4.0 IMPACT ANALYSIS INTRODUCTION

In accordance with Sections 15125 and 15126(a) to (c) of the California Environmental Quality Act ("CEQA") Guidelines, this Section of the Program Environmental Impact Report ("EIR") analyzes those environmental topics where the Project could result in "potentially significant impacts," as identified in the Notice of Preparation ("NOP")/Initial Study ("IS") included in Appendix A. The County of Orange ("County") identified the following specific topics as requiring detailed EIR analysis:

- Aesthetics
- Air Quality
- Cultural and Scientific Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Land Use and Planning
- Noise
- Transportation/Traffic
- Tribal Cultural Resources
- Utilities and Service Systems
- Water Quality

Section 1.6, Section 2.3.2, and the Initial Study (Appendix A), identify the topical areas where it has been determined that the Project would not result in potentially significant impacts to environmental resources, and thus, these areas do not require any further analysis in this Program EIR.

Each topical section includes the following information: description of applicable regulations; information on the existing setting; identification of methodology used for the analysis presented in the section; identification of thresholds of significance; regulatory requirements included as part of the evaluation; analysis of potential Project effects and identification of significant impacts; cumulative impacts; identification of mitigation measures, if required, to reduce the impacts; level of significance after mitigation; and a list of references used to complete the analysis.

Section 15064.7 of the State CEQA Guidelines addresses thresholds of significance and encourages each public agency to develop thresholds of significance through a public review process. The County has not formally adopted thresholds of significance. In accordance with CEQA and the CEQA Guidelines, the analysis and significance thresholds used in this Program EIR have been derived from several sources, including the General Plan standards identified by agencies with applicable technical expertise, applicable regulatory standards, and the County's Environmental Checklist contained in the Orange County Local CEQA Procedures Manual (which is comparable to Appendix G of the State CEQA Guidelines).

In evaluating the potential impacts associated with the Project, the Program EIR identifies a number of Regulatory Requirements, Standard Conditions of Approval, and Minimization Measures that will serve to avoid or minimize impacts. These conditions and requirements, in addition to the Mitigation Measures, will be tracked in the Mitigation Monitoring and Reporting

Program ("MMRP") that would be adopted in conjunction with the Project approval.[1] Each of these components are defined below.

Where a potentially significant environmental effect has been identified, applicable Project-specific mitigation measures have been included where feasible. Recognizing this is a Program EIR, certain details of the Project design are unknown at this time. During subsequent levels of approval, the County will have the discretion to substitute a different, environmentally equivalent, measure that would result in the same or superior effect on the environment as those described in this Program EIR. Additional mitigation measures and requirements may also be required in association with approval of subsequent levels of planning in accordance with the law. The following components have been identified in the Program EIR.

- **Regulatory Requirements.** These regulations are based on local, State, or federal regulations or laws that are frequently required independently of CEQA review and also serve to offset or prevent specific impacts. Typical regulatory requirements include compliance with the provisions of the California Building Code, South Coast Air Quality Management District Rules, local agency fees, etc. Additional requirements may be imposed on the Project by government agencies during the approval process, as appropriate. These regulatory requirements are not unique to the Project but have been identified to facilitate the reader's understanding of the established requirements applicable to the Project. Adherence to these requirements, as applicable, will be verified or applied during the development review and/or ministerial permit processes (e.g. building permit).
- **Standard Conditions of Approval.** The County of Orange has adopted a set of Standard Conditions of Approval. These are conditions frequently required independently of CEQA review that serve to offset or prevent specific impacts; however, there is not a formally adopted regulation. When an adopted Orange County Standard Condition of Approval is identified, the number of the condition is listed in parentheses. Adherence to these conditions will be verified or applied during the development review and/or ministerial permit processes (e.g. building permit).
- **Minimization Measures.** The County has agreed to incorporate minimization measures into the Project. A minimization measure is a condition proposed to reduce an adverse effect of the Project even when that effect does not result in a significant impact.
- **Mitigation Measures.** Where a potentially significant environmental effect has been identified and is not reduced to a level considered less than significant through the application of a regulatory requirement or standard conditions of approval, Project-specific mitigation measures have been identified.

[1] The California Public Resources Code Section 21081.6 (AB 3180) requires that a lead or responsible agency adopt a MMRP when approving or carrying out a project where an environmental document, either an EIR or a mitigated negative declaration, has identified measures to reduce potential adverse environmental impacts. The MMRP identifies the mitigation measure; the method by which the adopted measure will be implemented; the responsible party for verifying the measure has been satisfactorily completed; the method of verification; and the appropriate time or phase for the implementation of each mitigation measure. The MMRP is formally adopted by the Board of Supervisors in conjunction with the certification of the EIR. As appropriate, elements of the MMRP may be incorporated into subsequent lease agreements.

4.0.1 CUMULATIVE IMPACT ASSUMPTIONS

Discussion of the cumulative impacts of the proposed Project is provided in Sections 4.1 through 4.11, relative to each CEQA topical issue evaluated herein. The following is an overview and introduction to the cumulative analysis per the State CEQA Guidelines. This avoids the undue repetition of CEQA requirements relative to cumulative analysis within individual sections.

In requiring the State Office of Planning and Research to develop guidelines for the implementation of CEQA, Section 21083(b) of the PRC requires that the guidelines shall specifically include criteria for public agencies to follow in determining whether or not a proposed project may have a "significant effect on the environment." The criteria shall require a finding that a project may have a "significant effect on the environment" if one or more of the following conditions exist:

> (1) A proposed project has the potential to degrade the quality of the environment, curtail the range of the environment, or to achieve short-term, to the disadvantage of long-term, environmental goals.
>
> (2) The possible effects of a project are individually limited but cumulatively considerable. As used in this paragraph, "cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.
>
> (3) The environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly.

This directive has been carried forth in Section 15064 of the State CEQA Guidelines, which establishes the criteria for determining the significance of environmental effects caused by a project. Subsection 15064(h)(1) directs the preparation of an EIR in the following circumstance:

> [I]f the cumulative impact may be significant and the project's incremental effect, though individually limited, is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

Section 15355 of the State CEQA Guidelines defines cumulative impacts as:

> Two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
>
> (a) The individual effects may be changes resulting from a single project or a number of separate projects.

(b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

Pursuant to Section 15130(b) of the State CEQA Guidelines:

> The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

Methodology

A project's cumulative impact is an impact to which that project contributes and to which other projects contribute as well. The project must make some contribution to the impact; otherwise, it cannot be characterized as a cumulative impact of that project.

Section 15130(b) of the State CEQA Guidelines indicates:

> The following elements are necessary to an adequate discussion of significant cumulative impacts:
>
> (1) Either:
>
> (A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or
>
> (B) A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such projections may be supplemented with additional information such as a regional modeling program. Any such document shall be referenced and made available to the public at a location specified by the lead agency.

To provide an evaluation of the potential cumulative impacts for the GAIP, both the list approach (Section 15130(b)(1)(A)) and the growth projections approach (Section 15130(b)(1)(B)) to the analysis have been used. In keeping with the CEQA Guidelines, this cumulative evaluation: (1) includes specific projects that, because of their size or proximity to the Project site, have the potential to cause cumulative impacts ("related projects"); (2) considers the adopted general plans for the affected local jurisdictions; and (3) includes regional development projections. The

following sections provide an overview of how the regional projections have been incorporated from adopted plans into the cumulative evaluation and a summary of the related projects that have been identified as potentially cumulative.

Regional Growth Projections

For the evaluation in this Program EIR, one component of the cumulative analysis is the consideration of the approach specified in State CEQA Guidelines Section 15130(b)(1)(B) of using growth projections to evaluate conditions contributing to the cumulative effect. In Orange County, the growth projections known as the Orange County Projections ("OCP"), developed by the Center for Demographic Research at California State University at Fullerton, are used as the demographic projections in planning studies to ensure consistency with local and regional planning efforts. The OCP dataset are countywide growth and development forecasts based on input from the County of Orange and the cities located in the County. These projections reflect adopted land uses and future growth scenarios based on local land use policies and larger demographic conditions. The purpose of establishing countywide projections is to establish a consistent database for jurisdictions to use for planning efforts.

The OCP dataset provide forecasts that take into account the projected growth of Orange County in its entirety. This is particularly useful in evaluating the cumulative impacts because they provide growth assumptions consistent with the local general plans that have been developed with a long-range horizon year. To ensure that the adopted socioeconomic data reflects the current conditions in Orange County, the OCP dataset are updated approximately every four to five years. By having an iterative process, the agencies that use this data (the Southern California Association of Governments [SCAG], the County, and local jurisdictions) are able to factor in variables (e.g., changes in employment patterns, economic considerations, and migration patterns) that occur over time.

The OCP dataset are also integrated into the regional planning programs, such as the Air Quality Management Plan ("AQMP"), the Regional Transportation Plan Sustainable Communities Strategy ("RTP/SCS"), and the Regional Growth Management Element. Consistency between local and regional forecasts is imperative because the regional planning programs have been developed to ensure that the region achieves national and State air quality standards. The control strategies that have been identified in these regional planning programs assume the effects of long-range growth. The regional emissions analysis has demonstrated that, even with the projected growth, the region would be consistent with the State Implementation Plan for achieving the National Ambient Air Quality Standards as long as AQMP control measures are implemented.

Reasonably Foreseeable Probable Future Projects

To ensure that the cumulative impact analysis is as comprehensive as possible, a review of reasonably foreseeable projects was also considered. The traffic engineer for the Project and Airport staff coordinated with each of the surrounding jurisdictions to identify the appropriate approach to ensure the traffic analysis fully evaluates the reasonably foreseeable projects. The horizon year for the GAIP is 2026. However, the background traffic for the 2026 analysis represents "long range cumulative" conditions, with the traffic volumes based on buildout of the General Plans of the three cities in the project vicinity. The volumes thereby address cumulative

projects along with future development as embodied in those General Plans. Therefore, for projects that are consistent with the General Plans, there is not a need to identify them separately. The use of these forecasts satisfies the need to address cumulative projects while ensuring consistency with each city's long range planning work. These traffic volumes are used for assessing the air quality, greenhouse gas emissions, and the potential for traffic noise impacts.

This Program EIR evaluates other projects that may contribute to cumulative impacts because they are on the Airport or may have impacts that are similar to those associated with the GAIP; therefore, when combined may result in a cumulative impact. Four projects, which are discussed below, have been identified. In addition, the Federal Aviation Administration ("FAA") is developing new airspace and air traffic procedures, which may affect the take-off and landing patterns at John Wayne Airport ("JWA"). This process is discussed in Section 1.9, Other Airport-Related Issues Not Associated with the JWA General Aviation Improvement Program. However, the final procedures have not been approved and continue to be studied. As noted in Section 1.9, modifications to the departure patterns were made three times in 2017. As a result, the cumulative analysis does not assume a different flight patterns or procedures than what are currently being used because it would be speculative. Section 15145 of the State CEQA Guideline does not require a lead agency to speculate on potential impacts.

- The John Wayne Airport Settlement Agreement Amendment ("Amendment") provided for the modification to the terms of the Settlement Agreement between the Orange County Board of Supervisors, City of Newport Beach, and two community groups pertaining to the commercial carrier operations at JWA. The Amendment, which was approved in 2014, extends the term of the Settlement Agreement through 2030 and allows an incremental increase in the number of regulated flights and passengers at the Airport. The Amendment will allow an increase from 10.8 million annual passengers ("MAP") up to 12.5 MAP in 2026.[2] This Amendment did not propose any physical improvements at the Airport. Final EIR 617 (JWA 2014) prepared for the Settlement Agreement Amendment identified significant unavoidable impacts for air quality, greenhouse gas ("GHG") emissions, land use and planning, noise, and transportation/traffic. The increased number of flights and annual passengers served has been incorporated into the regional planning programs. The noise impact and the associated land use impact results from an increase in the number of noise-sensitive uses exposed to noise levels in excess of the 65 A-weighted decibel ("dBA") Community Noise Equivalent Level ("CNEL") contour for JWA exterior noise standard. There are no feasible mitigation measures for exterior noise level; however, mitigation was proposed that would potentially reduce impacts associated with interior noise levels to less than significant levels.

  For purposes of the cumulative noise and associated land use impacts, the fleet mix assumptions have been updated since Final EIR 617 was prepared to more accurately reflect the fleet mix currently using the Airport (baseline conditions) and the industry trend, which projects a gradual inclusion of newer Stage 4 aircraft. Final EIR 617 acknowledged "it is reasonable to assume that there will be interest in introducing newer

[2] The Settlement Agreement at the time the Amendment was being processed allowed up to 85 Class A Average Daily Departures ("ADD") and 10.8 Million Annual Passengers ("MAP"). The Amendment assumes the flight and passenger levels allowed under the Settlement Agreement would remain unchanged until January 1, 2021, at which point levels would be allowed to increase to 95 Class A ADDs and 11.8 MAP. On January 1, 2026, the number of passengers would again be able to increase up to 12.5 MAP, depending upon the actual service levels in the preceding five years.

and next generation aircraft, such as the 737-900ERW, 787, 737-MAX, or comparable aircraft by other manufacturers into the fleet mix at JWA." However, at the time Final EIR 617 was prepared, the 737-900ERW and 787 were in use at other airports but not JWA. The 737-MAX was still in production. These newer aircraft, including the A320neo and the 737-MAX are either operating or have been qualified for operations at JWA. Based on current data of orders from Boeing and Airbus, it is anticipated that by 2026 approximately 40 percent of the A320 and 737 aircraft would operate using the neo and the MAX engine type. Additional details on this fleet mix refinement is provided in Appendix H.

- Wickland Pipelines LLC is constructing a new pipeline and two new fuel tanks with a storage capacity of 1.5-million-gallon per tank on the west side of the Airport for the storage of Jet-A fuel. The pipeline and fuel tanks will be connected to an existing 16-inch jet fuel pipeline operated by Kinder Morgan Energy Partners located near the intersection of Edinger Avenue and Tustin Ranch Road. The new pipeline will be approximately 5 miles long, and located in the public streets of the cities of Irvine and Tustin, County of Orange/Airport property, and minimally on private property or industrially-zoned property. The project is currently under construction. No significant impacts were identified for the project. A Mitigated Negative Declaration was approved by the County of Orange in 2014 and the Federal Aviation Administration approved a Finding of No Significant Impact in January 2016.
- The Paularino Gate Relocation Project proposes to relocate the fence line on the northwest side of the Airport on Paularino Avenue in Costa Mesa. The project will install a new security gate approximately 350 feet northwest of the existing gate and provide other security enhancements. A Categorical Exemption and Categorical Exclusion were prepared pursuant to CEQA and the National Environmental Policy Act ("NEPA"), respectively. The improvements will be constructed in conjunction with ongoing rehabilitation of Paularino Avenue east of Airway Avenue, which are expected to be completed second quarter of 2018.
- Taxiway "B" is parallel to and 400 feet to the east of primary Runway 2L/20R (centerline to centerline). Rehabilitation of Taxiway "B" has been approved to extend its service life. The taxiway serves commercial jets as well as general aviation. Taxiway "B" rehabilitation work will be phased in such a way that minimizes disruption to ground operations. All general aviation parking areas reached via Taxiway "B" will remain accessible throughout construction. A Categorical Exemption and Categorical Exclusion were prepared pursuant to CEQA and NEPA, respectively. The improvements are anticipated to be completed in 2018.

4.0.2 REFERENCES

Center for Demographic Research (CDR). 2016 (June, final approval). *Orange County Projections 2014-Modified*. Fullerton, CA: CDR.

Landrum & Brown. 2018 (August). *John Wayne Airport General Aviation Improvement Program Noise Analysis Technical Report.* Irvine, CA: Landrum & Brown (Appendix H).

Orange, County of. 2014 (October). *County of Orange Local CEQA Procedures Manual.* Santa Ana, CA: the County.

Orange, County of, John Wayne Airport (JWA). 2014 (September). *Final Environmental Impact Report No. 617 for the John Wayne Airport Settlement Agreement (SCH No. 2001111135).* Costa Mesa, CA: JWA.

4.1 AESTHETICS

This section discusses GAIP-related impacts to aesthetics and visual quality at John Wayne Airport ("JWA" or "the Airport"). The term "aesthetics" is used to denote visual character of Airport facilities and associated regulations that affect public views of the Airport, including potential sources of light and glare.

The General Aviation Improvement Program ("GAIP") would not directly affect scenic vistas or views along a scenic highway, since no designated or eligible State or local scenic highways are near the site. The site is not located near a designated landscape corridor or viewscape corridor, as shown in the Scenic Highway Plan of the County's General Plan. Also, no historic buildings or scenic resources are on or adjacent to the site. Therefore, no impacts to a scenic vista or scenic highway would occur with the GAIP and these topics are not discussed in this section (refer to the Notice of Preparation ["NOP"]/Initial Study in Appendix A).

4.1.1 REGULATORY SETTING

Federal

Federal Aviation Regulations Part 77

The Federal Aviation Regulations ("FAR") Part 77 (GPO 2017) sets standards and notification requirements for new construction or alteration that may affect airport operations, as implemented by the Federal Aviation Administration ("FAA"). The regulations prohibit the construction or placement of objects that may affect navigable airspace in order to prevent hazards to aircraft operations and promote safe and efficient air travel. These regulations address the locations and heights of objects that would be located in and near airports (including runways; approach zones; and horizontal, conical, and transitional surfaces), such as buildings, chimneys, aboveground infrastructure (light poles, utility lines, guy wires), antenna structures, cooling towers, storage tanks, vegetation, markings, lighting, and other similar structures. The regulations also require studies to determine if objects would affect aeronautical operations, procedures, and the safety of flight (including the protection of air traffic control radars, direction finders, and control tower line-of-sight visibility; and physical or electromagnetic effects on air navigation, communication facilities, and other surveillance systems).

To promote the visibility of aboveground structures, as well as to prevent glare impacts from objects in and near airports, the FAA has set standards for marking and lighting associated with the colors of objects, dimensions and patterns of color bands and rectangles, colors and types of lights, basic signals and intensity of lighting, night/day lighting combinations, and flash rates.

State/Regional

State Aeronautics Act

Part 1 of Division 9 of the California Public Utilities Code is the State Aeronautics Act and contains the State's regulations for airports and air navigation facilities. Section 21670 of the Code requires the establishment of an airport land use commission ("ALUC") by every county in which

there is located an airport which is served by a scheduled airline. The ALUC is responsible for preparing, adopting, and amending an airport land use compatibility plan for each airport "that will provide for the orderly growth of each public airport and the area surrounding the airport within the jurisdiction of the commission, and will safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general."

ALUCs review land use proposals near civilian and military airports and other land use issues that may have a potential impact on airport operations to the extent that these areas are not already devoted to incompatible uses.

Airport Environs Land Use Plan for John Wayne Airport

The Airport Environs Land Use Plan ("AELUP") for JWA is the comprehensive land use compatibility plan adopted by the ALUC for Orange County that establishes land use guidelines based on noise and safety impacts for areas surrounding the Airport. The purpose of the AELUP is to "protect the public from the adverse effects of aircraft noise, to ensure that people and facilities are not concentrated in areas susceptible to aircraft accidents, and to ensure that no structures or activities adversely affect navigable air space." These guidelines include building height restrictions that reflect the FAR Part 77 regulations.

4.1.2 METHODOLOGY

The aesthetic effects of the GAIP were assessed by comparing the visual quality of the existing facilities with those of the Proposed Project and Alternative 1. Visual impacts are determined by defining the visual quality of the area, the expected change as a result of the GAIP, and the sensitivity of the users to those changes. The sensitivity of users is associated with the length of exposure to the changed views and the context of the views. For example, residential viewers would be more sensitive to changes in the visual quality than workers in nearby offices because residents have a greater connection with the visual character of their neighborhood than people who are passing through or employed in an area.

The CEQA thresholds of significance require an evaluation of whether the GAIP would substantially degrade the existing visual character or quality of the Airport and its surroundings. The determination of whether the changes in the visual quality of a site would degrade an area or its surroundings, to result in a significant impact, can be highly subjective and dependent on the viewer's perspective. In determining whether the Proposed Project and Alternative 1 would degrade the visual character, factors such as the viewer groups of the site, the extent to which the Proposed Project and Alternative 1 would disrupt natural visual resources, and the extent to which the Proposed Project and Alternative 1 would create a visually cohesive environment were evaluated.

This was done by first establishing the existing conditions baseline for visual quality at the Airport, then characterizing the potential changes associated with the proposed demolition, redesign, and reconstruction of existing general aviation facilities (i.e., changes in locations and sizes of buildings and improvements) due to implementation of the Proposed Project and Alternative 1; this change was assessed in light of the concept plans and regulations that control building use, heights, and lighting at the Airport. It is important to recognize the GAIP site is located in a larger urban context surrounded by light industrial and commercial development.

4.1.3 EXISTING CONDITIONS

The general aviation facilities at JWA include buildings occupied by fixed-based operators ("FBOs"), other lease holders, tie-downs, and hangars. Outdoor aircraft parking occurs on tie-down and aprons. The Lyon Air Museum, located at 19300 Ike Jones Road, is located on the west side of the Airport on the premises of one of the limited-service FBOs (Martin Aviation). The Lyon Air Museum is open to the public and therefore, considered a public view.

The terminal building and parking structures are the most dominant visual features at the Airport. These facilities are located at the northeastern portion of the Airport and service the commercial air carriers. JWA's general aviation facilities are located south of the terminal building. On the east side of the Airport, the general aviation facilities are located south of the intersection of Campus Drive and Airport Way. On the west side of the Airport, general aviation is located south of Paularino Avenue. General aviation aircraft run the gamut from vintage biplanes and helicopters to corporate jets. These aircraft contribute to the visual character of the general aviation portion of the Airport.

Existing Structures

Exhibit 1-3 provides an aerial perspective of the Airport and surrounding off-Airport uses. General aviation on-site uses include hangars, office buildings, storage sheds, and shade structures. Most of the structures are painted or have exterior colors of gray or off-white. The structures do not feature any distinctive architecture but are largely utilitarian in form. The fuel farm, located in the southeastern portion of the Airport, includes small, scattered fueling equipment and outdoor storage. The aprons and tie-down areas are outdoor paved areas where general aviation aircraft are parked. The vehicle parking areas are also paved areas used by visitors and employees.

Views internal to the site, as seen by employees, visitors, and passengers, consist of large, paved apron areas and tie-down aprons with parked aircraft and hangar buildings with large doors to accommodate aircraft, along with various equipment and infrastructure.

Public Views

The GAIP site is visible from various public vantage points, which consist mainly of roads located near the Airport. However, due to the size and linear nature of the site, Airport facilities are seldom in any one public vantage point. Rather, public views are limited to the nearest structures, vehicles, and aircraft within a limited viewshed. For all the viewpoints, the Airport is in an urban context surrounded by development.

Views from West of the Airport

On the west of the Airport, the general aviation uses are located south of Paularino Avenue. As noted in Section 4.7, Land Use and Planning, the surrounding uses on the west side predominately comprise low-rise office buildings and industrial buildings. These uses are not considered view-sensitive uses because their length of exposure to the views is brief, and the nature of the businesses does not connect them to the visual character of the site. Additionally, the visual orientation of these uses is not focused on the Airport, although the Airport is a visible

feature from the parking lots and from some building locations. Viewer groups would include motorists, pedestrians, and bicyclists on adjacent public roadways and occupants of the nearby businesses. Visitors to the Lyon Air Museum would have views of the airfield.

Airway Avenue is a north-south public roadway that runs parallel to the Airport. Portions of the western boundary of the Airport abut Airway Avenue; however, even at these locations views of the Airport are limited. Due to the uneven boundary of the Airport on the west side (see Exhibit 1-3), in some locations the Airport is approximately 400 to 600 feet east of Airway Avenue. Office buildings intervene between the roadway and the Airport, limiting most direct views. Several east-west roadways terminate at the Airport's western boundary where views of the Airport are visible. Exhibit 4.1-1a provides a key map depicting the location where photographs were taken on the west side of the Airport. Exhibit 4.1-1b through 4.1-1e provides Photographs A through H taken views from various vantage points along the west side of the Airport. The views from these locations are discussed below.

Photograph A depicts views east of Airway Avenue at Paularino Avenue. This portion of the roadway is part of John Wayne Airport; however, public access is allowed up to the security gate, located approximately 560 feet east of Airway Avenue. Views include the building walls of hangars to the south and office buildings and the air traffic control tower on the north. An entrance gate with a guardhouse and a portable toilet mark the end of the street, with the runways, taxiways, and antenna tower behind the gate and the passenger terminal across the runways. Views of the airfield are fairly obscure from this vantage point because buildings block views.

Photograph B shows the views from Airway Avenue between Paularino Avenue and Baker Street. At this location, the Airport extends to Airway Avenue; however, as shown in the photograph, the public view is of the top of aircraft shade structures and buildings. These are separated from Airway Avenue by a block wall with landscaping. Other than seeing the top of aircraft shade structures, the visual character for the public on Airway Avenue is not substantially different than the portions of the roadway adjacent to office development.

Views from Airway Avenue at Baker Street include box hangars and shade structures to the north, similar to the view shown in Photograph B. East of Airway Avenue, Baker Street becomes Ike Jones Road, which is part of the Airport. Ike Jones Road provides access to a two-story building occupied by Limited Service FBO Martin Aviation and the Lyon Air Museum. Photograph C shows views from Ike Jones Road looking north. Shade structures and aircraft tie-downs predominate the view. However, at the eastern end of Ike Jones Road there are views across the airfield. Photograph D shows Martin Aviation in the foreground with aircraft on the apron. Once Ike Jones Road turns to the south, Martin Aviation and the Lyon Air Museum block direct views of the airfield. Photograph E depicts views from the Lyon Air Museum, which would be considered a public view. From this vantage point, full views of the airfield are visible. It should be noted, no modifications to Martin Aviation or the Lyon Air Museum are proposed.

As noted above, along portions of Airway Avenue, the Airport is separated from public view points by office/industrial buildings. Photograph F shows that from these locations distant views of the Airport can be seen through the parking lots of the office buildings, but defining characteristics of the Airport are limited.

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Views from West of the Airport

Exhibit 4.1-1a

John Wayne Airport General Aviation Improvement Program

N W E S

1,200 600 0 1,200 Feet

JOHN WAYNE AIRPORT ORANGE COUNTY

Photograph A: Airway Avenue at Paularino Avenue looking east.

Photograph B: Airway Avenue, north of Baker Street, looking northeast.

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Views from West of the Airport

Exhibit 4.1-1b

John Wayne Airport General Aviation Improvement Program

JOHN WAYNE AIRPORT
ORANGE COUNTY

Photograph C: View from Ike Jones Road, east of Airway Avenue, looking north.

Photograph D: Ike Jones Road looking southeast with Martin Aviation in the foreground.

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Views from West of the Airport

Exhibit 4.1-1c

John Wayne Airport General Aviation Improvement Program

JOHN WAYNE AIRPORT
ORANGE COUNTY

Photograph E: View from the Lyon Air Museum, looking east across the airfield.

Photograph F: Airway Avenue in the vicinity of Kalmus Drive looking east through the parking lot of an office buildings.

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Views from West of the Airport

Exhibit 4.1-1d

John Wayne Airport General Aviation Improvement Program

JOHN WAYNE AIRPORT
ORANGE COUNTY

Photograph G: Airway Avenue looking east at the Limited Service Southwest FBO site.

Photograph H: View from Clinton Street looking north.

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Views from West of the Airport

Exhibit 4.1-1e

John Wayne Airport General Aviation Improvement Program

JOHN WAYNE AIRPORT
ORANGE COUNTY

Photograph G provides views of the Airport from Airway Avenue at the Limited Service Southwest FBO site. Views of the hangars and tie-downs are visible though the security fencing.

From the cul-de-sac at the eastern end of Clinton Street, views of the Airport are clearly visible. As shown in Photograph H, this vantage point provides close-range views of the County tie-down area with views across the airfield.

The Airport is generally not visible from streets and land uses farther west or from State Route 55 due to intervening trees and structures.

Views from East of the Airport

On the east side of the Airport, general aviation is south of the Campus Drive/Airport Way intersection. General aviation uses are in the foreground along the west side of Campus Drive. The adjacent land uses are office and industrial buildings located on the east side of Campus Drive. The visual orientation of these developments is not focused on the Airport, and they are separated from the Airport by Campus Drive. Viewer groups would include motorists, pedestrians, and bicyclists on Campus Drive and occupants of the nearby businesses. These uses are not considered view-sensitive uses because their length of exposure to the views is brief, and the nature of the businesses does not connect them to the visual character of the site. Exhibit 4.1-2a provides a key map depicting the location of photographs taken with views of the east side of the Airport. Exhibits 4.1-2b and 4.1-2c provide Photographs I through L taken from various vantage points along the east side of the Airport. The views from these locations are discussed below.

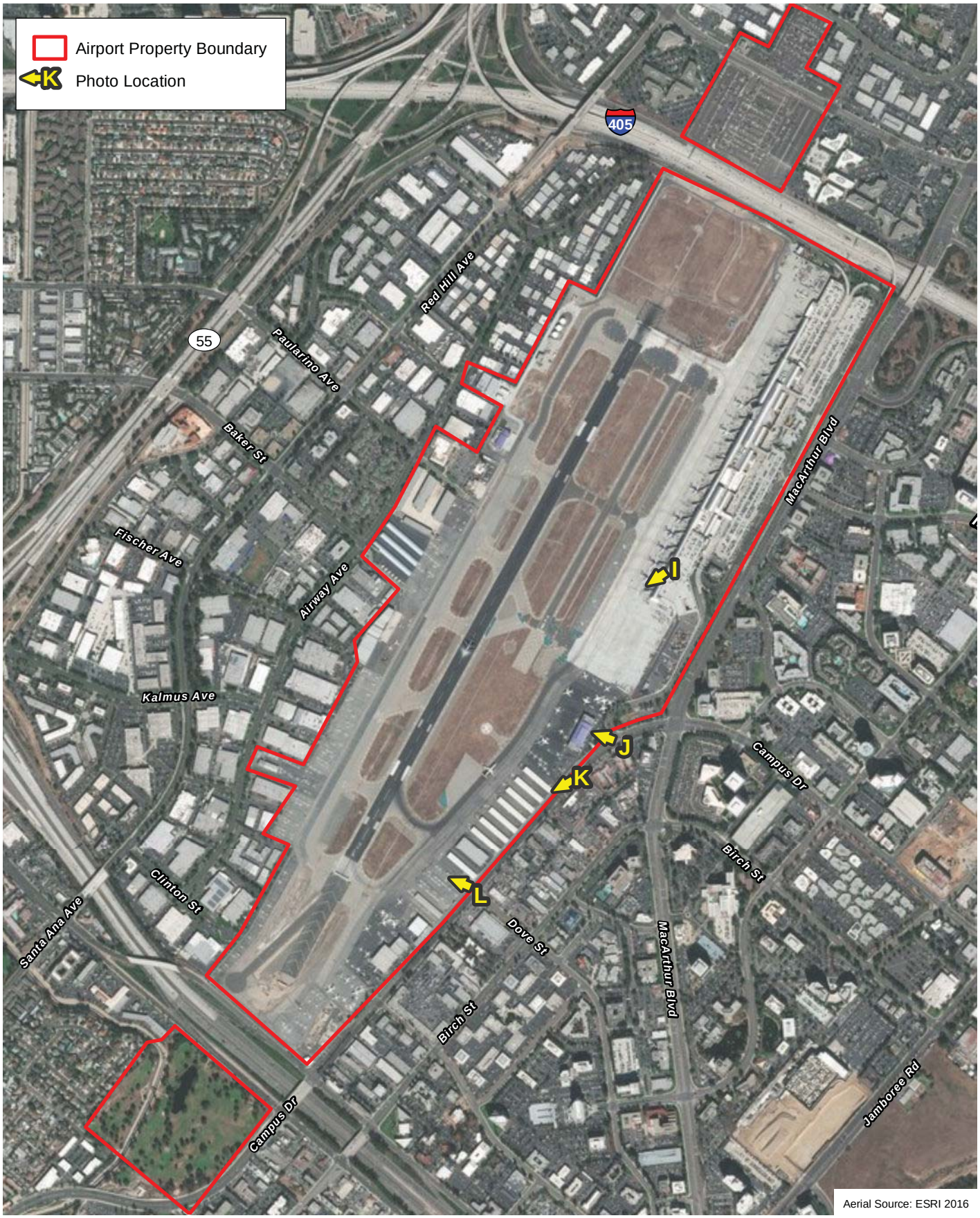
The general aviation area is visible from within the Terminal Building. Photograph I shows views from Terminal C (the terminal location in closest proximity to the general aviation uses). The aviation uses contribute to the ambiance of the Airport and can be fully seen across the airfield by passengers waiting for their flights. Photograph J provides views of the existing Full Service Northeast FBO, located in the southwest quadrant of the Campus Drive/Airport Way. These buildings begin the transition from the more intense commercial carrier terminal building and parking structures to the general aviation uses at the Airport. Key visual features include the paved areas used for vehicle parking and aprons for aircraft parking. The Northeast FBO building, although not architecturally unique, has a distinctive blue roof which is visually notable. Views of the Airport, including general aviation, are clearly visible to user groups along Campus Drive.

Traveling south on Campus Drive, views of the T-hangars are visible (Photograph K). The visual character of these facilities is industrial. Vehicle parking, small aircraft tie-downs, and rows of hangars are the predominant view. These structures are all located behind a chain-link fence, which is lined with low shrubs and parkway trees at some locations.

Photograph L shows the views of the site from the intersection of Campus Drive and Dove Street, which are views of small aircraft tie-down areas, apron areas, taxiways, and runways at JWA.

Views from North and South of the Airport

Views of the general aviation activities are very limited from both north and south of the Airport. North of the Airport views would be limited to people on Main Street and I-405. From both



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Views from East of the Airport

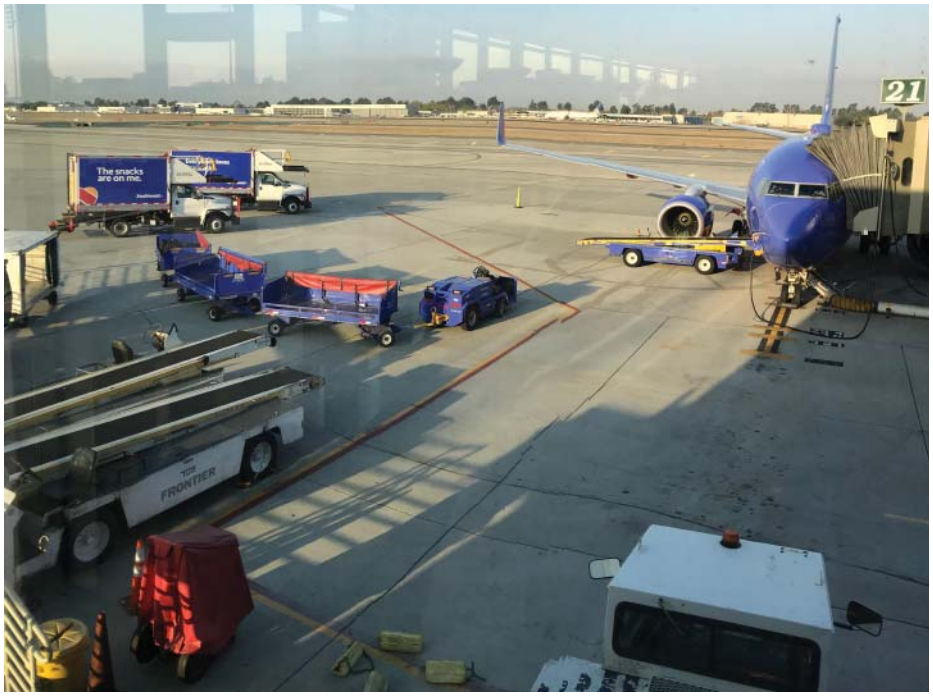
Exhibit 4.1-2a

John Wayne Airport General Aviation Improvement Program

N W E S

1,200 600 0 1,200 Feet

JOHN WAYNE AIRPORT ORANGE COUNTY



Photograph I: Views of the General Aviation Uses from the Terminal.

Photograph J: View of the existing Full Service Northeast FBO from Campus Drive.

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Views from East of the Airport

Exhibit 4.1-2b

John Wayne Airport General Aviation Improvement Program

JOHN WAYNE AIRPORT
ORANGE COUNTY

Photograph K: View from Campus Drive looking south.

Photograph L: View of the Airport from Campus Drive and Dove Street.

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Views from East of the Airport

Exhibit 4.1-2c

John Wayne Airport General Aviation Improvement Program

JOHN WAYNE AIRPORT
ORANGE COUNTY

locations, views are limited to the northern ends of the runways, with the Airport passenger terminal and aircraft on the east, and buildings and fuel storage tanks to the west. The general aviation facilities are in the distance and are not readily visible. Exhibit 4.1-3a provides a key map depicting the location where photographs taken with views north and south of the Airport. The photographs are provided in Exhibit 4.1-3b. From Main Street, the long-term parking lot is visible, which is a potential construction staging/lay-down area for the GAIP (see Exhibit 4.1-3b, Photograph M).

From the southern end of the Airport, views of the Airport are limited from North Bristol Street and northbound along Irvine Boulevard (which becomes Campus Drive north of North Bristol Street). Views are of an Airport maintenance building, with aircraft tie-downs and the airfield in the background. Views from South Bristol Street are limited to distant views of the storage building, sheds, hangars, runway, and apron areas. Similar distant views can be seen from a portion of the Newport Beach Golf Course, which is owned by the Airport. The golf course portion along Irvine Avenue is proposed to be used for a potential construction staging/lay-down area for the GAIP (see Exhibit 4.1-3b, Photograph N). Views from vehicles on SR-73, which is parallel to and located between North Bristol Street and South Bristol Street, do not include the site due to the lower elevation of this freeway in relation to the Airport.

