of the new Terminal 1 site is over 2,800 feet from the western edge of the main nesting oval O-3S. This is approximately the same distance as the current SDCRAA Administration Building (formerly the Commuter Terminal) is from oval O-3S, which has not served as a predator perch or in other ways been identified as affecting the CLT breeding sites. Terminal 1 is also located to the west of the nesting oval, a direction that the CLT do not typically travel when heading to or from foraging areas. Therefore, no direct or indirect effects on the nesting oval or foraging terns are anticipated due to this proposed building.

Apron improvements are proposed along the north side of the new Terminal 1 concourse along with the provision of a new aircraft RON area to the east of the new concourse. No effects on CLT breeding sites are anticipated due to these improvements.

7.3 DEVELOPMENT OF A PARKING STRUCTURE ADJACENT TO TERMINAL 1

The Proposed Action would include construction of a new 5,500-space parking structure south of the new Terminal 1. The 5,500-space parking structure would be a maximum of approximately 2,250,000 square feet, with up to five levels and a maximum height of 60 feet for the main roof deck and 84 feet for the elevator penthouses and light poles. This parking structure would be over 3,000 feet from the CLT nesting areas, significantly farther than other structures, and would have no effect on the colony.

7.4 GROUND TRANSPORTATION IMPROVEMENTS

ON-AIRPORT ENTRY ROADWAY

The Proposed Action would include a feeder roadway north of North Harbor Drive that removes all westbound airport traffic near the intersection of Laurel Street and distributes it to both terminals. An outbound lane would be constructed to remove SAN shuttles and other certified vehicles from the city streets and would preserve additional right-of-way for other ground transportation needs. These improvements would improve circulation and enhance vehicle travel to the terminals from North Harbor Drive.

The new on-airport access road and multi-use path would be constructed south of the existing Terminal Link Road, near the southern end of nesting oval O-3S. CLT that are nesting in the ovals on SAN typically travel to the south, southeast, and southwest to reach the north end of San Diego Bay to forage for small fish to feed their young. Multiple studies have shown that travel distance and energy expenditure while transiting from nesting to foraging areas are a primary determinant of colony nesting success among a wide variety of seabirds, including the California Least Tern (e.g., Ainley et al. 2003, Atwood and Minsky 1983).

The proposed access road would incorporate a raised overpass that would begin its elevation above grade to the southwest and west of nesting oval O-3S, approximately 195 feet away from the edge of the CLT nesting area (Figures 6 and 7). Significant design modifications were made to the proposed elevated roadway to push it as far west as possible within the constraints of the site. The overpass reaches its top height of approximately 23 feet above grade over 300 feet to the west of the nesting oval with the new design. This height is shorter than most of the existing trees, including palm trees, lining North Harbor Drive, and is significantly shorter than the existing U.S. Coast Guard hangars to the southwest of the nesting ovals that the terns must pass over on a regular basis.

The shortest distance from the nesting ovals to San Diego Bay for terns commuting between the two sites is to the south and southeast of oval O-3S, as close as 280 feet away (see Figure 6). In this area, the proposed on-airport roadway is at grade, and no new structures taller than the existing eight-foot fences are proposed. Commuting terns would have no additional impediments in transiting this area between foraging bouts.

Three photo renderings have been created to show conditions before and after the Proposed Action would be completed from the vantage point of nesting CLT at the south end of the nesting oval O-3S, looking to the south (View A), southwest (View B), and west-southwest (View C; Figures 8-10). These

photo renderings show that to the south and southwest (Views A and B), the proposed roadway is at grade. Therefore, no changes to CLT commuting patterns are anticipated in these directions, which include the closest direct flying distances to San Diego Bay (280-380 ft). To the southwest (View B) the nearest portion of San Diego Bay is 910 feet away, and commuting CLT must also cross the U.S. Coast Guard facility to the south of Harbor Drive. To the west-southwest (View C), the rendering shows that the elevated roadway begins its rise to just above the level of the existing fenceline. Here, at approximately 195 from the edge of the nesting area, the roadway and retaining walls are approximately 11 feet above grade. In this direction the nearest access to the bay is over 1,100 feet away over the U.S. Coast Guard Facility. However, CLT flying to foraging areas around Harbor Island and to the west fly directly over this area to reach their foraging sites in order to expend as little energy as possible.

Other CLT colonies are located adjacent to significant structures. The CLT colony at Venice Beach in Los Angeles County is approximately 160 feet west of an intensely developed residential area composed of three- and four-story apartment buildings. The terns at this site have access to close foraging areas to the south and west, but also routinely commute over the buildings to the east in order to access foraging areas in Marina Del Rey. They also return with prey items frequently by flying over these buildings on their approach to the colony.

Just across the bay from SAN, Naval Air Station North Island supports an approximately 20-acre CLT breeding colony (the MAT site) that is surrounded by numerous buildings of various sizes and an active airfield. It is also more isolated from foraging areas than the nesting ovals at SAN, as it is approximately one-half mile from the nearest foraging areas on San Diego Bay. These two examples show that CLT are adaptable to human modified landscapes and can successfully breed despite needing to navigate significant vertical structures between their breeding and foraging areas. It should be noted that these two sites are the exceptions, however, as most California Least Tern breeding colonies are located on flat, sandy coastal locations with immediate access to foraging areas.

There are a substantial number of light poles and signs adjacent to the nest sites currently (see Figures 6-7). This includes a 25-foot-tall light pole and a 50-foot-tall beacon within 80 feet of the nesting area, another light pole and one sign structure within approximately 200 feet, and at least eight light poles within 200 feet to the west of the nesting oval. The closest proposed new light poles adjacent to the airport access road would be 88, 108, and 230 feet tall at their closest point to the ovals. Therefore, the total number of light poles or beacons within 200 feet of the nesting ovals would increase from 11 to 13. As with the current light poles, these would be topped with predator deterrents (e.g., Nixalite®). All proposed lighting adjacent to the nesting ovals would be shielded to prevent any direct illumination of the breeding area. The existing 25-foot-tall sign structure that is approximately 205 feet southwest of the oval would be replaced with a similar sign structure approximately 222 feet southeast of the oval.

The additional light impacts caused by the increased number of light poles is counteracted by the elimination of the short-term parking lot for development of the multi-use path for pedestrians and bicycles (see discussion below) and its associated lighting impacts (i.e., car headlights) from vehicle traffic and parking spaces within the lot, much of it facing the nesting area. While the average illumination level in the nesting area is difficult to measure due to the dynamic nature of the vehicle use

within the short-term parking lot, it is likely there would be a net reduction in overall illumination due to the proposed elimination of the lot.

Elevated structures such as light poles provide attractive perches for predators of CLT adults, chicks, and eggs. The principal predators affecting the CLT nesting success over the past ten years at SAN include Peregrine Falcon (*Falco peregrinus*), Cooper's Hawk (*Accipiter cooperii*), American Kestrel (*Falco sparverius*), Common Raven (*Corvus corax*), American Crow (*Corvus brachyrhynchos*), and Western Gull (*Larus occidentalis*). The first three species are raptors that often hunt from perches and have been documented taking both adult terns and young chicks from the SAN colony in most years in the recent past. However, the area immediately surrounding the nesting oval already contains numerous predator perches, including at least eleven beacons or light poles, a sign structure, and numerous tall trees such as palms (see Figures 8-10). The addition of two more light poles within 200 feet of the nesting oval would not significantly change the opportunity for predators to perch near the colony. Furthermore, as with the current light poles, proposed poles would be topped with predator deterrents (e.g., Nixalite®).

PEDESTRIAN AND BICYCLE CIRCULATION PATHWAY

The Proposed Action would include development of a multi-use path for bicycles and pedestrians along North Harbor Drive and to SAN terminals. For westbound passengers accessing SAN, at the intersection of North Harbor Drive and Laurel Street, a pedestrian/bicycle crossing would be provided along the on-airport entry ramp. From the entry ramp, pedestrians and bicycles could travel on a multi-use path along the north side of the on-airport entry roadway. At the intersection of North Harbor Drive and Terminal Link Road, the multi-use path would cross under the on-airport entry road where it would continue along the north side of North Harbor Drive.

The proposed multi-use path would be positioned as close as 62 feet away from the California Least Tern nesting area on the far side of the existing Terminal Link Road (Figure 6). This path would be used by pedestrians and bicycles and would be shielded from view by two eight-foot tall fences.

The existing use in this area is a short-term parking lot with the majority of parking spaces pointed to the north, resulting in headlights being directed toward the CLT nesting area. As this is a short-term lot, with many drivers waiting for arriving airport passengers, many cars idle while waiting and shine their headlights into the nesting area. The existing distance from publicly accessible areas in the existing parking lot to the nesting oval is as close as 57 feet, and generally varies from 57 to 63 feet. There is also an existing public bike and pedestrian path in this area that is located from 70-78 feet south of the nesting area.

With the removal of the short-term lot and all parking in this area, the multi-use path would result in a net reduction in noise and light disturbance to the nesting area compared to the existing conditions.

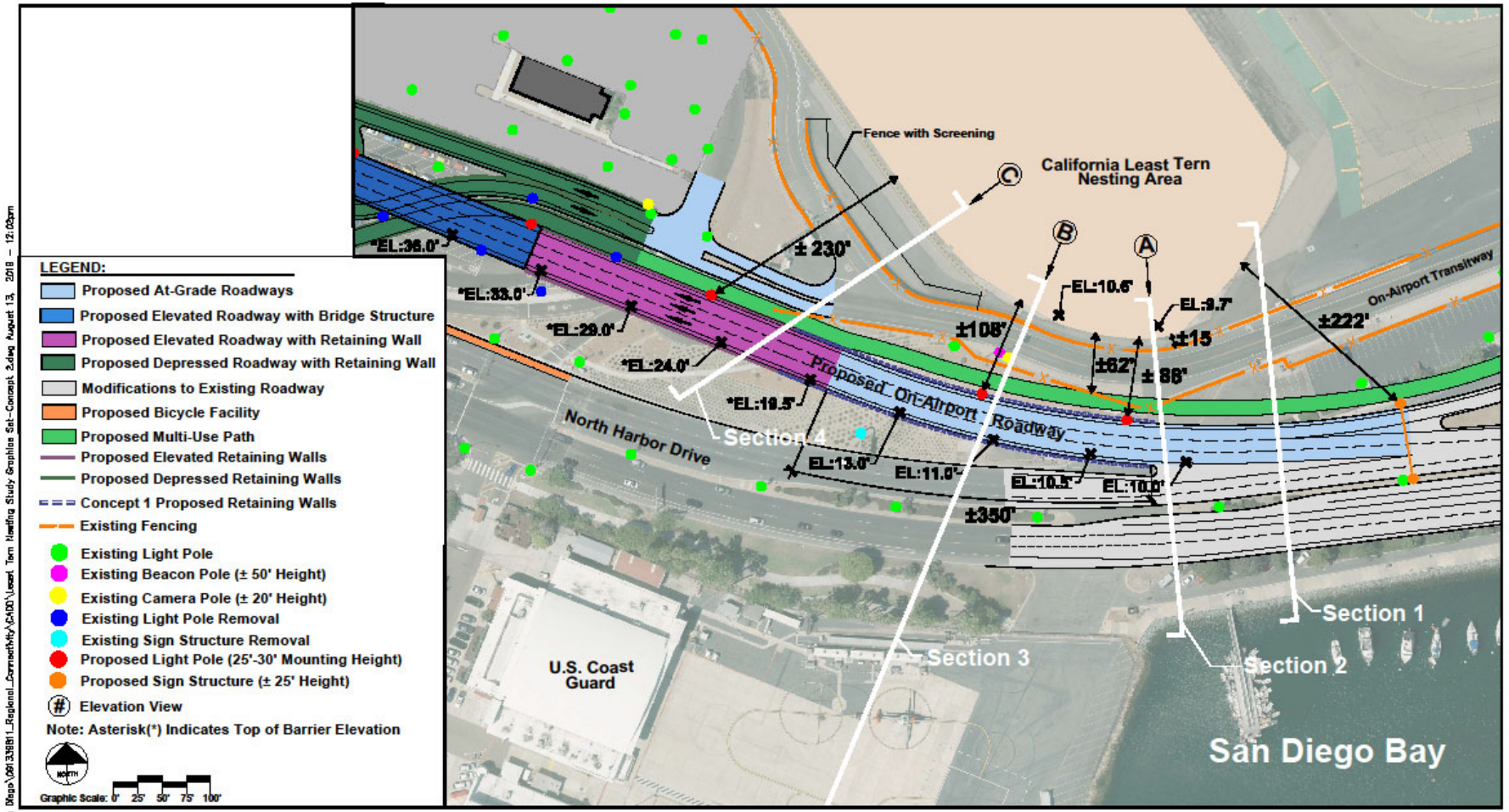
7.5 REPLACEMENT OF SDCRAA'S ADMINISTRATIVE OFFICES

The Proposed Action would include demolition of the former 132,000-square-foot Commuter Terminal, where SDCRAA's administrative offices are currently located, and construction of a new 150,000-square-foot airport administration office building near the intersection of McCain Road and Airport Terminal Road. Parking for the new airport administration building would be at the existing surface lot located at the current Terminal 2 Parking Lot at McCain Road and Airport Terminal Road. The lot would be resurfaced and reconfigured. The new SDCRAA administration building would be 84 feet tall.

The relocation of SDCRAA's administrative offices to the west end of the airport would have no effect on the CLT nesting areas.

REMOVAL OF VACANT BUILDINGS

In addition to the existing SDCRAA administrative office building/former commuter terminal, several vacant buildings would need to be demolished in conjunction with construction of Terminal 1 and Taxiway A, including airport maintenance facilities, solid waste storage, airline belly cargo and provisioning facilities, and public and employee parking lots. Removal of these building would have no effect on the CLT nesting areas.



Least Tern Nesting View Graphics - Concept 2 Plan | Figure 3

FIGURE 6. LEAST TERN NESTING VIEW GRAPHIC WITH CROSS SECTIONS.