4.1.4 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist and Appendix G of the State CEQA Guidelines, the GAIP would result in a significant impact related to aesthetics if it would:

Threshold 4.1-1 Substantially degrade the existing visual character or quality of the site and its surroundings

Threshold 4.1-2 Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area

4.1.5 REGULATORY REQUIREMENTS AND STANDARD CONDITIONS OF APPROVAL

Implementation of the GAIP assumes compliance with existing regulations related to the land use, building heights, and sources of light and glare, which affect the visual quality at the Airport, as discussed under Section 4.1.1, Regulatory Setting, above. These include the regulatory requirement ("RR") listed below. There are no County Standard Conditions of Approval pertaining to aesthetics that would be applicable to the GAIP.

RR AES-1 Prior to issuance of any building permit for individual general aviation projects at JWA, the contractor shall file a Notice of Proposed Construction or Alteration (FAA Form 7460-1) with the FAA regional office that will show compliance with the FAR Part 77 regulation, as it relates to building or structure heights, markings, lighting, and other standards. The FAA's Determination of No Hazard shall be submitted to the County prior to the start of construction.

Aerial Source: ESRI 2016

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Views from North and South of the Airport

Exhibit 4.1-3a

John Wayne Airport General Aviation Improvement Program

N
W E
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Feet

JOHN WAYNE AIRPORT
ORANGE COUNTY

Photograph M: View from Main Street looking south toward a potential staging area.

Photograph N: View from Irvine Avenue looking north toward a potential staging area.

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Views from North and South of the Airport

Exhibit 4.1-3b

John Wayne Airport General Aviation Improvement Program

JOHN WAYNE AIRPORT
ORANGE COUNTY

4.1.6 IMPACT ANALYSIS

Threshold 4.1-1

- ***Would the project substantially degrade the existing visual character or quality of the site and its surroundings?***

Proposed Project

Short-Term Construction Impacts

Demolition, grading, and construction activities associated with implementation of the Proposed Project would present views of demolition debris, small amounts of excavated soils, and heavy equipment (e.g., backhoes, bulldozers, dump trucks) and activities and debris. Building material stockpiles and equipment staging areas would generally be visible from outside the construction site boundaries. Two potential staging or material laydown locations have been identified on the Airport property (see Exhibit 2-1). Both locations are off-airfield. One location is in the western portion of the long-term parking lot on Main Street, and the second location is west of Campus Drive and south of South Bristol Street. Views of construction activities may be considered unappealing by some; however, construction and other forms of development are common sights and interruptions to the visual character of urban areas are largely accepted as temporary. The overall duration of construction is slightly more than seven years (2019 to 2026), and construction would occur over 14 primary phases. As a result of the incremental implementation of the improvements, views of demolition and construction activities would affect areas throughout all project phases. During each phase, security fencing would be provided around the construction sites and staging areas.

As discussed under Existing Conditions above, there are existing developments around the Airport that block direct views into the Airport's general aviation facilities. Thus, public views of the general aviation facilities are limited to those available from streets and land uses adjacent to specific general aviation facilities at the Airport, and long-range views are limited in number and scope. Also, due to the size of the Airport and the locations of general aviation facilities east and west of the Airport runways, construction activities for the GAIP would only be visible to viewers in the immediate vicinity of each phase of the improvements. These views would also be temporary and confined to the individual construction phases. Given the industrial character of the Airport, construction activities would not substantially degrade the visual character of the site, and aesthetic impacts related to construction activities would be less than significant.

The locations proposed for staging would have greater visibility. The site in the long-term parking lot would be visible from the direct connector freeway ramp to SR-55, Main Street, and the office buildings immediately adjacent to the parking lot. None of these uses would be considered visually sensitive. From the SR-55 connector ramp and Main Street, the views would be of brief duration and would not be considered a significant impact. The office buildings represent private views; however, landscaping provides some visual screening between the parking lot and the office buildings. The potential staging location at the corner of Irvine Avenue and South Bristol Street would be visible from viewers on either of these roadways, users of the Newport Beach Golf Course, and nearby office buildings. Currently, this area, which is in Airport ownership, is turf and is visually part of the golf course. The golf course is open to the public;

therefore, this would be considered a public view. Although use of the golf course would not be impacted (i.e., this area is not used for play); using the eastern edge of the property for construction equipment and materials would adversely affect the visual quality in this location. Given the context of the site (i.e., in an urban setting, adjacent to two major roadways, a freeway, and the Airport), the visual impact would not be sufficiently adverse to be considered a substantial degradation of the visual character or quality of the area. Although impacts would be less than significant, a minimization measure (MN AES-1) is recommended to provide screening during construction.[1] During each phase, security fencing that would block the ground-level views of individuals at the site boundaries would be provided around the construction sites and staging areas (MN AES-1). No additional mitigation is required.

Long-Term Operational Impacts

Implementation of the Proposed Project would not result in substantial changes to the visual character of Airport. The area dedicated to general aviation would remain as general aviation. Older facilities would be replaced with newer facilities that are generally consistent in nature. The Proposed Project would result in some intensification as the amount of tie-down area, which visually is just a paved area, is replaced with hangars. Although detailed design plans will be developed as improvements are implemented, the following discussion is based on the Proposed Project concept plan and regulatory requirements that would be applicable to development at the Airport. Proposed structures would need to comply with FAR Part 77 regulations (RR AES-1) in terms of building heights and lighting. Therefore, the heights of buildings are assumed to be generally consistent with the height of the existing buildings on site.

On the west side of the Airport, the visual quality of the area defined by Paularino Avenue, Airway Avenue, and Baker Street would change as the existing box hangars, shade structures, and tie-down apron are reconfigured to accommodate a vehicle parking area, FBO hangars and apron, and an OCSD box hangar. However, the overall character of the improvements are consistent with the facilities that are currently located on the Airport. As noted in the discussion under Existing Conditions, none of the locations with views of the Airport are considered visually sensitive, and no character-defining elements are in this area. The Lyon Air Museum is the location with the most expansive views of the Airport; however, all the improvements are aviation-related and would contribute to the context of the museum.

The County tie-down area south of the Lyon Air Museum would also be reconfigured to provide a smaller County tie-down apron, four rows of T-hangars, and additional hangar facilities at the Limited Service Southwest FBO. This represents an intensification of the uses in this location; however, as shown in Photographs F through H, no key public views would be impaired; and the overall character of the improvements would be consistent with the existing character of the Airport. Uses would remain dedicated to general aviation uses.

On the east side of the Airport, the facilities would be redeveloped with the larger FBO community hangars, box hangars, and rows of T-hangars. Views of this area from Campus Drive between Airport Way and North Bristol Street would change as new structures and site

[1] As defined in Section 4.0, a minimization measure is a condition proposed to reduce an adverse effect of the Project even when that effect does not result in a significant impact.

improvements are constructed. However, this area is already developed with facilities to support general aviation uses.

Overall, the new construction would be consistent with the visual character of the area but would replace existing older facilities with new facilities that would result in a visual improvement. The changes in visual quality would not present a major change over existing conditions, and no major group of viewers with long-term views would be exposed to these visual changes. Impacts would be less than significant, and no mitigation is required.

Impact Conclusion: *Construction activities would result in temporary visual changes at the Airport; however, given the urban context of the GAIP site, these changes would not result in a significant visual impact. Long-term, the character of the improvements for the Proposed Project would be consistent with the visual character of the Airport. The Proposed Project would have to comply with existing regulations related to building height. The replacement of older facilities with new facilities would result in an improvement; therefore, the Proposed Project would not substantially degrade the existing visual character or quality of the site and its surroundings. Implementation of MN AES-1 would serve to reduce impacts associated with construction staging. Impacts would be less than significant under Threshold 4.1-1.*

Alternative 1

Short-Term Construction Impacts

The construction impacts for Alternative 1 would be similar to those identified for the Proposed Project. Construction activities would present views of demolition activities and building material stockpiles and equipment staging areas that would be generally visible from outside the construction site boundaries. Construction would occur over 15 primary phases over slightly more than seven years (2019 to 2026). As a result of the incremental implementation of the improvements, views of demolition and construction activities would affect areas throughout all project phases. During each phase, security fencing would be provided around the construction sites and staging areas.

The viewpoints would be the same for Alternative 1 as those discussed for the Proposed Project. Security fencing that would block the ground level views of individuals at the site boundaries would be provided around the construction sites and staging areas. Thus, changes in the visual character of the site due to demolition and construction activities would be less than significant. No mitigation is required.

Long-Term Operational Impacts

Implementation of Alternative 1would not result in substantial changes to the visual character of the Airport. As with the Proposed Project, the area dedicated to general aviation would remain as general aviation. Older facilities would be replaced with newer facilities that are generally consistent in nature. The visual effect of the development on the west side of the Airport would be very similar to that discussed for the Proposed Project. A greater number of T-hangars would be provided between the Lyon Air Museum and the Limited Service Southwest FBO. However, since no key public views would be impaired and the overall character of the improvements

would be consistent with the existing character of the Airport, this intensification of uses would not result in a significant visual impact.

Alternative 1 would result in the development of two full service FBOs in closer proximity than currently exist on the east side of the Airport. This would change the visual intensity of the Airport development along Campus Drive; however, the overall character of the development would not be substantially different than what currently exists at the Airport. Detailed design plans will be developed as improvements are implemented, and proposed structures would need to comply with FAR Part 77 regulations (RR AES-1) in terms of building heights and lighting. Overall, changes in visual quality would not present a major change over existing conditions; and no major group of viewers with long-term views would be exposed to these visual changes. Alternative 1 would result in a less than significant impact on visual quality, and no mitigation is required.

Impact Conclusion: *Construction activities would result in temporary visual changes at the Airport; however, given the urban context of the GAIP site, these changes would not result in a significant visual impact. Long-term, the character of the improvements for Alternative 1 would be consistent with the visual character of the Airport. Alternative 1 would have to comply with existing regulations related to building height. The replacement of older facilities with new facilities would result in a visual improvement; therefore, Alternative 1 would not substantially degrade the existing visual character or quality of the site and its surroundings. Implementation of MN AES-1 would serve to reduce impacts associated with construction staging. Impacts would be less than significant under Threshold 4.1-1.*

Threshold 4.1-2

- ***Would the project create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?***

Proposed Project

Short-Term Construction Impacts

There would be some construction activities that would occur during the nighttime hours, resulting in the need for temporary lighting. This would be limited to specific construction sites for each phase. This lighting would have to comply with FAR Part 77 regulations (RR AES-1) to prevent hazards to aircraft operations. Given the lack of sensitive receptors adjacent to the construction site, impacts associated with lighting would be less than significant, and no mitigation is required.

Long-Term Operational Impacts

The Proposed Project would include the removal of existing light sources at structures to be demolished, as well as the installation of new light sources at structures and site improvements constructed under the GAIP. While this would involve the replacement of existing light sources (e.g., interior and exterior building lights, security lighting, walkway lighting, lighted signs, and

other paved area lighting), the same type of light sources would be provided on site. Changes in lighting levels may occur in different areas of the site as different facilities are constructed at different locations. Potential glare sources in the form of mirrored or metallic surfaces would be minimal and limited to scattered glass windows and exterior surfaces similar to existing structures (which are in compliance with FAA regulations for markings and lighting).

Should any of the GAIP facilities propose to utilize solar panels for energy efficiency, there would be the potential the solar panels could result in glint and glare, which dependent on the placement of the panels, could result in an aesthetic impact on adjacent land uses and a potential safety concern to pilots and/or the FAA control tower. The potential for glint and glare is generally the greatest when the sun is low on the horizon (toward sunrise and sunset) because the solar panels are absorbing much less of the incoming light (Barrett 2013). The greatest potential for glint and glare is generally associated with installation of large arrays of solar panels. Solar panels with an anti-reflective coating on the solar cells substantially reduces the potential for glint and glare. The coating also would increase the solar module's light absorption properties, making them more efficient. Given the limited size of the Airport and the facilities being proposed (i.e., the largest buildings would be terminal buildings for the full service FBOs, which are about 21,653 square feet), the size of the solar installations would also be limited. Additionally, there are no sensitive views adjacent to the Airport; therefore, the aesthetic impacts would be less than significant. MN AES-2 would require an applicant to perform a glare study in accordance with FAA guidance.

All new long term light sources and potential glare sources would have to comply with FAR Part 77 regulations (RR AES-1), including types of lights and intensity of lighting and night/day lighting combinations. By complying with these regulations, the sources and intensity of lighting would be similar to existing lighting. In addition to avoiding the creation of hazards to Airport operations, compliance with these requirements would prevent the creation of new sources of substantial light or glare that would result in significant visual impacts. In addition, no light-sensitive uses are immediately adjacent to the site that would be affected by changes in lighting levels. Impacts would be less than significant, and no mitigation is required.

Impact Conclusion: *The Proposed Project would result in the replacement of existing light sources on site. Compliance with RR AES-1 would regulate the type of building materials allowed and the intensity of lighting for all new facilities at the Airport. In addition, should any of the facilities proposed under the Proposed Project utilize solar panels for energy efficiency, MN AES-2 requires an evaluation of glare and glint on surrounding land uses and potential effects on navigation. Therefore, the Proposed Project would not result in substantially greater new sources of light or glare. Impacts would be less than significant under Threshold 4.1-2.*

Alternative 1

Short-Term Construction Impacts

As with the Proposed Project, there would be some construction activities that would occur during the nighttime hours, resulting in the need for temporary lighting. This would be limited to specific construction sites for each phase. This lighting would have to comply with FAR Part

77 regulations (RR AES-1) to prevent hazards to aircraft operations. Given the lack of sensitive receptors adjacent to the construction site, impacts associated with lighting would be less than significant, and no mitigation is required.

Long-Term Operational Impacts

Similar to the impacts of the Proposed Project, Alternative 1 would result in the replacement of existing light sources on site and changes in lighting levels in different areas of the Airport as different facilities are constructed at different locations. Compliance with RR AES-1 would regulate the type of building materials to avoid potential glare from buildings. As with the Proposed Project, by complying with these regulations, the sources and intensity of lighting would be similar to existing lighting and would prevent the creation of new sources of substantial light or glare that would result in significant visual impacts. Impacts would be less than significant, and no mitigation is required.

Should any of the GAIP facilities propose to utilize solar panels for energy efficiency, there would be the potential the solar panels could result in glint and glare, which dependent on the placement of the panels, could result in an aesthetic impact on adjacent land uses and a potential safety concern to pilots and/or the FAA control tower. The potential for glint and glare is generally the greatest when the sun is low on the horizon (toward sunrise and sunset) because the solar panels are absorbing much less of the incoming light (Barrett 2013). The greatest potential for glint and glare is generally associated with installation of large arrays of solar panels. Solar panels with an anti-reflective coating on the solar cells substantially reduces the potential for glint and glare. The coating also would increase the solar module's light absorption properties, making them more efficient. Given the limited size of the Airport and the facilities being proposed (i.e., the largest buildings would be terminal buildings for the full service FBOs, which are about 21,653 square feet), the size of the solar installations would also be limited. As with the Proposed Project, there are no sensitive views adjacent to the Airport; therefore, the aesthetic impacts would be less than significant. MN AES-2 requires a glare study be conducted prior to issuance of a building permit.

Impact Conclusion: *Alternative 1 would result in the replacement of existing light sources on site. Compliance with RR AES-1 would regulate the type of building materials allowed and the intensity of lighting for all new facilities at the Airport. In addition, should any of the facilities proposed under Alternative 1 utilize solar panels for energy efficiency, MN AES-2 requires an evaluation of glare and glint on surrounding land uses and potential effects on navigation. Therefore, Alternative 1 would not result in substantially greater new sources of light or glare. Impacts would be less than significant under Threshold 4.1-2.*

4.1.7 CUMULATIVE IMPACTS

When evaluating cumulative aesthetic impacts, a number of factors must be considered. In order for a cumulative aesthetic impact to occur, the proposed elements of the cumulative projects would need to be seen together or in proximity to each other. If the projects were not in proximity to each other, the viewer would not perceive them in the same scene. The context in which a project is being viewed will also influence the significance of the aesthetic impact.

The GAIP (Proposed Project and Alternative 1) would be developed in the context of the Airport, which is nearly completely developed with aviation uses or the necessary undeveloped area between runways. The Airport is also in a urbanized setting, which establishes the visual character of the area.

Given the developed nature of the area surrounding the Airport, the only cumulative project that would contribute to a change in the visual character is the Wickland Pipeline project, located on the west side of the Airport. As noted in Section 4.0, the Wickland Pipeline project will provide fuel to the Airport via a pipeline and construction of two new fuel storage tanks south of the existing Airport fuel tanks. The project is under construction. The tanks will have an approximately 1.5-million-gallon storage capacity[2] and are approximately 34 feet in height and 98 feet in diameter. The Mitigated Negative Declaration prepared for the Wickland Pipeline project identified that aesthetic impacts were less than significant, and no mitigation measures were required. The GAIP (the Proposed Project or Alternative 1) combined with the Wickland Pipeline project will result in an intensification of development on the Airport. However, both the GAIP and the Wickland Pipeline project would be consistent with the visual character of the Airport. Buildings surrounding the Airport provide visual screening of much of the site from off-Airport vantage places. Both the GAIP and the Wickland Pipeline project would be required to comply with FAA requirements pertaining to lighting and use of reflective materials, thereby minimizing the potential for light and glare impacts. Cumulative visual impacts would be less than significant for aesthetics.

4.1.8 MITIGATION PROGRAM

Minimization Measure

MN AES-1 Construction contract specifications for any phase of development where the Airport property on the southwest corner of Irvine Avenue and Bristol Street South (i.e., golf course area) will be used as a construction laydown area/staging area, shall include security fencing with opaque screening around the construction sites and staging areas to block the ground-level views of the site. No removal of trees shall be allowed at the staging area.

MN AES-2 Prior to issuance of a building permit for any project proposing the use of solar panels, the applicant shall prepare an evaluation of glare and glint on surrounding land uses and effects on navigation. The evaluation shall include description of the number, style, and placement of all solar panels. Additionally, evaluation shall include an analysis consistent with FAA guidance on evaluating solar technologies at the Airport. The evaluation shall be approved by the John Wayne Airport, Deputy Director, Facilities.

With compliance with above listed minimization measures and existing regulations, no significant impacts related to aesthetics would result from the implementation of the Proposed Project or Alternative 1. Therefore, no mitigation measures have been identified.

[2] The jet fuel tanks would have a total shell capacity of 1,722,000 gallons and a net operating capacity of 1,554,000 gallons.

4.1.9 LEVEL OF SIGNIFICANCE AFTER MITIGATION

With compliance with minimization measures (MN AES-1 and MN AES-2) and existing regulations (RRs AES-1), no mitigation measures would be necessary. As a result, no significant unavoidable impacts would be associated with the Proposed Project or Alternative 1. Additionally, because neither the GAIP (Proposed Project or Alternative 1) would change the visual character of the Airport or introduce a new source of substantial light or glare, the GAIP would not contribute to a cumulative aesthetic impact.

4.1.10 REFERENCES

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4.2 AIR QUALITY

This section evaluates the potential for the General Aviation Improvement Program ("GAIP") to have adverse effects as a result of air quality emissions. Information in this section is predominately based on *Air Quality Technical Report* prepared by Landrum & Brown and included in this Program EIR as Appendix E (Landrum & Brown 2018). Additional information from regional planning programs and other sources has also been incorporated into this section.

4.2.1 BACKGROUND

Air Pollutants

Criteria Air Pollutants

Air quality, in part, is defined by ambient air concentrations of seven "criteria air pollutants", which are a group of common air pollutants identified by the U.S. Environmental Protection Agency ("USEPA") to be of concern with respect to the health and welfare of the general public. Federal and State governments regulate such pollutants by adopting acceptable ambient air quality standards that are based on criteria regarding the health and/or environmental effects of each pollutant. The seven regulated pollutants include nitrogen dioxide ("NO_2"); ozone ("O_3"); particulate matter, including both particles equal to or smaller than 10 microns ("PM10") and particles equal to or smaller than 2.5 microns ("PM2.5");[1] carbon monoxide ("CO"); sulfur dioxide ("SO_2"); and lead. A description of each criteria air pollutant, including source types and health effects, is provided below.

Nitrogen Dioxide

Nitrogen gas, normally relatively inert (i.e., nonreactive), comprises about 80 percent of the air. At high temperatures (e.g., in combustion processes used to operate motor vehicles) and under certain other conditions, nitrogen can combine with oxygen to form several different gaseous compounds collectively called nitrogen oxides ("NOx"). Nitric oxide ("NO"), NO_2, and nitrous oxide ("N_2O") are important constituents of NOx. NO and NO_2 are both precursors in the formation of O_3 and PM2.5, as discussed below. Because of this and the fact that NO emissions largely convert to NO_2, NOx emissions are typically examined when assessing potential air quality impacts.

NO_2 is a red-brown pungent gas and is toxic to various animals and to humans because of its ability to form nitric acid with water in the eyes, lungs, mucus membranes, and skin. In animals, long-term exposure to NOx increases susceptibility to respiratory infections, lowering resistance to such diseases as pneumonia and influenza. Laboratory studies show that susceptible humans, such as asthmatics, who are exposed to high concentrations of NO_2 can suffer lung irritation and, potentially, lung damage. Epidemiological studies have also shown associations between NO_2 concentrations and daily mortality from respiratory and cardiovascular causes, and with hospital admissions for respiratory conditions.

[1] Particulate matter size refers to the aerodynamic diameter of the particle.

Ozone

Ozone is a secondary pollutant, meaning that it is not directly emitted. It is a gas that is formed when volatile organic compounds ("VOCs") (also referred to as reactive organic gases) and NOx undergo photochemical reactions that occur only in the presence of sunlight. The primary source of VOC emissions is unburned hydrocarbons in motor vehicle and other internal combustion engine exhaust. NOx also forms as a result of the combustion process, most notably due to the operation of motor vehicles. Sunlight and hot weather cause ground-level O_3 to form; as a result, ozone is known as a summertime air pollutant. (Ground-level O_3 is not to be confused with atmospheric O_3 or the "ozone layer", which occurs very high in the atmosphere and shields the planet from some ultraviolet rays.) Ground-level O_3 is the primary constituent of smog. Because O_3 formation occurs over extended periods of time, both O_3 and its precursors are transported by wind, and high O_3 concentrations can occur in areas well away from sources of its constituent pollutants.

People with lung disease, children, older adults, and people who are active can be affected when ozone levels exceed ambient air quality standards. Numerous scientific studies have linked ground-level ozone exposure to a variety of problems, including:

- lung irritation that can cause inflammation much like a sunburn;
- wheezing, coughing, pain when taking a deep breath, and breathing difficulties during exercise or outdoor activities;
- permanent lung damage to those with repeated exposure to ozone pollution; and
- aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis.

Particulate Matter

Particulate matter includes both aerosols and solid particles of a wide range of size and composition. Of particular concern are PM10 and PM2.5. Particulate matter tends to occur primarily in the form of fugitive dust. This dust appears to be generated by both local sources and by region-wide dust during moderate to high wind episodes. These regional episodes tend to be multi-district and sometimes interstate in scope. The principal sources of dust in urban areas are from grading, construction, disturbed areas of soil, and dust entrained by vehicles on roadways.

PM10 is generally emitted directly as a result of mechanical processes that crush or grind larger particles or from the re-suspension of dusts, most typically through construction activities and vehicular travels. PM10 generally settles out of the atmosphere rapidly and is not readily transported over large distances.

PM2.5 is directly emitted in combustion exhaust and is formed in atmospheric reactions between various gaseous pollutants including NOx, sulfur oxides ("SOx"), and VOCs. PM2.5 can remain suspended in the atmosphere for days and/or weeks and can be transported long distances.

The principal health effects of airborne particulate matter are on the respiratory system. Short-term exposure to high PM2.5 and PM10 levels is associated with premature mortality and

increased hospital admissions and emergency room visits; increased respiratory symptoms are also associated with short-term exposure to high PM10 levels. Long-term exposure to high PM2.5 levels is associated with premature mortality and development of chronic respiratory disease. According to the USEPA, some people are much more sensitive than others to breathing PM10 and PM2.5. People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worse illnesses; people with bronchitis can expect aggravated symptoms; and children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive include smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive because many breathe through their mouths.

Carbon Monoxide

Carbon monoxide is a colorless and odorless gas which, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. CO combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High CO concentrations can cause headaches; aggravate cardiovascular disease; and impair central nervous system functions.

CO concentrations can vary greatly over comparatively short distances. Relatively high concentrations are typically found near crowded intersections; along heavily used roadways carrying slow-moving traffic; and at or near ground level. Even under the most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within a relatively short distance (i.e., up to 600 feet or 185 meters) of heavily traveled roadways.

Sulfur Dioxide

SOx constitute a class of compounds of which SO_2 and sulfur trioxide ("SO_3") are of greatest importance. Ninety-five percent of pollution-related SOx emissions are in the form of SO_2. SOx emissions are typically examined when assessing potential air quality impacts of SO_2. The primary contributor of SOx emissions is fossil fuel combustion for generating electric power. Industrial processes, such as nonferrous metal smelting, also contribute to SOx emissions. SOx is also formed during combustion of motor fuels; however, most of the sulfur has been removed from fuels, greatly reducing SOx emissions from vehicles.

SO_2 combines easily with water vapor, forming aerosols of sulfurous acid ("H_2SO_3"), a colorless, mildly corrosive liquid. This liquid may then combine with oxygen in the air, forming the even more irritating and corrosive sulfuric acid ("H_2SO_4"). Peak levels of SO_2 in the air can cause temporary breathing difficulty for people with asthma who are active outdoors. Longer-term exposures to high levels of SO_2 gas and particles cause respiratory illness and aggravate existing heart disease. SO_2 reacts with other chemicals in the air to form tiny sulfate particles which are measured as PM2.5.

Lead

Lead is a stable compound, which persists and accumulates both in the environment and in animals. In humans, it affects the body's blood-forming (or hematopoietic), nervous, and renal systems. In addition, lead has been shown to affect the normal functions of the reproductive, endocrine, hepatic, cardiovascular, immunological and gastrointestinal systems, although there

is significant individual variability in response to lead exposure. In general, an emissions analysis of lead is limited to projects that emit significant quantities of the pollutant (i.e., lead smelters) and not required for transportation projects.

Toxic Air Contaminants/Hazardous Air Pollutants/Chemicals of Potential Concern

Toxic air contaminants ("TACs") are a diverse group of air pollutants that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. TACs may be emitted from a variety of common sources, including motor vehicles, gasoline stations, dry cleaners, industrial operations, painting operations, and research and teaching facilities.

TACs are different than the criteria air pollutants previously discussed in that ambient air quality standards have not been established for them. Rather, TAC impacts are described by reference to carcinogenic (i.e., cancer) risk and chronic (i.e., of long duration) and acute (i.e., severe but of short duration) adverse effects on human health. Diesel particulate matter ("Diesel PM") is a TAC and is responsible for the majority of California's known cancer risk from outdoor air pollutants. The USEPA uses the term "hazardous air pollutants" ("HAP") for TACs.

4.2.2 REGULATORY SETTING

The John Wayne Airport site is located in the South Coast Air Basin ("SoCAB"). The SoCAB is comprised of all of Orange County and parts of San Bernardino, Los Angeles, and Riverside counties. The USEPA, the California Air Resources Board ("CARB"), and the South Coast Air Quality Management District ("SCAQMD") regulate air quality in the SoCAB. Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. The Southern California Association of Governments ("SCAG") is an important partner to the SCAQMD and produces estimates of anticipated future growth and vehicular travel in the SoCAB that are used for air quality planning. The federal, State, regional, and local regulations for criteria air pollutants and TACs are discussed below.

Federal

National Ambient Air Quality Standards

The Federal Clean Air Act ("CAA") requires the adoption of National Ambient Air Quality Standards ("NAAQS"), which are periodically updated to protect the public health and welfare from the effects of air pollution. The USEPA is responsible for setting and enforcing the NAAQS for criteria pollutants. Primary standards set limits to protect public health, including the health of at-risk populations such as people with pre-existing heart or lung disease (such as asthmatics), children, and older adults. Secondary standards set limits to protect public welfare, including protection against visibility impairment as well as damage to animals, crops, vegetation, and buildings. Current federal standards are set for SO_2, CO, NO_2, 0_3, PM10, PM2.5, and lead. NAAQS are shown in Table 4.2-1.

TABLE 4.2-1
CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards[a]	Federal Standards	
			Primary[b]	Secondary[c]
O_3[c]	1 Hour	0.09 ppm (180 µg/m³)	–	–
	8 Hour	0.070 ppm (137 µg/m³)	0.070 ppm (137 µg/m³)	Same as Primary
PM10	24 Hour	50 µg/m³	150 µg/m³	Same as Primary
	AAM	20 µg/m³	–	Same as Primary
PM2.5	24 Hour	–	35 µg/m³	Same as Primary
	AAM	12 µg/m³	12.0 µg/m³	15.0 µg/m³
CO	1 Hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	–
	8 Hour	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	–
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)	–	–
NO_2	AAM	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	Same as Primary
	1 Hour	0.18 ppm (339 µg/m³)	0.100 ppm (188 µg/m³)	–
SO_2	24 Hour	0.04 ppm (105 µg/m³)	–	–
	3 Hour	–	–	0.5 ppm (1,300 µg/m³)
	1 Hour	0.25 ppm (655 µg/m³)	0.075 ppm (196 µg/m³)	–
Lead	30-day Avg.	1.5 µg/m³	–	–
	Calendar Quarter	–	1.5 µg/m³	Same as Primary
	Rolling 3-month Avg.	–	0.15 µg/m³	
Visibility Reducing Particles	8 hour	Extinction coefficient of 0.23 per km – visibility ≥ 10 miles (0.07 per km – ≥30 miles for Lake Tahoe)	**No Federal Standards**	
Sulfates	24 Hour	25 µg/m³		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)		
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m³)		

O_3: ozone, ppm: parts per million, µg/m³: micrograms per cubic meter, –: No Standard; PM10: respirable particulate matter with a diameter of 10 microns or less, AAM: Annual Arithmetic Mean, PM2.5: fine particulate matter with a diameter of 2.5 microns or less, CO: carbon monoxide, mg/m³: milligrams per cubic meter, NO_2: nitrogen dioxide, SO_2: sulfur dioxide, km: kilometer.

[a] *California Air Quality Standards:* California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded

[b] *National Primary Standards:* The levels of air quality necessary, within an adequate margin of safety, to protect the public health.

[c] *National Secondary Standards:* The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

Note: More detailed information in the data presented in this table can be found at the CARB website (http://www.arb.ca.gov/research/aaqs/aaqs2.pdf).

Source: CARB 2016a.

Specific geographic areas are classified as either "attainment" or "nonattainment" areas for each pollutant based upon the comparison of measured data with the NAAQS. "Attainment" areas have concentrations of the criteria pollutant that are below the NAAQS, and a "nonattainment" classification indicates the criteria pollutant concentrations have exceeded the NAAQS. When an area has been reclassified from a nonattainment to an attainment area for a federal standard, the status is identified as "maintenance", and there must be a plan and measures that will keep the region in attainment for the following ten years. Areas designated as "nonattainment" are required to prepare regional air quality plans, which set forth a strategy for bringing an area into compliance with the standards. These regional air quality plans, which are developed to meet federal requirements, are included in an overall program referred to as the State Implementation Plan ("SIP"). Orange County's NAAQS attainment status is described in Table 4.2-2, in which non-attainment status is emphasized with bold font.

TABLE 4.2-2
ATTAINMENT STATUS OF CRITERIA POLLUTANTS
IN THE SOUTH COAST AIR BASIN

Pollutant	Averaging Period	Orange County Attainment Status	
		California Standard	Federal Standard
O_3	1 hour	**Non-Attainment**	–
	8 hour	**Non-Attainment**	**Extreme Non-Attainment**
PM_{10}	24 hour	**Non-Attainment**	Attainment (Maintenance)
	Annual	**Non-Attainment**	–
$PM_{2.5}$	24 hour	-	-
	Annual	**Non-Attainment**	**Moderate Non-Attainment**
CO	1 hour	Attainment	Attainment (Maintenance)
	8 hour	Attainment	Attainment (Maintenance)
NO_2	1 hour	Attainment	Attainment (Maintenance)
	Annual	Attainment	Attainment (Maintenance)
Lead	30 day average	Attainment	–
	Rolling 3-month average	–	Attainment/Non Attainment[a]
SO_2	1 hour	Attainment	Attainment
	3 hour	–	Attainment
	24 hour	Attainment	–
H_2S	1 hour	Unclassified	–
Vinyl Chloride	24 hour	Unclassified	–
Sulfates	24 hour	Attainment	–
Visibility-Reducing Particles	8 hour	Unclassified	–

O_3: ozone; PM10: particulate matter 10 microns or less in diameter; PM2.5: particulate matter 2.5 microns or less in diameter; CO: carbon monoxide; NO_2: nitrogen dioxide; SO_2: sulfur dioxide; H2S: Hydrogen sulfide.

[a] Only the Los Angeles County portion of the SoCAB is designated nonattainment for lead; the remainder of the SoCAB, including the County of Orange, is designated attainment.

Source: Landrum & Brown, 2018 (Appendix E)

Aircraft Emissions

In addition to its authority to adopt, amend, and enforce the NAAQS, Section 233 of the CAA exclusively vests the authority to promulgate emission standards for aircraft or aircraft engines with the USEPA. States and other municipalities are preempted from adopting or enforcing any standard respecting aircraft engine emissions unless such standard is identical to USEPA's standards.

To date, the USEPA has adopted NOx emission standards for aircraft gas turbine engines with rated thrusts greater than 26.7 kilonewtons. (These types of engines are used primarily on commercial passenger and freight aircraft.) The requirements were previously adopted by the International Civil Aviation Organization ("ICAO"). Included in the rule are two new tiers of more stringent emission standards for NOx. These are referred to as Tier 6 standards and Tier 8 standards. The Tier 6 standards became effective for newly manufactured aircraft engines beginning in 2013. Engine models that were originally certificated beginning on or after January 1, 2014, must comply with the Tier 8 standards. (77 Fed.Reg. 36342-36386.) In addition, the USEPA has aircraft exhaust standards for NOx, hydrocarbons ("HC"), CO, and smoke.

State

California Air Resources Board

In response to its responsibilities under the California Clean Air Act ("CCAA"), CARB has established the California Ambient Air Quality Standards ("CAAQS") shown in Table 4.2-1, which are generally more restrictive than the NAAQS. Orange County's CAAQS attainment status is described in Table 4.2-2, in which non-attainment status is emphasized with bold font.

CARB also conducts research; compiles emissions inventories; develops suggested control measures; provides oversight of local programs; and prepares the SIP. For regions that do not attain the CAAQS, CARB requires the air districts to prepare plans for attaining the standards. CARB establishes emissions standards for motor vehicles sold in California, consumer products (*e.g.*, hair spray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

CARB's statewide comprehensive air toxics program was established in the early 1980s in response to related legislation. Specifically, the TAC Identification and Control Act (AB 1807, Tanner 1983) created California's program to reduce exposure to air toxics. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, Connelly 1987) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

Under AB 1807, CARB is required to use certain criteria in the prioritization for the identification and control of air toxics. In selecting substances for review, CARB must consider criteria relating to "the risk of harm to public health, amount or potential amount of emissions, manner of, and exposure to, usage of the substance in California, persistence in the atmosphere, and ambient concentrations in the community." AB 1807 also requires CARB to use available information gathered from the AB 2588 program in the prioritization of compounds. In September 1992, the

Hot Spots Act was amended by Senate Bill 1731, which required facilities that pose a significant health risk to reduce their risk through a risk management plan.

To address the management of risks associated with diesel PM, CARB adopted the *Diesel Risk Reduction Plan* in September 2000 (ARB 2000). The Plan recommended a number of emission control measures to reduce the risks associated with diesel PM and achieve the goal of a 75-percent reduction in diesel PM levels by 2010 and an 85-percent reduction by 2020 from the 2000 levels. Emission control measures and programs are aimed at reducing diesel PM emissions produced within the State of California from on-road engines, off-road engines, portable engines, stationary sources, and more generally from large sources of diesel PM emissions such as marine ports and rail yards.

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

The California Code of Regulations ("CCR", specifically, Title 13, Section 2485) places restrictions on vehicular idling. It requires that, on or after February 1, 2005, any person that owns, operates, or causes to operate any diesel-fueled commercial motor vehicle with gross vehicular weight ratings of greater than 10,000 pounds must prohibit vehicle idling for more than five consecutive minutes at any location. Additionally, diesel-fueled internal combustion engine auxiliary power systems ("APS") must be prohibited from operating for greater than 5 minutes at any location when within 100 feet of any property zoned for individual or multi-family housing units, schools, hotels, motels, hospitals, senior care facilities or child care facilities.

Regional

South Coast Air Quality Management District

Air quality management districts are the air pollution control agencies that are responsible for attaining and maintaining State and federal ambient air quality standards in their respective air basin(s). California has been divided into 15 air basins based on similar meteorological and topographical features; these basins are managed by 35 different air quality management districts. As discussed above, each air district maintains a plan, or plans, that detail how State and federal air quality standards shall be met for nonattainment pollutants. Additionally, each air district monitors the air quality in its jurisdiction; issues and enforces permits for sources of pollutants to be constructed and operated; and establishes rules and regulations that govern sources of pollutants.

The Airport lies within the district boundaries of the SCAQMD. The SCAQMD was established in 1977 by merging the individual air pollution control districts of the four counties within the SoCAB: Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties.

As discussed above, the Federal CAA requires the preparation of plans to demonstrate attainment of the NAAQS for which an area is designated as being in nonattainment. Furthermore, the CCAA requires the revision of these plans every three years to address reducing pollutant concentrations that exceed the CAAQS. The SCAQMD and SCAG, in coordination with local governments and the private sector, develop the Air Quality Management

Plan ("AQMP") for the SoCAB to satisfy these requirements. The AQMP is the most important air management document for the SoCAB because it provides the blueprint for meeting State and federal ambient air quality standards.

On November 28, 2007, CARB submitted a State Implementation Plan ("SIP") revision to the USEPA for O_3, PM2.5 (1997 Standard), CO, and NO_2 in the SoCAB. This revision is identified as the "2007 South Coast SIP". The 2007 South Coast SIP demonstrates attainment of the federal PM2.5 standard in the SoCAB by 2014 and attainment of the federal 8-hour O_3 standard by 2023. This SIP also includes a request to reclassify the O_3 attainment designation from "severe" to "extreme". The USEPA approved the redesignation effective June 4, 2010. The "extreme" designation requires the attainment of the 8-hour O_3 standard in the SoCAB by June 2024. CARB approved PM2.5 SIP revisions in April 2011 and the O_3 SIP revisions in July 2011. The USEPA approved the PM2.5 SIP revisions on September 25, 2013, and has approved 47 of the 62 1997 8-hour O_3 SIP revisions (USEPA 2016b). Based on the 2011 through 2013 monitoring period, the USEPA determined the SoCAB attained the 1997 annual and 24-hour fine particle ($PM_{2.5}$) NAAQS at all monitoring sites. The ruling became effective on August 24, 2016 (USEPA 2018a).

On September 30, 2015, the USEPA proposed to approve elements of the South Coast 2012 PM2.5 Plan and 2015 Supplement, which addresses Clean Air Act requirements for the 2006 PM2.5 NAAQS, and proposed to reclassify the area as a 'serious' nonattainment area for the 2006 PM2.5 standard. The reclassification is based on the determination that the area cannot practicably attain the 2006 PM2.5 NAAQS by the moderate area attainment date (December 31, 2015). On December 22, 2015, the USEPA reclassified the South Coast area as a "Serious" nonattainment area for the 2006 PM2.5 standard. The final reclassification requires the State to submit a "serious area" plan that provides for attainment of the 2006 PM2.5 NAAQS as expeditiously as practicable as and no later than December 31, 2019 (USEPA 2018b).

The 2016 AQMP was adopted on March 3, 2017 by the SCAQMD Governing Board, which was further approved by the USEPA as the SIP for the air quality basin in October 2017. The 2016 AQMP evaluates integrated strategies and measures to meet the following NAAQS (SCAQMD 2017a):

- 8-hour O_3 (75 parts per billion [ppb]) by 2032[2]
- Annual PM2.5 (12 micrograms per cubic meter [$\mu g/m^3$]) from 2021 to 2025
- 8-hour O_3 (80 ppb) by 2024
- 1-hour O_3 (120 ppb) by 2023
- 24-hour PM2.5 (35 $\mu g/m^3$) by 2019

The 2016 AQMP is built on extensive consultation between CARB and SCAQMD regarding the reduction of emissions from mobile sources. However, the 2016 AQMP recognizes that some sources – referred to as "federally controlled sources" in the AQMP – are under the jurisdiction of the USEPA; the 2016 AQMP explicitly recognizes aircraft as a federally controlled source (see, e.g.,

[2] On October 1, 2015, the USEPA lowered the 8-hour O3 standard to 0.070 ppm (70 ppb). The SIP (or AQMP) for the 70 ppb standard will be due 4 years after the attainment/nonattainment designations are issued by the USEPA. On March 1, 2018 USEPA published their intent to publish a proposed Rule, which would be effective 60 days after publishing in the Federal Register (USEPA 2018c). Thus, meeting the 70 ppb standard will be addressed in a future AQMP.

2016 AQMP, Table 4-22). The 2016 AQMP provides policies and measures to guide SCAB towards attainment of the NAAQS and CAAQS, setting forth a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources. Because the SCAQMD does not have jurisdictional authority over all emission sources in the SoCAB, the 2016 AQMP identifies other agencies (see, e.g., 2016 AQMP, Table 4-22) that are responsible for assisting with implementation of the AQMP's control measures (Landrum & Brown 2018).

Southern California Association of Governments

SCAG is a council of governments for Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties. As a regional planning agency, SCAG serves as a forum for regional issues relating to transportation, the economy, community development, and the environment.

Although SCAG is not an air quality management agency, it is responsible for several air quality planning issues. Specifically, as the designated Metropolitan Planning Organization ("MPO") for the Southern California region, SCAG partners with local air districts by providing information and/or oversight of air quality planning documentation. Specifically, SCAG provides demographic projections as well as integrated land use, housing, employment and transportation programs, measures, and strategies for portions of the South Coast AQMP, which applies to Airport. The local air districts develop and enforce regulations for non-vehicular sources of air pollution and coordinate with SCAG to develop and implement Transportation Control Measures ("TCMs") to reduce and otherwise improve vehicular travel and associated pollutant emissions.

On April 7, 2016, the SCAG Regional Council adopted the 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy ("RTP/SCS"). The RTP/SCS combines the need for mobility with a "sustainable future" through a reduction in the amount of emissions produced from transportation sources.

4.2.3 METHODOLOGY

Construction emissions were calculated using the California Emissions Estimator Model ("CalEEMod", Version 2016.3.2). CalEEMod is a computer program accepted by the SCAQMD that can be used to estimate criteria pollutant and GHG emissions associated with land development projects in California. CalEEMod has separate databases for specific counties and air districts. The Orange County database was used for the proposed Project. CalEEMod defaults were used for equipment and trip generation data.

The CalEEMod model calculates total emissions resulting from each construction activity. The phasing and duration of the construction of each of the improvements were developed by AECOM, in conjunction with Airport staff, and provided by the Airport for the purpose of this analysis. The construction phasing plans are provided in Section 3 (Proposed Project is shown in Exhibits 3-3a and 3-3b; Alternative 1 is shown in Exhibits 3-5a and 3-5b) of this Program EIR. The construction emissions analysis reflects full removal and replacement of the aprons and service roads.

The Federal Aviation Administration's ("FAA") Aviation Environmental Design Tool ("AEDT", Version 2d) was used to model operational emissions from aircraft operations, auxiliary power units ("APU"), and ground support equipment ("GSE") at the Airport.[3] AEDT is a software system that models aircraft performance that estimates fuel consumption, emissions, noise, and air quality emissions data. AEDT is a comprehensive tool that provides information to FAA stakeholders on each of these specific environmental impacts. AEDT facilitates environmental review by consolidating the modeling of these environmental impacts in a single tool. Specific aircraft types, times of operation, and annual runway end utilization were obtained from the 2016 John Wayne General Aviation Noise Ordinance database and input into AEDT.

4.2.4 EXISTING CONDITIONS

Climate and Meteorology

Climate in the SoCAB is determined by its terrain and geographical location. The SoCAB is a coastal plain with connecting broad valleys and low hills. The SoCAB is bound on the west by the Pacific Ocean, on the north by the San Gabriel Mountains, on the north and east by the San Bernardino Mountains, on the southeast by the San Jacinto Mountains, and on the south the Santa Ana Mountains. The region lies in the semi-permanent high-pressure zone of the eastern Pacific. The resulting climate is mild and tempered by cool ocean breezes. It maintains moderate temperatures and comfortable humidity, and limits precipitation to a few storms during the winter-wet season. This weather pattern is rarely interrupted. However, periods of extremely hot weather, winter storms, or Santa Ana winds do exist.

Although the SoCAB has a semi-arid climate, air near the surface is generally moist because of the presence of a shallow marine layer. With very low average wind speeds, there is a limited capacity to disperse air contaminants horizontally. The typical wind flow pattern fluctuates only with occasional winter storms or strong northeasterly Santa Ana winds from the mountains and deserts northeast of the SoCAB. Summer wind flow patterns represent maximum environmental impact conditions, as this is the period of higher temperatures and more sunlight, which results in ozone formation.

Local Air Quality Monitoring Data

The SCAQMD has established an air quality monitoring network that measures air pollution at 38 permanent monitoring stations and five single-pollutant source monitoring sites in the SoCAB. The Costa Mesa monitoring station was the closest station to the Airport; it was located approximately three miles southwest of the Airport and monitored O_3, NO_2, CO, and SO_2. The closest monitoring station that monitors particulate matter is located in Anaheim, approximately 11 miles north of the Airport.

According to the SCAQMD, concentrations of the criteria pollutants at the Costa Mesa station were stable over the past few years, with CO, NO_2, SO_2 levels not exceeding federal and state

[3] Ground support equipment ("GSE") is used to service aircraft between flights. Typical GSE includes air conditioning, air start, baggage tractors, belt loaders, and emergency vehicles that support airport operations. GSE are modeled by assignment to an aircraft operation. Auxiliary power units ("APU") are equipment used while the aircraft is at the gate to operate the heating, air conditioning, and electric systems.

standards. Ozone has exceeded the federal 8-hour standard the last three years. At the Anaheim station, $PM_{2.5}$ levels have exceeded the federal and state standards the last three years and the PM_{10} levels have exceeded the state standards the last three years (Landrum & Brown 2018).

Sensitive Receptors

Sensitive receptors are segments of the population which are most susceptible to impacts from air pollution, including children, the elderly, and people with pre-existing health problems affected by air quality. Sensitive receptors that could be affected may include residential areas, as well as discrete receptors, including long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, childcare centers, and athletic facilities. The closest sensitive receptors (i.e., the receptors closest to the boundary of the Airport) are the residential units south of the Airport, which are located approximately 855 feet south of the Airport at the closest point (Landrum & Brown 2018).

Baseline (2016) Emissions Inventory

The AEDT was used to model general aviation aircraft operations only at the Airport, along with GSE and APU usage for the Baseline (2016) Conditions. The model estimates the rate of emissions of the quantity of emissions of the pollutants in pounds per day. The results of the emission inventory are provided in Table 4.2-3. This data will be used when calculating the net emissions associated with implementation of the GAIP scenarios.

TABLE 4.2-3
EMISSIONS INVENTORY FOR GENERAL AVIATION ACTIVITIES
BASELINE (2016)

Source	Daily Emissions (pounds per day)					
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Total	**3,250.0**	**166.7**	**187.3**	**28.4**	**7.9**	**7.9**

CO: carbon monoxide; VOC: volatile organic compound; NOx: nitrogen oxides; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less

Note: Numbers may not sum to subtotals as shown, due to rounding. Section 3 of Appendix E also provides Airport-wide existing conditions data for 2016. Because the GAIP exclusively pertains to and affects general aviation operations at JWA, the inventory data presented in this Section of the Program EIR is focused on general aviation-related emissions. For additional information on Airport-wide emissions that accounts for commercial aircraft, please see Appendix E.

Source: Landrum & Brown, 2018. (Appendix E).

4.2.5 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist and Appendix G of the State CEQA Guidelines, the project would result in a significant impact to air quality if it would[4]:

Threshold 4.2-1 Conflict with or obstruct implementation of the applicable air quality plan.

Threshold 4.2-2 Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Threshold 4.2-3 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors).

Threshold 4.2-4 Expose sensitive receptors to substantial pollutant concentrations.

Appendix G of the State CEQA Guidelines states that the significance criteria established by the applicable air quality management district may be relied upon to make significance determinations. The SCAQMD has established significance thresholds to assess the regional and localized impacts of project-related air pollutant emissions; Table 4.2-4 presents the most current standards for assessing the potential significance of impacts. A project with daily emission rates, risk values, or concentrations below these thresholds is generally considered to have a less than significant impact on air quality.

[4] Section 4.5 of the Air Quality Technical Report (Appendix E) provides a discussion of odors associated with construction activities and finds that the impact would be less than significant for both the Proposed Project and Alternative 1. The Notice of Preparation prepared for the GAIP (provided in Appendix A) identified that the GAIP does not propose any land uses or modification to operations that would result in the creation of odors. The existing operations at the Airport involve minor odor-generating activities such as airplane exhaust; however, these types of odors are typical of an airport and would not create an odor nuisance pursuant to South Coast Air Quality Management District 's ("SCAQMD's") Rule 402 or extend beyond the limits of the Airport.

TABLE 4.2-4
SCAQMD AIR QUALITY SIGNIFICANCE THRESHOLDS

Mass Daily Thresholds (lbs/day)		
Pollutant	**Construction**	**Operation**
NOx	100	55
VOC	75	55
PM10	150	150
PM2.5	55	55
SOx	150	150
CO	550	550
Lead	3	3
Toxic Air Contaminants		
TACs[a]	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHG[c]	10,000 metric tons per year CO2 equivalency for industrial facilities	
Ambient Air Quality For Criteria Pollutants[b]		
NO_2 1-Hour Average Annual Arithmetic Mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: • 0.18 ppm (state) • 0.03 ppm (state) and 0.0534 ppm (Federal)	
PM10 24-Hour Average Annual Average	 10.4 µg/m^3 (construction)[e] & 2.5 µg/m^3 (operation) 1.0 µg/m^3	
PM2.5 24-Hour Average	 10.4 µg/m^3 (construction)[e] & 2.5 µg/m^3 (operation)	
SO2 1-Hour Average 24-Hour Average	 0.25 ppm (state) & 0.075 ppm (Federal – 99th percentile) 0.04 ppm (state)	
Sulfate 24-Hour Average	 25 µg/m^3 (state)	
Lead 30-day average Rolling 3-month average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: • 20 ppm (state) and 35 ppm (Federal) • 9.0 ppm (state/Federal)	

TABLE 4.2-4
SCAQMD AIR QUALITY SIGNIFICANCE THRESHOLDS

Mass Daily Thresholds (lbs/day)
lbs/day: pounds per day; VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; NO_2: nitrogen dioxide; ; µg/m3: microgram per cubic meter
[a] TACs (carcinogenic and noncarcinogenic)
[b] Ambient air quality threshold based on SCAQMD Rule 403.
[c] Greenhouse Gas Emissions are evaluated in Section 4.4 of this Program EIR.
Source: Landrum & Brown 2018 (taken from http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf Retrieved 11/20/2017.

In addition, and in order to assist lead agencies with the evaluation of local air quality impacts without complex dispersion modeling, the SCAQMD has developed a localized significance threshold ("LST") methodology and mass rate look-up tables by source receptor area ("SRA") that can be used to determine whether a project may generate significant adverse localized air quality impacts. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each SRA. The LST mass rate look-up tables are applicable to the following criteria pollutants: NO_X, CO, PM_{10}, and $PM_{2.5}$. The LSTs used in this analysis are presented in Table 4.2-5 below.

TABLE 4.2-5
SCAQMD LOCALIZED SIGNIFICANCE THRESHOLDS

	Localized Significance Threshold (pounds per day)			
	CO	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
Construction	3,888	223	85	35
Operation	3,888	223	21	9
Source: Landrum & Brown 2018 (taken from SCAQMD Localized Significance Thresholds, 2009				

While the LST mass rate look-up tables are represented for projects up to five acres, the LST methodology can be applied to projects larger than five acres as a screening tool as it is a conservative approach. If the emissions from a project with a larger site are less than the allowable emissions for a 5-acre project site, then the larger project site will not result in a significant localized air quality impact. The largest area under construction for the GAIP at one time is approximately 8 acres.

4.2.6 REGULATORY REQUIREMENTS AND STANDARD CONDITIONS OF APPROVAL

Implementation of the GAIP assumes compliance with existing regulations related to air quality at the Airport, as discussed under Section 4.2.1, Regulatory Setting, above. These include the regulatory requirements ("RR") listed below. There are no County Standard Conditions of Approval pertaining to air quality that would be applicable to the GAIP.

RR AQ-1 During construction, the developer shall comply with South Coast Air Quality Management District ("SCAQMD") Rules 402 and 403, in order to minimize short-term emissions of dust and particulates. SCAQMD Rule 402 requires that air pollutant emissions not be a nuisance off site. SCAQMD Rule 403 requires that fugitive dust be controlled with the best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. This requirement shall be included as notes on the contractor specifications. Table 1 of Rule 403 prescribes the Best Available Control Measures that are applicable to all construction projects. The developer shall provide the Manager of Building & Safety, or designee, with an SCAQMD-approved Dust Control Plan or other sufficient proof of compliance with Rule 403, prior to issuance of a grading permit.

RR AQ-2 Architectural coatings shall be selected so that the volatile organic compound ("VOC") content of the coatings is compliant with SCAQMD Rule 1113. This requirement shall be included as notes on the contractor specifications. The specifications for each project within the GAIP area shall be reviewed by the Manager of Building & Safety, or designee, for compliance with this requirement prior to issuance of a building permit.

4.2.7 IMPACT ANALYSIS

Threshold 4.2-1

- ***Would the Project conflict with or obstruct implementation of the applicable air quality plan?***

Proposed Project and Alternative 1

As previously stated, the SCAQMD adopted its latest AQMP in 2016, which was then incorporated into the SIP in 2017. SCAQMD's 2016 AQMP relies on the latest scientific and technological information and planning assumptions relevant to air quality, including information regarding regional growth forecasts and transportation control measures from SCAG's 2016-2040 RTP/SCS. The 2016 AQMP also is built on extensive consultation between CARB and SCAQMD regarding the reduction of emissions from mobile sources. In that vein, the 2016 AQMP recognizes that some sources – referred to as "federally controlled sources" in the AQMP – are under the jurisdiction of the U.S. EPA; the 2016 AQMP explicitly recognizes aircraft as a federally controlled source (see, e.g., 2016 AQMP, Table 4-22). The 2016 AQMP provides policies and measures to guide the SoCAB towards attainment of the NAAQS and CAAQS, setting forth a

comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources. Because the SCAQMD does not have jurisdictional authority over all emission sources in the SoCAB, the 2016 AQMP identifies other agencies (see, e.g., 2016 AQMP, Table 4-22) that are responsible for assisting with implementation of the AQMP's control measures.

In conjunction with preparation of the 2016-2040 RTP/SCS and 2016 AQMP, JWA staff participated in SCAG's Aviation Technical Advisory Committee and coordinated with SCAQMD to ensure that aircraft operation data specific to the Airport (such as the number of operations, fleet mix and taxi times) were accounted for throughout the forecasted planning period for both the RTP/SCS and AQMP. JWA staff also provided SCAQMD with information regarding estimated construction-related emissions at the Airport during the subject planning period, including those associated with the development of any GAIP-facilitated facilities. As a result of this inter-agency coordination, emissions associated with the GAIP have been planned for and accounted for in the 2016 AQMP. It also is noted that – to the extent required by law – GAIP-related emission sources would comply with applicable control measures adopted in furtherance of the AQMP's implementation by the SCAQMD and other responsible agencies. Therefore, neither the Proposed Project nor Alternative 1 would conflict with or obstruct implementation of the 2016 AQMP (Landrum & Brown 2018).

Impact Conclusion: *The Proposed Project and Alternative 1 would be consistent with the AQMP. JWA staff participated in SCAG's Aviation Technical Advisory Committee and coordinated with SCAQMD to ensure that aircraft operation data specific to the Airport (such as the number of operations, fleet mix and taxi times) and construction emissions were accounted for throughout the forecasted planning period for both the 2016-2040 RTP/SCS and AQMP. Therefore, the impacts associated Proposed Project and Alternative 1 would be less than significant under Threshold 4.2-1.*

Threshold 4.2-2

- ***Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?***

Proposed Project

Construction

When calculating construction emissions for the Proposed Project, CalEEMod defaults were used for construction equipment and for trip generation data. RR AQ-1 and RR AQ-2, which require compliance with SCAQMD Rules 402, 403, and 1113, also were incorporated into the modeling for the Proposed Project.

Table 4.2-6 shows the emission values for each year of construction prior to mitigation. With the exception of NOx emissions, the maximum daily construction emissions for the Proposed Project, would be below both the SCAQMD mass regional and the localized significance thresholds.

TABLE 4.2-6
UNMITIGATED MAXIMUM DAILY CONSTRUCTION EMISSIONS
FOR THE PROPOSED PROJECT

Year	Daily Emissions (pounds per day)					
	CO	**VOC**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
2019	137.5	19.3	**189.1**	0.2	14.8	11.3
2020	154.7	20.2	**198.4**	0.3	16.1	11.5
2021	128.0	15.7	**142.9**	0.2	9.1	7.3
2022	134.2	16.3	**129.9**	0.2	10.3	6.7
2023	84.9	8.9	83.6	0.1	7.8	4.9
2024	147.2	15.5	**132.6**	0.3	14.9	7.9
2025	202.8	17.4	**147.3**	0.3	8.7	6.5
2026	59.2	57.8	38.3	0.1	1.8	1.6
SCAQMD Mass Daily Threshold (Table 4.2-3)	*550*	*75*	*100*	*150*	*150*	*55*
Exceed Threshold?	**No**	**No**	**Yes**	**No**	**No**	**No**
SCAQMD Localized Significance Threshold (Table 4.2-5)	*3,888*	*N/A*	*223*	*N/A*	*85*	*35*
Exceed Localized Significance Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District; CEQA: California Environmental Quality Act.

Note: Shading and bold font indicates an exceedance of SCAQMD thresholds

Source: Landrum & Brown 2018 (Emissions calculations are included in Appendix E.)

As shown in Table 4.2-6 above, the Proposed Project's construction emissions would exceed the SCAQMD significance threshold for NO_X. To reduce maximum daily construction emissions from the Proposed Project to less than significant, MM AQ-1, which requires construction equipment to meet or exceed the USEPA's Tier 4 off-road emissions engine standards, must be implemented. With implementation of MM AQ-1, maximum daily construction emissions would be less than significant with mitigation, as shown in Table 4.2-7 below. Although significant impacts were not identified for VOC, MN AQ-1 requires the use of architectural coatings applied to the East and West Access Roads be low VOC coatings. Specifically, JWA shall require the use of a paint for markings with less than 50 grams of VOC emissions per liter of paint.

TABLE 4.2-7
MITIGATED MAXIMUM DAILY CONSTRUCTION EMISSIONS
FOR THE PROPOSED PROJECT

Year	Daily Emissions (pounds per day)					
	CO	**VOC**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
2019	146.1	3.0	13.3	0.2	4.8	2.0
2020	167.6	3.3	15.0	0.3	6.0	2.2
2021	138.1	3.1	16.1	0.2	1.9	0.6
2022	144.5	4.3	17.3	0.2	3.3	0.8
2023	94.0	1.9	10.2	0.1	4.1	1.5
2024	162.5	4.1	18.1	0.3	10.2	2.8
2025	233.7	5.5	21.2	0.3	6.6	1.5
2026	67.4	28.0	5.7	0.1	0.1	0.1
SCAQMD Mass Daily Threshold (Table 4.2-3)	*550*	*75*	*100*	*150*	*150*	*55*
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
SCAQMD Localized Significance Threshold (Table 4.2-5)	*3,888*	*N/A*	*223*	*N/A*	*85*	*35*
Exceed Localized Significance Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District; CEQA: California Environmental Quality Act.

Source: Landrum & Brown 2018 (Emissions calculations are included in Appendix E.)

Operations

The Proposed Project would result in changes to the Airport's general aviation aircraft operations and fleet mix. The Proposed Project would not change the number of commercial air carrier operations, fleet mix, runway use, flight tracks, or terminal area. Therefore, emission sources related to the change in general aviation aircraft operations and fleet mix are evaluated using the AEDT. These sources include general aviation aircraft operations, APU usage, and GSE usage. The year 2026 is used for the Proposed Project because that is expected completion date of the GAIP improvements and would be reflective of the ultimate fleet mix and number of operations.

Impacts from the Proposed Project have been evaluated in comparison to the Baseline (2016) Conditions. (The Baseline (2016) emissions inventory is presented in Table 4.2-3, provided in Section 4.2.4, Existing Conditions.) Because the Proposed Project only pertains to general aviation activity, the analysis compares the Baseline (2016) general aviation emissions to the Baseline Plus Proposed Project (2026). This is reflective of the CEQA requirement for an "Existing Plus Project" evaluation.

The results of the emission inventory are provided in Table 4.4-8.

TABLE 4.2-8
EMISSIONS INVENTORY—BASELINE (2016) PLUS PROPOSED PROJECT

Source	Emissions (pounds per day)					
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Total General Aviation Emissions	2,884.3	194.8	226.5	34.6	8.7	8.7

VOC: volatile organic compounds; NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter 10 microns or less in diameter; PM2.5: fine particulate matter 2.5 microns or less in diameter; SCAQMD: South Coast Air Quality Management District.

Note: Some totals do not add due to rounding. Section 3 of Appendix E also provides Airport-wide existing conditions data for 2016. Because the GAIP exclusively pertains to and affects general aviation operations at JWA, the inventory data presented in this Section of the Program EIR is focused on general aviation-related emissions. For additional information on Airport-wide emissions that accounts for commercial aircraft, please see Appendix E.

Source: Landrum & Brown 2018. CalEEMod model data sheets are included in Appendix E.

Table 4.2-9 provides the net emissions for the Baseline Plus Proposed Project. The daily net impact of operational emissions was calculated by subtracting the operational emissions of the Baseline (2016) Conditions from those of the Baseline Plus Proposed Project. When compared to the SCAQMD regional and localized significance thresholds, no operational exceedances have been identified. Although significant impacts were not identified, MN AQ-2 requires the use of Zero Emission Vehicle ("ZEV") GSE where available (e.g. tugs, water carts, lavatory carts, other ramp service equipment/vehicles) for 90 percent or greater of the GSE operating hours.

TABLE 4.2-9
TOTAL NET OPERATIONAL EMISSIONS
FOR THE PROPOSED PROJECT

Scenarios	Emissions (pounds per day)					
	CO	**VOC**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Baseline (2016) Conditions (Table 4.2-3)	3,250.0	166.7	187.3	28.4	7.9	7.9
Baseline Plus Proposed Project (Table 4.2-8)	2,884.3	194.8	226.5	34.6	8.7	8.7
Baseline Plus Proposed Project Net Operational Emissions	**-365.7**	**28.1**	**39.2**	**6.3**	**0.8**	**0.8**
SCAQMD Mass Daily Threshold (Table 4.2-4)	*550*	*55*	*55*	*150*	*150*	*55*
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
SCAQMD Localized Significance Threshold (Table 4.2-5)	*3,888*	*N/A*	*223*	*N/A*	*21*	*9*
Exceed Localized Significance Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District; EIR: Environmental Impact Report; CEQA: California Environmental Quality Act.

Note: Operational emissions for all pollutants, except for CO, are anticipated to increase with the Proposed Project due to an increase in turbo jet and business jet operations from the Baseline (2016) Condition. The decrease in CO is attributed to the decrease in prop operations estimated for the Proposed Project.

Source: Landrum & Brown 2018. Emissions calculations can be found in Appendix E.

Impact Conclusion *The Proposed Project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Significant NO_X emissions associated with construction would be reduced to less than significant with the implementation of MM AQ-1, which requires the use of Tier 4 construction equipment. Additionally, MN AQ-1, which requires the use of low VOC architectural coatings on the East and West Access Roads, would serve to further reduce VOC emissions. Although significant VOC impacts associated with operations were not identified, MN AQ-2 requires the use of ZEV GSE, where available (e.g. tugs, water carts, lavatory carts, other ramp service equipment/vehicles) for 90 percent or greater of the GSE operating hours. Operational emissions of criteria pollutants would be below established thresholds established by the SCAQMD for the SoCAB. Therefore, impacts associated with the Proposed Project under Threshold 4.2-2 would be less than significant with mitigation for construction and less than significant for operations.*

Alternative 1

Construction

When calculating construction emissions for Alternative 1 CalEEMod defaults were used for construction equipment and for trip generation data. RR AQ-1 and RR AQ-2, which requires compliance with SCAQMD Rules 402, 403, and 1113, also were incorporated into the modeling for Alternative 1.

Table 4.2-10 shows the emission values for each year of construction prior to mitigation. With the exception of NOx emissions, the maximum daily construction emissions for Alternative 1 would be below both the SCAQMD mass regional and the localized significance thresholds.

TABLE 4.2-10
UNMITIGATED MAXIMUM DAILY CONSTRUCTION EMISSIONS
FOR ALTERNATIVE 1

Year	Daily Emissions (pounds per day)					
	CO	**VOC**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
2019	155.0	21.8	**214.6**	0.3	18.4	13.0
2020	157.0	20.4	**200.5**	0.3	15.9	11.6
2021	128.0	15.7	**142.9**	0.2	10.5	7.5
2022	152.0	26.8	**140.6**	0.3	17.9	8.4
2023	120.3	12.2	**116.0**	0.2	11.5	6.9
2024	124.5	13.2	**111.4**	0.2	11.8	6.7
2025	204.3	17.5	**151.2**	0.3	10.9	6.9
2026	89.9	65.9	59.4	0.1	2.7	2.5
SCAQMD Mass Daily Threshold (Table 4.2-3)	*550*	*75*	*100*	*150*	*150*	*55*
Exceed Threshold?	**No**	**No**	**Yes**	**No**	**No**	**No**
SCAQMD Localized Significance Threshold (Table 4.2-5)	*3,888*	*N/A*	*223*	*N/A*	*85*	*35*
Exceed Localized Significance Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District; CEQA: California Environmental Quality Act.

Note: Shading and bold font indicates an exceedance of SCAQMD thresholds

Source: Landrum & Brown 2018 (Emissions calculations are included in Appendix E.)

As shown in Table 4.2-10 above, the construction emissions associated with Alternative 1 would exceed the SCAQMD significance threshold for NO_X. To reduce maximum daily construction emissions from Alternative 1 to less than significant, MM AQ-1, which requires construction equipment to meet or exceed the USEPA's Tier 4 off-road emissions engine standards, must be implemented. With implementation of MM AQ-1, maximum daily construction emissions would be less than significant, as shown in Table 4.2-11 below. Although significant impacts were not identified for VOCs, MN AQ-1 requires the use of architectural coatings applied to the East and West Access Roads be low VOC coatings. Specifically, JWA shall require the use of a paint for markings with less than 50 grams of VOC emissions per liter of paint.

TABLE 4.2-11
MITIGATED MAXIMUM DAILY CONSTRUCTION EMISSIONS
FOR ALTERNATIVE 1

Year	Daily Emissions (pounds per day)					
	CO	**VOC**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
2019	163.4	3.3	14.7	0.3	6.9	2.3
2020	171.4	3.6	22.4	0.3	5.9	2.4
2021	138.1	3.2	23.1	0.2	2.4	1.1
2022	153.6	8.4	19.9	0.2	9.3	1.7
2023	137.1	2.8	11.9	0.2	6.4	2.2
2024	137.9	3.7	14.4	0.2	7.0	2.3
2025	233.9	5.2	22.2	0.3	4.7	1.2
2026	102.2	31.5	9.2	0.1	0.2	0.2
SCAQMD Mass Daily Threshold (Table 4.2-3)	*550*	*75*	*100*	*150*	*150*	*55*
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
SCAQMD Localized Significance Threshold (Table 4.2-5)	*3,888*	*N/A*	*223*	*N/A*	*85*	*35*
Exceed Localized Significance Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District; CEQA: California Environmental Quality Act.

Note: PM_{10} and $PM_{2.5}$ emissions estimates are based on compliance with the SCAQMD Rule 403 requirements for fugitive dust suppression.

Source: Landrum & Brown 2018 (Emissions calculations are included in Appendix E.)

Operations

Alternative 1 would result in changes to the Airport's general aviation aircraft operations and fleet mix. Alternative 1 would not change the number of commercial air carrier operations, fleet mix, runway use, flight tracks, or terminal area. Therefore, only emission sources related to the change in general aviation aircraft operations and fleet mix are evaluated using the AEDT. These sources include general aviation aircraft operations, APU usage, and GSE usage. The year 2026 is used for the evaluation of Alternative 1 because that is expected completion date of the GAIP improvements and would be reflective of the ultimate fleet mix and number of operations.

Impacts from Alternative 1 have been evaluated in comparison to the Baseline (2016) Conditions. (The Baseline (2016) emissions inventory is presented in Table 4.2-3, provided in Section 4.2.4, Existing Conditions.) Because Alternative 1 only pertains to general aviation activity, the analysis compares the Baseline (2016) general aviation emissions to the Baseline Plus Alternative 1 (2026). This is reflective of the CEQA requirement for an "Existing Plus Project" evaluation.

The results of the emission inventory are provided in Table 4.4-12.

TABLE 4.2-12
EMISSIONS INVENTORY—BASELINE (2016) PLUS ALTERNATIVE 1

Source	Emissions (pounds per day)					
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Total General Aviation Emissions	2,904.2	198.4	229.9	35.2	8.8	8.8

VOC: volatile organic compounds; NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter 10 microns or less in diameter; PM2.5: fine particulate matter 2.5 microns or less in diameter; SCAQMD: South Coast Air Quality Management District.

Note: Some totals do not add due to rounding. Section 3 of Appendix E also provides Airport-wide existing conditions data for 2016. Because the GAIP exclusively pertains to and affects general aviation operations at JWA, the inventory data presented in this Section of the Program EIR is focused on general aviation-related emissions. For additional information on Airport-wide emissions that accounts for commercial aircraft, please see Appendix E

Source: Landrum & Brown 2018. CalEEMod model data sheets are included in Appendix E.

Table 4.2-13 provides the net emissions for the Baseline Plus Alternative 1. The daily net impact of operational emissions was calculated by subtracting the operational emissions of the Baseline (2016) Conditions from those of the "Baseline Plus Alternative 1" scenario. When compared to the SCAQMD regional and localized significance thresholds, no operational exceedances have been identified. Although significant impacts were not identified, MN AQ-2 requires the use of Zero Emission Vehicle ("ZEV") GSE where available (e.g. tugs, water carts, lavatory carts, other ramp service equipment/vehicles) for 90 percent or greater of the GSE operating hours.

TABLE 4.2-13
TOTAL NET OPERATIONAL EMISSIONS
FOR ALTERNATIVE 1

Scenarios	Emissions (pounds per day)					
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Baseline (2016) Conditions (Table 4.2-3)	3,250.0	166.7	187.3	28.4	7.9	7.9
Baseline Plus Alternative 1 (Table 4.2-12)	2,904.2	198.4	229.9	35.2	8.8	8.8
Baseline Plus Alternative 1 Net Operational Emissions	-345.8	31.8	42.6	6.8	0.9	0.9
SCAQMD Mass Daily Threshold (Table 4.2-4)	*550*	*55*	*55*	*150*	*150*	*55*
SCAQMD Localized Significance Threshold (Table 4.2-5)	*3,888*	*N/A*	*223*	*N/A*	*21*	*9*
Baseline Plus Alternative 1 Exceed Significance Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

lbs/day: pounds per day; VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District; EIR: Environmental Impact Report; CEQA: California Environmental Quality Act.

Source: Landrum & Brown 2018. Emissions calculations can be found in Appendix E.

Impact Conclusion *Alternative 1 would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Emissions associated with construction would be reduced to less than significant with*

the implementation of MM AQ-1, which requires the use of Tier 4 construction equipment. Additionally, MN AQ-1, which requires the use of low VOC architectural coatings on the East and West Access Roads, would serve to further reduce VOC emissions. Although significant impacts were not identified for VOCs, MN AQ-2 requires the use of ZEV GSE, where available (e.g. tugs, water carts, lavatory carts, other ramp service equipment/vehicles) for 90 percent or greater of the GSE operating hours. Operational emissions of criteria pollutants would be below established thresholds established by the SCAQMD for the SoCAB. Therefore, impacts associated with Alternative 1 under Threshold 4.2-2 would be less than significant with mitigation for construction and less than significant for operations.

Threshold 4.2-3

- ***Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?***

Proposed Project and Alternative 1

Cumulative impacts analysis for air quality is based on the guidance provided by SCAQMD (SCAQMD 2003). Pursuant to that guidance, projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. Projects that do not exceed the project-specific thresholds are generally not considered cumulatively significant.

As discussed under Threshold 4.2-2, both the Proposed Project and Alternative 1 air emissions would be less than significant. Construction emissions would be less than significant with implementation of mitigation and the operational emissions would be less than significant prior to mitigation. Additionally, the GAIP (Proposed Project and Alternative 1) has been included as part of the regional long-range forecasted planning period for both the 2016-2040 RTP/SCS and AQMP (see Threshold 4.2-1). Therefore, the GAIP (Proposed Project and Alternative 1) would not result in cumulatively considerable net increase of any criteria pollutant for which the SoCAB region has a non-attainment status under an applicable federal or state ambient air quality standard and impacts would be less than significant.

Impact Conclusion: *Based on the SCAQMD guidance, projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. Neither the Proposed Project nor Alternative 1 would exceed the project-specific thresholds with mitigation; therefore, they would not result in a cumulatively considerable net increase of any criteria pollutant for which the SoCAB region has a non-attainment status under an applicable federal or state ambient air quality standard. Under Threshold 4.2-3, impacts for the Proposed Project and Alternative 1 would be less than significant.*

Threshold 4.2-4

- ***Would the Project expose sensitive receptors to substantial pollutant concentrations?***

Proposed Project and Alternative 1

Criteria Pollutants

Local concentrations and emissions of criteria pollutants generated during construction and operation of the GAIP (Proposed Project and Alternative 1) are addressed under Threshold 4.2-2. Because emissions would be less than SCAQMD significance thresholds with mitigation, sensitive receptors would not be exposed to substantial pollutant concentrations.

Toxic Air Contaminants

Construction Emissions

As discussed above, CARB identified diesel PM from diesel-fueled engines as a TAC. It is assumed that the majority of the heavy-duty construction equipment utilized during construction of the Proposed Project would be diesel fueled and emit diesel PM. The expected types of heavy-duty equipment include cranes, excavators, graders, dozers, and scrapers. These pieces of equipment would primarily be used during grading and demolition activities.

During the construction of the Proposed Project, demolition and grading activities would occur approximately 25 percent of the time throughout the seven-year construction period (approximately 630 days for the Proposed Project and 595 days for Alternative 1). Additionally, not only is the overall percentage of the construction time dedicated to grading and demolition activities relatively short, this would be broken into each of the 14 or 15 primary construction phases, for the Proposed Project and Alternative 1, respectively. Therefore, the grading and demolition would not occur for the estimated 630 days or 595 days straight but would be for short durations as part of each of the phases. The other phases of construction, such as when the vertical development is occurring, do not emit substantial diesel PM.