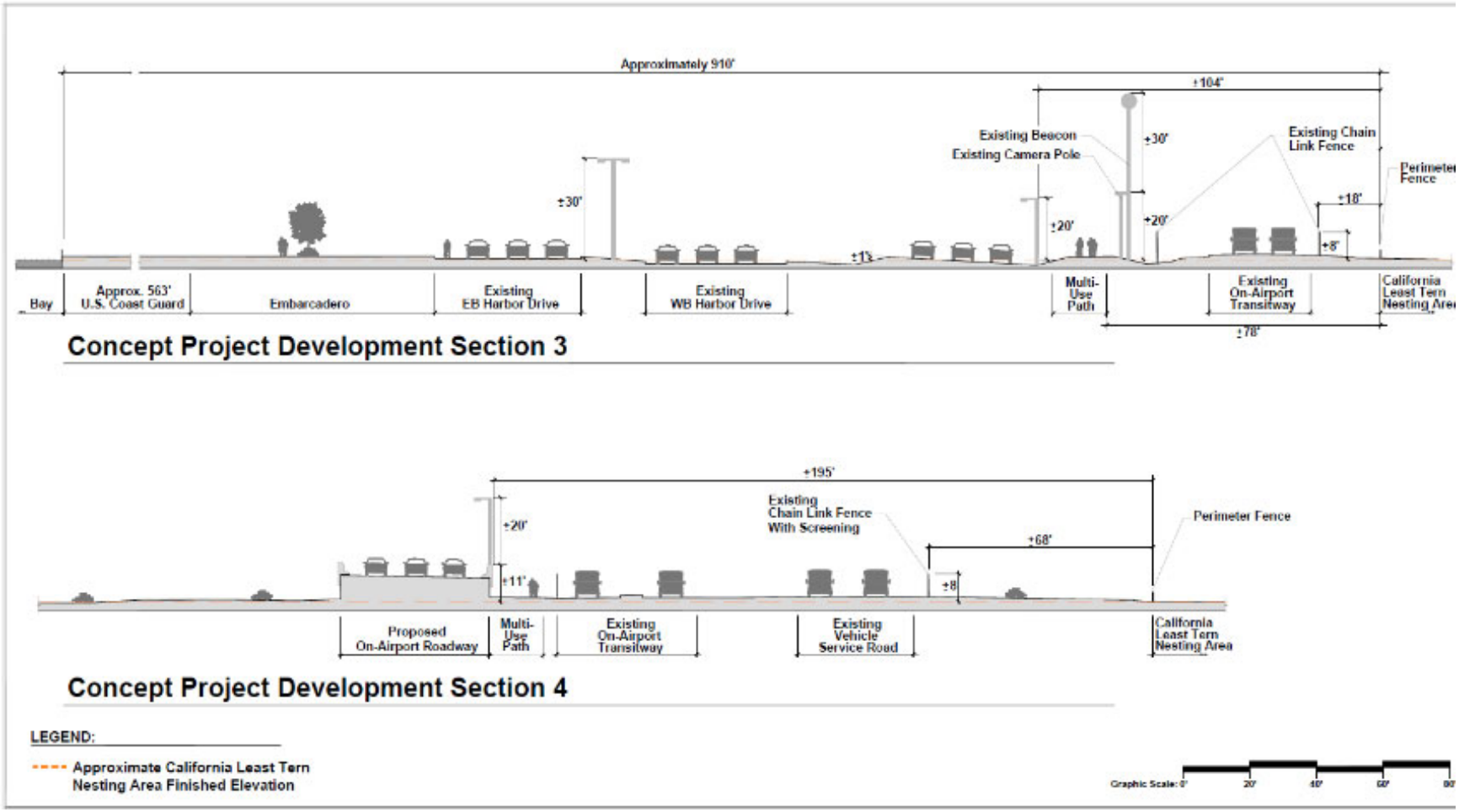


FIGURE 7. LEAST TERN NESTING VIEW ELEVATIONS.

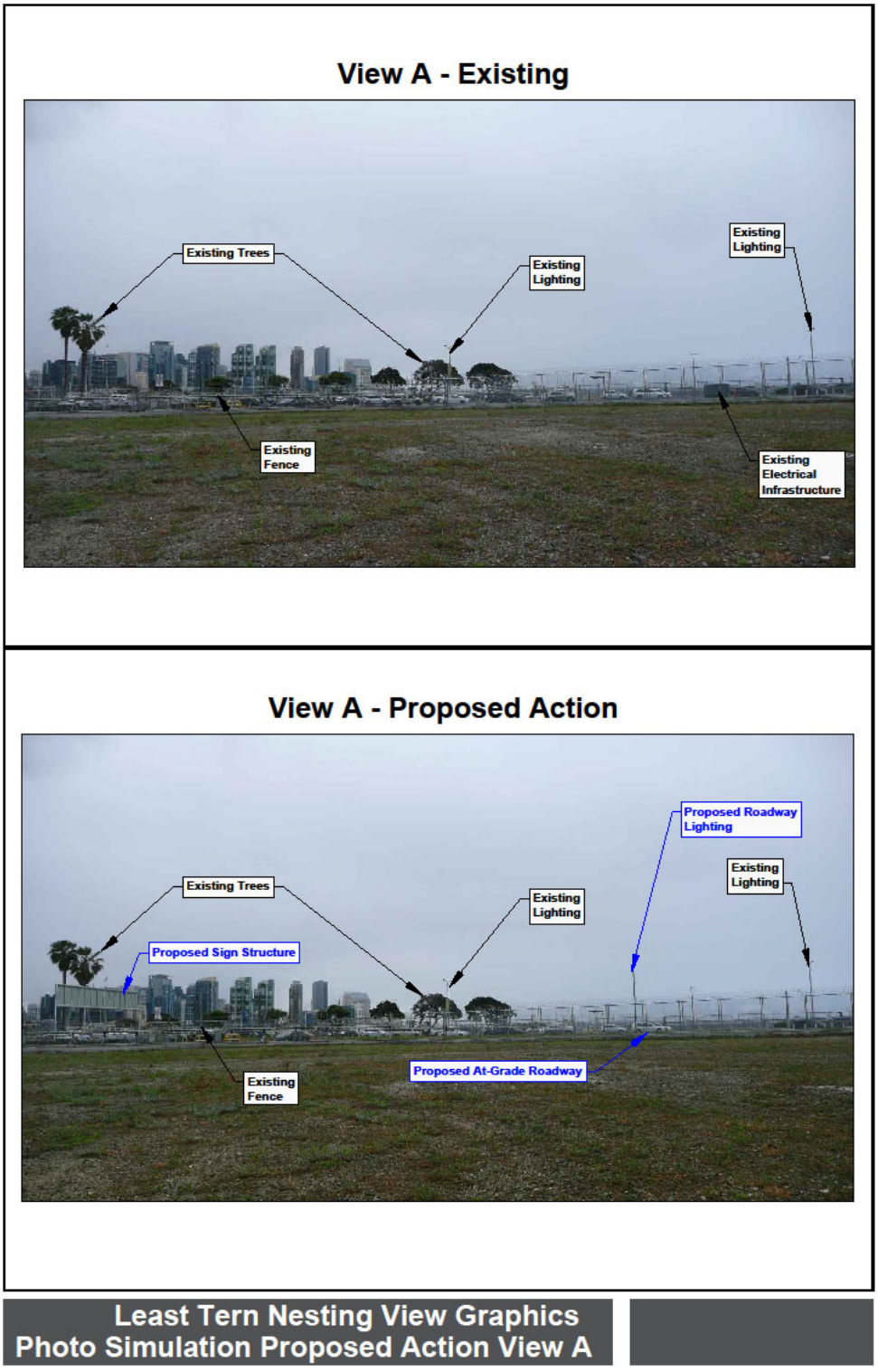


FIGURE 8. LEAST TERN NESTING VIEW GRAPHICS: PHOTO RENDERING LOOKING SOUTH.

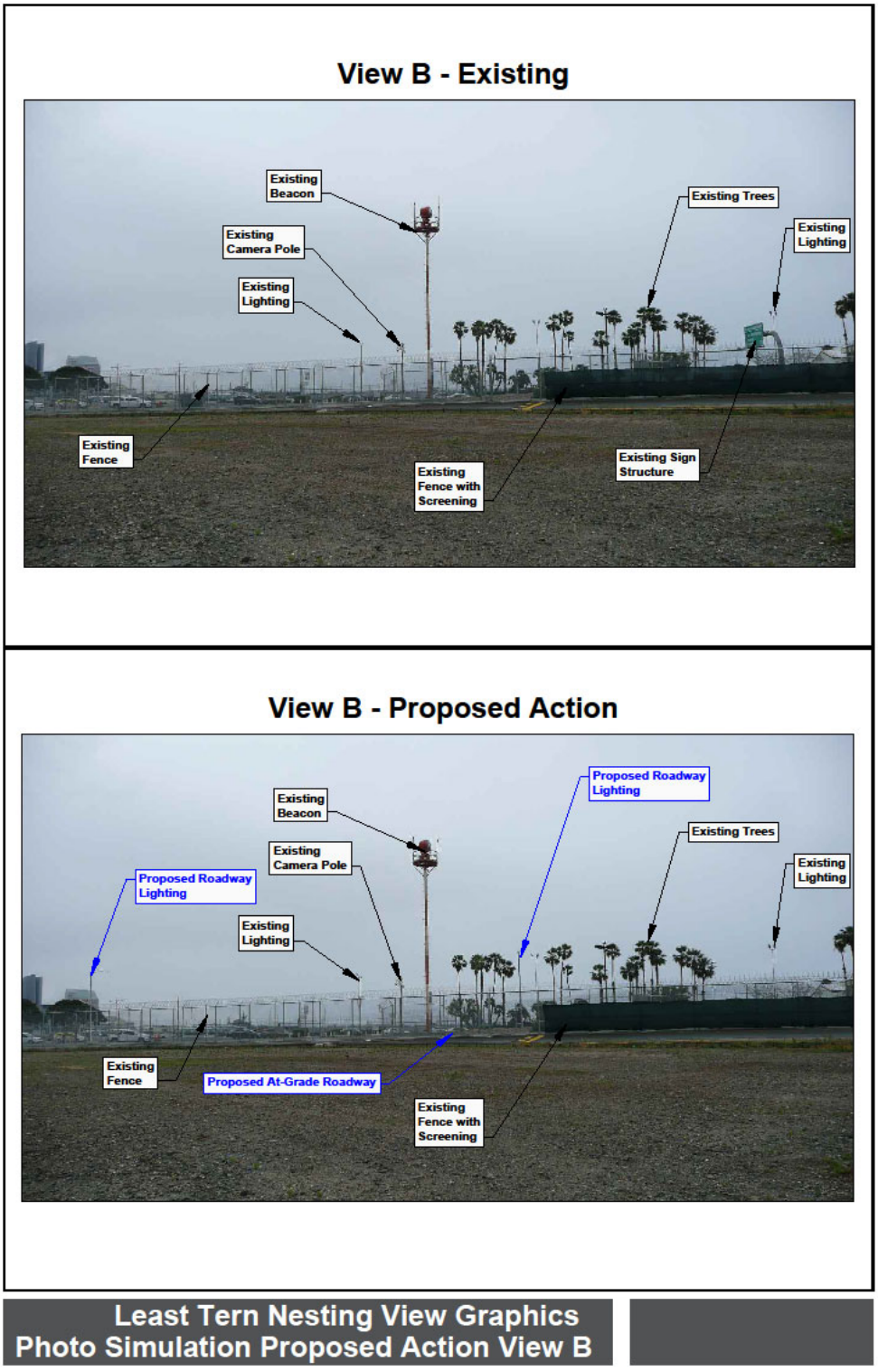


FIGURE 9. LEAST TERN NESTING VIEW GRAPHICS: PHOTO RENDERING LOOKING SOUTHWEST.

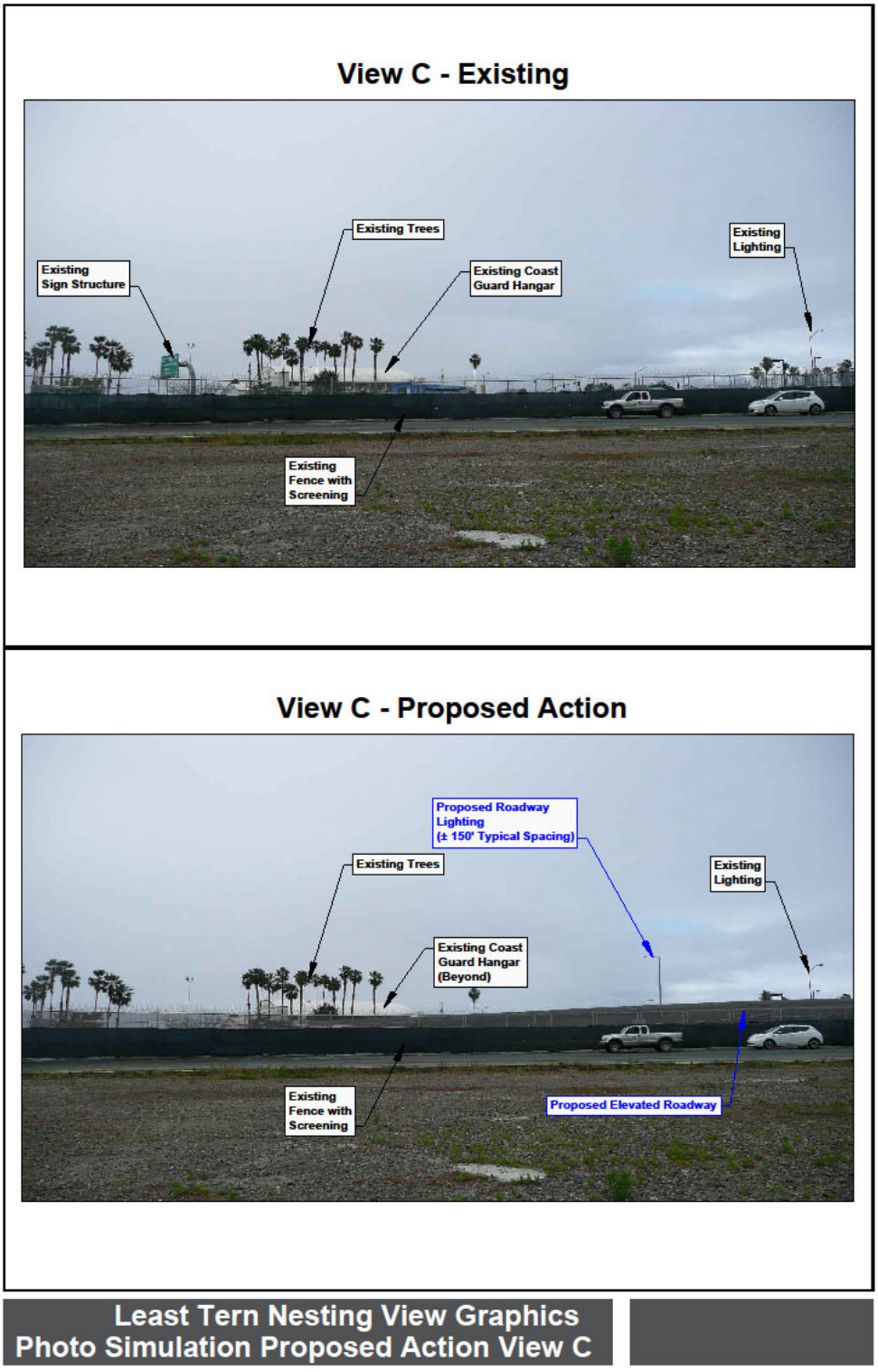


FIGURE 10. LEAST TERN NESTING VIEW GRAPHICS: PHOTO RENDERING LOOKING WEST-SOUTHWEST.

7.6 NOISE

Noise impacts associated with the Proposed Action and with projected increases in aircraft operations include an increasing amount of area subjected to 65 dB CNEL (Community Noise Equivalent Level) contours, especially at both the eastern and western ends of the approach and takeoff areas around SAN. No projected increases to the 70 or 75 dB CNEL contours, which encompass the Action Area, are projected. As noted in Section 5.0, Existing Conditions, a previous noise study (Ricondo & Associates, Inc. 2017) found that nesting ovals O-1S, O-2S and O-4S are located entirely within the 75 dB CNEL contour, whereas portions of Oval O-3S are located within both the 70 dB CNEL and 75 dB CNEL contours. CLT therefore have long nested in areas subject to sustained aircraft noise levels throughout the day associated with arriving, departing and taxiing aircraft operations. As no change to the existing 70 and 75 dB CNEL contours around the nesting ovals are projected, no additional impacts to nesting CLT are anticipated.

7.7 PROPOSED AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

The following conservation measures would be implemented in conjunction with continued implementation of (1) the applicable measures specified in the 1993 Biological Opinion; (2) the applicable measures set forth in the 2013 Informal Section 7 Consultation between the FAA and USFWS regarding potential effects of the SAN Northside Improvements Project; (3) the applicable measures set forth in the 2018 Informal Section 7 Consultation between the FAA and USFWS regarding potential effects of the SAN Taxiway B Object-Free Area Improvement Project; (4) Best Management Practices (BMPs); and (5) compliance with federal, state, and local regulations regarding hazardous materials management.

Conservation measures are organized below by project phase (e.g., construction versus operations), and are numbered for ease of reference.

7.7.1 Avoidance and Minimization Measures During Construction

CM-1: California Least Tern: Construction Measures: The following measures shall be included in all construction contracts for the Proposed Action facilities and implemented as part of the Proposed Action to avoid potential indirect impacts during construction from increased lighting, noise, and activities that may increase perching for predatory species:

- All project construction within 800 feet of the SAN least tern nesting area will occur from September 16 to March 31 to avoid the tern nesting season.
- A tern biologist will monitor construction occurring between 800 feet to 1,200 feet of any nesting least tern area during the California Least Tern's nesting season (April 1- September 15) and will immediately notify the Resident Engineer (RE; or acting RE) of any construction activity that may lead to, or likely result in, the disruption of the tern, its young, or its eggs. If the tern biologist determines that adverse effects to the tern have occurred, the RE will be notified and all project construction activities will cease immediately, except those activities necessary to make SAN safe and operational. The tern biologist, in coordination with the RE, will contact the FAA and USFWS immediately after stopping construction. Construction will not resume until approved by the FAA and USFWS. The tern biologist will submit daily field reports to the FAA and USFWS on the status of the nesting activity, any construction-related incidents that disrupted tern nesting, and any action taken by the RE to avoid further incidents, within 24

hours of each monitoring date. The tern biologist will also submit a final summary report of monitoring to the FAA and USFWS by October 1.