Given the overall construction schedule and limited durations with grading and demolition activities, the diesel PMs resulting from construction of the Proposed Project are not expected to result in a significant impact. Furthermore, all construction activities would be confined to the Airport property and away from sensitive receptors, including residential areas. In addition, MM-AQ-1 requires the use of Tier 4 equipment for construction activities, which requires the use of cleaner engines and would further reduce potential diesel PM emissions during all construction activities.

Operational Emissions

The GAIP (Proposed Project and Alternative 1) would result in emissions from general aviation aircraft, and the usage of APUs and GSE associated with the corresponding aeronautical activity. Based on the aviation forecasts prepared for the GAIP, the Baseline (2016) Plus Proposed Project and Baseline (2016) Plus Alternative 1 scenarios would result in a decrease in the total number

of general aviation aircraft operations. However, due to the anticipated change in the aircraft fleet mix, there is an estimated overall increase in criteria air pollutant emissions (see discussion under Threshold 4.2-2). In addition to an increase in the criteria pollutants discussed above, there would be potential increases in TACs. In order to evaluate the environmental significance of the GAIP-related TACs, the health risk analysis ("HRA") conducted for Final EIR 617, prepared for the 2014 Settlement Agreement Amendment, was used as a basis to assess the potential health risk impacts. The HRA prepared for Final EIR 617 is hereby incorporated by reference and is summarized below.

The HRA prepared for Final EIR 617 was conducted in accordance with CARB's Air Toxics Hot Spots Program Risk Assessment Guidelines and is consistent with risk assessment guidance documents issued by USEPA and the California Environmental Protection Agency's ("CalEPA") Department of Toxic Substances Control. Simplifying assumptions were also obtained from the SCAQMD risk assessment guidelines. Compounds were evaluated for their potential health effects in two categories, carcinogenic and non-carcinogenic.

The Chemicals of Potential Concern ("COPC") emissions were estimated using th e FAA Emissions Dispersion and Modeling System ("EDMS") and include emissions from startup, taxi out, take off, climb out, approach, and taxi in. EDMS provides emission estimates for 394 organic gases, of which 45 are hazardous air pollutants. The health risk posed by the identified COPCs are estimated using air dispersion modeling tools.

Per SCAQMD HRA guidance for cancer risk analysis, a continuous exposure of 24 hours per day, 350 days per year for a 70-year lifetime is assumed for residents in Final EIR 617. This is a highly conservative assumption, since most people do not remain at home all day and, on average, residents change residences every 11 to 12 years. In addition, the Final EIR 617 analysis conservatively assumes that residents are experiencing outdoor concentrations for the entire exposure period. The same conservative assumptions are used in Final EIR 617 for non-residential sensitive receptors, such as daycare centers, schools, hospitals, and other care facilities.

For occupational receptors, and in accordance with SCAQMD guidance, Final EIR 617 assumes an exposure based on 8 hours per day, 5 days per week, 245 working days per year, and a 40-year working lifetime. This again is a conservative assumption, since most people do not remain at the same job for 40 years. The SCAQMD also provides specific daily breathing rates and exposure value factors for estimating cancer risks that are used in Final EIR 617.

The Final EIR 617 HRA considered emissions associated with the following sources:

- Aircraft
- GSE
- APU
- On-road mobile sources, including vehicles in the JWA parking lots and structures; passenger-related terminal and off-site traffic; and JWA-owned vehicles and equipment
- JWA stationary source equipment, such as heaters/boilers, emergency engines, steam washers, surface cleaners, cooling towers, and gasoline and diesel dispensing tanks, as well as the central utility plant (i.e., CoGen facility).

To provide context, Final EIR 617 studied the health effects of increasing commercial carrier operations and the number of passengers served by approximately 15 percent from January 2016 to January 2026. The analysis in Final EIR 617 included a substantial increase in traffic associated with the increased number of passengers (i.e., an increase from 10.8 Million Annual Passengers ["MAP"] to 12.5 MAP). As a point of comparison, the GAIP (Proposed Project and Alternative 1) would decrease the overall number of general aviation operations by approximately 13 percent in this same period. The number of automobile trips accessing the Airport would be slightly reduced with the GAIP (Tables 4.8-6 and 4.8-13 in Transportation/Traffic provide the automobile trip numbers for the Proposed Project and Alternative 1, respectively). As previously noted, the GAIP would change the fleet mix to include fewer piston aircraft and an increase the use of turbine engine aircraft and jet operations. However, the reduction in the number of operations by piston aircraft would result in a reduction in the usage of avgas, which contains lead.[5]

Final EIR 617 concluded that the incremental increase in TACs associated with that project would result in less-than-significant health risk impacts for cancer risk, cancer burden, and chronic non-cancer risk for all receptors. Additionally, less-than-significant health risk impacts would result with respect to acute non-cancer risk for residents and other sensitive receptors. Significant acute non-cancer health risk impact for workers was identified in Final EIR 617. The SCAQMD's threshold for identifying a significant acute non-cancer health risk impact for workers is a hazard index ≥1.0. The analysis provided in Final EIR 617 identified that the selected alternative posed a risk of 1.0 in a million. Therefore, the acute non-cancer health risk impact to workers was identified as a significant and unavoidable. This information is summarized in Table 4.1-23 of Final EIR 617.

The analysis in the Final EIR 617 HRA was used as a screening mechanism for assessing the potential for the GAIP (Proposed Project and Alternative 1) to result in a significant health risk. As part of the screening process, the emissions associated with the 2014 Settlement Agreement Amendment and the emissions from the GAIP (Proposed Project and Alternative 1) were compared. The TAC emissions are often expressed as fractions of VOC and PM emissions for emissions from combustion, thus the VOC and PM emissions for the GAIP are relied upon in this screening analysis. A comparison of the criteria pollutant emissions associated with the 2014 Settlement Agreement Amendment and the net emissions associated with the GAIP (Proposed Project and Alternative 1) are presented in Table 4.2-14. As shown, the emissions of criteria pollutants associated with the GAIP (Proposed Project and Alternative 1) would be a fraction of the pollutants associated with the 2014 Settlement Agreement Amendment. The VOC emissions for the GAIP would be approximately 25 percent and 29 percent of the emissions evaluated for the 2014 Settlement Agreement Amendment for the Proposed Project and Alternative 1, respectively. For the Proposed Project, when compared to the 2014 Settlement Agreement Amendment, the PM emissions would be 0.49 percent and 1.9 percent for PM10 and PM2.5, respectively. Similarly, for Alternative 1, the PM emissions would be a small percentage of the PM emissions associated with the 2014 Settlement Agreement Amendment (i.e., 0.5 percent for PM10 and 2.1 percent for PM2.5).

[5] As discussed in Section 4.5, Hazards and Hazardous Materials, avgas is the only remaining lead-containing transportation fuel. Lead has been found to be a toxic substance. The U.S. Environmental Protection Agency ("USEPA") is expected to make a final determination on avgas in 2018. Replacement of aviation gasoline by 2018 is anticipated through the Piston Aviation Fuels Initiative ("PAFI") (AECOM 2018)

TABLE 4.2-14
NET OPERATIONAL EMISSIONS COMPARISON
2014 SETTLEMENT AGREEMENT AMENDMENT AND THE
BASELINE PLUS GAIP SCENARIOS

Scenarios	Emissions (pounds per day)					
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$
2014 Settlement Agreement Amendment Emissions[a]	-5,343	111	758	78	164	43
Baseline + Proposed Project Net Operational Emissions (Table 4.2-9)	-365.7	28.1	39.2	6.3	0.8	0.8
GAIP Emissions as a Percentage of the 2014 Settlement Agreement Amendment Emissions	**6.8%[b]**	**25.3%**	**5.2%**	**8.1%**	**0.5%**	**1.9%**
Baseline + Alternative 1 Net Operational Emissions (Table 4.2-13)	-345.8	31.8	42.6	6.8	0.9	0.9
GAIP Emissions as a Percentage of the 2014 Settlement Agreement Amendment Emissions	**6.5%[b]**	**28.6%**	**5.6%**	**8.7%**	**0.5%**	**2.1%**

VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less.

[a] Data presented in Table 4.1-8 of Final EIR 617. Values reflect Phase 3 emissions, which represent the highest values.

[b] Both the 2014 Settlement Agreement Amendment and the Proposed Project would reduce CO emissions.

Source: Landrum & Brown 2018 for the GAIP data; Final EIR 617 for the 2014 Settlement Agreement Amendment data.

As illustrated, the Proposed Project and Alternative 1 would result in a substantially smaller incremental increase in air pollutant emissions than the project studied in Final EIR 617. Thus, the increase in TAC emissions for the GAIP (Proposed Project and Alternative 1) would also be much smaller than that analyzed in the Final EIR 617. The potential health risk impacts for the GAIP (Proposed Project and Alternative 1) is, therefore, the impacts would be less than significant.

Therefore, based on the projected level of pollutant concentrations, the Proposed Project and Alternative 1 would not expose sensitive receptors to substantial pollutant concentrations.

Impact Conclusion: *The emissions associated with the Proposed Project and Alternative 1, after mitigation, would be less than the SCAQMD thresholds of significance for all criteria pollutants. Further, neither the Proposed Project nor Alternative 1 would result in substantial concentrations of TAC emissions as the concentrations would be below the significance thresholds for both workers and adjacent sensitive receptors. (The closest sensitive receptor would be approximately 855 feet south of the Airport.) Therefore, neither the Proposed Project nor Alternative 1 would expose sensitive receptors to substantial pollutant concentrations; the impacts would be less than significant under Threshold 4.2-4.*

4.2.8 CUMULATIVE IMPACTS

For informational purposes, this analysis considers four related projects at the Airport to assess cumulative impacts. These related projects are described in Section 4.0 of this Program EIR. The four related projects include the 2014 Settlement Agreement, Paularino Gate Relocation, Taxiway B rehabilitation, and the Wickland Pipeline Project. The cumulative analysis addresses the potential cumulative impacts from the construction and operations of the GAIP and these related projects.

As discussed above (see Threshold 4.2-3), the cumulative impacts analysis for criteria air pollutants is based on guidance provided by the SCAQMD that projects exceeding project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. Conversely, projects not exceeding project-specific thresholds are generally not considered cumulatively significant (see discussion under Threshold 4.2-3) (SCAQMD 2003). Therefore, following this guidance, the GAIP (Proposed Project and Alternative 1) would not have a cumulatively considerable contribution to any cumulative air quality impacts. Specifically, the GAIP's construction-related emissions would be below SCAQMD thresholds with implementation of MM AQ-1, and the GAIP's operational-related emissions would not exceed SCAQMD thresholds.

To further supplement the evaluation, the analysis considers the construction emissions for the related projects. The Paularino Gate Relocation, Taxiway B Rehabilitation, and the Wickland Pipeline Project would not be under construction at the same time as the GAIP improvements. There would not be an instance where construction emissions from each project would occur at the same time, and there are no cumulative construction emissions.[6] Therefore, the Project would not have a cumulatively considerable contribution to any cumulative construction-related air quality impacts.

The analysis also further evaluates the operational emissions of the related projects. The 2014 Settlement Agreement Amendment evaluates the potential increase in commercial flight activity. Based on that analysis, the operational NO_x and PM_{10} emissions were above the significance thresholds. The Paularino Gate Relocation and Taxiway B rehabilitation projects do not lead to increases in operational emissions because these projects do not change the function or usage of the Airport. The Wickland Pipeline project provides for fuel delivery via a pipeline and additional storage capacity of approximately 3 million gallons of Jet-A fuel. Once completed (estimated by the end of 2018), this project would reduce the criterial pollutant emissions associated with fuel delivery. Based on the operational changes from these related projects, there is a cumulatively significant impact for NO_x and PM_{10} emissions. However, based on the analysis of the GAIP (Proposed Project and Alternative 1), the GAIP does not have a cumulatively considerable contribution to this cumulative impact.

Similarly, the GAIP does not have a cumulatively considerable contribution to health risk impacts. As discussed above (see Threshold 4.2-4), the Project has a less than significant impact relative to health risk significance thresholds, and therefore would not have a cumulatively considerable contribution to health risk. The 2014 Settlement Agreement Amendment Health Risk Assessment prepared for Final EIR 617 demonstrates that the maximum estimated

[6] Note that the 2014 Settlement Agreement did not include construction activities.

incremental risk (cancer, chronic non-cancer, and acute non-cancer risks) associated with the 2014 Settlement Agreement amendment were all substantially below the SCAQMD established thresholds, except for the acute non-cancer risk for workers.[7] The Paularino Gate Relocation, Taxiway rehabilitation, and the Wickland Pipeline Project were less than significant for health risk impacts. The background health risk, however, is significant. SCAQMD has conducted several phases of the Multiple Air Toxics Exposure Study (MATES) to characterize health risks potentially posed by TACs in the Southern California Air Basin. In May 2015, SCAQMD released the final MATES-IV report[8], which concludes that that cancer risk in the basin has decreased 65% between the study periods for MATES-III and MATES-IV. The report further concludes that, while DPM exposure has decreased by approximately 70 percent, DPM still dominates the overall cancer risk from air toxics; and the highest risks are seen to occur near ports and transportation corridors. An interactive map showing model-calculated cancer risks[9], based on MATES-IV, estimated that TAC-related cancer risk in the Project area ranges from 748 to 887 in a million. Based on this SCAQMD study, the health risk in the area is cumulatively significant. However, based on the evaluation of the GAIP (Proposed Project and Alternative 1) and SCAQMD methodology, the project does not have a cumulatively considerable contribution to this cumulative impact.

4.2.9 MITIGATION PROGRAM

Minimization Measures

Although a significant VOC impact resulting from construction activities was not identified, Minimization Measure (MN) AQ-1 is recommended to further reduce the VOC emissions levels during construction.[10] This measure exceeds Rule 1113 (RR AQ-2) requirements for traffic coatings. Similarly, MN AQ-2 would further reduce the emissions associated with operations. MN GHG-2, provided in Section 4.4, Greenhouse Gas Emissions, identifies that the general aviation lease agreements will require compliance with the provisions of the *John Wayne Airport Climate Action Plan* ("CAP"). Implementation of the CAP measures would also serve to reduce Airport-related air quality emissions, including criteria pollutants.

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7 For example, the SCAQMD threshold identifies a significant project impact when the chronic and acute hazard index is ≥ 1.0 Hazard Index. The chronic non-cancer risk values for the 2014 Settlement Agreement Amendment are below 0.1 for all categories, which is less than a tenth of the threshold. For sensitive populations, the 2014 Settlement Agreement Amendment's maximum hazard index is 0.031. For acute non-cancer, the 2014 Settlement Agreement Amendment's maximum estimated hazard index for residential receptors is 0.53 and sensitive receptors is 0.60, again, substantially below the SCAQMD threshold. A summary of the quantified findings is presented in Table 4.1-23 of Final EIR 617.

8 SCAQMD. 2015. MATES IV Final Report. Available at: http://www.aqmd.gov/home/air-quality/air-quality-studies/health-studies/mates-iv. Accessed: June, 2018.

9 SCAQMD. 2015. "Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES-IV)." MATES IV Interactive Carcinogenicity Map. Available at: https://scaqmd-online.maps.arcgis.com/apps/webappviewer/index.html?id=470c30bc6daf4ef6a43f0082973ff45f. Accessed: June, 2018.

10 As defined in Section 4.0, a minimization measure is a condition proposed to reduce an adverse effect of the Project even when that effect does not result in a significant impact.

MN AQ-1 JWA shall require architectural coatings applied to the East and West Access Roads be low VOC coatings.[11] Specifically, JWA shall require the use of a paint for markings with less than 50 grams of VOC emissions per liter of paint.

MN AQ-2 General Aviation FBOs shall employ Zero Emission Vehicle ("ZEV") GSE where available (e.g. tugs, water carts, lavatory carts, other ramp service equipment/vehicles) for 90 percent or greater of the GSE operating hours. Where ZEVs are not available, vehicles shall meet Ultra Low Emission Vehicle ("ULEV") requirements. Where ULEVs are not available, and only diesel fuel engine trucks are available, the diesel-fueled truck shall comply with the On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation.

FBOs shall maintain monthly records regarding GSE type, make, model, year, fuel type, horsepower (if non-electric), and hours in-use. Monthly records are subject to audit and verification by JWA. These records shall be provided to JWA annually in June.

Mitigation Measures

MM AQ-1 JWA shall require heavy-duty, off-road, diesel-powered construction equipment to meet or exceed the USEPA's Tier 4 off-road emissions engine standards during Airport construction in order to reduce construction-related NOx emissions.

4.2.10 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Mitigation measures would reduce the potentially significant NO_X construction-related impact to less than significant. Mitigation is not required for operational-related emissions. Therefore, with implementation of MM AQ-1, construction and long-term operational impacts would be less than significant for both the Proposed Project and Alternative 1. The GAIP (Proposed Project and Alternative 1) would also not substantially contribute to a cumulative air quality impacts based on SCAQMD guidance and the additional analysis of related projects. Therefore, the GAIP's cumulative impact would be less than significant.

4.2.11 REFERENCES

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[11] Sherwin Williams, *Pro-Park Waterborne Traffic Marking Paint B97 Series*, July 2017. Available on-line: https://www.sherwin-williams.com/document/PDS/en/035777081228/ Accessed January 2018.

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4.3 CULTURAL AND SCIENTIFIC RESOURCES

This section evaluates the potential for the GAIP to have adverse effects on cultural and paleontological resources. Information in this section is based upon the records searches and literature reviews of information available for the General Aviation Improvement Program ("GAIP") on or before November 21, 2016.

4.3.1 REGULATORY SETTING

In addition to CEQA itself, various cultural resource laws, regulations, and guidelines set up the processes for defining what is or is not a significant cultural resource and include various agency procedures for managing these archaeological resources and accessing the information that cultural remains can provide to determine their importance. Most importantly is whether these cultural remains are eligible for inclusion in a national or state register (i.e., National Register of Historic Places ["NRHP"] and the California Register of Historic Resources ["CRHR"]). The purposes of the laws and regulations serve to do the following:

- Set forth the criteria for assessing the relative importance of cultural remains,
- Outline the procedures for reviewing assessments,
- Delineate the responsible parties involved in making such assessments,
- Identify and define the extent of jurisdiction and responsibility of each party in the evaluation process,
- Set forth the criteria for making a determination of significance as well as indicating which party can or cannot make such determinations,
- Set forth the criteria for the archaeological and historic preservation work performed, and
- Set forth the criteria regarding who can perform the archaeological and historic preservation work.

The following subsections provide a summary of applicable federal and state laws, regulations, and standards that govern cultural resource management within the portion of the Airport proposed for GAIP activities.

Federal

This Program EIR is being prepared pursuant to the California Environmental Quality Act ("CEQA"). Information on Federal requirements is provided for informational purposes and would be addressed in the documentation prepared pursuant to the National Environmental Policy Act ("NEPA").

The National Historic Preservation Act of 1966

The National Historic Preservation Act ("NHPA") of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places ("NRHP").

Section 106 of the National Historic Preservation Act

Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation ("ACHP") the opportunity to comment on those undertakings as part of the environmental assessment process, following regulations issued by the ACHP (36 Code of Federal Regulations ["CFR"] 800).

Section 106 of the NHPA defines "historic properties" as:

> Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR Part 800 Protection of Historic Properties, Section 800.16 Definitions [I] [1]).

Section 36 CFR 60.4, provides the criteria for evaluating properties for nomination to the NRHP. The following guidance is provided in the regulation:

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and
>
> (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (b) that are associated with the lives of persons significant in our past; or
>
> (c) that embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinctions; or
>
> (d) that have yielded, or may be likely to yield information important in prehistory or history.

As discussed above, for a property to be listed in the NRHP, it must meet one or more of the criteria of significance, and it must also retain integrity.

Native American Graves and Repatriation Act

The Native American Graves Protection and Repatriation Act (NAGRPA) established a means for Native Americans, including Indian Tribes, to request the return of human remains and other sensitive cultural items held by federal agencies or federally assisted museums or institutions. NAGPRA also contains provisions regarding the intentional excavation and removal of, inadvertent discovery of, and illegal trafficking in Native American human remains and sensitive cultural items.

State

California Public Resources Code (Section 21083.2 and 21084.1)

CEQA requires a lead agency to determine whether a project would have a significant effect that would cause a substantial adverse change in the significance of a historical resource or a unique archaeological resource. California Public Resources Code ("PRC") Sections 21083.2 and 21084.1 deal with the definitions of unique and non-unique archaeological resources and historical resources.

Unique Archaeological Resource

The CEQA statutes (PRC Section 21083.2 (g)) define a "unique archaeological resource" as:

> . . . an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
>
> (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
>
> (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Section 21083.2 directs the lead agency to determine whether the project may have a significant effect on unique archaeological resources. If the lead agency determines that the project may have a significant effect on unique archaeological resources, the environmental impact report shall address the issue of those resources. CEQA requires the lead agency to consider whether the project will have a significant effect on unique archaeological resources and to avoid unique archaeological resources when feasible or mitigate any effects to less-than-significant levels per PRC 21083.2.

Additionally, State CEQA Guidelines Section 15126.4(b)(3) provides guidance for the consideration of unique archaeological resources and states:

> Public Agencies should, whenever feasible, seek to avoid damaging effects on any historical resource of an archaeological nature. The following factors shall be considered and discussed in an EIR for a project involving such an archaeological site:
>
> (A) Preservation in place is the preferred manner of mitigating impacts to archaeological sites. Preservation in place maintains the relationship between artifacts and the archaeological context. Preservation may also avoid conflict with religious or cultural values of groups associated with the site.

(B) Preservation in place may be accomplished by, but is not limited to, the following:

1. Planning construction to avoid archaeological sites;

2. Incorporation of sites within parks, greenspace, or other open space;

3. Covering the archaeological sites with a layer of chemically stable soil before building tennis courts, parking lots, or similar facilities on the site;

4. Deeding the site into a permanent conservation easement.

(C) When data recovery through excavation is the only feasible mitigation, a data recovery plan, which makes provision for adequately recovering the scientifically consequential information from and about the historical resource, shall be prepared and adopted prior to any excavation being undertaken. Such studies shall be deposited with the California Historical Resources Regional Information Center. Archaeological sites known to contain human remains shall be treated in accordance with the provisions of Section 7050.5 Health and Safety Code. If an artifact must be removed during project excavation or testing, curation may be an appropriate mitigation.

(D) Data recovery shall not be required for an historical resource if the Lead Agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource, provided that the determination is documented in the EIR and that the studies are deposited with the California Historical Resources Regional Information Center."

Historical Resource

A "historical resource" is defined in Section 21084.1 of the State CEQA Statutes and Section 15064.5(a) of the Guidelines, as a resource listed in or determined to be eligible for listing in the CRHR (PRC Section 21084.1); a resource included in a local register of historical resources (14 *California Code of Regulations* ["CCR"], Section 15064.5[a][2]); or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (14 CCR Section 15064.5[a][3]).

The criteria for listing resources in the CRHR, which were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP (per the criteria listed at 36 CFR Section 60.4) are stated below.

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possesses integrity of location, design, setting, materials, workmanship, feeling and association and:

(a) that are associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; or

(b) that are associated with the lives of persons important in our past; or

(c) that embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

(d) that have yielded, or may be likely to yield, information important in prehistory or history.

Section 5024.1 of the PRC, Section 15064.5 of the State CEQA Guidelines (14 CCR), and Sections 21083.2 and 21084.1 of the CEQA Statutes were used as the basic guidelines for the cultural resources study. PRC 5024.1 requires evaluation of historical resources to determine their eligibility for listing in the CRHR. The purposes of the CRHR are to maintain listings of the State's historical resources and to indicate which properties are to be protected from substantial adverse change.

Substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.

The significance of a historical resource is materially impaired when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources...unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

California Health and Safety Code (Sections 7050.5, 7051, and 7054)

These sections of the *California Health and Safety Code* collectively address the illegality of interference with human burial remains (except as allowed under applicable sections of the California Public Resources Code). These sections also address the disposition of Native American burials in archaeological sites and protect such remains from disturbance, vandalism, or inadvertent destruction. Procedures to be implemented are established for: (1) the discovery of Native American skeletal remains during construction of a project; (2) the treatment of the remains prior to, during, and after evaluation; and (3) reburial.

Section 7050.5 of the *California Health and Safety Code* specifically provides for the disposition of accidentally discovered human remains. Section 7050.5 states that, if human remains are found, no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner (Coroner) has determined the appropriate treatment and disposition of the human remains.

California Public Resources Code (Section 5097.98)

Section 5097.98 of the *California Public Resources Code* states that, if the Coroner determines that remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours which, in turn, must identify the person or persons it believes to be the most likely descended from the deceased Native American. The descendants shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains. This section of the *California Public Resources Code* has been incorporated into Section 15064.5(e) of the State CEQA Guidelines.

California Public Resources Code (Section 5097.5)

Section 5097.5 of the *California Public Resources Code* limits the excavating, removal, destruction or defacing of any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site situated on lands owned or under the jurisdiction of the state, or any city, county, district, authority or public corporation, or any agency thereof.

4.3.2 METHODOLOGY

CEQA requires a lead agency to determine whether a project would have a significant effect that would cause a substantial adverse change in the significance of a historical resource or a unique archaeological resource. The cultural resource analysis in this section provides that documentation and is based on the record searches and consideration of the issues described below. For purposes of evaluating impacts, the portion of the Airport dedicated to general aviation activity or proposed as potential staging areas (see Exhibit 2-1) is assumed to be the Area of Potential Effect ("APE") because it would encompass the full area that may be directly or indirectly affected by the GAIP activities. The APE would be the same for all GAIP scenarios.

Cultural Resources Records Search

A cultural resources records search was conducted for the GAIP at the South Central Coastal Information Center ("SCCIC") at California State University, Fullerton on November 21, 2016. Based on the search, at least 50 cultural resources studies were undertaken within ½-mile of the Airport and two of the studies included a portion of the Airport, although none identified any cultural resources within the GAIP APE. Though the GAIP will not involve improvements to the entire Airport site, for purposes of the cultural resources record search, the approximately 400 acres of the Airport dedicated to aviation activity was assumed as the GAIP study area. The SCCIC is the designated branch of the California Historical Resources Information System ("CHRIS") for the GAIP area and houses records concerning archaeological and historic resources in Los Angeles, Ventura, San Bernardino, and Orange Counties.

The review consisted of an examination of the U.S. Geological Survey's ("USGS") Newport Beach and Tustin, California 7.5-minute quadrangles to determine if any cultural resources studies have been conducted on or within a ½-mile radius of the parcel. The records search provided data on recorded archaeological and built environment resources on or within ½ mile of the GAIP APE. Sources consulted at the SCCIC included archaeological records, Archaeological Determinations of Eligibility, historic maps, and the Historic Property Data File ("HPDF")

maintained by the California Office of Historic Preservation. The HPDF contains listings for the CRHR and/or the NRHP, California Historical Landmarks, and California Points of Historical Interest.

In conjunction with the evaluation of Tribal Cultural Resources, the Native American Heritage Commission ("NAHC") conducted a Sacred Lands File ("SLF") search for the GAIP area. The search failed to identify any sacred places or objects with cultural value to a California Native American tribe on the Airport property. The County extended an offer for consultation to tribes that have expressed an interest in being consulted regarding Native American resources for the projects being undertaken in unincorporated Orange County. The Gabrielino Band of Mission Indians – Kizh Nation responded. This consultation did not identify any known resources. Tribal Cultural Resources is more fully discussed in Section 4.9 of this Program EIR.

Paleontological Literature Review

The literature review included an examination of the geologic maps for the GAIP disturbance area. The literature review encompasses the entire GAIP footprint and included a one-mile buffer around the GAIP disturbance area. In addition to the reviewed published geologic maps, technical reports provided the basis from which the regional and project-specific geology was derived for the GAIP.

Relevant published literature and unpublished manuscripts regarding the geology and paleontology of central Orange County were also reviewed for the GAIP. In the process of conducting the background literature review, existing paleontological resource data (including such published resources as books, journals, and geologic maps, as well as information available via the internet on government websites) were consulted. Additionally, an online database search was conducted to identify previous paleontological resource assessments conducted within the boundaries of the GAIP disturbance area and the surrounding areas.

Paleontological Resources Records Search

A paleontological resources records search and literature review was conducted by staff of the Los Angeles County Natural History Museum ("LACNHM") on December 5, 2016.

Cultural and Paleontological Resources Survey

The GAIP APE is located in an entirely built environment; therefore, an archaeological and paleontological field survey was not conducted.

Historic Resources

The evaluation of potential historic resources was based on literature review, including use of files at the SCCIC, of the City of Newport Beach *Historic Resources Element of the General Plan*, historic aerial photographs from www.historicaerials.com, and the Cultural Resources Technical Appendix prepared to support the Mitigated Negative Declaration and the Finding of No Significant Impact for the John Wayne Airport Jet Fuel Pipeline project (also known as the Wickland Pipeline). The analysis used the Secretary of Interior standard guidelines for review of potential National Register-eligible buildings, structures, or features that are 50 years of age or

older as a screening of buildings, structures, and objects that would be directly or indirectly impacted by the GAIP. For indirect impacts, structures immediately adjacent to GAIP APE were reviewed.

4.3.3 EXISTING CONDITIONS

Prehistory

To understand Native American cultures prior to European contact, archaeologists have devised chronological frameworks that endeavor to correlate the observable technological and cultural changes in the archaeological record to distinct periods. These chronological frameworks have not been fully accepted since the development of an overall chronological framework for the region is hindered by the lack of a sufficient number of sites with distinct stratigraphic layers of cultural sequences that could be dated by absolute dating methods. Since results from archaeological investigations in this region have yet to be synthesized into an overall chronological framework, most archaeologists tend to follow a chronology adapted from a scheme developed by William J. Wallace in 1955 and modified by others. Although the beginning and ending dates of the different horizons or periods may vary, the general framework of prehistory in this region consists of the following four periods:

- **Horizon I: Early Man or Paleo-Indian Period (11,000 BCE[1] to 7,500 BCE).** This early stage of human occupation is commonly referred to as the Paleo-Indian period today (Chartkoff and Chartkoff 1984:24). At inland archaeological sites, the surviving material culture of this period is primarily lithic, consisting of large, extremely well made stone projectile points and tools such as scrapers and choppers. Encampments were probably temporary, located near major kills or important resource areas.
- **Horizon II: Milling Stone Assemblages (7,500 BCE to 1,000 BCE).** The Milling Stone Period was named for the abundant millingstone tools associated with sites of this period. These tools, the mano and metate, were used to process small, hard seeds from plants associated with shrub-scrub vegetation communities. An annual round of seasonal migrations was likely practiced, with movements coinciding with ripening vegetal resources and the periods of maximal availability of various animal resources. In addition to gathering activities, evidence suggests that a diversity of subsistence activities, including hunting of various game animals, were practiced during this period of time (Koerper 1981; Koerper and Drover 1983).
- **Horizon III: Intermediate Cultures (1,000 BCE to 750 CE).** The Intermediate period is identified by a mixed strategy of plant exploitation, terrestrial hunting, and maritime subsistence strategies. Evidence of increased mortar and pestle use during this time period is present. The mano and metate continued to be in use on a reduced scale, but the greatly intensified use of the mortar and pestle signaled a shift away from a subsistence strategy based on seed resources to that of the acorn. It is probably during this time period that the acorn became the food staple of the majority of the indigenous tribes in Southern California. This subsistence strategy continued until European contact. Material culture generally became more diverse and elaborate during this time period and

[1] BCE stands for "Before Common Era" and CE stands for "Common Era". These alternative forms of "BC" and "AD", respectively, are used throughout this document.

includes steatite containers, perforated stones, bone tools, ornamental items, and asphalt adhesive.

- **Horizon IV: Late Prehistoric Cultures (750 CE to 1769 CE).** During the Late Prehistoric period, exploitation of many food resources, particularly marine resources among coastal groups, continued to intensify. The material culture in the Late Prehistoric Horizon increased in complexity in terms of the abundance and diversity of artifacts being produced. Evidence recovered from this period of time suggests a greater use of the bow and arrow. Shell beads, ornaments, and other elements of material culture continue to be ornate, varied, and widely distributed, the latter evidence suggestive of elaborate trade networks.

History

The major historic periods for the greater Southern California area are defined by key events documented by participants, witnesses, historians, and cartographers. Paramount among these was the transfer of political control over Alta California, including the study area specifically.

- Spanish Period (1769–1821)
- Mexican Period (1821–1848)
- American Period (1848-Present)

The historic era encompasses the period of occupation by European descendants. This period marked a time of disease, exploitation, and deculturation of the native peoples beginning circa. 1769 with the founding of the Mission San Diego de Alcalá. The occupation and control by the Spanish was passed on to Mexico after the latter gained its independence in 1821. The Mexican Period, in turn, gave way to control by the United States subsequent to the Mexican-American War and the treaty of Guadalupe Hidalgo in 1848.

Spanish Period

Spanish explorer Juan Rodriguez Cabrillo made a temporary landfall at the Chumash village of *Sisolop* (present-day Ventura) on October 12, 1542 (Grant 1978:518). He was the first of several early explorers, representing several nations, to explore the *Alta California* coast. However, the end of the prehistoric era in Southern California is marked by the arrival of the Gaspar de Portolá overland expedition from New Spain (Mexico) and founding of the first Spanish settlement at San Diego on July 16, 1769 (Johnston 1962). Though Spain had claimed California for more than 200 years, it was not until 1769 that the first efforts were made to colonize Orange County with the founding of Mission San Juan Capistrano on November 1, 1776.

Mexican Period

Mexico's independence from Spain in 1821 brought the Mexican Period in Alta California. The new government of Mexico had a very different outlook on mission activities. Secularization of the missions, planned under the Spanish, was greatly accelerated by the Mexican government. Mexico secularized the missions in 1833 and expanded on the Spanish practice of granting large tracts of ranch land to soldiers, civil servants, and pioneers. Plans to provide land, training, and living quarters for the Native American population never developed, and the mission lands were

soon under the control of a relatively few influential Mexican families. The rancho life style was relatively short lived but remains an influential period in California history.

American Period

Americans began to explore Alta California as early as 1826, when trapper Jedediah Smith arrived at Mission San Gabriel (Morgan 1953:200–202; Lewis 1993:441). An increasing influx of Americans from the eastern United States during the 1840s spurred an American challenge for the California territory. The American Period began with Mexico's defeat at the end of the Mexican-American War, resulting in the concession of California to the United States under the Treaty of Guadalupe Hidalgo on February 2, 1848 (Rolle 1998:91, 104). Only a few days before the treaty was signed, gold was discovered on the American River, however the Gold Rush of 1848–1849 was not started until several months later. American dominance became more apparent in 1850 when California became a state and was divided into 21 original counties (Marschner 2000). The County of Orange was formed in 1889.

John Wayne Airport

General aviation activities were started on what ultimately became JWA by aviation pioneer Eddie Martin, who founded the airfield after signing a five-year lease with the landowner, the Irvine Company. Martin also opened a flying school and established Martin Aviation, one of the nation's oldest aviation firms. From 1923 to 1939, the Airport operated as a privately owned general aviation facility. Eddie Martin Airport became a publicly owned facility in 1939 when the County of Orange acquired the site after a land transfer with the Irvine Company. The FAA gave the Airport the designator SNA, after Santa Ana, which was the largest city near the Airport at the time. In 1940, construction began on a new County airport after the Board of Supervisors appropriated $7,500 to build a 2,500 foot paved runway and taxi strip a mile south of the Eddie Martin Airport. In 1941 the County constructed an office building, hangar and field lighting.

After the 1941 attack on Pearl Harbor all civilian flying was halted within 150 miles of the West Coast. The federal government entered into a $1-per-year lease with the County of Orange for use of the Airport during the war. In 1942 the United States government condemned both the property owned by the County of Orange and property leased from the Irvine Company for the purpose of an Airport. The County's Airport subsequently became part of the Santa Ana Army Airbase owned by the federal government, and military operations began shortly thereafter.

After serving as a military base during World War II, it was returned by the federal government to the County. In 1952 the first regular airline service began when Arizona-based Bonanza Airlines signed a lease agreement with the County. In 1959 the FAA Control Tower opened south of its present location. A passenger terminal was built in 1967 but was demolished in 1994 after Terminals A and B and the parking structure facilities opened in 1990. In 2011 the terminal area was again improved with the opening of Terminal C. Through all the improvements, the County remained committed to maintaining both general aviation and commercial aviation uses.

Resource Description

Archaeological Resources

The CHRIS, maintains records and literature regarding cultural resources within California at nine regional offices. The CHRIS office for Orange County is located at California State University, Fullerton California. That office, the SCCIC, was the primary source for information regarding historic resources relevant to JWA.

Studies

A records search and literature review was conducted on November 21, 2016. It identified at least 50 cultural resources studies undertaken within ½ mile of the GAIP APE. Two of these studies included at least a portion of the GAIP APE (Table 4.3-1). However, neither study resulted in the identification of any cultural resources on the GAIP APE.