- Trash will be properly disposed of, and workers will not feed potential tern predators in the area. The SDCRAA will require the contractor to provide trash dumpsters or other covered trash receptacles for use by construction personnel. All food items or containers that previously held food items obtained/handled/controlled by construction personnel will be immediately disposed of in these dumpsters or containers, so as not to attract avian or mammalian predators of the least tern.
- Construction personnel will not be permitted to feed cats, gulls, pigeons, ravens, or any other wildlife, as this may result in an increase in the numbers of these potential predators in the vicinity of tern chicks and eggs.
- Crane booms or similar equipment that have heights of 25 feet or greater and are located between 800 feet to 1,200 feet of any nesting least tern area during the tern nesting season (April 1- September 15) will be lowered at the close of each construction day, if possible.
- A pre-construction meeting will be held to make all contractor personnel that will be working between 800 feet to 1,200 feet of any nesting least tern area during the tern nesting season (April 1- September 15), including all construction staff, aware of the tern nesting issue and the specific conditions of construction. Project status meetings will be regularly held to remind all such personnel of the measures required to protect the tern as well as any modifications made to ensure their effectiveness. The USFWS will be notified of the date and time of the pre-construction and status meetings in order to attend, if needed or desired.
- Nighttime construction occurring between 800 feet to 1,200 feet of any nesting least tern area during the tern nesting season (April 1- September 15) will be limited to those activities that are necessary to maintain airfield operations during normal operational times. Should such nighttime construction be required, the tern biologist will be onsite and perform the duties specified above.
- Night lighting for project construction occurring between 800 feet to 1,200 feet from the SAN least tern nesting area will be kept to a minimum during the tern nesting season (April 1- September 15), and will not be used unless active construction or other essential work is occurring. Should such nighttime construction or other essential work be conducted, all lighting associated with the work will be shielded from or directed away from the least tern nesting area.
- Diligent maintenance of fencing around the perimeter of the ovals shall continue in order to shield the terns from lighting, predators, and unauthorized human access.
- The new airport entry road to the south of the nesting ovals shall not rise above existing surface grade and shall not alter the elevation of roadway structures directly to the south of the nesting ovals.

7.7.2 Avoidance and Minimization Measures during Operations

CM-2: California Least Tern: Operations Measures: The following measures shall be implemented by SDCRAA as part of the Proposed Action in order to avoid potential indirect impacts during operation as related to perching for predatory species:

- New facilities shall be designed to minimize potential perching locations; all structures taller than ten feet and within 200 feet of the nesting ovals, including light poles and sign structures,

shall be required to use anti-perch treatments such as stainless-steel bird spike barriers (e.g., Nixalite®) that can be applied to potential perch sites.
- Any new landscaping shall be limited to plant species and materials not conducive to perching by birds.
- Diligent maintenance of fencing around the perimeter of the ovals shall continue in order to shield the terns from lighting, predators, and unauthorized human access.
- Habitat management, including application of herbicide and removal of vegetation, shall continue within the ovals.

In addition to CM-2, operational impacts of the Proposed Action would be further reduced with implementation of SDCRAA's project design feature that on-airport shuttles, including the existing Rental Car Center shuttles that utilize the Terminal Link Roadway on the south side of the airport that runs along the southern portion of the southernmost California Least Tern oval, be transitioned to quieter electric vehicles (all-electric or plug-in hybrid), thereby reducing ambient noise levels next to the airfield CLT colony.

8.0 CONCLUSION

The Action Area evaluated in this document contains a breeding population of the California Least Tern. After reviewing the current status of the species; the effects of the Proposed Action; and built-in measures proposed to avoid, minimize, and compensate for effects to CLT; we have determined that the Proposed Action *may affect, and is not likely to adversely affect* California Least Tern. Table 3 below summarizes the effects determination for the Proposed Action.

TABLE 3. EFFECTS DETERMINATION

Federally Listed Species (Common and Scientific Name)	No Effect	May Affect, Is Not Likely to Adversely Affect	May Affect, Is Likely to Adversely Affect
Orcutt's Spineflower *Chorizanthe orcuttiana*	X		
San Diego Ambrosia *Ambrosia pumila*	X		
San Diego Button-celery *Eryngium aristulatum* var. *parishii*	X		
San Diego Thornmint *Acanthomintha ilicifolia*	X		
California Least Tern *Sterna antillarum browni*		X	
Coastal California Gnatcatcher *Polioptila californica californica*	X		
Least Bell's Vireo *Vireo bellii pusillus*	X		
Southwestern Willow Flycatcher *Empidonax trailii extimus*	X		
Western Snowy Plover *Charadrius nivosus nivosus*	X		
Pacific Pocket Mouse *Perognathus longimembris pacificus*	X		

With implementation of the avoidance, minimization, and compensation measures identified in this BA, the Proposed Action is not expected to directly or indirectly reduce, in any appreciable manner, the likelihood of survival or recovery of CLT by reducing their reproduction, numbers, or distribution. The measures proposed to offset anticipated effects provide reasonable protections to minimize adverse effects of the Proposed Action.

9.0 REFERENCES CITED

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APPENDIX A. USFWS SPECIES LIST

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
Phone: (760) 431-9440 Fax: (760) 431-5901
http://www.fws.gov/carlsbad/

In Reply Refer To: August 20, 2020
Consultation Code: 08ECAR00-2019-SLI-1628
Event Code: 08ECAR00-2020-E-03399
Project Name: SAN Airport Development Plan

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
(760) 431-9440

Project Summary

Consultation Code: 08ECAR00-2019-SLI-1628

Event Code: 08ECAR00-2020-E-03399

Project Name: SAN Airport Development Plan

Project Type: TRANSPORTATION

Project Description: The San Diego county Regional Airport Authority is proposing the following: replacement of Terminal 1 with a new terminal; airfield taxiway improvements; development of circulation and roadway improvements including a new multi-use pedestrian and bicycle pathway and airport entry road; development of a five-story parking structure; Implementation of a dedicated shuttle service; replacement of administrative offices and various other improvements.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/32.73485497755578N117.19995006105773W

Counties: San Diego, CA

Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Pacific Pocket Mouse *Perognathus longimembris pacificus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8080	Endangered

Birds

NAME	STATUS
California Least Tern *Sterna antillarum browni* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Coastal California Gnatcatcher *Polioptila californica californica* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8178	Threatened
Least Bell's Vireo *Vireo bellii pusillus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

Flowering Plants

NAME	STATUS
Orcutt's Spineflower *Chorizanthe orcuttiana* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7573	Endangered
San Diego Ambrosia *Ambrosia pumila* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8287	Endangered
San Diego Button-celery *Eryngium aristulatum var. parishii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5937	Endangered
San Diego Thornmint *Acanthomintha ilicifolia* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/351	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

APPENDIX B. FOCUSED NUTTALL'S ACMISPON SURVEY REPORT

April 6, 2018

Ted Anasis, AICP
Manager, Airport Planning
San Diego County Regional Airport Authority,
P.O. Box 82776
San Diego, CA 92138-2776

RE: Surveys for Nuttall's Acmispon at the California Least Tern nesting ovals at San Diego International Airport (SDIA).

Dear Mr. Anasis:

This letter report summarizes findings of a focused survey for Nuttall's acmispon (*Acmispon prostratus*) on the California Least Tern nesting ovals at the San Diego International Airport (SDIA). Nuttall's Acmispon, formerly known as Nuttall's Lotus [*Lotus nuttallianus*], is a prostrate, annual plant, blooming from March to June. It is restricted to sandy coastal dunes from northern San Diego County south into Baja California, Mexico. This species is threatened by development, non-native plants, and land management activities such as beach raking. It is considered rare and endangered by the California Native Plant Society, but is not listed under the state or federal Endangered Species Act.

A site visit was conducted on March 31, 2018 from 8:00-10:00 A.M. The survey was conducted by Kevin Clark, Director of BioServices, and Jon Rebman, Curator of Botany at the San Diego Natural History Museum. Areas surveyed included nesting ovals O-2S and O-3S, as well as a strip of open ground west of O-3S, south of the taxiway, where a historical Least Tern nest was located (Figure 1).

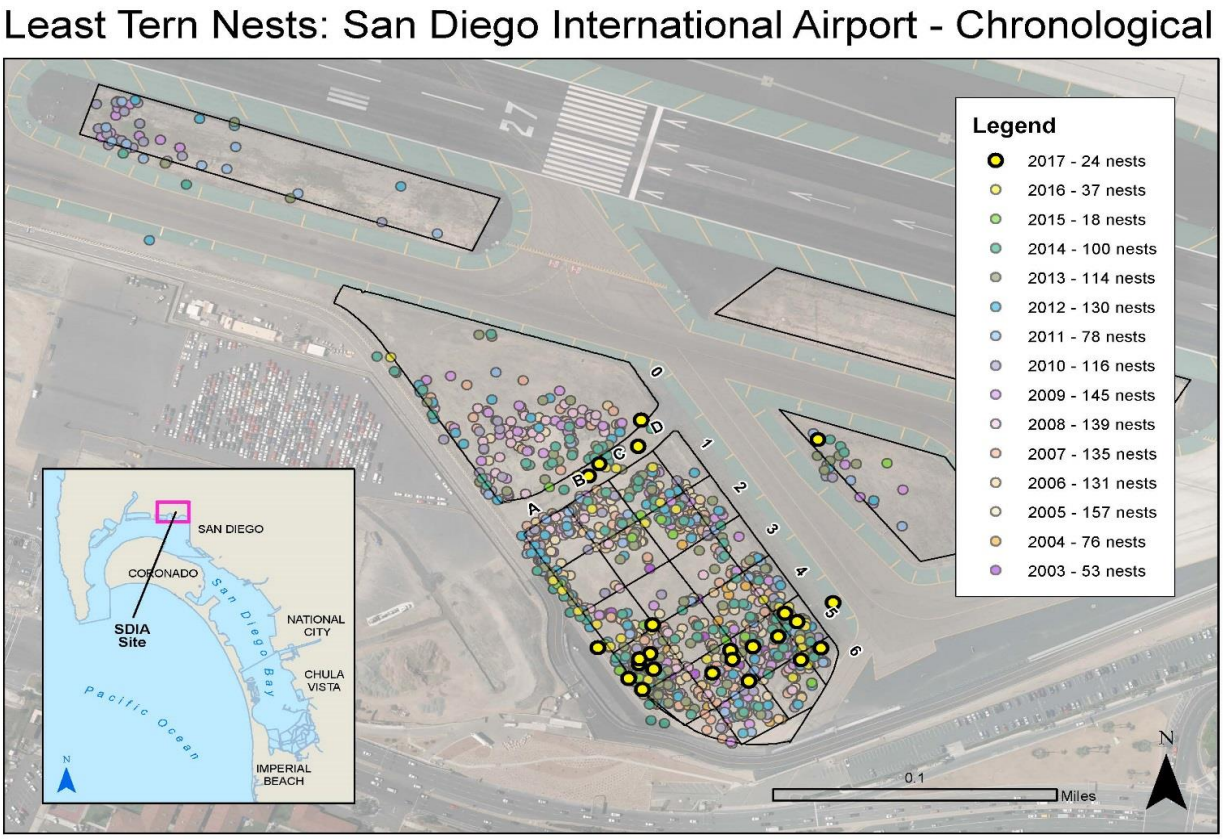

Figure 1. California Least Tern nesting ovals at the San Diego International Airport. Nuttall's Acmispon surveys were conducted on the two southern ovals that supported 2017 tern nests.

The substrate of the sites is primarily old cracked asphalt, with a mix of sand and gravel forming a matrix between the asphalt cracks. The vegetation of the sites is relatively homogenous, and is dominated by filaree (*Erodium moschatum*), Heermann's acmispon (*Acmispon heermannii* var. *heermannii*), cut-leaf evening-primrose (*Oenothera laciniata*), white sweet clover (*Melilotus albus*), and wild heliotrope (*Heliotropium curassavicum* var. *oculatum*; Figure 2).

Figure 2. The vegetation at the nesting ovals is sparse and open. The substrate is composed of cracked asphalt, with a mix of sandy and rocky soils. Photo taken March 31, 2018.

No Nuttall's acmispon were found during the surveys. The superficially similar Heermann's acmispon was very common across the sites (Figure 3).

Figure 3. *Acmispon heermannii* was common across the sites. Photo taken March 31, 2018.

Nesting ovals 0-1S and O-4S, located between the taxiway and runway, were not accessible for surveys. These sites were observed from across the taxiway at the north end of the surveyed ovals, and appear to have similar vegetation to the surveyed ovals. Given the homogenous vegetation and similar substrate across the sites surveyed, it is extremely unlikely that a rare plant such as Nuttall's acmispon occurs in these ovals, without also occurring on the larger ovals to the south.

A complete list of plants found during the survey is included in Appendix 1 (below).

If you have any questions about this report please feel free to contact me at (619) 255-0296 or

kclark@sdnhm.org.

Sincerely,

Kevin B. Clark
Director of Bioservices
San Diego Natural History Museum

Appendix 1. Plants Observed in Tern Sites at San Diego Airport

Observation Date: 30 March 2018

Surveyors: Jon Rebman & Kevin Clark, san Diego Natural History Museum

Observed	Family	Plant Name	Common Name
x	Asteraceae	Erigeron bonariensis	Flax-Leaf Fleabane
x	Asteraceae	Erigeron canadensis	Horseweed
x	Asteraceae	Heterotheca grandiflora	Telegraph Weed
x	Asteraceae	Hypochaeris glabra	Smooth Cat's Ear
x	Asteraceae	Lactuca serriola	Prickly Lettuce
x	Asteraceae	Senecio vulgaris	Common Groundsel
x	Asteraceae	Sonchus oleraceus	Common Sow-Thistle
x	Brassicaceae	Brassica nigra	Black Mustard
x	Brassicaceae	Hirschfeldia incana	Short-Pod Mustard
x	Chenopodiaceae	Bassia hyssopifolia	Five-Hook Bassia
x	Euphorbiaceae	Euphorbia maculata	Spotted Spurge
x	Fabaceae	Acmispon heermannii var. heermannii	Heermann's Lotus
x	Fabaceae	Lupinus bicolor	Miniature Lupine
x	Fabaceae	Lupinus hirsutissimus	Stinging Lupine
x	Fabaceae	Lupinus succulentus	Arroyo Lupine
x	Fabaceae	Lupinus truncatus	Collar Lupine
x	Fabaceae	Medicago lupulina	Black Medick, Yellow Trefoil
x	Fabaceae	Melilotus albus	White Sweetclover
x	Fabaceae	Melilotus indicus	Indian Sweetclover
x	Geraniaceae	Erodium cicutarium	Red-Stem Filaree/Storksbill
x	Geraniaceae	Erodium moschatum	White-Stem Filaree/Storksbill
x	Heliotropaceae	Heliotropium curassavicum var. oculatum	Salt Heliotrope
x	Malvaceae	Malva parviflora	Cheeseweed
x	Onagraceae	Oenothera laciniata	Cut-Leaf Evening-Primrose
x	Plantaginaceae	Plantago lanceolata	English Plantain, Rib-Grass
x	Poaceae	Chloris virgata	Showy Chloris
x	Poaceae	Eragrostis barrelieri	Mediterranean Lovegrass
x	Poaceae	Melinis repens ssp. repens	Natal Grass

Appendix C3

Wetlands Assessment Survey Technical Memo

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Wetlands Assessment
Survey Technical Memorandum
August 2019

Prepared for:

San Diego County Regional Airport Authority

Prepared by:

Wood Environment & Infrastructure Solutions, Inc.
San Diego, California

Wood Environment & Infrastructure Solutions, Inc. Project Number 5025192018

Memo

To **Richard Gilb**
Planning & Environmental Affairs Manager
San Diego County Regional Airport Authority

Wood Project No. **5025192018**

From **Jason Erlich**
Biologist
Wood Environment & Infrastructure Solutions, Inc.

Date **August 26, 2019**

Subject **Results of the Wetlands Assessment Survey at the San Diego International Airport, San Diego, California**

1.0 INTRODUCTION

Wood Environment & Infrastructure Solutions, Inc. (Wood) was contracted by the San Diego County Regional Airport Authority (SDCRAA) to evaluate the San Diego International Airport (SDIA) property for the presence of wetlands and other potentially jurisdictional waters (i.e., waters that would be regulated by the U.S. Army Corps of Engineers [USACE], the Regional Water Quality Control Board [RWQCB], the California Department of Fish and Wildlife [CDFW], or the California Coastal Commission [CCC]) within its boundaries (Figures 1 and 2).

This memorandum summarizes the regulatory framework, methods, results, and conclusions of the assessment of the jurisdictional waters survey conducted by Wood scientists on July 23, 2019. As part of this study, Wood was also requested to evaluate the SDIA property for potential for fish habitat. Representative site photographs are provided in Appendix A.