TABLE 4.3-1
CULTURAL RESOURCES STUDIES COMPLETED
WITHIN HALF-MILE OF THE AIRPORT

Report Number	Recorder/Year	Type of Study	Included the GAIP APE
OR-00044	Desautels 1977	Archaeological Survey Report	No
OR-00134	Desautels 1976	Archaeological Survey Report	No
OR-00246	Cottrell 1978	Archaeological Resource Assessment	No
OR-00270	Nelson and Hall 1975	Cultural Resources Evaluation	No
OR-00289	Van Horn 1978	Archaeological Survey Report	No
OR-00305	Schroth 1979	Irvine Ranch History	No
OR-00427	Mabry 1979	Test-Level Investigation	No
OR-00518	Brock 1980	Test Excavation	No
OR-00720	Cottrell 1983	Records Search	No
OR-00847	Padon 1985	Archaeological Resource Inventory	**Yes**
OR-00888	Mabry 1981	Archaeological Survey Report	No
OR-01016	Leonard 1975	Environmental Impact Evaluation	No
OR-01027	Van Horn 1990	Archaeological Survey Report	No
OR-01161	Mason and Brechbiel 1991	Monitoring Report	No
OR-01197	Brown 1992	Cultural Resources Reconnaissance	No
OR-01279	Mason and Brechbiel 1991	Monitoring Report	No
OR-01339	Demcak and Cottrell 1985	Archaeological Overview	No
OR-01350	McKenna and De Barros 1993	Archaeological Survey Report	No
OR-01351	McKenna and De Barros 1993	Archaeological Survey Report	No
OR-01380	Mason 1994	Treatment Plan	No
OR-01656	Mason 1997	Cultural Resources Survey Report	No
OR-01717	Mason and Brechbiel 1997	Monitoring Report	No
OR-01942	Padon 1999	Archaeological Resources Report	No
OR-01952	Anonymous 1996	Historic Property Survey Report	No

TABLE 4.3-1
CULTURAL RESOURCES STUDIES COMPLETED
WITHIN HALF-MILE OF THE AIRPORT

Report Number	Recorder/Year	Type of Study	Included the GAIP APE
OR-01985	Duke 1999	Cultural Resource Assessment	No
OR-02013	Wlodarski 1990	Archaeological Survey Report	No
OR-02131	Duke 2000	Cultural Resources Assessment	No
OR-02176	Lapin 2000	Cultural Resource Assessment	No
OR-02225	Strozier 1978	Planning Process	No
OR-02238	Lapin 2000	Cultural Resources Assessment	No
OR-02242	Duke 2000	Cultural Resources Assessment	No
OR-02247	Alcock 2000	Cultural Resources Investigation	No
OR-02256	Demcak 1999	Cultural Resources Assessment	No
OR-02260	Duke 2000	Cultural Resources Assessment	No
OR-02266	Demcak 1999	Archaeological Survey Report	No
OR-02301	Avina 2001	Monitoring Report	No
OR-02348	McKenna 2001	Cultural Resource Assessment	No
OR-02493	Billat 2000	Archaeological Investigation	No
OR-02494	Thane 2001	Archaeological Investigation	No
OR-02534	Unknown 1976	Archaeological Overview	No
OR-03231	Fulton and Fulton 2005	Archaeological Investigation	No
OR-03353	Schneeberger et al. 2006	Paleontological Resource Report	No
OR-03354	Schneeberger et al. 2006	Archaeological Survey Report	No
OR-03373	Arrington and Sikes 2006	Monitoring Report	No
OR-03972	Kim 2007	Technical Study	**Yes**
OR-04068	Fulton 2010	Cultural Resources Assessment	No
OR-04103	Fulton 2009	Cultural Resource Study	No
OR-04172	Chasteen 2011	Historic Property Survey Report	No
OR-04223	Flynn 2011	Feasibility Study	No
OR-04232	Bonner 2012	Records Search/Site Visit	No

An archaeological overview was conducted in 1985 by Beth Padon. The study focused on the City of Irvine and its sphere of influence. Although not done for the Airport, the northernmost portion of the GAIP APE north of I-405 was included in the study. The second investigation that included a portion of the study APE was conducted in 2007 by Steve Kim and focused on 12 very small sites located over most of the GAIP APE south of I-405. This study was done for the Airport to evaluated locations for the placement of an Airport related navigational system.

Neither of the two studies identified any cultural resources within their respective boundaries. No resources were impacted as a result. Additionally, there are no records filed with the SCCIC regarding discovery of resources during the construction of the 1985 Master Plan Improvements, which included Terminals A and B, or the more recent construction of Terminal C. Additionally, the County does not have any record of such discoveries.

Previously Recorded Sites

The SCCIC literature review undertaken on November 21, 2016, showed that one cultural resource site had been recorded within ½-mile of the GAIP APE (Table 4.3-2).

TABLE 4.3-2
CULTURAL RESOURCES SITES WITHIN HALF-MILE OF THE AIRPORT

Site Number	Recorder/Year	Description	Located Within Project Site
CA-ORA-1223	Van Horn 1990	Prehistoric habitation	No

The only site recorded within ½ mile of the GAIP APE is ORA-1223, a prehistoric site identified by shellfish remains and lithic implements and manufacturing debris. The site is not within the GAIP APE and will not be affected by the GAIP.

Paleontological Resources

The GAIP area is comprised of Quaternary Marine Terrace deposits, with some younger alluvial deposits overlying the northeastern portion. The alluvial deposits are derived from both the hills to the northeast and the Santa Ana River floodplain to the west of the GAIP area. Marine terrace deposits are blocks of sedimentary rocks that are preserved through a process of erosion of wave-cut platforms, subsequent deposition of coastal and alluvial sediments, and tectonic uplift. The base of marine terrace at JWA is dated at 120,000 years before present (Powell et al., 2005). The younger Quaternary alluvial deposits are not likely to contain significant vertebrate fossils, but marine terrace deposits similar to those found within the GAIP area are likely to produce significant fossils.

There were no fossil localities found during the LACNHM records search that lie within the GAIP boundary, although many have been recorded from similar-aged sediments within the same block of marine terrace. LACNHM 4219 is approximately 1.5 miles southwest of the GAIP area. A sea turtle, Cheloniidae, and camel, Camelidae, were found 30 feet below the surface. An undetermined elephant, Proboscidea, was recovered at LACNHM 3267, further to the southwest. A third locality, west of the GAIP area, produced fossils of *Mammuthus sp.* (mammoth) and Camelidae approximately 15 feet below the top of the mesa. Additional localities with a wide variety of Late Pleistocene fauna have been documented along the southern portion of the marine terrace deposit near Upper Newport Bay.

Historic Resources

Exhibit 4.3-1 is an aerial photograph taken in 1970 (48 years ago), which provided the baseline for determining structures on the Airport and immediately adjacent to the Airport that would need to be assessed as a potential historic resource because they are 50 years old or older. The 50-year or older threshold originally comes from 36 Code of Federal Regulations 60.4, which pertains to the National Register. Furthermore, those regulations require a resource to be "exceptionally important" to be considered eligible for listing. In contrast, the California Register criteria (CCR § 4852) state that for a resource to achieve significance within the past 50-years, sufficient time must have passed to obtain a scholarly perspective on the events or individuals

associated with the resource. As shown, there were limited improvements on and adjacent to the Airport in 1970. The west side of the Airport was completely undeveloped. On the east side of the Airport, the aerial photograph does show several of the buildings on the Airport were built prior to 1970 both on the Airport and across Campus Drive in the City of Newport Beach. An aerial photograph from 1995 (Google Earth), shows the progression of development and changes to the Airport. Exhibit 1-3 provided in the Executive Summary provides a current aerial of the Airport. This provides a visual record of the development of the Airport area over different timeframes, including before and after major terminal area improvements were implemented.

Furthermore, the records search conducted at the SCCIC did not identify any resources designated on the NRHP or the CRHR either on the Airport or immediately adjacent to the Airport. A review of the City of Newport Beach's *Historic Resources Element of the General Plan* did not identify any historic resources on the east side of Campus Drive, across from the Airport.

4.3.4 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist and Appendix G of the CEQA Guidelines, the GAIP would result in a significant impact to cultural and scientific resources if it would:

Threshold 4.3-1 Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.

Threshold 4.3-2 Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Threshold 4.3-3 Disturb any human remains, including those interred outside of dedicated cemeteries.

Threshold 4.3-4 Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5.

4.3.5 REGULATORY REQUIREMENTS AND STANDARD CONDITIONS OF APPROVAL

Implementation of the GAIP assumes compliance with existing regulations and the County's Standard Conditions of Approval related to the protection of cultural resources, as discussed under Section 4.3.1, Regulatory Setting, above. These include the regulatory requirement ("RR") and County of Orange Standard Conditions of Approval ("SC") listed below:

Regulatory Requirement

RR CULT-1 **Human Remains.** If human remains are encountered during ground-disturbing activities, Section 7050.5 of the *California Health and Safety Code* states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition of the materials pursuant to Section 5097.98 of the *California Public Resources Code.* The provisions of Section 15064.5 of the California Environmental Quality Act Guidelines shall also be followed. The

Aerial Source: John Wayne Airport

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1970 Aerial Photograph of John Wayne Airport

Exhibit 4.3-1

John Wayne Airport General Aviation Improvement Program

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Feet

JOHN WAYNE AIRPORT ORANGE COUNTY

County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner shall notify the Native American Heritage Commission ("NAHC"). The NAHC will determine and notify a Most Likely Descendent ("MLD"). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The descendent must complete the inspection within 24 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials. These requirements shall be included as notes on the contractor specification and verified by the OC Development Services Department, prior to issuance of grading permits.

Standard Conditions

SC CULT-1 Prior to the issuance of the first grading permit, the applicant shall provide written evidence to the Manager, Building and Safety, that applicant has retained a County-certified archaeologist, to observe grading activities and salvage and catalogue archaeological resources as necessary. The archaeologist shall be present at the pre-grade conference, shall establish procedures for archaeological resource surveillance, and shall establish, in cooperation with the applicant, procedures for temporarily halting or redirecting work to permit the sampling, identification, and evaluation of the artifacts as appropriate. If the archaeological resources are found to be significant, the archaeological observer shall determine appropriate actions, in cooperation with the project applicant, for exploration and/or salvage.

Prior to the release of the grading bond the applicant shall obtain approval of the archaeologist's follow-up report from the Manager, Building and Safety. The report shall include the period of inspection, an analysis of any artifacts found and the present repository of the artifacts. The archaeologist shall prepare excavated material to the point of identification. Applicant shall offer excavated finds for curatorial purposes to the County of Orange, or its designee, on a first refusal basis. These actions, as well as final mitigation and disposition of the resources, shall be subject to the approval of the Manager, Building and Safety. Applicant shall pay curatorial fees if an applicable fee program has been adopted by the Board of Supervisors, and such fee program is in effect at the time of presentation of the materials to the County of Orange or its designee, all in a manner meeting the approval of the Manager, Building and Safety. (County Standard Condition of Approval A02)

SC CULT-2 Prior to the issuance of the first grading permit, the project applicant shall provide written evidence to the Manager, Building and Safety, that applicant has retained a County certified paleontologist to observe grading activities and salvage and catalogue fossils as necessary. The paleontologist shall be present at the pre-grade conference, shall establish procedures for paleontological resource surveillance, and shall establish, in cooperation with the applicant, procedures for temporarily halting or redirecting work to permit sampling, identification, and evaluation of the fossils. If the paleontological resources are found to be significant, the

paleontologist shall determine appropriate actions, in cooperation with the applicant, to ensure proper exploration and/or salvage.

Prior to the release of the grading bond the applicant shall submit the paleontologist's follow up report for approval by the Manager, Building and Safety. The report shall include the period of inspection, a catalogue and analysis of the fossils found, and the present repository of the fossils. Applicant shall prepare excavated material to the point of identification, and offer excavated finds for curatorial purposes to the County of Orange, or its designee, on a first refusal basis. These actions, as well as final mitigation and disposition of the resources, shall be subject to approval by Manager, Building and Safety. Applicant shall pay curatorial fees if an applicable fee program has been adopted by the Board of Supervisors, and such fee program is in effect at the time of presentation of the materials to the County of Orange or its designee, all in a manner meeting the approval of the Manager, Building and Safety (County Standard Condition of Approval A04)

4.3.6 IMPACT ANALYSIS

Both the Proposed Project and Alternative 1 would develop the same portion of the Airport site. Therefore, the potential impacts on cultural resources are the same with either development scenario. To avoid undue repetition the evaluation of both development scenarios have been combined into a single discussion for each of the thresholds.

Threshold 4.3-1

- ***Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?***

Proposed Project and Alternative 1

The results of the SCCIC-records search indicate that one previously recorded habitation site (CA-ORA-1223) has been identified within a half mile of the Airport; however, the archaeological site is not within the GAIP APE. Though few archaeological resources have been identified near the GAIP APE, and there is no record of significant archaeological resource within the area affected by the GAIP (Proposed Project or Alternative 1), there is always the possibility that undiscovered intact archaeological deposits may be present below the surface in native sediments, and may be subject to direct impact during construction activities. If the resource is not protected, there would be the potential of an adverse impact on an archaeological resource. Recognizing this potential, the County of Orange has identified standard conditions, which are applied to projects to minimize the potential for significant impacts. Implementing SC CULT-1 (identified in Section 4.3.5) requires a County-certified archaeologist to observe grading activities and salvage and catalogue archaeological resources, as necessary. Implementation of this requirement would allow the resource to be protected while it is evaluated and a treatment and data recovery program is developed, if warranted. Therefore, impacts would be reduced to a less than significant level.

Impact Conclusion: *The GAIP (Proposed Project and Alternative 1) has a low potential to cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5. Should buried archaeological resources be discovered during grading, implementation of SC CULT-1 would reduce potential impacts to less than significant levels under Threshold 4.3-1.*

Threshold 4.3-2

- ***Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?***

Proposed Project and Alternative 1

The GAIP disturbance area is located in an entirely built environment; therefore, a paleontological field survey was not conducted. Similar to archaeological resources, there is a potential that ground-disturbing activities associated with construction of the Proposed Project or Alternative 1 would encounter previously unknown paleontological resources. This may result in a significant impact to paleontological resources; however, SC CULT-2 (identified in Section 4.3.5) requires that a County-certified Paleontologist be retained to observe grading activities. With implementation of this condition, impacts to paleontological resources would be less than significant.

The GAIP area is underlain by alluvium eroding from the Santa Ana Mountains. The late Pleistocene-early Holocene sediments are ubiquitous in the region, and they are not unique geologic features. The GAIP (Proposed Project and Alternative 1) would not impact any unique geological features. As no impacts would occur related to unique geologic features, no mitigation is required.

Impact Conclusion: *The GAIP (Proposed Project and Alternative 1) has a low potential to directly or indirectly destroy a unique paleontological resource or site; however, the geologic formations underlying site have moderate sensitivity. Implementation of SC CULT-2 would reduce potential impacts to less than significant should unknown buried resources be discovered as part of grading activities. Additionally, due to lack of unique geologic features on the site, no impacts to such features would occur and no mitigation is required. Impacts would be less than significant under Threshold 4.3-2.*

Threshold 4.3-3

- ***Would the Project disturb any human remains, including those interred outside of dedicated cemeteries?***

Proposed Project and Alternative 1

Based on the results of the records search and literature review, human remains are not likely to be found within the GAIP APE. Due to the level of past disturbance on the Airport, project-related ground-disturbing activities are not expected to encounter human remains, including

those interred outside of dedicated cemeteries. This is true of both the Proposed Project and Alternative 1.

If human remains were found, those remains would require proper treatment, in accordance with applicable laws. Sections 7050.5–7055 of the *California Health and Safety Code* describe the general provisions for human remains. Specifically, Section 7050.5 of the *California Health and Safety Code* describes the protocols to be followed in the event that human remains are accidentally discovered during excavation of a site. In addition, the requirements and procedures set forth in Section 5097.98 of the *California Public Resources Code* would be implemented. If human remains are found during excavation, construction activities must stop in the vicinity of the find and in any area, that is reasonably suspected to overlie adjacent remains until the Coroner has been notified; the remains have been investigated; and appropriate recommendations have been made for the treatment and disposition of the remains. Following compliance with State regulations, which detail the appropriate actions necessary in the event human remains are encountered (refer to RR CULT-1, provided in Section 4.3.5), potential impacts would be less than significant.

Impact Conclusion: *GAIP activities (Proposed Project and Alternative 1) are not expected to disturb human remains. However, if human remains are encountered during grading activities, implementation of RR CULT-1 would reduce potential impacts to human remains to a less than significant level under Threshold 4.3-3.*

Threshold 4.3-4

- ***Would the Project cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?***

Proposed Project and Alternative 1

The GAIP (Proposed Project and Alternative 1) would remove and replace most of the buildings currently used for general aviation.[2] Based on the 1970 aerial photograph (see Exhibit 4.3-1) the buildings on west side of the Airport are all less than 50 years old.[3] A building less than 50 years old could be considered to have historic significance if it meets the Secretary of Interior's standards. These criteria include if the resource:

(a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; or

(b) Is associated with the lives of persons important in our past; or

(c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

[2] The GAIP would not alter the Limited Service FBO Martin Aviation lease, which includes the Lyon Air Museum.

[3] See the discussion in Section 4.3.3 under Historic Resources for an explanation of the use of 50 years for screening for potential historic resources.

(d) Has yielded, or may be likely to yield, information important in prehistory or history.

The architecture of the buildings on the west side of the Airport are utilitarian in nature, including hangars, office buildings, storage sheds, and shade structures. None of the above listed standards would apply to the buildings on the west side of the Airport.

The aerial photograph does indicates that several of the buildings on the east side of the Airport and across Campus Drive in the city of Newport Beach were built prior to 1970. Most notably are the rows of T-hangars adjacent to Campus Drive. An earlier aerial photograph was reviewed online which shows the T-hangars were not built in 1963 (historicaerials.com). A comparison of the 1970 aerial photograph and current images of the Airport on Google Earth shows several of the T-hangars along Campus Drive have been replaced or relocated over the years because the location of the hangars are slightly different—the hangars are currently located farther to the south than what is shown in the 1970 aerial photograph. A review of an aerial photograph from 1995 shows the replacement/relocation was completed by 1995; therefore, the relocation may have occurred with the construction of Airport Way at the time of the Terminal A and B improvements (completed in 1990). Based on the changes to the configuration of the other buildings on the east side of the Airport, the buildings shown in the 1970 aerial photograph have also been altered or replaced.

The T-hangars do not have any distinctive architecture or features; rather, they are similar to other structures on the Airport, utilitarian in form, and consistent with the design of hangars on other airports. None of the Secretary of Interior's criteria would apply to the buildings on the east side of the Airport.

The GAIP would not have any direct impact on the buildings located across Campus Drive. The record search and review of the City of Newport Beach *Historic Resources Element of the General Plan* does not identify any resources adjacent to the Airport as being listed on the federal, State, or local registers for historic resources. The buildings on Campus Drive are low-lying office and commercial buildings without distinctive architectural character. Additionally, a comparison of the 1970 aerial photograph to current conditions shows that a number of the buildings have been altered over the years.

Based on the above information, no impact on historic resources would occur with the GAIP (Proposed Project and Alternative 1).

Impact Conclusion: *GAIP activities (Proposed Project and Alternative 1) would have no impact on historic resources under Threshold 4.3-4.*

4.3.7 CUMULATIVE IMPACTS

Archaeological and paleontological resources impacts are site-specific with regard to any given resource. Impacts that may be considered cumulative simply relate to the loss of cultural resources in general over time throughout the region. As identified in the SCCIC records search and literature review, there is one archaeological resource (CA-ORA-1223) identified within the ½-mile search radius; however, the archaeological site is not within the GAIP APE and will not be affected from GAIP (Proposed Project and Alternative 1) related activities. Further, the Airport is located within a "moderate" paleontological sensitivity zone.

The GAIP (Proposed Project and Alternative 1), in conjunction with cumulative development, especially the regional growth that would include previously undeveloped land, could lead to accelerated degradation of previously unknown archaeological, and paleontological resources. The cumulative projects identified on the Airport (see Section 4.0 for a discussion of cumulative projects) are not expected to disturb unknown cultural resources because of the shallow depth of excavation. Each cumulative development proposal would undergo environmental review and would be subject to similar resource protection requirements as the GAIP. If there is a potential for significant impacts on archaeological or paleontological resources, an investigation would be required to determine the nature and extent of the resources and to identify appropriate mitigation measures, including requirements such as those identified in this section. The Standard Conditions of Approval applicable to the GAIP (Proposed Project and Alternative 1) include measures to identify, recover, and/or record any archaeological and paleontological resource that may occur within the GAIP limits. This requirement would reduce GAIP-related and cumulative impacts to less than significant impacts because it would provide for data recovery from any cultural resources identified as a result of GAIP (Proposed Project and Alternative 1) construction.

Discovery of human remains are also site-specific. Similar to archaeological and paleontological resources, all proposed developments would undergo the same resource protection and regulatory requirements in case of discovery of human remains. Therefore, the GAIP's (Proposed Project and Alternative 1) contribution to a cumulative impact associated with human remains would be reduced to a less than significant level with adherence to existing State law.

None of the cumulative projects were identified as having impacts on historic resources. Given that none of the cumulative projects or the GAIP (the Proposed Project and Alternative 1) would have impacts on historic resources, no cumulative impacts would occur.

Therefore, implementation of the GAIP (Proposed Project and Alternative 1) would not contribute to significant cumulative impacts associated with archaeological and paleontological resources, human remains or historic resources.

4.3.8 MITIGATION PROGRAM

With compliance with existing regulations and standard conditions of approval (RR CULT-1 and SC CULT-1 and SC CULT-2), no additional project specific mitigation measures are necessary.

4.3.9 LEVEL OF SIGNIFICANCE AFTER MITIGATION

GAIP-specific and cumulative impacts to archaeological and paleontological resources associated with the GAIP (Proposed Project and Alternative 1) would be less than significant with implementation of existing regulations and standard conditions of approval. No significant unavoidable impacts would occur.

4.3.10 REFERENCES

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4.4 GREENHOUSE GAS EMISSIONS

This section evaluates the potential for the General Aviation Improvement Program ("GAIP") to have adverse effects as a result of greenhouse gas emissions ("GHG"). Information in this section is predominately based on the *Greenhouse Gas Technical Report* prepared by Landrum & Brown and included in this Program EIR as Appendix G (Landrum & Brown 2018). Additional information from regional planning programs and other sources has also been incorporated into this section.

4.4.1 BACKGROUND

Global Climate Change and Greenhouse Gases

Climate change is a recorded change in the Earth's average weather measured by variables such as wind patterns, storms, precipitation, and temperature. Historical records show that global temperature changes have occurred naturally in the past, such as during previous ice ages. According to the National Aeronautics and Space Administration ("NASA"), the year 2017 ranks as Earth's second recorded warmest year since 1880, second only to 2016 (NASA 2018). In a separate, independent analysis, scientists at the National Oceanic and Atmospheric Administration ("NOAA") concluded that 2017 was the third-warmest year in their record. The minor difference in rankings is due to the different methods used by the two agencies to analyze global temperatures, although over the long-term the agencies' records remain in strong agreement. Both analyses show that the five warmest years on record all have taken place since 2010. The planet's average surface temperature has risen about 2 degrees Fahrenheit (a little more than 1 degree Celsius) during the last century or so, a change driven largely by increased carbon dioxide and other human-made emissions into the atmosphere. Last year was the third consecutive year in which global temperatures were more than 1.8 degrees Fahrenheit (1 degree Celsius) above late nineteenth-century levels (NASA 2018).

The global atmospheric concentration of carbon dioxide ("CO_2"), measured at Mauna Loa, Hawaii, has increased from a pre-industrial (roughly 1750) value of about 280 parts per million ("ppm") to a peak of 409.65 ppm in May 2017; the average concentration for the week beginning February 4, 2018 was 408.21 ppm (ESRL 2018).

Greenhouse Gases

GHGs are global pollutants and are therefore unlike criteria air pollutants such as ozone ("O_3"), particulate matter ("PM10" and "PM2.5"), and toxic air contaminants ("TACs"), which are pollutants of regional and local concern (see Section 4.2, Air Quality, of this Program EIR). While pollutants with localized air quality effects have relatively short atmospheric lifetimes (generally on the order of a few days), GHGs have relatively long atmospheric lifetimes, ranging from one year to several thousand years. Long atmospheric lifetimes allow for GHGs to disperse around the globe. Therefore, GHG effects are global, as opposed to the local and/or regional air quality effects of criteria air pollutant and TAC emissions.

GHGs, as defined under California's Assembly Bill ("AB") 32, include CO_2, methane ("CH_4"), nitrous oxide ("N_2O"), hydrofluorocarbons ("HFCs"), perfluorocarbons ("PFCs"), sulfur hexafluoride ("SF_6"), and nitrogen trifluoride ("NF_3"). GHGs vary widely in the power of their

climatic effects; therefore, climate scientists have established a unit called global warming potential ("GWP"). The GWP of a gas is a measure of both potency and lifespan in the atmosphere as compared to CO_2. For example, as CH_4 and N_2O are approximately 25 and 298 times (respectively) more powerful than CO_2 in their ability to trap heat in the atmosphere, they have GWPs of 25 and 298, respectively (CO_2 has a GWP of 1). Carbon dioxide equivalent ("CO_2e") is a quantity that enables all GHG emissions to be considered as a group despite their varying GWP. The GWP of each GHG is multiplied by the prevalence of that gas to produce CO_2e. GWP accounts for both the gases' ability to absorb energy and the lifetime of the GHG (the amount of time it remains in the atmosphere). Table 4.4-1 presents the lifetimes and GWP for the primary GHGs. The table divides the GHGs into long-lived, those that persist in the atmosphere for more than 20 years, and short-lived that persist for less than 20 years.

The distinction between short-lived and long-lived climate pollutants is important because controlling the short-lived pollutants is a promising method for limiting climate change. Controlling short-lived GHGs using existing best available control technologies may reduce the probability of exceeding the 2 degrees Celsius ("°C") barrier before 2050 by less than ten percent and by 2100 by less than 50 percent and reduce sea level rise by 25 percent.

TABLE 4.4-1
GHG LIFETIMES AND GLOBAL WARMING POTENTIALS

Pollutant	Lifetime (years)	GWP	
		20-year	100-year[1]
Long-Lived			
Carbon dioxide ("CO_2")	~100[2]	1	1
Nitrous oxide ("N_2O")	114	289	298
Nitrogen trifluoride ("NF_3")	740	12,300	17,200
Sulfur hexafluoride ("SF_6")	3,200	16,300	22,800
Perfluorocarbons ("PFC")	3,000–50,000	5,000–8,000	7,000–11,000
Short-Lived (<20 years)			
Methane ("CH_4")	12	72	25
Hydrofluorocarbons ("HFC")[3]	(<1 to >100)	~100–11,000	~100–12,000

1 The 20- and 100-year GWP estimates are from the IPCC 2007 Fourth Assessment Report (AR4) published in November 2007.

2 CO_2 has a variable atmospheric lifetime and cannot be readily approximated as a single number.

3 HFCs have a wide range of lifetimes—some long, some short by this definition. Correspondingly, they have a wide range of GWPs.

Source: Climate Change Scoping Plan, State of California, 2017

General Environmental Effects of Global Climate Change

Executive Order ("EO") S-3-05 mandates the preparation of biennial science assessment reports on climate change impacts and adaptation options for California. EO S-13-08 relatedly directs the California Natural Resources Agency ("CNRA") to develop a State Climate Adaptation Strategy and to provide State land use planning guidance related to sea level rise and other climate change impacts. Current reports resulting from these directed actions include, but are not limited to, the *Climate Action Team Report Governor Schwarzenegger and the California Legislature* and the *Safeguarding California Plan: 2018 Update* (CalEPA 2010; CNRA 2018). These studies report that global warming in California is anticipated to impact resources, including, but not limited to, those discussed below.

- **Public Health.** Many Californians currently experience the worst air quality in the nation, and climate change is expected to make matters worse. Higher temperatures would increase the frequency, duration, and intensity of conditions conducive to air pollution formation. If global background O_3 levels increase as predicted under some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by more frequent wildfires, which emit fine particulate matter that can travel long distances. Rising temperatures and more frequent heat waves would increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress. Climate change may also increase asthma rates and the spread of infectious diseases and their vectors, as well as challenge food and water supplies. Children, the elderly, people with chronic heart or lung disease, outdoor workers, people who exercise outdoors, and the economically disadvantaged would be particularly vulnerable to these changes. In addition, more frequent extreme weather events could also result in increased injuries and deaths from these phenomena.
- **Energy.** Increasing mean temperature and more frequent heat waves will drive up demand for cooling in summer; this new energy demand will only be partially offset by decreased demand for heating in winter. Hydropower would be threatened by declining snowpack, which serves as a natural reservoir for hydropower generation in the spring and summer. Winter storms, earlier snowmelt, and greater runoff may combine to cause flooding, which could, in turn, damage transmission lines and cause power outages.
- **Water Resources.** Rising temperatures, less precipitation, and more precipitation falling as rain instead of snow could severely diminish snowpack. Because the Sierra Nevada snowpack provides most of California's available water, this potential loss would increase the risk of summer water shortages and would hamper water distribution and hydropower generation. The diminished snowpack would also nearly eliminate all skiing and other snow-related recreation. Rising sea levels would push salt water into California's estuaries, wetlands, and groundwater aquifers, threatening the water quality and reliability in the Sacramento/San Joaquin River Delta—a major California fresh water supply. Extreme precipitation and flooding could also damage water quality by creating sudden increases in runoff. Moreover, warming would increase evapotranspiration rates from plants, soil, and open water surfaces, which would result in greater demand for irrigation. Overall, climate change would reduce California's water supplies even as its growing population requires additional resources.

- **Sea Level and Flooding.** Sea level at California's coasts is expected to rise by 11 to 18 inches above 2000 levels by 2050 and by 23 to 55 inches by 2100. If realized, these increases would create more frequent and higher storm surges; would erode some coastal areas; and would increase pressure on existing levees. These increases would create a greater risk of flooding in previously untouched inland areas. Consequently, continued development in vulnerable coastal areas would put more people and infrastructure at risk.
- **Agriculture.** Although higher CO_2 levels can stimulate plant production and increase plant water-use efficiency, in the long-term, climate change would reduce the quantity and quality of agricultural products Statewide. As temperatures rise, farmers will face greater water demand for crops and a less reliable water supply, as well as increased competition from urban water users. Sea level rise may cause saltwater intrusion in the Delta region, making it difficult to raise certain crops. Rising temperatures will likely aggravate O_3 pollution, interfering with plant growth and making plants more susceptible to disease and pests. In addition, warming would reduce the number of colder hours needed for fruit and nut production; would shift pest and weed ranges; would alter crop-pollinator timing; and would increase the frequency of droughts, heat waves, and floods. Higher average temperatures would also increase mortality and decrease productivity in livestock.
- **Forestry.** California timber production has declined over the past few decades due, in part, to warming and increased wildfires. While further warming may increase production for some species in some locations, climate change is expected to reduce overall forest growth. Increasing average temperatures and drought frequency would result in more wildfires and greater burned areas, while less frequent and more intense rainfall would increase soil erosion and landslides. Higher temperatures and less water would force many tree species to shift their ranges; those that run out of livable habitat may die out. Pests, diseases, and invasive species may also colonize new areas, further challenging forest health and biodiversity.
- **Ecosystems.** Rising average temperatures would subject plants and animals to greater thermal stress, causing some species to adapt or shift their ranges, while others may face extinction. Invasive species may also shift their ranges, threatening native species. Changing temperatures would alter the timing of plant flowering and insect emergence, damaging species' abilities to reproduce. Changing precipitation patterns would impact aquatic and riparian ecosystems by reducing snow pack, stream flow, and groundwater, while increasing the frequency of droughts, floods, and wildfires. As sea levels rise, some coastal habitats may be permanently flooded or eroded, and saltwater intrusion into freshwater resources may threaten terrestrial species. Changes in ocean circulation and temperature, ocean acidification, and increased runoff and sedimentation would threaten pelagic species. In sum, continued global warming would alter natural ecosystems and threaten California's biological diversity.

4.4.2 REGULATORY SETTING

Federal

Federal Aviation Administration

2014 Climate Action Report

According to the 2014 Climate Action Report, the Federal Aviation Administration ("FAA") is pursuing a comprehensive approach to reduce GHG emissions from commercial aviation through aircraft and engine technology development; operational improvements; development and deployment of sustainable alternative jet fuels; and additional policies and measures. The FAA funds diverse programs to improve aviation energy and emissions performance, and coordinates with other agencies as appropriate, including NASA. The following are some examples of FAA programs:

- The Continuous Lower Energy, Emissions, and Noise ("CLEEN") program is a collaborative partnership between the FAA and five aviation manufacturers to develop technologies that will reduce emissions and fuel burn, and to expedite the integration of these technologies into current aircraft.
- The Aviation Climate Change Research Initiative ("ACCRI") is an FAA program that provides guidance to develop mitigation solutions based on state-of-the-art science results. The ACCRI results are key to quantifying cost–benefit analyses of various policy options. The ACCRI has reduced uncertainties, leading to overall improvement in understanding of the climate impacts of aviation. While the ACCRI does not provide mitigation solutions on its own, recently completed ACCRI Phase II results can be used to help identify effective mitigation options.
- The Voluntary Airport Low Emissions Program ("VALE") is a grant program that encourages airport sponsors to use Airport Improvement Program funds and Passenger Facility Charges to finance low-emission vehicles; refueling and recharging stations; gate electrification; and other airport air quality improvements. Under the FAA's most recent reauthorization, VALE's work is supplemented by new programs that reduce airport emissions. The FAA is creating a program where, following an assessment of airport energy requirements, the FAA may make capital grants for airports to increase energy efficiency. The FAA has also established a pilot program under which certain airports may acquire and operate zero-emission vehicles.

In addition, the FAA is a founding member of the Commercial Aviation Alternative Fuels Initiative ("CAAFI"). CAAFI is a public–private partnership established in 2006 with the objective of advancing alternative jet fuels with equivalent safety/performance (drop-in) and comparable cost, environmental improvement, and security of energy supply for aviation. Work through CAAFI has also expanded internationally. Fuel production capability is beginning to emerge, including a recently announced airline and fuel producer agreement (Landrum & Brown 2018).

Aviation Greenhouse Gas Emissions Reduction Plan

The Aviation Greenhouse Gas Emissions Reduction Plan, which was submitted to the International Civil Aviation Organization ("ICAO"), identifies actions and progress toward GHG emission reductions in each of the following areas:

- Aircraft and Engine Technology Improvement: There are multiple technology initiatives dedicated to developing technology with significantly improved fuel burn and lower GHG emissions.
- Operational Improvements: The FAA is overhauling the National Airspace System through the NextGen program to improve efficiency and to reduce aircraft fuel burn.
- Alternative Fuels Development and Deployment: The U.S. has taken significant steps to facilitate the development and deployment of sustainable alternative aviation fuels. Future efforts are aimed at identifying new alternative fuels pathways and on commercializing fuels with up to 80 percent lower lifecycle GHG emissions.
- Policies, Standards, and Measures: The U.S. is pursuing a variety of policies, standards, and measures that will supplement, and in some cases support, efforts on technology, operations, and fuels in order to achieve the carbon neutral growth goal.
- Scientific Understanding and Modeling/Analysis: The U.S. conducts ongoing scientific research to better understand and quantify the impacts of aviation on the climate.

The Aviation Greenhouse Gas Emissions Reduction Plan estimates that these improvements in aircraft technology and air traffic operations will result in an estimated reduction of 47 million metric tons (42.6 million tonnes) of CO_2 in 2020 for all aviation in the United States, relative to a baseline year of 2010 (Landrum & Brown 2018).

U.S. Environmental Protection Agency Findings

In 2009, the U.S. Environmental Protection Agency ("USEPA") Administrator signed two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act ("CAA"). The findings state:

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide ("CO_2"), methane ("CH_4"), nitrous oxide ("N_2O"), hydrofluorocarbons ("HFCs"), perfluorocarbons ("PFCs"), and sulfur hexafluoride ("SF_6")—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

These findings do not themselves impose any requirements on industry or other entities. However, this action is a prerequisite to finalizing the USEPA's GHG emission standards for light-duty vehicles (USEPA 2018). (A light-duty vehicle is defined any motor vehicle with a gross vehicle weight of 6,000 pounds or less (CARB 2018a).)

In furtherance of its understanding of GHG-emitting sources, the USEPA adopted a GHG reporting rule. Based on the applicability criteria listed in the rule (Code of Federal Regulations ["CFR"], Title 40, Part 98), mandatory reporting is only required for certain large industrial and commercial sources of GHGs. Though John Wayne Airport ("JWA") is not required to report GHG emissions at the federal level, JWA does report GHG emissions for the on-site Cogeneration Facility (natural gas use) to the California Air Resources Board ("CARB").

In 2016, the USEPA made two additional findings under Section 231(a)(2)(A) of the CAA that are specific to aircraft: (1) concentrations of six well-mixed GHGs in the atmosphere endanger the public health and welfare of current and future generations (the endangerment finding), and (2) GHGs emitted from certain classes of engines used in certain aircraft are contributing to the air pollution—the mix of those six GHGs in the atmosphere—that endangers public health and welfare (Landrum & Brown 2018). As with the light-duty vehicle findings, the USEPA's adoption of these findings is a prerequisite to its adoption of any GHG emission standards for aircraft.

Of note, Section 233 of the CAA vests the authority to promulgate emission standards for aircraft or aircraft engines exclusively with the USEPA. States and other municipalities are preempted from adopting or enforcing any standard respecting aircraft engine emissions unless such standard is identical to the USEPA's standards. To date, the USEPA has not adopted GHG emission standards for aircraft engines.

However, the USEPA has adopted oxides of nitrogen ("NO_x") emission standards and related provisions for aircraft gas turbine engines with thrusts rated greater than 26.7 kilonewtons that were previously adopted by the ICAO. (These engines are used primarily on commercial passenger and freight aircraft.) Included in the rule are two new tiers of more stringent emission standards for NO_x, which are known as Tier 6 standards and Tier 8 standards. The Tier 6 standards became effective for newly manufactured aircraft engines beginning in 2013. Engine models that were originally certificated beginning on or after January 1, 2014 must comply with the Tier 8 standards. Though these standards are not directly relevant to GHG emissions, these standards can influence and reduce GHG emissions over time as new aircraft engines are phased in because the standards require fuel efficiency improvements that will result in GHG emissions reductions (Landrum & Brown 2018).

Trump Administration

The Trump Administration is taking a different stance than previous administrations on GHG emissions and global climate change. Between January and March 2017, President Trump signed three Executive Orders (EOs) seeking regulatory reform, including the review, repeal, replacement, or modification to existing GHG regulations.

Executive Order 13771

In January 2017, President Trump signed EO 13771 ("Reducing Regulation and Controlling Regulatory Costs"), which reflects the President's policy "to be prudent and financially responsible in the expenditure of funds, from both public and private sources." This includes "managing the costs associated with the governmental imposition of private expenditures required to comply with Federal Regulation." The EO requires that for every one new regulation issued, at least two prior regulations be identified for elimination and that the costs of planned

regulations be prudently managed and controlled through a budgeting process (Landrum & Brown 2018).