2.0 REGULATORY FRAMEWORK

Wetlands and other waters of the United States (WOTUS) are regulated by the USACE and the RWQCB under Section 404 of the Clean Water Act (CWA). The CDFW regulates impacts to waters under Section 1602 of the State Fish and Game Code, and the CCC regulates impacts to waters within its jurisdiction under the California Coastal Act.

2.1 Federal Jurisdiction

The USACE and the U.S. Environmental Protection Agency (USEPA) regulate the discharge of dredged or fill material in WOTUS pursuant to Section 404 of the CWA. The CWA (33 Code of Federal Regulations [CFR] 328.3(a)) defines WOTUS as follows:

1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2) All interstate waters including interstate wetlands;
3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) Which are or could be used by interstate or foreign travellers for recreational or other purposes; or (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) Which are used or could be used for industrial purpose by industries in interstate commerce;
4) All impoundments of waters otherwise defined as WOTUS under the definition;
5) Tributaries of WOTUS;
6) The territorial seas;
7) Wetlands adjacent to WOTUS (other than waters that are themselves wetlands).
8) All waters located within the 100-year floodplain of a water identified in paragraphs (a)(1) through (3) of this section and all waters located within 4,000 feet of the high tide line or ordinary high water mark of a water identified in paragraphs (a)(1) through (5) of this section where they are determined on a case-specific basis to have a significant nexus to a water identified in paragraphs (a)(1) through (3) of this section.

Additionally, the CWA CFR 328.3(b) states that the following are not “WOTUS” even when they otherwise meet the terms of paragraphs CWA CFR 328.3(a)(4) through (8)**.**

3) The following ditches:
    i. Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary.
    ii. Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands.
    iii. Ditches that do not flow, either directly or through another water, into a water identified in paragraphs (a)(1) through (3) of this section.
4) The following features:

i. Artificially irrigated areas that would revert to dry land should application of water to that area cease;

ii. Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;

iii. Artificial reflecting pools or swimming pools created in dry land;

iv. Small ornamental waters created in dry land;

v. Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water;

vi. Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of tributary, non-wetland swales, and lawfully constructed grassed waterways; and

vii. Puddles.

5) Groundwater, including groundwater drained through subsurface drainage systems.

6) Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.

The USACE delineates non-wetland waters in the Arid West Region by identifying the ordinary high water mark (OHWM) in ephemeral and intermittent channels (Lichvar and McColley 2008; Curtis and Lichvar 2010). The OHWM is defined in 33 CFR 328.3(c) as:

> "…that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."

Identification of the OHWM involves assessments of stream geomorphology and vegetation response to the dominant stream discharge. Effective discharge events that are capable of moving the greatest proportion of sediment over time establish the OHWM. In the Arid West region these ordinary high flows are low- to moderate-discharge events (Lichvar and McCooley 2008). Low to moderate effective discharges are characterized as occurring roughly every 5 to 10 years to an inundation extent that correlates with the limit of the active floodplain (Lichvar and McCooley 2008).

2.1.1 Wetlands and Other Special Aquatic Sites

Additionally, the USACE asserts jurisdiction over wetlands adjacent to WOTUS. Wetlands are defined in 33 CFR 328.3(c) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." Three criteria must be fulfilled

under normal circumstances to classify an area as a wetland under the jurisdiction of the USACE: 1) a predominance of hydrophytic vegetation, 2) the presence of hydric soils, and 3) the presence of wetland hydrology (USACE 1987 and 2008). Special aquatic sites are defined in 40 CFR 230 Subpart E and include wetlands, sanctuaries and refuges, and riffle and pool complexes within stream channels.

2.1.2 Regulatory Rules

On January 9, 2001, the Supreme Court of the United States issued a decision on *Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corps of Engineers, et al.* with respect to whether the USACE could assert jurisdiction over isolated waters. The SWANCC ruling stated that the USACE does not have jurisdiction over "non-navigable, isolated, intrastate" waters.

In 2006, in the case of *Rapanos v. United States*, the Supreme Court attempted to clarify the extent of USACE jurisdiction under the CWA. Based on a plurality opinion, the USACE asserts jurisdiction over traditional navigable waterways (TNW), wetlands adjacent to TNWs, non-navigable tributaries of TNWs that are a relatively permanent waterway (RPW) where the tributaries typically flow year-round or have continuous flow at least seasonally (typically three months), and wetlands that directly abut such tributaries. The USACE decides jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a TNW: non-navigable tributaries that are not RPWs, wetlands adjacent to tributaries that are not RPWs, and wetlands adjacent to but that do not directly abut a RPW.

On June 22, 2015, the USACE and USEPA published the *Clean Water Rule: Definition of "Waters of the United States"; Final Rule* (40 CFR Parts 110, 112, 116, 117, 122, 230, 232, 300, 302, and 401). The Clean Water Rule was put on hold by federal injunction in 2015 but was reinstated in California in August 2018. The Clean Water Rule finds waters to be jurisdictional under the CWA as summarized below:

1) Jurisdictional By Rule: TNWs, Interstate Waters, Territorial Seas, and Impoundments of Jurisdictional Waters.

2) Tributaries: Waters characterised by the presence of physical indicators of flow, including bed, bank, and OHWM, that contribute flow directly or indirectly to waters listed in 1) above.

3) Connected Waters: Adjacent or neighbouring waters that have a significant nexus to waters listed in 1) above.

4) Other Waters: Waters that, individually or as a group, significantly affect the chemical, physical, or biological integrity of waters listed in 1) above.

2.2 State Jurisdiction

2.2.1 Regional Water Quality Control Board

The RWQCB regulates impacts to water quality under Section 401 of the CWA. A project must comply with Section 401 of the CWA before the USACE can issue a Section 404 Permit. The RWQCB will issue a Section 401 Water Quality Certification or Waiver of Certification, depending upon the extent of impacts to WOTUS. The RWQCB also regulates impacts to "waters of the State" (usually limited to "isolated" waters or swales that may not fall under USACE jurisdiction) under the Porter Cologne Water Quality Control Act.

2.2.2 California Department of Fish and Wildlife

The CDFW regulates water resources under Section 1602 of the California Fish and Game Code (CDFW 2017). Section 1602 states:

> "An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake."

Evaluation of CDFW jurisdiction followed guidance in the Fish and Game Code and *A Review of Stream Processes and Forms in Dryland Watersheds* (CDFW 2010). In general, under 1602 of the Fish and Game Code, CDFW jurisdiction extends to the maximum extent or expression of a stream on the landscape (CDFW 2010). It is CDFW's practice to define the channel based on the topography or elevations of land that confine the water to a definite course when the waters of a creek rise to their highest point. CDFW extends jurisdiction to the outer limits of riparian vegetation when present.

2.2.3 California Coastal Commission

The CCC regulates the alteration of wetlands within the California coastal zone under jurisdiction of the California Coastal Act (Coastal Act) which defines wetlands as:

> "Lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, or fens."

The CCC, which enforces the Coastal Act, uses a more specific definition for coastal wetlands based on a "one-parameter" definition, which only requires evidence of a single parameter to establish wetland conditions:

> "Wetlands are lands where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salt or other substance in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deepwater habitats".

3.0 METHODS

3.1 Survey Preparation

Existing information pertaining to potentially jurisdictional waters located on SDIA was gathered and reviewed prior to the field survey. Review of pertinent information assists with identifying areas that may support wetlands or other jurisdictional waters. In support of this effort, the following literature and sources were reviewed by Wood scientists:

- Draft Environmental Impact Report, Airport Development Plan, San Diego International Airport, July 2018;
- Historic and current aerial imagery;
- U.S. Geological Survey (USGS) Streamer application;
- U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) mapping application (Figure 3);
- USDA soil mapping data; and
- USGS topographic maps; used to determine the presence of mapped water features.

3.2 Field Survey

A field survey was conducted by Wood Biologist Jason Erlich on July 23, 2019, along with Wood Staff Scientist Nancy Phu, to investigate the SDIA property for the presence of wetlands and/or other jurisdictional waters. The field survey included driving all areas of the SDIA property and walking portions of the property that were not accessible by truck. Areas of the property that were vegetated or undeveloped were further investigated on foot to examine the potential for presence of vegetation, saturation of soils, or signs of wetland hydrology. The wetland indicator status was determined for plant species using the *National Wetland Plant List for the Arid West Region* (Lichvar *et al*. 2016). Wetland Indicator Status is summarized in Table 2-1.