Executive Order 13777

In February 2017, President Trump signed EO 13777 ("Enforcing the Regulatory Reform Agenda"), which directs Federal agencies to create a Regulatory Reform Task Force. One duty of the task force is to evaluate existing regulations and make recommendations to the agency head regarding their repeal, replacement, or modification, consistent with applicable law. In April 2017, the USEPA issued a Federal Register notice on evaluation of existing regulations and received over 460,000 comments when the comment period closed (Landrum & Brown 2018).

Executive Order 13783

In March 2017, President Trump signed EO 13783 ("Promoting Energy Independence and Economic Growth"), which calls for a review of the Clean Power Plan, related rules, and New Source Performance Standards for Oil and Gas, and all agencies to "review existing regulations, orders, guidance documents, and policies that potentially burden the development or use of domestically produced energy resources." EO 13783 also repealed energy- and climate-related presidential and regulatory actions, including: EO 13653 of November 1, 2013, *Preparing the United States for the Impacts of Climate Change*; The Presidential Memorandum of June 25, 2013, *Power Sector Carbon Pollution Standards*; The Presidential Memorandum of November 3, 2015, *Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment*; and The Presidential Memorandum of September 21, 2016, Climate Change and National Security. The EO also intends to have the two reports rescinded, including: The Report of the Executive Office of the President of June 2013, *The President's Climate Action Plan;* and The Report of the Executive Office of the President of March 2014, *The Climate Action Plan Strategy to Reduce Methane Emissions*.

In April 2017, in accordance with EO 13783, the USEPA submitted the Withdrawal of Proposed Rules: Federal Plan Requirement for Greenhouse Gas Emissions from Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; Amendments to Framework Regulations; and Clean Energy Incentive Program Design Details.

Also in April 2017, the USEPA announced the review of three plans: (1) The Clean Power Plan; (2) Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Station Sources: Electric Generating Units; (3) 2016 Oil and Gas New Source Performance Standards for New, Reconstructed, and Modified Sources. In October 2017, the USEPA issued proposed repeal of The Clean Power Plan (Landrum & Brown 2018).

State

CARB, which is part of the California Environmental Protection Agency ("CalEPA"), is responsible for the coordination and administration of both federal and State air pollution control programs in California. There are numerous State plans, policies, regulations, and laws related to GHGs and global climate change. Following is a brief discussion of the plans, policies, and regulations most relevant to the Proposed Project and Alternative 1.

Executive Order S-3-05

In June 2005, Governor Arnold Schwarzenegger signed EO S-3-05, which proclaims that California is vulnerable to the impacts of climate change. In an effort to avoid or reduce the impacts of climate change, EO S-3-05 establishes a goal of a reduction in GHG emissions to the year 2000 level by 2010, to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

The California Global Warming Solutions Act of 2006 (Assembly Bill 32)

In furtherance of the goals established in EO S-3-05, the California Legislature adopted the public policy position that global warming is "a serious threat to the economic well-being, public health, natural resources, and the environment of California" (*California Health and Safety Code,* Section 38501). Further, the State Legislature determined that:

> the potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra Nevada snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious disease, asthma, and other human health-related problems.

The State Legislature also stated that:

> Global warming will have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry. It will also increase the strain on electricity supplies necessary to meet the demand for summer air-conditioning in the hottest parts of the State (*California Health and Safety Code,* Section 38501).

These public policy statements became law with the enactment of AB 32, the California Global Warming Solutions Act of 2006, signed by Governor Arnold Schwarzenegger in September 2006. AB 32 is now codified as Sections 38500 through 38599 of the *California Health and Safety Code.*

AB 32 requires that Statewide GHG emissions be reduced to 1990 levels by 2020. This reduction is to be accomplished through an enforceable Statewide cap on GHG emissions that was phased in starting in 2012. AB 32 directs CARB to establish this Statewide cap based on 1990 GHG emissions levels; to disclose how it arrived at the cap; to institute a schedule to meet the emissions cap; and to develop tracking, reporting, and enforcement mechanisms. Emissions reductions under AB 32 are to include carbon sequestration projects and best management practices that are technologically feasible and cost effective.

CARB has been assigned to carry out and develop the programs and requirements necessary to achieve the goals of AB 32. Under AB 32, CARB is also responsible for adopting regulations requiring the reporting and verification of Statewide GHG emissions to monitor and enforce compliance with the established standards. AB 32 allows CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

As required under AB 32, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 million metric tons ("MMT") of CO_2e. In addition to the 1990 emissions inventory, CARB also adopted regulations requiring mandatory reporting of GHGs for the large facilities that account for 94 percent of GHG emissions from industrial and commercial stationary sources in California. About 800 separate sources fall under the new reporting rules and include electricity-generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and other industrial sources that emit CO_2 in excess of specified thresholds. As discussed in more detail below, CARB has also adopted a GHG scoping plan and updates to the same.

California Air Resources Board Climate Change Scoping Plan

In 2008, CARB approved a Climate Change Scoping Plan as required by AB 32. The Climate Change Scoping Plan proposes a "comprehensive set of actions designed to reduce overall carbon GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health" (CARB 2008). The Climate Change Scoping Plan has a range of GHG reduction actions that include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 implementation regulation to fund the program.

The Climate Change Scoping Plan calls for a "coordinated set of solutions" to address all major categories of GHG emissions. Transportation emissions will be addressed through a combination of higher standards for vehicle fuel economy; implementation of the Low Carbon Fuel Standard; and greater consideration for reducing trip length and generation through land use planning and transit-oriented development. A California cap-and-trade program that links with other Western Climate Initiative partner programs also creates a regional market system and caps sources contributing 85 percent of California's GHG emissions. Buildings, land use, and industrial operations will be encouraged and, sometimes, required to use energy more efficiently. Utility energy supplies will change to include at least 33 percent of renewable energy sources in the energy mix through implementation of the Renewables Portfolio Standard ("RPS"). This will be complemented with emphasis on local generation, including rooftop photovoltaics and solar hot water installations. Additionally, the Climate Change Scoping Plan emphasizes opportunities for households and businesses to save energy and money by increasing energy efficiency.

Table 4.4-2 provides a summary of the GHG emission reduction actions identified in the 2008 Scoping Plan.

TABLE 4.4-2
2008 SCOPING PLAN MEASURES

Cap-and-Trade Program: Implement a broad-based California cap-and-trade program to provide a firm limit on emissions. Link the California cap–and-trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater environmental and economic benefits for California. Ensure California's program meets all applicable AB 32 requirements for market-based mechanisms.
Light-Duty Vehicle Standards: Implement adopted Pavley standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long term climate change goals.
Energy Efficiency: Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts including new technologies, and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities).
Renewables Portfolio Standard: Achieve 33 percent renewable energy mix statewide.
Low Carbon Fuel Standard: Develop and adopt the Low Carbon Fuel Standard.
Regional Transportation-Related GHG Targets: Develop regional GHG emissions reduction targets for passenger vehicles.
Vehicle Efficiency Measures: Implement light-duty vehicle efficiency measures.
Goods Movement: Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.
Million Solar Roofs Program: Install 3,000 megawatts of solar-electric capacity under California's existing solar programs.
Medium- & Heavy-Duty Vehicles: Adopt medium- (MD) and heavy-duty (HD) vehicle efficiencies. Aerodynamic efficiency measures for HD trucks pulling trailers 53-feet or longer that include improvements in trailer aerodynamics and use of rolling resistance tires were adopted in 2008 and went into effect in 2010. Future, yet to be determined improvements, includes hybridization of MD and HD trucks.
Industrial Emissions: Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce GHG emissions and provide other pollution reduction co-benefits. Reduce GHG emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.
High Speed Rail: Support implementation of a high-speed rail system.
Green Building Strategy: Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.
High GWP Gases: Adopt measures to reduce high GWP gases.
Recycling and Waste: Reduce methane emissions at landfills. Increase waste diversion, composting and other beneficial uses of organic materials, and mandate commercial recycling. Move toward zero-waste.
Sustainable Forests: Preserve forest sequestration and encourage the use of forest biomass for sustainable energy.
Water: Continue efficiency programs and use cleaner energy sources to move and treat water.
Agriculture: In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020.
Source: Landrum & Brown 2018, from California Air Resources Board, 2008

In the 2008 Scoping Plan, CARB also developed a forecast of 2020 emissions in a business-as-usual scenario ("2020 BAU"), which is an estimate of the emissions expected to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. This target was 596 million metric tons of carbon dioxide equivalent ("$MMTCO_2e$"). The 2020 GHG emissions target of 427 $MMTCO_2e$ required the reduction of 169 $MMTCO_2e$, or about 28.5 percent from the 2020 BAU forecast.

First Update to the Climate Change Scoping Plan

In 2014, CARB approved the First Update to the Climate Change Scoping Plan ("First Update" or "2013 Update") (CARB 2014). The First Update identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments; defines CARB's climate change priorities for the next five years; and sets the groundwork to reach California's long-term climate goals set forth in EO S-3-05 (CARB 2018b).

The First Update states that California is on track to meet the near-term 2020 GHG limit and is well-positioned to maintain and continue reductions beyond 2020 as required by AB 32. The set of actions the State is taking is driving down GHG emissions and is moving the State steadily in the direction of a cleaner energy economy.

While the original Scoping Plan provided specific GHG reduction measures in nine different economic sectors, the 2014 First Update discusses reductions in six key focus areas (energy, transportation, agriculture, water, waste management, and natural and working lands) as well as short-lived pollutants, green buildings, and the California's Cap and Trade Program. These focus areas include multiple economic sectors and have overlapping and complementary interests that require careful coordination.

As previously discussed, in the 2008 Scoping Plan, CARB established the 1990 Statewide GHG emissions level, which is also the 2020 GHG emissions target at 427 $MMTCO_2e$ and forecasted 2020 BAU emissions to be 596 $MMTCO_2e$. Based on new information and analysis, the First Update recalculated the 2020 BAU condition at 509 $MMTCO_2e$ and the 1990 emissions level at 431 $MMTCO_2e$.[1] Thus, under the First Update, achieving the recalculated 1990 emissions level of 431 $MMTCO_2e$ will require a reduction of 78 $MMTCO_2e$ or an approximately 15.3 percent reduction (compared to a 28.5 percent reduction as set forth in the 2008 Scoping Plan).

Second Update to the Climate Change Scoping Plan

In April 2015, Governor Brown issued EO B-30-15, identifying a goal of establishing a mid-term GHG reduction target for California of 40 percent below 1990 levels by 2030. That goal was then codified via the enactment of SB 32, which is discussed further below. In response to the EO and legislation, CARB adopted its second update to the AB 32 Scoping Plan (referred to herein as the "2017 Scoping Plan") in December 2017, which identifies CARB's strategy for achieving the 2030 reduction target. The 2017 Scoping Plan includes continuation of the Cap-and-Trade Program through 2030, and incorporates a Mobile Source Strategy that includes strategies targeted to increase zero emission vehicle fleet penetration and a more stringent target for the Low Carbon

[1] In 2013, CARB revised GHG calculations to use the GWP values from the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4). Previous calculations used the GWPs from the second assessment report (SAR).

Fuel Standard by 2030. The 2017 Scoping Plan also incorporates approaches to reducing short-lived climate pollutants that were set forth in CARB's Short-Lived Climate Pollutant Reduction Strategy, acknowledges the need for reducing emissions in agriculture, and highlights the work underway to ensure that California's natural and working lands increasingly sequester carbon.

Senate Bill 97 and Amendments to the California Environmental Quality Act Guidelines

Senate Bill ("SB") 97 directed the CNRA to adopt amendments to the California Environmental Quality Act ("CEQA") Guidelines that require evaluation of GHG emissions or the effects of GHG emissions by January 1, 2010. The CNRA has done so, with the principle the amendments to the State CEQA Guidelines located in a new Section 15064.4, entitled Determining the Significance of Impacts from Greenhouse Gas Emissions; that Section provides:

a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based on available information, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

    1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; or

    2) Rely on a qualitative analysis or performance based standards.

b) A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

    1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

    2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;

    3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The CNRA also amended CEQA Guidelines Section 15126.4 to add a new subdivision addressing the mitigation of GHG emissions. The amended CEQA Guidelines also include two new guidance

questions regarding GHG emissions in the environmental checklist set forth in Appendix G of the State CEQA Guidelines:

- Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The adopted amendments do not establish a GHG emission threshold, instead allowing a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. The CNRA also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions.

Senate Bill 375

Enacted in 2008, SB 375 provides a planning process to coordinate land use planning and Regional Transportation Plans ("RTPs") and funding priorities in order to help California meet the GHG reduction goals established in AB 32. SB 375 requires Metropolitan Planning Organizations ("MPOs"), including the Southern California Association of Governments ("SCAG"), to incorporate a Sustainable Communities Strategy ("SCS") in their RTPs that will achieve GHG emission reduction targets set by CARB.

In 2010, CARB adopted the initial SB 375 targets for the regional MPOs. For SCAG, the targets are an 8 percent reduction in GHG emissions from automobiles and light trucks per capita by 2020 and a 13 percent reduction by 2035. CARB's most recent reduction targets for the SCAG region, which were adopted in March 2018 and become effective on October 1, 2018, include an 8 percent and 19 percent reduction in per capita passenger vehicle GHG emissions by 2020 and 2035, respectively. All GHG reductions are measured relative to 2005 emission levels.

In April 2016, SCAG adopted an SCS that is estimated to achieve an 8 percent reduction in GHG emissions by 2020 and an 18 percent reduction in GHG emissions by 2035. SCAG's modeling and quantification for these estimated reductions were accepted by CARB on June 28, 2016 (CARB 2018c). See additional discussion of the SCAG plans under Regional Regulations.

Executive Order B-30-15

In April 2015, Governor Brown signed EO B-30-15, which establishes a goal of "[a] new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030 . . . in order to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050" (COOG 2015). As noted above, EO B-30-15 also directs CARB to update the *Climate Change Scoping Plan* to express the 2030 target in terms of million metric tons of carbon dioxide equivalent.

Senate Bill 32

SB 32, signed into law in September 2016, requires CARB to ensure that statewide greenhouse gas emissions are reduced to at least 40 percent below the 1990 statewide greenhouse gas level no later than December 31, 2030. Per SB 32, CARB is to achieve this 2030 GHG reduction target by "adopting rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions[.]" See Health & Safety Code Section 38566. The SB 32 GHG reduction mandate is the same as the GHG reduction included in EO B-30-15 of 40 percent below 1990 levels by 2030. As discussed above, CARB adopted the 2017 Scoping Plan in December 2017, which builds upon and leverages the framework for achieving California's GHG reduction mandate established in the initial Scoping Plan (2008 Plan) and its first update (2014), and to define the State's climate change priorities for the next 12 years and beyond.

Regional

Southern California Association of Governments

As previously discussed, SB 375 specifically required MPOs, including SCAG, to incorporate an SCS in their RTPs that will achieve GHG emission reduction targets set by CARB. SCAG's first-ever SCS is included in its *2012–2035 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS). The document was adopted by SCAG in April 2012. The goals and policies of the RTP/SCS that reduce GHG emissions focus on transportation and land use planning, recommending building infill projects, locating residents closer to where they work and play and designing communities so there is access to high quality transit service. The 2012–2035 RTP/SCS was expected to reduce per capita transportation emissions by 9 percent by 2020 and by 16 percent by 2035. In June 2012, CARB accepted SCAG's determination that the Final RTP/SCS would meet the region's GHG reduction target.

SCAG's SCS is now included in its 2016–2040 RTP/SCS. The document was adopted by SCAG on April 7, 2016. The 2016–2040 RTP/SCS is expected to reduce per capita transportation emissions by 8 percent by 2020 and by 18 percent by 2035 (SCAG 2016). In June 2016, CARB accepted SCAG's determination that the Final RTP/SCS would meet the region's GHG reduction target.

South Coast Air Quality Management District

The Project site lies within the boundaries of the South Coast Air Quality Management District ("SCAQMD"). The SCAQMD is bound by the Ventura County/Los Angeles County border to the northwest, the Mojave Desert Air Basin to the north, the Riverside County border to the east, and the San Diego County-Riverside County border to the south.

The portion of the Project site under the jurisdiction of the SCAQMD lies within the South Coast Air Basin ("SoCAB"). The mission of the SCAQMD is to clean the air and protect the health of all residents in the South Coast Air District through practical and innovative strategies. (SCAQMD 2018).

Beginning in April 2008, the SCAQMD convened a Working Group to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. In

December 2008, the SCAQMD Governing Board adopted its staff proposal for an interim CEQA GHG significance threshold of 10,000 metric tons of CO_2 equivalent per year ("$MTCO_2e$/year") for industrial projects where the SCAQMD is the lead agency. The policy objective for establishing this significance threshold is to capture projects that represent approximately 90 percent of GHG emissions from new sources and to avoid Environmental Impact Report (EIR)-level analysis for relatively small impacts (SCAQMD 2008).

4.4.3 METHODOLOGY

Construction emissions were calculated using the California Emissions Estimator Model ("CalEEMod", Version 2016.3.2). CalEEMod is a computer program accepted by the SCAQMD that can be used to estimate criteria pollutant and GHG emissions associated with land development projects in California. CalEEMod has separate databases for specific counties and air districts. The Orange County database was used for the proposed Project. CalEEMod defaults were used for equipment and trip generation data.

The CalEEMod model calculates total emissions resulting from each construction activity. Construction estimates (including phase durations and estimated quantities) for the Proposed Project and Alternative 1 were based on the preliminary engineering data available at the time the modeling was completed for this Program EIR. The phasing and duration of the construction of each of the improvements were developed by AECOM in conjunction with Airport staff and provided by the Airport for the purpose of this analysis. The construction phasing plans are provided in Section 3 (Proposed Project is shown in Exhibits 3-3a and 3-3b; Alternative 1 is shown in Exhibits 3-5a and 3-5b) of this Program EIR. The construction emissions analysis reflects full removal and replacement of the aprons and service roads. Detailed assumptions for each of the phases, including activity, duration, and estimated footprint size is provided in the *Greenhouse Gas Technical Report* (see Appendix G of this Program EIR, Table 8 provides the detail for the Proposed Project and Table 9 provides the detail for Alternative 1).

The FAA's Aviation Environmental Design Tool ("AEDT", Version 2d) was used to model operational emissions from aircraft operations, auxiliary power units ("APU"), and ground support equipment ("GSE") at the Airport.[2] AEDT is a software system that models aircraft performance and estimates fuel consumption, emissions, noise, and air quality emissions data. AEDT is a comprehensive tool that provides information to FAA stakeholders on each of these specific environmental impacts. AEDT facilitates environmental review activities by consolidating the modeling of these environmental impacts in a single tool.

Specific aircraft types and times of operation were obtained from the 2016 John Wayne Airport General Aviation Noise Ordinance database and input into AEDT. AEDT Version 2d does not have the capability to calculate GHG emissions for APUs. Therefore, appropriate emission factors, based on estimated annual hours of APU usage at JWA, were applied to calculate GHG emissions. Detail on the aircraft, APU and GSE assumptions are included in Appendix G.

[2] GSE is used to service aircraft between flights. Typical GSE includes air conditioning, air start, baggage tractors, belt loaders, and emergency vehicles that support airport operations. APUs are used at the gate by larger jet aircraft to operate the heating, air conditioning, and electric systems. The APU is also used to 'start up' or restart the aircraft engines before departing from the gate area.

4.4.4 EXISTING CONDITIONS

The AEDT was used to model general aviation aircraft operations only at the Airport, along with GSE and APU usage for the Baseline (2016) Conditions. The model estimates the rate of emissions of the pollutants in metric tons per year. The results of the emission inventory are provided in Table 4.4-3.

TABLE 4.4-3
GHG EMISSIONS INVENTORY – GENERAL AVIATION
BASELINE (2016) CONDITIONS

Source	Annual Emissions $MTCO_2e$
Aircraft	12,148
GSE	688
APU	173
Total MT CO_2e	***13,009***

GSE: Ground Support Equipment; APU: Auxiliary Power Unit; $MTCO_2e$: Metric Ton Carbon Dioxide equivalent;

Note: APU and GSE usage is largely limited to commercial aircraft, but conservatively reported here.

Section 3.0 of Appendix G also provides Airport-wide existing conditions data for 2016. Because the GAIP exclusively pertains to and affects general aviation operations at JWA, the inventory data presented in this Section of the Program EIR is focused on general aviation-related emissions. For additional information on Airport-wide emissions that accounts for commercial aircraft, please see Appendix G.

Source: AEDT version 2d, Landrum & Brown, 2018 (Appendix G).

4.4.5 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist and Appendix G of the CEQA Guidelines, the following two thresholds are used to evaluate the significance of the Project's greenhouse gas emissions:

Threshold 4.4-1 Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Threshold 4.4-2 Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Neither CARB, the SCAQMD, nor the County of Orange have adopted quantitative GHG thresholds of general applicability. However, the SCAQMD has adopted a quantitative GHG threshold for projects where the SCAQMD is the lead agency (primarily stationary source projects). The threshold is 10,000 metric tons carbon dioxide equivalent per year for industrial facilities (10,000 MT CO_2e/year). While the SCAQMD is not the lead agency for the Proposed Project or Alterative 1, because no other quantitative threshold of general applicability is available within this geographic region, it is appropriate to use the SCAQMD's threshold to evaluate the

significance of the GAIP's GHG emissions. In deciding to reference the SCAQMD quantitative GHG threshold, it is noted that the source of the GHG emission is not a relevant factor in determining the significance of the emission. This stationary source threshold will be used as a screening threshold to assess significance of the GHG emissions resulting from the Proposed Project and Alternative 1. Should the emissions caused by the Proposed Project exceed the identified annual threshold, it would be considered to have a potentially significant GHG impact. Non-stationary source projects with emissions greater than this threshold are not necessarily considered significant in CEQA terms.

4.4.6 REGULATORY REQUIREMENTS AND STANDARD CONDITIONS OF APPROVAL

Implementation of the GAIP assumes compliance with existing regulations related to GHG emissions at the Airport. These include the regulatory requirements ("RR") listed below, the relevance of which is described in Appendix G of this Program EIR in further detail. There are no County Standard Conditions of Approval pertaining to GHG emissions that would be applicable to the GAIP.

RR GHG-1 GAIP facilities must be designed in accordance with the applicable Title 24 Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations [CCR], Title 24, Part 6). These standards are updated, approximately every three years, to incorporate improved energy efficiency technologies and methods. The Manager of Building & Safety, or designee shall ensure compliance prior to the issuance of each building permit.

RR GHG-2 GAIP facilities must be designed in accordance with applicable requirements of the California Green Building Standards (CALGreen) Code (24 CCR 11). The Manager of Building & Safety, or designee shall ensure compliance prior to the issuance of each building permit.

4.4.7 IMPACT ANALYSIS

Threshold 4.4-1

- ***Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?***

Proposed Project

Construction

As noted above, construction emission estimates for the Proposed Project were developed using CalEEMod and the preliminary engineering data available at the time the modeling was completed for this Program EIR. Construction for the Proposed Project is anticipated to take slightly more than seven years and is projected to start in 2019 and be completed in 2026.

The Proposed Project's construction emission inventory is shown in Table 4.4-4. The total construction emissions for the Proposed Project is 28,108 $MTCO_2e$. The SCAQMD recommends that construction-related GHG emissions be summed and amortized over the life of the project, defined as 30 years, to determine significance. Therefore, the amortized construction emissions from the Proposed Project would be 937 $MTCO_2e$/year.

TABLE 4.4-4
ESTIMATED GREENHOUSE GAS EMISSIONS FROM CONSTRUCTION PROPOSED PROJECT

Activity/Year	$MTCO_2e$
Construction – 2019	3,672
Construction – 2020	4,128
Construction – 2021	3,357
Construction – 2022	3,543
Construction – 2023	2,372
Construction – 2024	4,062
Construction – 2025	5,464
Construction – 2026	1,510
Total MT CO_2e	**28,108**
Annual Construction Emissions Amortized over 30 Years	***937***

$MTCO_2e$: metric tons of carbon dioxide equivalent
Numbers may not sum as shown, due to rounding.
Source: CalEEMod, Landrum & Brown, 2018 (Appendix G)

Operations

The Proposed Project would result in changes to the Airport's general aviation aircraft operations and fleet mix. The Proposed Project would not change the number of commercial air carrier operations, fleet mix, runway use, flight tracks, or terminal area. Therefore, emission sources related to the change in general aviation aircraft operations and fleet mix were evaluated using the AEDT. These sources include general aviation aircraft operations, APU usage, and GSE usage.[3] The year 2026 is used for the Proposed Project analysis because that is expected completion date of the GAIP improvements and would be reflective of the ultimate fleet mix and number of operations.

[3] As discussed in further detail in Appendix G of this Program EIR, because the Proposed Project would replace less efficient, existing development with more efficient, new development, the Proposed Project would reduce building-related energy consumption and corresponding operational emissions when compared to the existing conditions. Therefore, the building-related emissions (e.g., emissions resulting from electricity and natural gas consumption) of the Proposed Project were not quantified (Landrum & Brown 2018). Similarly, the small increase in the number of persons associated with general aviation facilities under the Proposed Project would be offset by the installation of water-efficient appliances and fixtures. Therefore, water-related emissions were not estimated for the Proposed Project (Landrum & Brown 2018). Finally, as provided in the Traffic Impact Analysis report (see Appendix I of this Program EIR), the Proposed Project is not anticipated to increase the number of average daily trips or trip lengths, or substantially change the quantity of vehicle miles traveled by users of the general aviation facilities. Therefore, operational emissions attributable to the use of passenger vehicles are not estimated in this report.

Impacts from the Proposed Project are evaluated in comparison to the Baseline (2016) Conditions. (The Baseline (2016) emissions inventory is presented above in Table 4.4-3 and provided in Section 4.4.4, Existing Conditions.) Because the Proposed Project only pertains to general aviation activity, the analysis compares the Baseline (2016) general aviation emissions to the Baseline Plus Proposed Project (2026). This is reflective of the CEQA requirement for an "Existing Plus Project" evaluation. The results of the emissions inventory are provided in Table 4.4-5.

TABLE 4.4-5
GHG EMISSIONS INVENTORY – GENERAL AVIATION
BASELINE PLUS PROPOSED PROJECT (2026)

Source	Annual Operational Emissions (Metric Tons) ($MTCO_2e$)
Aircraft	14,813
GSE	599
APU	220
Total MT CO_2e	***15,663***

GSE: Ground Support Equipment; APU: Auxiliary Power Unit; $MTCO_2e$: Metric Ton Carbon Dioxide equivalent;

Note: APU and GSE usage is largely limited to commercial aircraft, but conservatively reported here.

Section 5.0 of Appendix G also provides emissions inventory data that places the Proposed Project's incremental increase in GHG emissions in the context of Airport-wide existing conditions data for 2016. The Proposed Project's incremental increase in GHG emissions is identical when viewed in relation to the background existing general aviation only *or* commercial and general aviation existing conditions data.

Source: AEDT version 2d, Landrum & Brown, 2018 (Appendix G).

Table 4.4-6 provides the net emissions for the Baseline Plus Proposed Project conditions; as shown therein, the net emissions value is below the SCAQMD's 10,000 $MTCO_2e$ significance threshold. Therefore, impacts would be less than significant.

TABLE 4.4-6
GENERAL AVIATION OPERATIONAL EMISSIONS
BASELINE (2016) PLUS PROPOSED PROJECT (2026)

Source	Annual Operational Emissions ($MTCO_2e$)
Incremental Increase in Operational Emissions [a]	2,624
Amortized Construction Emissions (see Table 4.4-4)	937
Annual Net Emissions: Proposed Project	3,561
SCAQMD Threshold	**10,000**
Baseline Plus Proposed Project Exceed SCAQMD Threshold?	***No***

$MTCO_2e$: metric tons of carbon dioxide equivalent

[a] Proposed Project (2026) Operational Total (15,633 MT) minus Baseline (2016) Conditions Operational Total (13,009 MT).

Source: Landrum & Brown 2018 (Appendix G).

Although impacts are less than significant and no mitigation measures are required, minimization measures, discussed under Threshold 4.4-2, would serve to reduce GHG emissions associated with general aviation operations. Additionally, there are mitigation and minimization measures recommended to reduce construction-related criteria air pollutant emissions in Section 4.2, Air Quality, of this Program EIR. The construction mitigation and minimization measures recommended in the air quality analysis are anticipated to result in co-benefits, in the form of GHG emission reductions. As recommended in Section 4.2, all GAIP-related, off-road construction equipment shall be required to meet the USEPA's Tier 4 emission engine standards, per MM AQ-1. Additionally, Minimization Measure (MN) AQ-1, recommends that architectural coating applied to parking lots and roadways shall be low VOC products. CalEEMod currently does not have the capability to estimate GHG reductions directly attributed to the implementation of these mitigation and minimization measures. However, it is anticipated the GHG construction emissions for the Proposed Project would be below the results presented in Table 4.4-3 and 4.4-6 with implementation of the referenced mitigation and minimization measures.

An additional minimization measure also is recommended to reduce operation-related criteria air pollutant emissions in Section 4.2 of this Program EIR. Specifically, Minimization Measure (MN)[4] AQ-2 pertains to a requirement that the FBOs employ Zero Emission Vehicle ("ZEV") GSE where available for 90 percent or greater of the GSE operating hours. MN AQ-2 is expected to result in co-benefits, in the form of GHG emission reductions. Implementation of MN AQ-2 would reduce the total emissions for the Proposed Project from 3,561 annual $MTCO_2e$ to 3,021 annual $MTCO_2e$. This is more than a 15 percent reduction in annual $MTCO_2e$ emissions.

Additionally, the Proposed Project incorporates provisions for the extension of the hydrant fueling system to the full service FBOs on the east side of the Airport. By connecting to the fuel farms located on the west side of the Airport via an underground pipeline, the number of

[4] As defined in Section 4.0, a minimization measure is a condition proposed to reduce an adverse effect of the Project even when that effect does not result in a significant impact.

refueling trucks would be reduced, thereby lowering fueling support vehicle emissions on the airfield.

Impact Conclusion: *Construction activities and the changes in the fleet mix associated with the Proposed Project (2026) would generate greenhouse gas emissions beyond those identified for the Baseline (2016). However, the net emissions would be substantially below the SCAQMD threshold for industrial uses (i.e., 10,000, annual $MTCO_2e$) both prior to and after the implementation of mitigation and minimizations measures recommended in this section and in Section 4.2 of this Program EIR (3,561 annual $MTCO_2e$ and 3,021 annual $MTCO_2e$, respectively). Although no mitigation measures are required, compliance with RR GHG-1 and RR GHG-2, implementation of MN GHG-1, MM AQ-1, MN AQ-1, and MN AQ-2 would further reduce GHG emissions. Therefore, the Proposed Project would not generate greenhouse gas emissions that would have a significant impact on the environment. Impacts of the Proposed Project would be less than significant under Threshold 4.4-1.*

Alternative 1

Construction

Construction emission estimates for Alternative 1 were developed using CalEEMod and the preliminary engineering data available at the time the modeling was completed for this Program EIR. Construction for Alternative 1 is anticipated to take slightly more than seven years and is projected to start in 2019 and be completed in 2026.

Alternative 1's construction emissions inventory is shown in Table 4.4-7. The total construction emissions for Alternative 1 is 30,389 $MTCO_2e$. The SCAQMD recommends that construction-related GHG emissions be summed and amortized over the life of the project, defined as 30 years, to determine significance. Therefore, the amortized construction emissions from the Proposed Project would be 1,013 $MTCO_2e$/year.

TABLE 4.4-7
ESTIMATED GREENHOUSE GAS EMISSIONS
FROM CONSTRUCTION
ALTERNATIVE 1

Activity/Year	$MTCO_2e$
Construction – 2019	4,108
Construction – 2020	4,178
Construction – 2021	3,357
Construction – 2022	4,025
Construction – 2023	3,446
Construction – 2024	3,450
Construction – 2025	5,521
Construction – 2026	2,304
Total MT CO_2e	**30,389**
Annual Construction Emissions Amortized over 30 Years	***1,013***

$MTCO_2e$: metric tons of carbon dioxide equivalent;
Numbers may not sum as shown, due to rounding.
Source: CalEEMod, Landrum & Brown, 2018 (Appendix G)

Operations

As with the Proposed Project, Alternative 1 would result in changes to the Airport's general aviation aircraft operations and fleet mix. Alternative 1 would not change the number of commercial air carrier operations, fleet mix, runway use, flight tracks, or terminal area. Therefore, emission sources related to the change in general aviation aircraft operations and fleet mix were evaluated using the AEDT. These sources include general aviation aircraft operations, APU usage, and GSE usage. The year 2026 is used for the Alternative 1 analysis because that is expected completion date of the GAIP improvements and would be reflective of the ultimate fleet mix and number of operations.

Impacts from Alternative 1 are evaluated in comparison to the Baseline (2016) Conditions. (The Baseline (2016) emissions inventory is presented above in Table 4.4-3 and provided in Section 4.4.4, Existing Conditions.) Because Alternative 1 only pertains to general aviation activity, the analysis compares the Baseline (2016) general aviation emissions to the Baseline Plus Alternative 1 (2026). This is reflective of the CEQA requirement for an "Existing Plus Project" evaluation.

The results of the emission inventory are provided in Table 4.4-8.

TABLE 4.4-8
GHG EMISSIONS INVENTORY – GENERAL AVIATION
BASELINE (2016) PLUS ALTERNATIVE 1 (2026)

Source	Annual Emissions $MTCO_2e$
Aircraft	15,041
GSE	602
APU	226
Total MT CO_2e	***15,868***

GSE: Ground Support Equipment; APU: Auxiliary Power Unit:

$MTCO_2e$: Metric ton carbon dioxide equivalent

Note: APU and GSE usage is largely limited to commercial aircraft.

Section 5.0 of Appendix G also provides emissions inventory data that places Alternative 1's incremental increase in GHG emissions in the context of Airport-wide existing conditions data for 2016. Alternative 1's incremental increase in GHG emissions is identical when viewed in relation to the background existing general aviation only *or* commercial and general aviation existing conditions data

Source: AEDT version 2d, Landrum & Brown, 2018 (Appendix G).

Table 4.4-9 provides the net emissions for general aviation activity for the Baseline Plus Alternative 1 conditions; as shown therein, the net emissions value is below the SCAQMD's 10,000 $MTCO_2e$ significance threshold. Therefore, impacts would be less than significant.

TABLE 4.4-9
GENERAL AVIATION OPERATIONAL EMISSIONS
BASELINE (2016) PLUS ALTERNATIVE 1 (2026)

Source	Annual Operational Emissions ($MTCO_2e$)
Incremental Increase in Operational Emissions [a]	2, 859
Amortized Construction Emissions(see Table 4.4-7)	1,013
Annual Net Emissions: Alternative 1	3,872
SCAQMD Threshold	**10,000**
Baseline Plus Alternative 1 Exceed SCAQMD Threshold?	***No***

$MTCO_2e$: metric tons of carbon dioxide equivalent

Notes:

[a] Alternative 1 (2026) Operational Total (15,868) minus Baseline (2016) Conditions Operational Total (13,009)

Source: Landrum & Brown 2018 (Appendix G).

As discussed above for the Proposed Project, although impacts are less than significant and no mitigation measures are required, the minimization measure discussed under Threshold 4.4-2 (MN GHG-1), would serve to reduce GHG emissions associated with general aviation operations by including compliance with the applicable measures from the JWA Climate Action Plan in the

lease agreements for GAIP-related development. Additionally, there are mitigation and minimization measures recommended to reduce construction-related criteria air pollutant emissions in Section 4.2, Air Quality, of this Program EIR. The construction mitigation and minimization measures recommended in the air quality analysis are anticipated to result in co-benefits, in the form of GHG emissions reductions. As recommended in Section 4.2, all GAIP-related, off-road construction equipment shall be required to meet the USEPA's Tier 4 emission engine standards, per MM AQ-1. Additionally, MN AQ-1 recommends that architectural coating applied to parking lots and roadways shall be low VOC products. CalEEMod currently does not have the capability to estimate GHG reductions directly attributed to the implementation of these mitigation and minimization measures. However, it is anticipated the GHG construction emissions for Alternative 1 would be below the results presented in Table 4.4-3 and 4.4-6 with implementation of the referenced mitigation and minimization measures.

An additional minimization measure is recommended to reduce operation-related criteria air pollutant emissions in Section 4.2 of this Program EIR. Specifically, MN AQ-2 pertains to a requirement that the FBOs employ ZEV GSE where available for 90 percent or greater of the GSE operating hours. MN AQ-2 is expected to result in co-benefits, in the form of GHG emission reductions. Implementation of MN AQ-2 would reduce the total emissions for Alternative 1 from 3,872 annual $MTCO_2e$ to 3,331 annual $MTCO_2e$. This is approximately a 14 percent reduction in annual $MTCO_2e$ emissions.