Table 2-1. Wetland Indicator Status for Plants

Indicator Status	Symbol	Definition	Percent Occurrence in Wetlands
Obligate	OBL	Almost always occur in wetlands	99
Facultative Wetland	FACW	Usually occur in wetlands, but may occur in non-wetlands	67-99
Facultative	FAC	Occur in wetlands and non-wetlands	34-66
Facultative Upland	FACU	Usually occur in non-wetlands, but may occur in wetlands	1-33
Upland	UPL	Almost never occur in wetlands	1
Not Listed	NL	Indicates a species is not listed on the National Wetland Plant List	NA
No Indicator	NI	Species for which insufficient information was available to determine an indicator status.	NA

4.0 RESULTS

Land within the SDIA boundary is almost entirely developed and paved over with the exception of landscaped areas near buildings and parking lots containing irrigated and maintained ornamental plantings (Appendix A, Photographs 1 and 2), as well as several relatively small areas of undeveloped lands containing sparse vegetation.

Many of the landscaped areas located around buildings and parking lots have been designed and constructed as stormwater best management practices (BMPs) known as bioswales and bioretention basins. These features are lined with pebble and cobble and are planted with ornamental landscape plants (Appendix A, Photographs 3 through 6). The bioretention basins capture and infiltrate stormwater runoff during periods of significant rain. In the event that the bioretention basins reach their capacity, overflow boxes drain excess water back into the stormwater drainage system. These features are inspected and maintained according to their established maintenance plan.

Areas of undeveloped lands (Appendix A Photographs 5 through 10) are predominately located in the southeast and northwest corners of SDIA but also exist as several small pockets in otherwise developed areas of the property. These areas tend to be sparsely vegetated with native and non-native species typical of disturbed upland areas. Typical species found in these areas include spotted spurge (*Euphorbia maculate*; UPL), prickly lettuce *(Lactuca serriola*; FACU), telegraph weed (*Heterotheca grandiflora*; NL), Canada horseweed (*Erigeron canadensis*; FACU), and smooth cats ear (*Hypochaeris glabra*; NL). The undeveloped lands in the southeast corner of SDIA serve as nesting grounds for the state and federally endangered California least tern (*Sterna antillarum browni*) during their nesting season (SDCRAA 2018).

None of the undeveloped lands within SDIA support wetland vegetation; show signs of saturated soils; have hydrology or evidence of hydrology present; or have depressions or channels that may collect water. Rather, these areas support natural vegetation typical of disturbed uplands.

5.0 CONCLUSIONS

The SDIA property is almost entirely developed and covered with impervious materials such as concrete and asphalt. The limited undeveloped areas that do exist on the property are sparsely vegetated with species that occur in upland habitats.

No wetlands that would be potentially regulated by the USACE, RWQCB, CDFW, or CCC were observed to be present in the undeveloped areas of the SDIA property.

The bioswales and bioretention basins that are part of the stormwater BMPs within the property are not considered WOTUS based on CWA CFR 328.3(b)(6) which states that stormwater features constructed to convey, treat, or store stormwater that are created in dry land are not WOTUS.

Based on the findings of this assessment that there were no wetlands observed on the property or areas that show signs of water ponding for any significant amount of time, it is not likely that habitat for fish exists within the SDIA boundary.

6.0 REFERENCES AND LITERATURE CITED

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Please do not hesitate to contact us if you have any questions concerning this memo.

Respectfully submitted,

Wood Environment & Infrastructure Solutions, Inc.

Jason Erlich
Wood Environment & Infrastructure Solutions, Inc., Biologist

Attachments

Figure 1. Regional Location
Figure 2. San Diego International Airport Boundary
Figure 3. National Wetlands Inventory Map
Appendix A. Site Photographs

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1 inch = 1 miles

0 0.5 1 Miles

wood.

San Diego International Airport Boundary

FIGURE 1

Regional Location
Wetlands Assessment
San Diego International Airport
San Diego, California

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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1 inch = 1,200 feet

0 600 1,200 Feet

wood.

San Diego International Airport Boundary

FIGURE 2

Overview of SDIA
Wetlands Assessment
San Diego International Airport
San Diego, California

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wood.

FIGURE 3

National Wetlands Inventory Map
Wetlands Assessment
San Diego International Airport
San Diego, California

APPENDIX A

SITE PHOTOGRAPHS

Photo 1. Example of landscaped area with irrigated ornamental species.

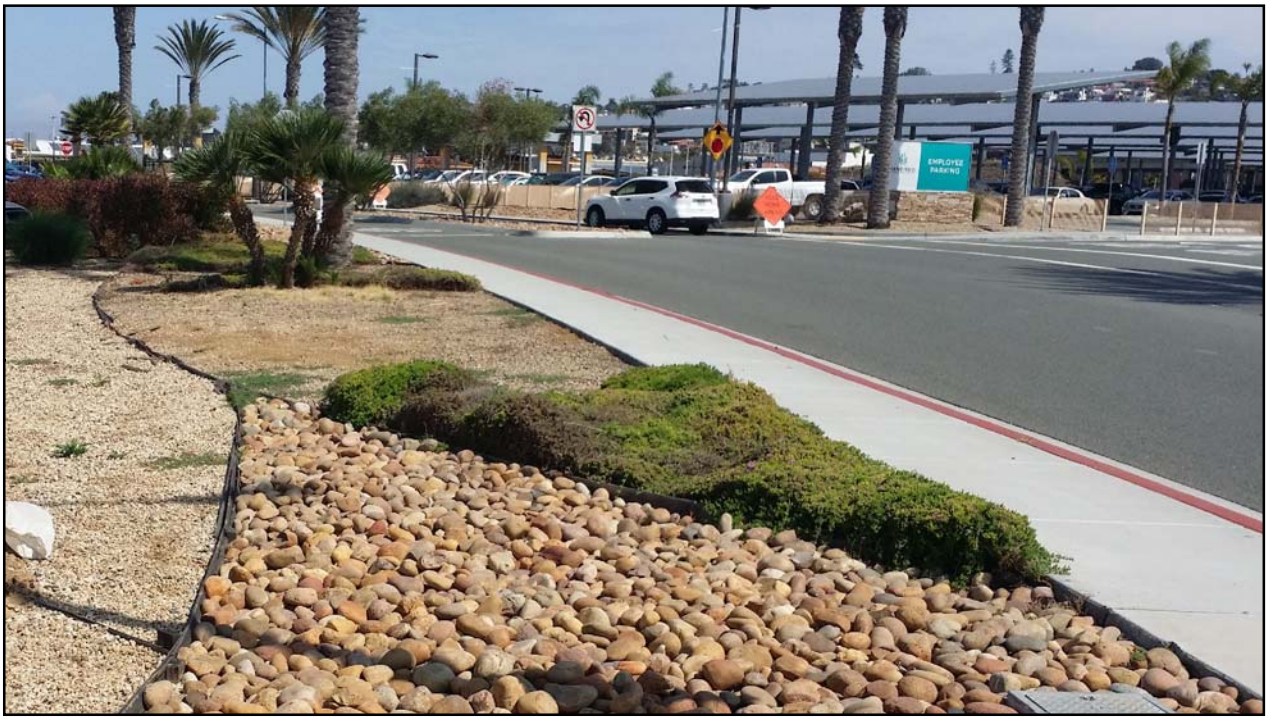

Photo 2. Another example of landscaped area with irrigated ornamental species.

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Photo 3. Example of a maintained stormwater bioretention basin at SDIA.

Photo 4. Another example of a maintained stormwater bioretention basin at SDIA.

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Photo 5. Example of a maintained stormwater bioswale at SDIA.

Photo 6. Another example of a maintained stormwater bioswale at SDIA.

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Photo 7. Looking west across undeveloped vegetated area in southeast corner of SDIA.

Photo 8. Looking northwest across undeveloped vegetated area in southeast corner of SDIA.

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Photo 9. Example of a small pocket of undeveloped land sparsely vegetated with upland species.

Photo 10. Another example of a small pocket of undeveloped land with upland species.

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Photo 11. Example of undeveloped land sparsely vegetated with upland species at northwest corner of SDIA.

Photo 12. Looking west across sparsely vegetated undeveloped land near the northwest corner of SDIA.

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