Additionally, Alternative 1 incorporates provisions for the extension of the hydrant fueling system to the full service FBOs on the east side of the Airport. By connecting to the fuel farms located on the west side of the Airport via an underground pipeline, the number of refueling trucks would be reduced, thereby lowering fueling support vehicle emissions on the airfield

Impact Conclusion: *Construction activities and the changes in the fleet mix associated with Alternative 1 (2026) would generate greenhouse gas emissions beyond those identified for the Baseline (2016). However, the net emissions would be substantially below the SCAQMD threshold for industrial uses (i.e., 10,000, annual $MTCO_2e$) both prior to and after the implementation of mitigation and minimizations measures recommended in this section and Section 4.2 of this Program EIR (3,872 annual $MTCO_2e$ and 3,331 annual $MTCO_2e$, respectively). Although no mitigation measures are required, compliance with RR GHG-1 and RR GHG-2, implementation of MN GHG-1. MM AQ-1, MN AQ-1, and MN AQ-2 would further reduce GHG emissions. Therefore, Alternative 1 would not generate greenhouse gas emissions that would have a significant impact on the environment. Impacts of Alternative 1 would be less than significant under Threshold 4.4-1.*

Threshold 4.4-2

- ***Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?***

Proposed Project and Alternative 1

Executive Order S-3-05, AB 32, and SB 32 are the primary State policies adopted for the purpose of reducing GHG emissions. Statewide regulations adopted in furtherance of those State policies, including GHG emissions standards for vehicles, are being implemented at the statewide level. For example, CARB's Mobile Source Strategy and 2017 Scoping Plan include actions to deploy zero-emission technologies across a broad spectrum of sources, including airport GSE and off-road construction equipment (Landrum & Brown 2018). As noted in the discussion of Threshold 4.4-1, the GHG emissions for both the Proposed Project and Alternative 1 would be less than significant; therefore, it would not conflict with the regulations established for reducing GHG emissions. Both the Proposed Project and Alternative 1 also incorporate additional measures that would further reduce GHG emissions (MN AQ-1 and MN AQ-2), including a requirement that the FBOs employ ZEV GSE where available for 90 percent or greater of the GSE operating hours.

The Airport has developed the *John Wayne Airport Climate Action Plan* ("CAP"), which establishes a framework to minimize Airport-related GHG emissions. The CAP establishes emission reduction goals and a process for implementation, monitoring, and reporting. The CAP was developed in furtherance of mitigation measures provided in the JWA Settlement Agreement Amendment EIR No. 617.

Table 4.4-10 provides a consistency evaluation with the GHG emission reduction measures identified in the CAP. This evaluation pertains to both the Proposed Project and Alternative 1 because the requirements would be applicable to both scenarios. In order to ensure that the CAP measures are implemented, as applicable, to development and uses facilitated by approval of the GAIP, minimization measure MN GHG-1 is recommended for adoption. As demonstrated in Table 4.4-10, the Proposed Project and Alternative 1 are consistent with applicable elements of the CAP.

Finally, with respect to SCAG's RTP/SCS, neither the Proposed Project nor Alternative 1 are expected to increase GHG emissions as a result of the intersection between transportation planning and land use. The GAIP does not propose to change the long-standing land use of the JWA site for aeronautical purposes. And, as shown in Table 4.4-10, the *Climate Action Plan* contains strategies that are relevant to the use of transit and other multi-modal transportation opportunities. It also is noted that the predominant source of surface roadway vehicle traffic at JWA is attributable to the commercial air carrier operations, not the general aviation operations that are the subject of the Proposed Project and Alternative 1.

Since the Proposed Project and Alternative 1 would be consistent with the CAP and would implement applicable emissions-reducing strategies identified in CARB's Mobile Source Strategy and 2017 Scoping Plan Update, to the extent required by law, there would not be a conflict with any applicable plan, policy or regulation to reduce GHG emissions and impacts would be less than significant.

TABLE 4.4-10
JOHN WAYNE AIRPORT CLIMATE ACTION PLAN CONSISTENCY EVALUATION
PROPOSED PROJECT AND ALTERNATIVE 1

No.	Item	Climate Action Plan Measure	GAIP Consistency
E-1	Window Treatments	Install window awnings, sunshades or window tinting in appropriate areas	**Consistent -** Applicable components of the GAIP (e.g., new FBO facilities) shall be required to install window awnings, sunshades, window tinting or equivalent window design treatments in appropriate areas in order to reduce energy demand for conditioned air/cooling.
E-2	Cool roofs and pavements	Install light colored "cool" roofs and cool pavements in any new developments	**Consistent -** Applicable components of the GAIP (e.g., new FBO facilities) shall be required to install light colored "cool" roofs and cool pavements as appropriate in order to reduce energy demand for conditioned air/cooling.
E-3	Baggage handling system motors	Optimize the energy efficiency and control of the conveyor motors in the baggage handling system	**Consistent -** While not anticipated, applicable components of the GAIP (e.g., new FBO facilities) shall be required to optimize the energy efficiency and control of the conveyor motors in the baggage handling system as appropriate in order to reduce energy demand.
E-4	Energy efficiency retrofits	Retrofit and redevelop the existing structures and facilities to maximize energy efficiency	**Consistent -** The GAIP is consistent with this measure because it proposes to replace existing, aging general aviation facilities with new, more energy efficient general aviation facilities.
E-5	Energy efficiency lighting	Continue to install energy-efficient (LED or equivalent) lighting on the airfield, within terminal buildings, and for surface and parking lot security lighting	**Consistent -** The GAIP is consistent with this measure because it proposes to replace existing, aging general aviation facilities with new, more energy efficient general aviation facilities. In addition, applicable components of the GAIP shall be required to install energy-efficient (LED or equivalent) lighting on the airfield, within buildings, and for surface and parking lot security lighting in order to reduce energy demand.
E-6	Energy efficient equipment	Install energy efficient equipment and controls for equipment, as feasible	**Consistent -** Applicable components of the GAIP (e.g., new FBO facilities) shall be required to install energy efficient equipment and controls for equipment, as feasible in order to reduce energy demand.
E-7	Air handling unit motors and control	Install variable speed drives and optimize the control of air handling unit pumps for equipment, as feasible	**Consistent -** Applicable components of the GAIP (e.g., new FBO facilities) shall be required to install variable speed drives and optimize the control of air handling unit pumps for equipment, as feasible in order to reduce energy demand.

TABLE 4.4-10
JOHN WAYNE AIRPORT CLIMATE ACTION PLAN CONSISTENCY EVALUATION
PROPOSED PROJECT AND ALTERNATIVE 1

No.	Item	Climate Action Plan Measure	GAIP Consistency
E-8	Energy efficient elevators and escalators	Install energy efficient elevators and escalators as the existing ones require replacement	**Consistent -** Applicable components of the GAIP (e.g., new FBO facilities) shall be required to install energy efficient elevators and escalators, if included in the project, in order to reduce energy demand.
E-9	Solar panels	Install solar panels and a battery system to support the central utility plant ("CUP")[a]	**Not Applicable -** The GAIP addresses general aviation-related activities at JWA, and does not relate to, address or affect operation of the on-site Central Utility Plant.
E-10	Renewable energy purchases	Consider increasing the purchase and use of renewable energy	**Consistent -** Applicable components of the GAIP (e.g., new FBO facilities) shall be required to install renewable energy systems (e.g. solar) as feasible or purchase renewable energy.
E-11	Third party energy efficiency	Require/support third parties/ vendors to meet more stringent energy efficiency requirements	**Consistent -** JWA is requiring fixed based operators and vendors to meet stringent energy efficiency requirements equivalent of CalGreen Tier 1 and Envision Gold[b] or higher for applicable components of GAIP facilities.
E-12	ENERGY STAR equipment	Require/support that new equipment purchased by JWA or tenants be rated ENERGY STAR or equivalent	**Consistent -** Applicable components of the GAIP (e.g., new FBO facilities) shall be required to employ new equipment rated ENERGY STAR or equivalent to reduce energy demand.
E-13	Paperless tickets	Support the efforts of commercial air carriers to utilize paperless ticket technology	**Not Applicable -** This measure pertains to commercial air carriers, not the general aviation-related activities that are the subject of the GAIP.
E-14	Track energy use	Track energy use every 12 months to assess energy use efficiency and optimization	**Consistent -** JWA, in coordination with its' general aviation-related tenants, will monitor the energy use of development facilitated by the GAIP on an annual basis in order to assess efficiency and optimization opportunities.
AG-1	Alternative fuels for equipment	Maximize use of hybrid or alternatively fueled on-site equipment	**Consistent -** Applicable components of the GAIP shall be required to adopt GHG/Emission reduction measures for airside equipment and sources.
AG-2	Single/reduced engine taxiing	Support single/reduced engine taxiing procedures authorized by the FAA	**Not Applicable -** This measure pertains to the operational procedures used by commercial air carrier aircraft, not general aviation aircraft.

TABLE 4.4-10
JOHN WAYNE AIRPORT CLIMATE ACTION PLAN CONSISTENCY EVALUATION
PROPOSED PROJECT AND ALTERNATIVE 1

No.	Item	Climate Action Plan Measure	GAIP Consistency
AG-3	GSE electrification	Require GSE electrification of 35 percent above 2013 baseline levels by 2021, and 50 percent increase above baseline by 2026	**Not Applicable -** This measure pertains to the operational procedures used by commercial air carrier aircraft, not general aviation aircraft.
AG-4	Anti-idling policy	Require that all tenants develop, implement, and submit to the Airport a fleet-wide, anti-idling policy for their vehicles, and rental vehicles	**Consistent -** JWA shall require that general aviation tenants develop, implement and submit a fleet-wide, anti-idling policy for vehicles used, owned and/or operated in conjunction with their tenancy.
T-1	Electric vehicle chargers	Expand installation of electric vehicle chargers in public parking structures and the employee parking lots. Provide preferential parking for low emission vehicles	**Consistent -** JWA shall require that development facilitated by the GAIP install electric vehicle charging stations at appropriate general aviation facilities, such as passenger vehicle parking areas. JWA also shall require that tenants of facilities developed under the GAIP provide preferential parking for low emission vehicles at the general aviation facilities.
T-2	Public transit opportunities	Support feasible public transit opportunities to the Airport by coordinating with OCTA, Irvine iShuttle, and MetroLink upon the request of the transit providers	**Consistent -** JWA currently supports public transit opportunities to the Airport; these same opportunities are available to general aviation users.
T-3	Bicycle Racks	Support bicycle use by Airport employees and the air traveling public by providing convenient, secure bicycle racks for use on the Airport's premises	**Consistent -** Applicable components of the GAIP (e.g., new FBO facilities) shall be required to provide convenient, secure bicycle racks, as determined appropriate to accommodate bike riders.
SW-1	Waste reduction and recycling	Increase solid waste reduction and recycling	**Consistent -** JWA shall require GAIP facilities to implement waste reduction and recycling practices that exceed or are equivalent to those currently used in the passenger terminals. GAIP tenants shall provide separate receptacles for trash, recyclable and compostable materials.
SW-2	Paperless Tickets	Support the efforts of commercial air carriers to utilize paperless ticket technology	**Not Applicable -** This measure pertains to commercial air carriers, not the general aviation-related activities that are the subject of the GAIP.
M-1	ACI-NA Environmental Benchmark Survey	Support the efforts of the Airport industry to develop AQ//GHG emission benchmarking databases by participating in the biannual ACI-NA Environmental Survey	**Consistent -** JWA shall coordinate with its general aviation-related tenants to ensure that it has the information necessary to accurately respond to the biannual ACI-NA Environmental Survey.

TABLE 4.4-10
JOHN WAYNE AIRPORT CLIMATE ACTION PLAN CONSISTENCY EVALUATION
PROPOSED PROJECT AND ALTERNATIVE 1

No.	Item	Climate Action Plan Measure	GAIP Consistency
M-2	Improvement projects	Evaluate the effects of future Airport-related improvement projects cognizant of and informed by the resulting air quality and GHG emissions in accordance with the requirements of CEQA.	**Consistent -** A program-level EIR is being prepared to evaluate the environmental effects of the GAIP, including those associated with air quality and GHG emissions. General aviation-related development that is facilitated by the GAIP also shall comply with CEQA to ensure that the environmental effects of Airport-related improvement projects are evaluated.
M-3	Carbon offsets	Purchase carbon offset credits through an adopted program such as CAPCOA's Greenhouse Gas Reduction Exchange (Rx) Registry, of which the SCAQMD is a participating air district (www.ghgrx.org)	**Not Applicable -** Based on the information and analysis presented in the EIR, the GAIP's GHG emissions would not result in a significant impact to global climate change. Because no significant impacts would result, the purchase of carbon offset credits, as a form of mitigation is not required.

[a] The Airport started operating its CUP in 2011. The CUP produces electricity as well as heat from excess thermal energy. The heat is used to produce chilled water, which is used for terminal air conditioning. This greatly reduces or eliminates the need for electricity (generated or imported) to operate conventional air-conditioning systems, thereby reducing GHG emissions.

[b] Envision is third party rating system developed and managed by the Institute for Sustainable Infrastructure (ISI). "The Envision sustainable infrastructure rating system is a comprehensive framework of 60 sustainability criteria that address the full range of environmental, social, and economic impacts to sustainability in project design, construction, and operation. These criteria—called "credits"—are arranged in five categories: Quality of Life, Leadership, Resource Allocation, Natural World, and Climate and Risk." (Source: http://sustainableinfrastructure.org/envision/how-it-works/) Envision has levels of achievement or award from Bronze to Platinum. JWA is requiring a level of Envision Gold. For additional information, see http://sustainableinfrastructure.org/envision/.

Source: Landrum & Brown 2018 (Appendix G)

Impact Conclusion: *The GHG emissions for the Proposed Project and Alternative 1 would be less than the quantitative significance threshold (see Threshold 4.4-1) used to evaluate their significance, and are further reduced by mitigation and minimization measures recommended in Section 4.2 of the Program EIR. Additionally, both the Proposed Project and Alternative 1 would implement applicable emissions-reducing strategies identified in CARB's Mobile Source Strategy and 2017 Scoping Plan, to the extent required by law. GAIP-facilitated development and uses, under both the Proposed Project and Alternative 1, also would be required to comply with applicable provisions in JWA's Climate Action Plan, as identified in MN GHG-1. Therefore, the Proposed Project and Alternative 1 would not conflict with any applicable plan, policy or regulation established for reducing GHG emissions impacts and impacts would be less than significant under Threshold 4.4-2.*

4.4.8 CUMULATIVE IMPACTS

In the context of CEQA, "GHG impacts are exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective." This characterization of GHG impacts is consistent with the recognition that climate change is a global phenomenon, and that GHG emissions do not result in localized impacts but rather contribute to overall atmospheric concentrations of GHGs that then influence the global climate. As discussed above under Threshold 4.4-1, the Proposed Project and Alternative 1 would not result in a cumulatively considerable impact associated with estimated GHG emissions as the increment of GHG emissions attributable to implementation of the Proposed Project and Alternative 1 would be below the SCAQMD's significance threshold for GHG emissions.[5]

Further, as disclosed above, the Proposed Project and Alternative 1 would comply with State building codes and other regulatory programs adopted for the purpose of reducing GHG emissions; and would reduce potential Project GHG emissions consistent with the AB 32, SB 32, and the implementing legislative and regulatory efforts. Therefore, cumulative impacts would be less than significant.

4.4.9 MITIGATION PROGRAM

As discussed under Threshold 4.4-1 and Threshold 4.4-2, neither the Proposed Project nor Alternative 1 would result in a significant impact associated with GHG emissions. Therefore, in accordance with CEQA Guidelines Section 15126.4(a)(3), mitigation measures are not required to reduce the estimated GHG emissions.

However, minimization measure MN GHG-1 is recommended in order to ensure that all GAIP-facilitated development and uses comply with applicable provisions of the *John Wayne Airport Climate Action Plan*. Additionally, mitigation and minimization measures are recommended to reduce construction-related criteria air pollutant emissions in Section 4.2, Air Quality, of this Program EIR, and those measures would result in co-benefits in the form of GHG emission reductions.

Minimization Measure

MN GHG-1 JWA shall require that all general aviation-related development and uses facilitated by approval of the GAIP comply with applicable measures set forth in its *Climate Action Plan*. This compliance requirement shall be set forth in all leasehold agreements for GAIP-related development. Additionally, compliance with building design-related measures shall be verified by JWA Deputy Director, Facilities or designee, prior to the issuance of building permits for GAIP-related development.

[5] For informational purposes, the *Greenhouse Gas Technical Report* (Appendix G) does quantify the existing (2016) GHG emissions for both the general aviation and commercial carrier operations at the Airport. As previously explained, neither the Proposed Project nor Alternative 1 would change the number of commercial air carrier operations, fleet mix, runway use, flight tracks, or terminal area. The commercial air carrier operations at JWA are the greatest influence on the emissions while the general aviation operations contribute only a small amount.

4.4.10 LEVEL OF SIGNIFICANCE AFTER MITIGATION

GHG impacts are exclusively cumulative impacts. GHG emissions for the Proposed Project and Alternative 1 would be less than significant. The GAIP (Proposed Project and Alternative 1) also is consistent with plans, policies, and regulations pertaining to reducing GHG emissions.

4.4.11 REFERENCES

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4.5 HAZARDS AND HAZARDOUS MATERIALS

This section discusses project-related issues associated with hazardous waste and the use, storage, and handling of hazardous materials at John Wayne Airport ("JWA" or "the Airport"); it also assesses the Project's potential hazardous materials impacts that could potentially affect human health and/or the environment. The analysis in this section is based on *Phase II Environmental Site Assessment Report, General Aviation Improvement Program Areas John Wayne Airport* (Phase II Environmental Site Assessment ["ESA"]), prepared by Amec Foster Wheeler Environmental & Infrastructure (Amec, December 2016a).[1] This report is provided as Appendix F-1 to this Program Environmental Impact Report ("EIR"). In addition, eight Hazardous Material Survey Reports have been prepared evaluating the potential for hazards in the facilities that would be demolished as part of the GAIP (Amec 2017a). These reports are provided as Appendices F-2 through F-9 to this Program EIR.

The Project analysis provided below is limited as follows: the proposed Project is not located on a site which is included on a list of hazardous materials sites compiled pursuant to *Government Code* Section 65962.5; it would not affect implementation of JWA's approved evacuation plan; it would not be located in the vicinity of a private airstrip nor would it be adjacent to a wildlands area. These topics are not discussed in this section (refer to the Notice of Preparation ["NOP"]/Initial Study in Appendix A).

4.5.1 REGULATORY SETTING

Federal

Toxic Substances Control Act

The Toxic Substances Control Act of ("TCSA") 1976 provides the U.S. Environmental Protection Agency ("USEPA") with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. Certain substances are generally excluded from TSCA, including, among others, food, drugs, cosmetics and pesticides. The TSCA addresses the production, importation, use, and disposal of specific chemicals including asbestos and lead-based paint which may be encountered during demolition of project buildings.

Occupational Safety and Health Act

Congress passed the Occupational Safety and Health Act ("OSHA")(29 U.S.C. §651 et seq.) in 1970 to ensure worker and workplace safety. Their goal was to make sure employers provide their workers a place of employment free from recognized hazards to safety and health, such as exposure to toxic chemicals, excessive noise levels, mechanical dangers, heat or cold stress, or unsanitary conditions. In order to establish standards for workplace health and safety, the Act also created the National Institute for Occupational Safety and Health ("NIOSH") as the research institution for the OSHA. OSHA is a division of the U.S. Department of Labor that oversees the administration of the Act and enforces standards in all 50 states. Requirements of the OSHA are

[1] Amec Foster Wheeler was acquired by Wood Group in October 2017. The Phase II site assessment and Hazardous Material Survey Reports reflect Amec Foster Wheeler as the preparers of the reports.

implemented at the state level by the California Occupational Safety and Health Administration ("Cal/OSHA", see below).

Executive Order 12088

Executive Order ("EO") 12088, Federal Compliance with Pollution Control Standards, was issued in 1978 and requires the head of each executive agency to ensure that all necessary actions are taken for the prevention, control, and abatement of environmental pollution with respect to federal facilities and activities under the control of that agency, including (among others) the Federal Aviation Administration ("FAA").

Hazardous Materials Transportation Act

The Hazardous Materials Transportation Act administered by the U.S. Department of Transportation governs the transport of hazardous materials, such as jet fuel. The California Department of Transportation ("Caltrans") implements the federal regulations published as Title 49 of the *Code of Federal Regulations* ("CFR") and Title 13 of the *California Code of Regulations*. These laws regulate the handling and transport of hazardous waste materials, including any that may be found during project excavation/construction and that need to be transported offsite for disposal and/or treatment.

Federal Aviation Administration Regulation Part 139

To ensure that appropriate safety levels are met at airports, the *Code of Federal Regulations* ("CFR", Title 14, Part 139) requires the FAA to issue airport operating certificates to airports such as JWA that serve scheduled and unscheduled air carrier aircraft with more than 30 seats. Airports are classified into one of four classes, based on the type of air carrier operations served. JWA is classified as a Class I facility because it provides air carrier operations for air carrier aircraft with more than 30 seats. To obtain a certificate, an airport must agree to certain operational and safety standards whose exact parameters vary depending on the size of the airport and the type of flights available.

JWA has been issued an airport operating certificate pursuant to Part 139 "Airport Certification" (14 CFR 139). To obtain a certificate, an airport must agree to certain operational and safety standards and provide for such things as firefighting and rescue equipment. In conjunction with its Part 139 certificate, JWA's fuel farm is subject to inspection under the Federal Aviation Regulations ("FAR") (14 CFR 139.321). Specifically, this can include inspection of the fuel farm and mobile fuelers, review of JWA files for documentation of quarterly inspections of the fueling facility, and review of certification from each tenant fueling agent about completion of fire safety training.

Clean Water Act

The Spill Prevention, Control and Countermeasure ("SPCC") Rule was originally published in 1973 under Section 311(j)(1)(C) of the Clean Water Act as amended by the Oil Pollution Act of 1990. The regulation requires applicable facilities to develop and implement SPCC Plans and establish procedures, methods, and equipment requirements to prevent oil from reaching navigable waters and adjoining shorelines, and to contain discharges of oil.

40 CFR Part 112 requires that facilities subject to federal oil pollution prevention regulations develop and maintain a SPCC Plan. Federal oil pollution prevention regulations apply to facilities that have bulk oil storage or oil-filled electrical or operating equipment.

The Airport has developed a SPCC Plan, dated September 2016, which was prepared in compliance with 40 CFR Part 112 "Oil Pollution Prevention," that outlines the requirements for both the prevention of and response to oil and oil product discharges, which in this case, is primarily jet fuel but also includes 100LL aviation fuel ("avgas") and other petroleum-based fuels at the Airport. (The Clean Water Act is also discussed in Section 4.11, Water Quality.)

State

California Occupational Safety and Health Administration

The Cal/OSHA regulations establish state-wide requirements regarding the disturbance of Asbestos Containing Construction Materials ("ACCMs") including removal operations for all types of ACCMs. Cal/OSHA requires contractors and employers that remove ACCMs to be registered and consultants and technicians who conduct sampling and/or removal to be certified. In addition, the agency has developed standards for general industry and the construction industry hazardous waste operations and emergency response. Cal/OSHA ensures that employers must have controls to reduce and monitor exposure levels of hazardous materials, an informational program describing any exposure during operations and the inspection of drums and containers prior to removal or opening. Decontamination procedures and emergency response plans must be in place before employees begin working in hazardous waste operations.

Hazardous Materials Release Response Plans and Inventory Act

The Hazardous Materials Release Response Plans and Inventory Act ("HMRRPIA")(California Health & Safety Code, Chapter 6.95, Article 1) was passed in 1985 and is also known as the "Business Plan Act". It requires businesses using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs. Business plans must include an inventory of the hazardous materials at the facility and must be updated at least once every three years, and the chemical inventory portion of their plan every year. Also, business plans are required to include emergency response plans and procedures to be used in the event of a significant or threatened significant release of a hazardous material. These plans need to identify the procedures to follow for immediate notification to all appropriate agencies and personnel in the event of a release. Additional requirements are identification of local emergency medical facilities, contact information for all company emergency coordinators of the business, a listing and location of emergency equipment at the business, an evacuation plan, and a training program for business personnel. Businesses that handle hazardous materials are required by law to provide an immediate verbal report to the local fire authority (see Orange County Fire Authority ["OCFA"]) and the Governor's Office of Emergency Services, California State Warning Center, of any release or threatened release of hazardous materials if there is a reasonable belief that the release or threatened release poses a significant present or potential hazard to human health and safety, property, or the environment.

California Accidental Release Prevention Program

The California Accidental Release Prevention Program ("CalARP") became effective on January 1, 1997, in response to Senate Bill 1889. The CalARP aims to be proactive and therefore requires businesses to prepare Risk Management Plans ("RMPs"), which are detailed engineering analyses of potential accident releases present at a business and the mitigation measures that can be implemented to reduce this accident potential. This requirement is coupled with the requirements for preparation of Hazardous Materials Business Plans under the Unified Program, implemented by the Certified Unified Program Agency ("CUPA") (see below).

Certified Unified Program Agency

Senate Bill ("SB") 1082 (1993) establishes the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program, which consolidates, coordinates, and makes consistent six different hazardous material/waste programs. In 1997, the Orange County Environmental Health Care Agency ("OCHCA") was designated as the Certified Unified Program Agency ("CUPA") for the County of Orange (see discussion below under Other County Hazardous Materials Requirements).

California Environmental Reporting System

The California Environmental Reporting System ("CERS") is the statewide web-based system that facilitates the electronic exchange of required Unified Program information among businesses, local governments and the U.S. EPA. Assembly Bill 2286 (Feuer), effective January 1, 2009, requires all Unified Program regulated businesses and local regulating Unified Program Agencies ("UPAs"), to report and submit mandatory Unified Program information electronically, through CERS or a local UPA portal. Unified Program information required to be submitted and reported electronically to CERS includes, but is not limited to, facility data regarding hazardous material regulatory activities (such as, hazardous materials business plans, site maps, and chemical inventories), underground and aboveground storage tanks, hazardous waste generation, and inspection, compliance and enforcement actions. A number of JWA facilities are listed in CERS including the Hazardous Materials Disclosure ("HMD"), Business Emergency Plan ("BEP"), and underground storage tanks ("USTs").

National Pollutant Discharge Elimination Program

In 1972, the Federal Water Pollution Control Act ("Clean Water Act") was amended to require National Pollutant Discharge Elimination System ("NPDES") permits for the discharge of pollutants to waters of the United States[2] from any point source.[3] California's Porter-Cologne Water Quality Control Act of 1970 grants the State Water Resources Control Board ("SWRCB") and the Regional Water Quality Control Boards ("RWQCBs") the authority and responsibility to adopt plans and policies; to regulate discharges of waste to surface and groundwater; to regulate

[2] Waters of the United States include all waters that have, are, or may be used in interstate or foreign commerce (including sightseeing or hunting), including all waters subject to the ebb and flow of the tide and all interstate waters, including interstate wetlands (33 *Code of Federal Regulations* 328.3).

[3] Point sources are discrete water conveyances, such as pipes or man-made ditches.

waste disposal sites; and to require cleanup of discharges of hazardous materials and other pollutants.

Two NPDES permits would be applicable to the GAIP. The Airport currently operates under the General Permit for Storm Water Discharges Associated with Industrial Activities (SWRCB Order No. 2014-0057-DWQ and amendment) referred to as the "Industrial General Permit". During construction, the GAIP construction areas must comply with the SWRCB's NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, referred to as the "Construction General Permit". These permits are also discussed in Section 4.11, Water Quality.

Airport Land Use Compatibility Plan

The State Aeronautics Act and *California Airport Land Use Planning Handbook* identify the requirement for preparation of an airport land use compatibility plan(s) as a fundamental tool used by the Airport Land Use Commission ("ALUC") in fulfilling its purpose of promoting airport land use compatibility. The law (Section 21675[a] of the *Public Utilities Code*) describes the compatibility plans as having two primary purposes:

- To "provide for the orderly growth of each public airport and the area surrounding the airport within the jurisdiction of the commission…" and
- To "safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general".

The ALUC for Orange County, which was established in 1970, adopted the first compatibility plan in 1975. This plan is known as the *Airport Environs Land Use Plan* ("AELUP"). The original document addressed all the airfields in Orange County. In 2002, the ALUC amended the AELUP and prepared separate compatibility plans for each facility.

The most current AELUP for JWA was adopted April 17, 2008. This plan is intended to provide land use compatibility policies for the 20-year planning horizon for JWA, to help safeguard the general welfare of the inhabitants in the vicinity of the Airport, and to help ensure the continued operation of the Airport. Specifically, the AELUP provides land use compatibility policies that seek to protect the public from adverse effects of aircraft noise, to help ensure that people and facilities are not concentrated in areas susceptible to aircraft accidents, and to help ensure that no structures or activities adversely affect navigable airspace. The general aviation facilities at the Airport are located within Zones 1 through 5, which have the following basic safety compatibility policies:

- Zone 1: Runway Protection Zone – Prohibits all new structures and residential uses, children's schools, hospitals and avoids non-residential uses, unless they are very low intensity in character and confined to the sides and outer end of the area;
- Zone 2: Inner Approach/Departure Zone – Prohibits residential uses, children's schools, hospitals, limits non-residential uses to activities that attract few people and prohibits hazardous uses (e.g., aboveground bulk fuel storage);

- Zone 3: Inner Turning Zone – Prohibits children's schools, hospitals, avoids non-residential uses having moderate or higher usage intensities and avoids hazardous uses (e.g., aboveground bulk fuel storage);
- Zone 4: Outer Approach/Departure Zone – Prohibits children's schools, hospitals, limits non-residential uses having moderate or higher usage intensities and avoids hazardous uses (e.g., aboveground bulk fuel storage);
- Zone 5: Sideline Zone – Prohibits children's schools, hospitals, allows all common aviation-related activities provided that height-limit criteria are met and limits other non-residential uses having moderate or higher usage intensities; and
- Zone 6: Traffic Pattern Zone – Contains the aircraft traffic pattern which means a high possibility of accidents occurring in this zone, although the size of the zone reduces the risk level as compared to the other zones. For JWA, this zone is mainly offsite of the airport property.

Regional/Local

South Coast Air Quality Management District

The South Coast Air Quality Management District ("SCAQMD") is responsible for monitoring and managing air quality in the South Coast Air Basin, mainly regarding stationary sources such as airport fueling stations. This is in contrast to the California Air Resources Board which deals with regulating mobile sources. In addition, SCAQMD Rule 1403 establishes asbestos survey requirements, notification, and work practice requirements to prevent asbestos emissions from emanating during building renovation and demolition activities. Rule 1403 incorporates the federal asbestos requirements found in the National Emission Standards for Hazardous Air Pollutants ("NESHAP") found in CFR Title 40, Part 61, Subpart M. USEPA delegated SCAQMD the authority to enforce the federal asbestos NESHAP and SCAQMD is the local enforcement authority for asbestos.

Orange County Fire Authority

OCFA monitors the storage of hazardous materials in the County for compliance with local requirements. Specifically, businesses and facilities which store more than threshold quantities of hazardous materials as defined in Chapter 6.95 of the California Health and Safety Code are required to file an Accidental Risk Prevention Program with the OCFA. This program includes information such as emergency contacts, phone numbers, facility information, chemical inventory, and hazardous materials handling and storage locations.

Other County Hazardous Materials Requirements

In 1997, the Orange County Environmental Health Care Agency ("OCHCA") was designated as the CUPA for the County of Orange. As the CUPA, the OCHCA coordinates the regulation of hazardous materials and hazardous wastes in Orange County through the following six programs: Hazardous Materials Disclosure ("HMD"), Business Emergency Plan ("BEP"), Hazardous Waste, Underground Storage Tank ("UST"), Aboveground Petroleum Storage Tank ("APST"), and the California Accidental Release Prevention ("CalARP"). These regulations include, but are not

limited to, delineation and (if necessary) remediation and disposal of ACMs and lead-based paint ("LBP") prior to demolition of existing older structures.

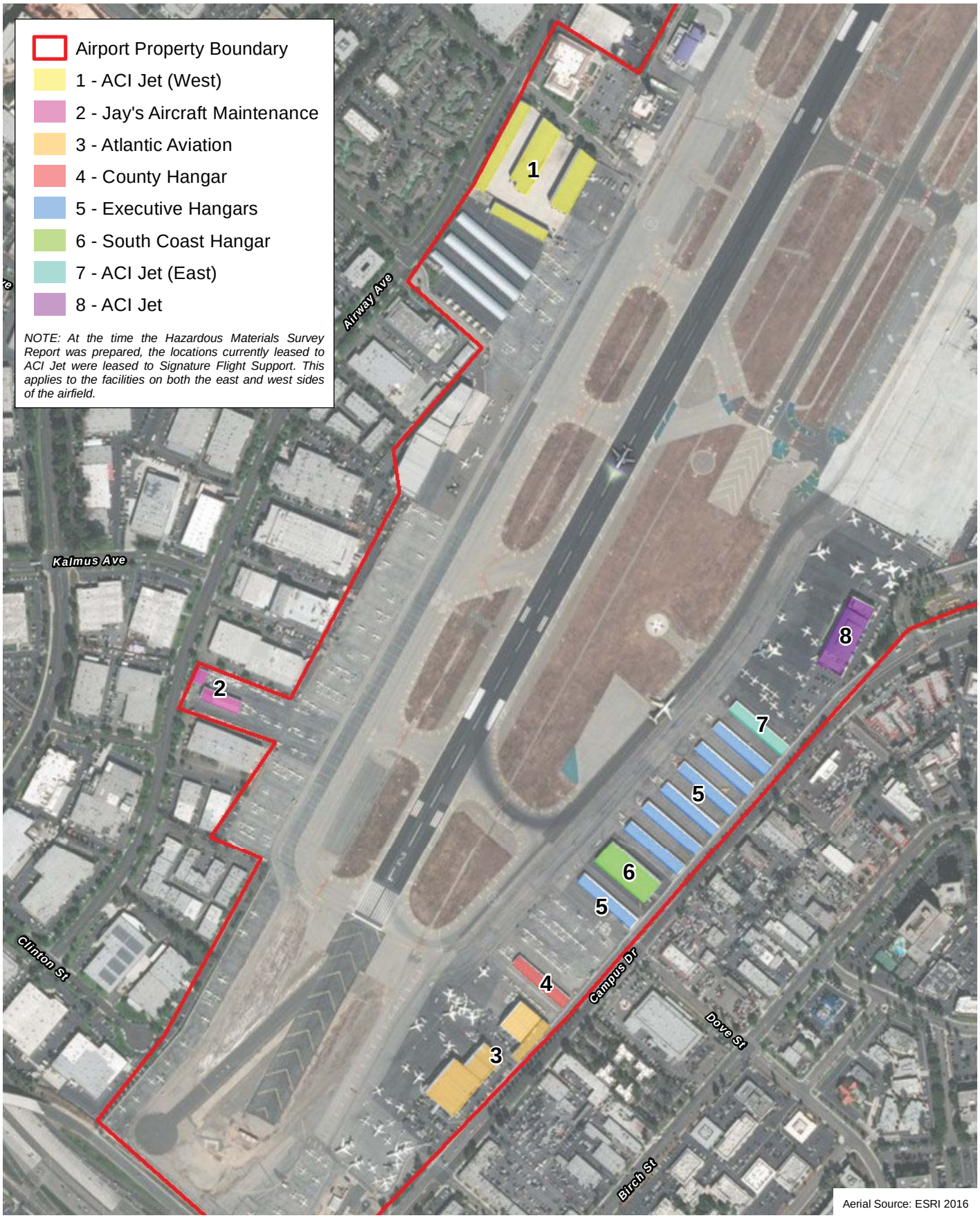
4.5.2 METHODOLOGY

The evaluations of existing environmental conditions at the Project site are based on information in the Phase II ESA prepared for the Project. The potential for hazards-related impacts was based on an assessment of existing conditions and the likelihood that implementation of the GAIP would result in the disruption of existing hazardous conditions through the demolition of existing facilities or result in discharges during construction of improvements. This effort included the following: (1) documentation of the existing and historic uses at JWA; (2) JWA hazardous waste practices; (3) existing fuel handling, transport, storage facilities and activities; and (4) known discharges, investigations, and remediation activities.

As part of the Phase II ESA, soil samples were collected from a depth of approximately 2 feet at each location and were submitted for laboratory analysis of volatile organic compounds ("VOCs"), total petroleum hydrocarbons ("TPH"), and Title 22 Metals. Soil vapor probes were placed at depth between approximately 5 and 6 feet below ground surface, and soil vapor samples were collected and submitted for laboratory analysis of VOCs and TPH. The locations of the soil testing are provided in the Phase II ESA, which is provided as Appendix F-1 to this Program EIR.

The potential for the Proposed Project to create or result in increased risk of exposing surrounding populations or the environment to hazardous materials due to operation of the GAIP was assessed in light of the following: (1) the existing fuel management programs in place at JWA, and (2) the spill prevention and response protocols. This information was obtained through review of existing documentation, consultation with Airport staff and review of results from the Phase II ESA, and Hazardous Materials Survey Reports prepared for the proposed Project site.

The Hazardous Materials Survey Reports were done in 2016 and identify the locations by the then current leaseholder. Table 4.5-1 identifies the facility name in the Hazardous Materials Survey Report and the corresponding use for the Proposed Project and Alternative 1. It should be noted, the configurations of the proposed future uses under the Proposed Project and Alternative 1 do not exactly correspond to the current lease boundaries. The locations of the facilities are depicted on Exhibit 4.5-1.



Aerial Source: ESRI 2016

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Locations Evaluated in the Hazardous Material Survey Reports

Exhibit 4.5-1

John Wayne Airport General Aviation Improvement Program

N W E S

600 300 0 600 Feet

JOHN WAYNE AIRPORT ORANGE COUNTY

TABLE 4.5-1
HAZARDOUS MATERIALS SURVEY REPORT LOCATIONS
AND CORRESPONDING GAIP USES

Hazardous Materials Survey Report [a]	Proposed Project Use	Alternative 1 Use
Signature Flight Support (West)[b] (F-2)	Full Service West FBO	Full Service West FBO
Jay's Aircraft Maintenance (F-3)	Limited Service Southwest FBO	Limited Service Southwest FBO
Atlantic Aviation (F-4)	Flight School and T-Hangar	Flight School and T-Hangar
County Hangars (F-5)	T-Hangars	T-Hangars
Executive Hangar (F-6)	Box Hangars	Full Service Southeast FBO
South Coast Hangar (F-7)	Box Hangars	Full Service Southeast FBO
Signature Flight Support East Hangar [b] (F-8)	Full Service Northeast FBO	Full Service Northeast FBO
ACI Jet-East (F-9)	Full Service Northeast FBO	Full Service Northeast FBO

[a] The number in parentheses after the location is the appendix number where the report can be found. The name of the facility reflects the name shown on the title of the report.

[b] At the time the Phase II ESA and the Hazardous Materials Survey Reports were prepared the facilities now occupied by ACI Jet were leased to Signature Flight Support. Therefore, the reports for the facilities on west sides of the airfield and the hangar on the east side reference the facilities as being operated by Signature Flight Support. These reports are contained in Appendices F-1, F-2 and F-8, respectively). An additional Hazardous Materials Survey Report was prepared at a later time for the ACI Jet facility on the east side of the Airport, which reflects ACI Jet as the leaseholder (i.e., the report contained in Appendix F-9).

4.5.3 EXISTING CONDITIONS

Hazardous Materials Use

Airport activities involve the use, handling, storage, transport, and disposal of hazardous materials and/or wastes that are subject to federal, state, and local laws and regulations. A hazardous material is any item or agent that can pose a danger to individual health and to the environment. The term generally applies to certain raw materials or products purchased from outside suppliers that are stored and used at a facility (AECOM 2018a). Hazardous and regulated materials found at the Airport are listed with the CERS. Information found in CERS includes facilities that handle hazardous materials, site maps, chemical inventories, underground and aboveground storage tanks, and emergency response plans.

The main activity conducted at the Airport that involves the use, storage, and handling of hazardous materials is the fueling of aircraft, airport vehicles, and other ground support equipment ("GSE"). Only minor maintenance and repairs of commercial aircraft and airport vehicles are allowed at the Airport, thereby reducing the number and quantities of other hazardous materials as well as their potential impacts.

Fuel Handling and Storage

As previously discussed in Section 3.0, *Project Description*, aviation fuel is a specialized type of petroleum-based fuel used to power and propel aircraft. The general aviation activities at the Airport use two types of aviation fuel: avgas and Jet A. Both types of fuels are stored at the

Airport. Avgas is the only remaining lead-containing transportation fuel. Lead has been found to be a toxic substance, and several petitions and lawsuits are demanding the U.S. Environmental Protection Agency ("USEPA") pursue an endangerment finding for leaded avgas. The agency is expected to make a final determination on avgas in 2018. Replacement of aviation gasoline ("avgas") by 2018 is anticipated through the Piston Aviation Fuels Initiative ("PAFI") (AECOM 2018a).

The Airport has two "fuel farm" locations. All existing fuel tanks at JWA, including those in the commercial fuel farm and old fuel farm, meet current mandated leak protection and detection standards. The larger facility, built in 1991, serves the commercial airlines and is operated by Aircraft Service International Group ("ASIG") for a consortium of airlines ("SNAFuel, Inc."). Currently, the commercial carriers receive fuel on the commercial apron from the fuel farm located on the west side of the Airport via underground pipes connected to the apron fuel hydrants. The hydrant fueling system extends to the "remain overnight" ("RON") parking apron for commercial aircraft located south of the passenger terminal building. SNAFuel provides Jet-A fuel to the commercial aircraft.

The "old" fuel farm is located in the southeast corner of the airfield and is operated by the Fixed Based Operators ("FBOs") and the Airport for general aviation. The underground fuel tanks located at the southeast fuel farm include Jet-A, avgas, regular unleaded gasoline, and diesel. General aviation aircraft fueling services are currently provided by the two full-service FBOs at the Airport. General aviation aircraft are fueled at their parking spaces and tie-downs via trucks operating from the old fuel farm. All areas where fuel is stored and where aircraft and vehicles/GSE are fueled drain into Petro-pack equipped oil/water separators. Fuel is delivered to the general aviation fuel farm through the gate off Campus Drive at Quail Street. The current general aviation fuel storage facilities, which are in addition to fuel trucks, range in size from 750 gallons to 5,000 gallons, and are as follows:

- One 20,000-gallon underground tank of avgas operated by the current Full Service Southeast FBO
- One 12,000-gallon underground tank of unleaded operated by the current Full Service Southeast FBO
- One split underground tank with 8,000 gallons of avgas and 4,000 gallons of unleaded/motor gas to service own vehicles and some airline equipment operated by the current Full Service Northeast FBO
- One 20,000-gallon underground tank of Jet-A fuel operated by the current Full Service Southeast FBO
- Two 30,000-gallon underground tanks of Jet-A fuel operated by the current Full Service Northeast FBO (AECOM 2018a).
- One 2,500-gallon underground tank of diesel fuel owned and operated by the Airport
- One 6,000-gallon underground tank of unleaded fuel owned and operated by the Airport

In 2016, approximately 96 percent of the total fuel sales (by volume) for general aviation activities at Airport was of Jet-A (AECOM 2018a). Avgas sold at the Airport has decreased from over 6 percent of the total fuel flowage in 2006 to only 3.3 percent in 2016. The continuous

decline in avgas demand is generally in line with the decrease in based piston aircraft. However, the drop in fuel price since late 2014 has ceased the decline, and the demand for avgas has remained steady. An estimated total of 7,604,000 gallons of fuel was used at the Airport in 2016. The following provides the approximate breakdown of the fuel usage by fuel type (AECOM 2018b):

- 254,000 gallons of avgas
- 7,290,000 gallons of Jet-A
- 60,000 gallons of other fuel

All personnel conducting fueling activities at the Airport are required to receive training from the Orange County Fire Authority ("OCFA") that is approved by the FAA. Furthermore, all fueling operations are subject to Emergency Response, Spill Response, and Storm Water Pollution Prevention Plan ("SWPPP") compliance, among others. These plans must meet the approval of the OCFA, JWA, and County and State health and water quality officials (i.e., the Regional Water Quality Control Board ["RWQCB"]).

The current *JWA Spill Prevention, Control, and Countermeasure* ("SPCC") Plan, dated September 2016 (Amec 2016b) and prepared in compliance with 40 CFR Part 112 "Oil Pollution Prevention," outlines the requirements for both the prevention of and response to oil and oil product discharges, which in this case, includes jet fuel, avgas, diesel, and unleaded gasoline. JWA has also prepared an Operations Manual to encompass all aspects of fueling operations specific to the JWA fuel farm that applies to member airlines. Non-member airlines must execute an agreement to incorporate the Manual into their operations in its entirety.

All fueling facilities have permits from the above-listed agencies to operate, as well as appropriate permits from the South Coast Air Quality Management District ("SCAQMD") regarding fuel-related emissions.

In addition to the above listed facilities, the County of Orange has approved a privately-initiated proposal by Wickland Pipelines LLC ("Wickland") to supply Jet-A fuel to the Airport that would result in other improvements to the west side fuel farm and would include construction of two 1.5-million-gallon capacity tanks and connection of these large tanks with an underground pipe to a larger off-site pipeline distribution system, in order to increase Airport-related jet fuel storage capabilities and provide for delivery of Jet-A via pipeline.[4] The intent of this approved project is to reduce/remove the need to truck fuel from the refinery to the Airport, thus reducing potential impacts due to transport and handling of jet fuel (JWA 2016). These facilities are under construction but not currently operational. It is anticipated that these facilities will be completed by the end of 2018.

Spill Management and Releases

JWA's spill management procedures are documented in JWA's SPCC and the SPCCs of the Airport tenants, JWA's SWPPP as well as the Emergency Plans submitted to CERs. In the event of fuel spills, the on-site Airport Rescue and Fire Fighting ("ARFF") Station is notified and called to the

[4] The tank system would consist of two 98-foot diameter by 34-foot high tanks. Each jet fuel tank would have a total shell capacity of 1,806,000 gallons and a net operating capacity of 1,554,000 gallons.

scene for all fuel spills. Tanker truck and into-plane (fuel dispensing) operators are primarily responsible for clean-up and containment; however, ARFF personnel intervene to prevent a fire, contain the spill, and/or prevent spilled fuel from entering the storm drain system. Small spills are cleaned up using absorbent pads and materials stored at the fuel farm and the commercial apron. In the event of a major spill, the OCFA Hazardous Materials Response Team is called to the scene. Clean-up and further containment is the responsibility of the fuel farm, FBOs, and into-plane operators who contract with various spill response companies. JWA also has spill response contractors available on-call 24 hours a day, 7 days a week.

Historically, a number of small fuel spills have occurred throughout the airfield but rarely result in releases to the storm drain or off the property. Between 2003 and 2016, JWA recorded no fuel spills or other incidents that resulted in releases that extended off the airfield. (McCoy 2018). All minor spills were contained and properly remediated. No incidents required treatment, removal, or disposal of contaminated soils. All releases were effectively remediated (i.e., cleaned up) and regulatory case files have been closed regarding these incidents. Therefore, these past incidents represent no significant impact on the environment regarding hazardous materials. In 2016, JWA conducted an assessment of the airfield, focusing on the GAIP areas to evaluate the subsurface for the presence of contaminated soils that may impact redevelopment. The study included a review of historic records and sampling of areas with the potential for contamination as well as statistical soil sampling of non-suspect areas to test for the presence of contaminated soils. No contaminate concentrations in excess of accepted Department of Toxic Substance Control ("DTSC") risk-based screening values or other environmental screening levels were detected in the assessment study (AMEC, 2016a).

The 2016 Annual Operators Report for the hydrant fueling facilities did not identify any outstanding issues. The following is a brief overview of their report to the Airport (SNAFuel 2016):

- All required permits are on hand and are current.
- All fuel received into and dispensed from the facility met American Society for Testing and Materials ("ASTM") D1655 standards.
- No significant fuel spills occurred in 2016.
- The fuel facility operation maintained International Organization for Standardization ("ISO") 9001-2008 certification.
- All personnel are fully trained in accordance with corporate, county, and federal regulations ("OSHA"). All outside training for FAR 139, Hazardous Waste Operations and Emergency Response ("HAZWOPER"), Confined Space Entry, and Hazardous Material Shipping are current.
- The facility has retained an ISO 9001:2008 certification.[5]

[5] ISO 9001:2008 specifies requirements for a quality management system where an organization (1) needs to demonstrate its ability to consistently provide product that meets customer and applicable statutory and regulatory requirements and (2) aims to enhance customer satisfaction through the effective application of the system, including processes for continual improvement of the system and the assurance of conformity to customer and applicable statutory and regulatory requirements. All requirements of ISO 9001:2008 are generic and are intended to be applicable to all organizations, regardless of type, size and product provided (ISO 2018).

The Airport's compliance with applicable regulatory requirements as well as the stringent fuel safety protocols routinely implemented ensure the risks related to jet fuel transport, storage, and handling are minimized to the maximum extent possible.

Two locations on the Airport are associated with historic contamination. In the late 1980s and early 1990s, multiple JWA FBO tenants with jet fuel tanks at the old fuel farm declared bankruptcy and left JWA to clean up releases of jet fuel to the soil and groundwater. In 1988, the RWQCB issued Cleanup and Abatement Order 88-123 to JWA, and the remediation is still ongoing. Annual ground water sampling as well as monthly visual observations and free-product removal are performed at this location. Contamination was also identified for the former Fire Station 33 (366 Paularino Avenue). Annual groundwater monitoring is conducted at this location. Annual reports to the RWQCB are prepared for both of these facilities as part of the regulatory oversight. The most recent annual reports for each of these sites are dated January 29, 2018, for reporting year 2017(McCoy 2018).

Maintenance Activities

Hazardous wastes generated during the maintenance of aircraft typically include shop waste such as used oil, transmission and hydraulic fluids, and other industrial waste such as oily rags, spent cartridges, etc. Shop wastes are stored in approved containers until they are transported and properly disposed of. Airport maintenance building operations include the limited use of small quantities of paints, mineral spirits, batteries, cleaning solvents, and petroleum products. Maintenance services at existing hangars store materials used to maintain aircraft, fueling, and vehicles and house containers used for oil, coolant or waste oil, or fuel.

Operations conducted in aircraft hangars, maintenance facilities, and associated shops include cleaning, reconditioning, and overhauling aircraft. These activities involve hazardous materials storage and waste management. Hazardous materials and wastes found in aircraft maintenance facilities, aircraft systems, aircraft servicing and components shops most commonly include: fuels and solvents and can also include lubricants, cleaners, paints, compressed gasses, peroxides, caustics, alcohols, and foams. These materials are used for many activities including aircraft maintenance and repairs, painting and stripping, fueling and storage, as well as washing and cleaning aircraft and ground service equipment. Small quantities of oil, degreaser, paint, paint thinner, alcohol, acetone, varsol alcohol, transmission fluid, and gear oil can be stored in hangars (AECOM 2018a).

The Airport sends the waste oil and solvent generated by its tie-down tenants out to be recycled. All waste generated by airport maintenance activities is also sent out for recycling or proper disposal. Commercial airlines and FBOs contract individually with waste hauling companies for the collection of, recycling, or proper disposal of hazardous and California-regulated waste.

All the existing tanks at JWA meet mandated leak protection and detection standards. Similarly, oil/water separators, located at wash-racks near aircraft maintenance facilities, are routinely cleaned and monitored (see Exhibit 4.11-1 in Section 4.11, Water Quality for the location of the oil/water separators). Hazardous materials use and disposal practices include the ongoing implementation of employee training programs.

Aviation-related hazardous materials storage and waste management is a function of the type and size of the aircraft hangar and the work performed. Functional space requirements for

hazardous materials storage and waste management are directly related to the identity, operation, and volume of the substance(s) and include: (1) T-Hangars (assume very minor maintenance activities are permitted or none at all); (2) Conventional/Box Hangars (assume routine aircraft inspection and maintenance activities are permitted, or none at all); and (3) Full Service would provide maintenance, repair, and overhaul ("MRO") (assume licensed provider operating in compliance with all applicable laws, regulations, and permit requirements, i.e., FAA, the California Division of Occupational Safety and Health Administration ["Cal/OSHA"], Federal Resource Conservation and Recovery Act ["RCRA"], etc.). No dedicated hazardous materials space may be provided in hangars used only for storing transient aircraft because no services are performed on the aircraft, while hangars used for storing based aircraft may have a small fire-rated room or cabinet/locker to store the supplies needed to self-perform routine inspection and minor maintenance of the aircraft, systems, and components (to the extent permitted by the airport, lease agreement, or applicable code requirements) (AECOM 2018a).

Schools Surrounding the Airport

At its closest point, Mariner's Christian School, located at Red Hill Avenue and Fisher Avenue, is approximately ¼-mile west of the Airport. No other school facilities are within the ¼-mile area surrounding the Airport.

Site Investigations

Phase II Environmental Site Assessment

Amec conducted a Phase II ESA dated December 14, 2016, to assess shallow subsurface conditions in the planned General Aviation Improvement Program ("GAIP") development/redevelopment areas at JWA. These surveyed areas included hangar and tie down areas operated by the County of Orange (County) and tenant leaseholds being evaluated as part of the GAIP.

As described in the Phase II ESA, which is provided as Appendix F-1 to this Program EIR, numerous environmental assessments have been conducted at JWA and have included collection of soil, soil vapor, and groundwater data. Boring locations to spatially distribute the sampling data within and outside the Project footprint were based on the potential future buildings and general operation areas, demolition areas, and replacement of hangars. The Phase II ESA identified and marked subsurface features (i.e., common or expected features based on utility drawings and/or surface indicators) during the geophysical survey. No anomalies (i.e., unusual or unexplainable features) were identified during the geophysical survey. Geologic materials encountered at the site consist of interbedded and relatively fine-grained sediments including silty sand and sandy silt underlying the pavement materials to a depth of approximately 6 feet. No visual or olfactory indicators of petroleum hydrocarbons or VOCs were observed in the soils encountered in any of the borings. Groundwater was not encountered during hand augering (Amec 2016a).

No significant impacts to soil or soil vapor were observed during field work or detected by laboratory analyses of samples. All reported TPH concentrations were well below published environmental screening levels ("ESL") values for the commercial/industrial construction worker exposure scenario. Where detected, the VOC concentrations reported in soil were below

their respective industrial regional screening levels ("RSLs") and/or Department of Toxic Substances Control ("DTSC") alternate risk-based screening values. Concentrations of metals detected in soil samples were not considered significant. Similar to the soil sampling results, relatively sporadic and low concentrations of VOCs were reported in soil vapor samples, and concentrations reported in soil vapor were below their respective industrial RSLs and/or DTSC alternate risk-based screening values (Amec 2016a).

Hazardous Materials Survey

Amec also performed site-specific survey work and prepared Hazardous Materials Survey Reports that included existing facilities being evaluated as part of the GAIP. The site survey included an assessment of suspect asbestos-containing materials ("ACM") and lead-based paint ("LBP").[6] These studies, which provide detailed sampling descriptions and the analytical results, are provided in Appendices F-2 through F-9 of this Program EIR and are summarized below.

Asbestos-Containing Materials

The regulatory definition of an ACM is any material containing more than 1 percent asbestos. (i.e., materials with less than 1 percent asbestos are not considered ACMs). The DTSC classifies asbestos containing material as a hazardous waste if it is "friable" and contains 1 percent or more asbestos (a friable material is one that can be reduced to a powder or dust under hand pressure when dry). In contrast, the DTSC considers non-friable bulk asbestos-containing waste to be non-hazardous regardless of its asbestos content. Friable ACMs must be removed and disposed of by licensed contractors that must adhere to the laws and regulations regarding ACMs. The *California Business and Professions Code* requires asbestos abatement contractors to be licensed by the Contractors State License Board ("CSLB") and asbestos consultants to be certified by Cal/OSHA. The Cal/OSHA asbestos standard contained in Title 8, CCR Section 1429 defines ACCM as any manufactured construction material that contains more than one-tenth of 1 percent (>0.1percent) asbestos (Amec a-g 2017). The only two sites that required point count analyses were required to confirm asbestos content of samples with initial results of reported at less than 1 percent were the Executive Hangars and Atlantic Aviation. As discussed below, the point count analysis at these two locations was conducted as part of the GAIP evaluation.

Signature Flight Support (West) (currently ACI Jet)

Of the 406 samples tested, asbestos was not detected in amounts measuring greater than 1 percent, therefore, they are not considered ACMs and remediation is not required (Amec 2017a, Appendix F-2).

Jay's Aircraft Maintenance

Of the 70 sample layers analyzed, asbestos was not detected in amounts measuring greater than 1 percent in any of the samples so no remediation is required (Amec 2017b, Appendix F-3).

[6] The Hazardous Materials Survey Reports were prepared pursuant to the regulatory requirements in the Cal/OSHA asbestos standard contained in Title 8, CCR Section 1429 and Cal/OSHA lead-related requirements articulated in 8 CCR 1532.1 and 17 CCR 3600 et seq.

Atlantic Aviation

As part of the Hazardous Materials Survey, 470 samples were collected and 764 sample layers were tested for asbestos content. Based on the analyses, asbestos measuring greater than 1 percent was reported in some components (e.g., floor tiles, joint compound, and ceiling and wall texturing material) of two of the four buildings (NP2 and NP4). In addition, asbestos was reported in amounts less than 1% in thirteen samples that included joint compound, plaster, cove base mastic, and stucco. These samples were subsequently analyzed by point counting and asbestos was reported with an amount greater than 0.1% in only one sample of joint compound in Building NP4. The identified ACMs will require remediation before building demolition (Amec 2017c, Appendix F-4).

County Hangars

Ten sample layers were analyzed for asbestos content, and asbestos was not detected in amounts greater than 1 percent in any of the samples. Therefore, no remediation is required (Amec 2017d, Appendix F-5).

Executive Hangars

Of the 141 sample layers analyzed for asbestos content, asbestos was measured in amounts greater than 1 percent in joint compound, floor tile and associated mastic, and remnant floor mastic. In addition, asbestos was identified in amounts less than 1% in six samples of cove base mastic. Based on analysis of the cove base mastic samples by point counting, asbestos was not reported in amounts greater than 0.1% in any of the samples. The identified ACMs will require remediation before building demolition (Amec 2017e, Appendix F-6).

South Coast Hangar

Of the 254 sample layers analyzed for asbestos content, asbestos was measured in amounts greater than 1 percent in the brown sheet vinyl backing with a terrazzo pattern. Approximately 82 square feet of the sheet vinyl is in restrooms in Hangars 1 and 6. The identified ACMs will require remediation before building demolition (Amec 2017f, Appendix F-7).

Signature Flight Support (East Hangar) (currently ACI Jet)

Of the 80 sample layers analyzed, asbestos was measured in amounts greater than 1 percent in joint compound and the mastic associated with the beige floor tile in the restrooms. The identified ACMs will require remediation before building demolition (Amec 2017g, Appendix F-8).

ACI Jet (East)

Of the 362 sample layers analyzed, asbestos was identified in amounts greater than 1 percent in four of the roof penetration mastics on the north and south wing and in the curb and patch mastic on the roof on the north wing. The identified ACMs will require remediation before building demolition (Amec 2018, Appendix F-9).

Lead-Based Paint

The U.S. Department of Housing and Urban Development ("HUD"), EPA, and California definitions for LBP are any paint with a lead concentration equal to or greater than 1.0 milligram per square centimeter of surface area (≥1 mg/cm2) when measured by a portable x-ray fluorescence (XRF) spectrum analyzer, or 0.5 percent by weight (5,000 parts per million [ppm]) when measured by standard analytical methods. All LBP above regulatory thresholds require removal from structures and disposal in accordance with local, State, and federal regulations prior to renovation or demolition activities that would affect structures that contain LBP or adjacent soils. As noted herein, XRF measurements were also taken on ceramic tiles, where present, in building structures. Although some of the ceramic tile material indicated potential presence of lead, the tiles were not sampled for laboratory analysis because the ceramic tiles are not considered a painted surface or LBP (with the exception of the Signature Flight Support East Hangar [currently ACI Jet] where a chip from damaged tile was collected and analyzed). Where potential presence of lead is noted herein for ceramic tiles based on XRF data and/or where LBP has been confirmed based on laboratory analyses, Cal-OSHA will require a negative exposure assessment before renovation or demolition (Amec 2017a-g).

Signature Flight Support (West) (currently ACI Jet)

None of the tested building paints are considered LBP based on the XRF results, and all were identified as being in intact condition. However, several walls in Hangar 1 and 3 returned results that were elevated above the low levels observed on other similar materials. In addition, ceramic tile glaze from Hangar 1 and 3 returned elevated results; however, the ceramic tile was not sampled for laboratory analysis because it is not an LBP. Based on the results of the XRF survey, one representative paint chip sample of suspect LBP was obtained from Hangar 3, Room 5 north wall. After testing, the sampled paint was found not to be LBP (Amec 2017a, Appendix F-2) and no remediation is required.

Jay's Aircraft Maintenance

None of the tested building paints would be considered LBP based on XRF testing. Because none of the paint was considered to have elevated XRF results, no samples were obtained (Amec 2017b, Appendix F-3) and no remediation is required.

Atlantic Aviation

Except for the stringer for the stairs in the lobby and ceramic tiles in one of the buildings, none of the tested building paints or coatings would be considered lead-based. The paint on the stringer was found in an intact condition. Samples were collected from readily accessible, representative paint-coated surfaces that were suspected to contain lead. Ten paint chip samples were analyzed for the presence of lead, and all were found to be LBP except for the blue paint on the exterior of the door in Suite 18/Room 36 of Building NP4 (Amec 2017c, Appendix F-4, which includes diagrams of locations). The paint found to be LBP will require remediation by a licensed contractor before demolition of the building.

County Hangars

None of the tested building paints would be considered LBP based on the XRF results, and all were identified as being in intact condition. However, the red paint on the frame in this structure is typically suspect paint. Therefore, based on the XRF results, one paint chip sample was analyzed for the presence of lead and was found not to be LBP (Amec 2017d, Appendix F-5) and no remediation is required.

Executive Hangars

None of the tested building paints are considered LBP based on the XRF results, and all were identified as being in intact condition except for paint peeling from the structure in Hangar 62 and the restrooms. The paint on the floor of Hangar 62 returned results that were elevated above the low levels observed on other similar materials. Several readings on the sheet metal and structural members were slightly elevated. In addition, ceramic tile glaze in the restrooms returned elevated results; however, the ceramic tile was not sampled for laboratory analysis because it is not an LBP. After testing of paint chip samples, the paint on the floor of Hangar 62 was found to be LBP (Amec 2017e, Appendix F-6) and will require remediation before demolition of this building.

South Coast Hangar

None of the tested building paints would be considered LBP via XRF testing. Since none of the paint was considered to have elevated XRF results, no samples were obtained (Amec 2017f, Appendix F-7) and no remediation is required.

Signature Flight Support East Hangar (currently ACI Jet)

None of the tested building paints would be considered LBP based on the XRF results, and all were identified as being in intact condition. However, the paint on the south wall in the restroom in the building at 19341 Campus Drive returned XRF results that were elevated above the low levels observed on other similar materials. In addition, ceramic tile glaze in the restroom returned elevated results. Therefore, two paint chips and one ceramic tile sample were analyzed for the presence of lead. None of the paint was LBP, and the ceramic tile was not greater than 0.5 percent (Amec 2017g, Appendix F-8), so no remediation is required.

ACI Jet (East)

None of the tested building paints would be considered lead-based paints based on XRF results. Therefore, no samples were collected for laboratory analysis. Surface coating, readings of ceramic tiles were also taken, but XRF readings showed no elevated results; and therefore, did not warrant sampling for laboratory analysis (Amec 2018, Appendix F-9) and no remediation is required.

4.5.4 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist and Appendix G of the State CEQA Guidelines, the Project would result in a significant impact to hazards and hazardous materials if it would:

Threshold 4.5-1 Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials

Threshold 4.5-2 Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment

Threshold 4.5-3 Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or wastes within one-quarter mile of an existing or proposed school

4.5.5 REGULATORY REQUIREMENTS AND STANDARD CONDITIONS OF APPROVAL

Implementation of the GAIP assumes compliance with existing regulations related to hazards and hazardous materials, as discussed under Section 4.5.1, Regulatory Setting, above. These include the Regulatory Requirements (RR) and Standard Conditions of Approval (SC) listed below:

RR HAZ-1 Prior to the start of demolition or construction at the facilities, an asbestos abatement work plan shall be prepared in compliance with federal, State, and local regulations for any necessary removal and disposal of such materials, (including, but not limited to, 40 CFR 61 Subpart M, Occupational Safety and Health Administration 8 CCR 1529, and South Coast Air Quality Management District Rule 1403) and shall include: (1) demolition plans and specifications incorporating any necessary abatement measures for the removal of materials containing asbestos or assumed to contain asbestos in compliance with federal, State, and local regulations; (2) A licensed California Department of Occupational Safety and Health contractor, certified by the CSLB and registered with Cal/OSHA shall perform all "asbestos-related work" that disturbs asbestos-containing materials or asbestos-containing construction materials at the facilities; (3) All persons who may come into contact with any asbestos-containing material during demolition, construction, and maintenance at the facilities shall be notified in writing to avoid removal or disturbance of the asbestos-containing material; (4) any suspect material not identified but assumed to contain asbestos disturbed during the course of demolition shall require a cease work order and examination by a California Department of Industrial Relations Division of Occupational Safety and Health certified asbestos consultant; (5) all known asbestos-containing material or asbestos-containing construction material, to the extent that the asbestos-containing material or asbestos-containing construction material becomes friable, must be removed prior to demolition; and (6) asbestos-containing waste material that is generated during demolition at the facilities

shall be properly handled and disposed of in compliance with applicable federal, State, and local regulations.

RR HAZ-2 Prior to the start of any construction/demolition at the facilities, a lead-based paint/lead-containing paint abatement work plan shall be prepared in compliance with federal, State, and local regulations (including, but not limited to Occupational Safety and Health Administration CCR Title 17 Section 37000-37100 and Title 8 Section 1532.1 and South Coast Air Quality Management District Rule 301) for any necessary removal and disposal of such materials.

The work plan implementing these regulations shall also include the following elements as per the Hazardous Materials Survey Report: (1) demolition plans and specifications shall incorporate any necessary abatement measures for the removal of materials containing lead-based paint and/or lead-containing paint in compliance with federal, state, and local regulations; (2) paints identified as lead-based and in poor condition (peeling or chipped) and all loose, flaking, or otherwise deteriorated lead paint shall be stabilized prior to any other construction-related activity and/or demolition on site. The stabilization process must be completed by California Department of Public Health Certified Workers under a California Department of Public Health Certified Supervisor, and all loose and flaking paint shall be removed from all work areas; (4) lead-based paints, i.e., paint on the floor of Hangar 62, in good condition may be left in place if exposure to employees and the environment is controlled and the lead-containing waste is properly tested and disposed based on the test results; (5) compliance with recommendations contained in a negative exposure assessment, which has been prepared meeting Cal-OSHA standards, for the appropriate handling of materials tested, via XRF, and found to contain lead in amounts that may be a source of exposure to workers or may not meet testing limits for disposal including ceramic tiles in the restrooms prior to renovation or demolition; and (6) work area preparations as well as adequate worker protection and employee exposure monitoring and material testing as it relates to disposal will be required during any equipment demolition activity.

RR HAZ-3 All transportation of hazardous materials at the facilities is regulated at the federal (Title 49 of the *Code of Federal Regulations* ["49 CFR"]) and State (Title 13 of the *California Code of Regulations* ["13 CCR"]) levels and requires compliance with all applicable federal, State, and local regulations pertaining to hazardous materials to ensure that the risk associated with the use and storage of the materials, after transport to JWA, is minimal. All hazardous materials shall be handled in full compliance with applicable requirements, and the necessary permits maintained by JWA. Carriers responsible for the transportation of hazardous materials are required to have a hazardous materials transportation license, issued by the California Highway Patrol ("CHP"). All fuel deliveries from suppliers within California will comply with all applicable requirements of the CHP's biennial inspection of terminals ("BIT") program.

RR HAZ-4 Per USEPA requirements, a *Spill Prevention, Control, and Countermeasure Plan* is required to address all fueling related activities. Pursuant to 40 CRF Section 112,

physical modifications to fueling facilities (i.e., the extension of the hydrant fueling system) may require a technical amendment to a SPCC Plan.[7] Should SNAFuel, the operator of the hydrant fueling system, agree to extend the system to the East Full Service FBO(s), the JWA Environmental Engineer shall determine if an amendment to the SNAFuel SPCC Plan is required. Said amendment, if determined necessary, would be prepared in compliance with the requirements of the U.S. Environment Protection Agency as provided for in 40 CFR Section 112 to the satisfaction of the JWA Environmental Engineer.

RR HAZ-5 A *Spill Prevention, Control, and Countermeasure Plan* or an amendment to an existing SPCC may be required to address the additional fueling related activities Prior to construction of the self-service fueling station. The JWA Environmental Engineer shall determine if an amendment to an existing SPCC Plan or a new plan is required. Prior to the self-serve fueling station becoming operational, said document, would be prepared in compliance with the requirements of the U.S. Environment Protection Agency as provided for in 40 CFR Section 112 to the satisfaction of the JWA Environmental Engineer.

SC HAZ-1 Prior to the issuance of a building permit for installation of an industrial oven, spray booth, powder-coating operation, dust collection equipment, welding operation, refrigeration system, or other hazardous equipment, the applicant shall provide the Manager, Permit Services with a clearance from OCFA, or other Local Fire Agency (if applicable), indicating plan compliance with Fire Code and all guidelines specific to the operation. (County Standard Condition FP02)[8]

SC HAZ-2 Prior to the issuance of a grading permit or building permit, whichever comes first, for installation of an aboveground or an underground tank used for the storage of flammable, combustible, or hazardous liquids, the applicant shall provide the Manager, Permit Services with a clearance from OCFA indicating compliance with Guideline G-08.[9] (County Standard Condition FP12)

SC HAZ-3 A. Prior to the issuance of a building permit, the applicant shall provide the Manager, Permit Services with a clearance from OCFA, or other Local Fire Agency (if applicable), indicating compliance with Guideline G-06.[10]

B. Prior to the final inspection approval, the applicant shall provide the Manager, Permit Services with a clearance from OCFA, or other Local Fire Agency (if

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7 The need for a technical amendment to the Plan requires engineering judgment. Examples of when a technical amendment is required includes, but is not limited to, the replacement, reconstruction, or installation of oil transfer piping systems. Oil is defined to include any kind or in any form, including, but not limited to: fats, oils, or greases of animal, fish, or marine mammal origin; vegetable oils, including oils from seeds, nuts, fruits, or kernels; and, other oils and greases, including petroleum, fuel oil, sludge, synthetic oils, mineral oils, oil refuse, or oil mixed with wastes other than dredged spoil. (Wood 2016 [definition taken from 40 CFR Section 112.2 – Definitions])

8 This is a County Standard Condition of Approval; therefore, the wording has not been changed from the text of the adopted condition. However, it should be noted the lease agreements do not permit all these activities to occur on the Airport.

9 Guideline G-08 is an OCFA document titled *Installation and Modification of Aboveground Equipment Components of Fuel Dispensing Operations*. The current version is dated January 1, 2017.

10 Guideline G-06 is an OCFA document titled *Completion of the Chemical Classification Packet*. The current version is dated January 1, 2017.

applicable), indicating a "Hazardous Materials Disclosure Chemical Inventory and Business Emergency Plan" packet has been submitted to the OCFA for review and approval. (County Standard Condition FP15)

SC HAZ-4 Applicant/operator shall store, manifest, transport, and dispose of all on-site generated waste that meets hazardous materials criteria in accordance with the *California Code of Regulations* Title 22 and in a manner to meet the satisfaction of the Manager, Health Care Agency ("HCA")/Hazardous Materials Program. Applicant shall keep storage, transportation, and disposal records on site and open for inspection by any government agency upon request. Applicant shall store used oil filters in a closed, rainproof container that is capable of containing all used oil and shall manage the container as specified in Title 22, Chapter 30, Division 4, Section 66828 of the *California Code of Regulations*. (County Standard Condition RC02)

4.5.6 IMPACT ANALYSIS

Thresholds 4.5-1 and 4.5-2

- ***Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?***

- ***Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?***

Proposed Project

Short-Term Construction Impacts

The Proposed Project would result in a variety of demolition, relocation, and construction activities; and all improvements would be confined to the existing Airport footprint (i.e., no expansion of the general aviation uses beyond the current Airport limits). The demolition and construction activities would involve the use, storage, and handling of hazardous and non-hazardous materials as well as the generation of hazardous waste. Additionally, hazardous materials such as asbestos-containing materials and lead-based paint may be encountered during demolition and relocation activities associated with the Proposed Project.

Based on the Hazardous Materials Survey Reports prepared for the existing general aviation facilities, the facilities located where a portion of the box hangars, flight school facilities, and a portion of the proposed T-Hangars would be located were the only facilities with ACM requiring further remediation prior to demolition or construction activities.[11] LBP samples were identified in two locations within the general aviation facilities including the area proposed for box hangars, flight school facilities, and a portion of the proposed T-Hangars[12] and would require

[11] See Appendices F-2 and F-5.

[12] See Appendices F-3 and F-5.

remediation and removal prior to demolition and construction activities. Compliance with RR HAZ-1 and RR HAZ-2 would be required for all demolition and construction activities.

All hazardous materials used or generated as part of construction activities would be regulated by existing federal, State, and local regulations. By adhering to regulatory requirements and compliance with the County Standard Conditions, potential impacts associated with hazardous material use or generation due to demolition and construction of the Proposed Project would be maintained to below a level of significance.

Long-Term Operational Impacts

Operation and maintenance activities associated with the Proposed Project would be consistent with the existing conditions at the Airport. This scenario provides for two full service FBOs and one limited service FBO, which would provide aircraft maintenance and service. Table 4.5-2 presents a partial list of hazardous materials and wastes typically found in aircraft maintenance facilities.

TABLE 4.5-2
HAZARDOUS MATERIALS AND WASTES FOUND
IN AIRCRAFT MAINTENANCE FACILITIES

Aircraft Systems	Aircraft Servicing	Components Shops
Systems Liquids	***Lubricants***	***Inspection***
Gasoline	Dry lubricants	Liquid penetrants
Jet fuels	Spray lubricants	Dye penetrants
Hydraulic fluids	Greases	***Welding***
Brake fluids	Oil	Argon gas
Anti-ice additives	***Solvents and Cleaners***	Hydrogen gas
Gasses	Methyl ethyl ketone	Oxygen gas
Frons	Toluene	Acetylene gas
Nitrogen	Engine cleaners	Fluxes and pastes
Oxygen	Carburetor cleaners	***Others***
Halons	***Paints & Primers***	Compressed air
Others	Paint strippers	Glass beads
Alcohols	Primers	Bluing and thinner
Methanol	Doping products	Quenching fluids
Batteries	Lacquers	Muriatic acid
Glycol	Enamels	Locking compounds
Baking Soda	Epoxies	Oxidizers
Degreasers	***Adhesives***	Mineral spirits
Disinfectants	Fiberglass resins	Cutting fluids
	Gasket rubber adhesives	Soldering fluxes
Source: AECOM 2018a.		

The Proposed Project is consistent with the number and type of FBOs currently on the Airport; therefore, it would not change the services offered at the Airport. As part of the design, facilities providing aircraft MRO would have designated areas designed for adherence to best management practices ("BMPs") and control measures for handling and storing various types and quantities of regulated hazardous materials used to service several different aircraft at any given time. Standard design practices, such as hangars incorporating subfloor design measures to mitigate fuel and oil spillage would also reduce the potential for contamination of release of hazardous materials. Hangars used for light or heavy maintenance/repairs and overhauls of aircraft engines would also consider the installation of oil, water, and fuel separation systems. Design practices, such as the incorporation of ventilation filtration methods would mitigate any fuel or hazardous fumes from accumulating in high concentrations inside a hangar. These would be consistent with current regulations for the handling of hazardous materials and are required by SC HAZ-2. Additionally, if the type of services proposed by any of the FBOs (limited or full service) requires welding, SC HAZ-1 would apply. Given the nature and extent of the MRO services conducted at the facilities, requirements consistent with the proper storage and disposal of hazardous wastes would be applied (AECOM 2018a).

The Proposed Project incorporates a reduction in general aviation aircraft and operations. Therefore, a substantial increase in the quantities of hazardous material being used and stored at the Airport is not anticipated. Standard Conditions ("SC") SC HAZ-2 and SC HAZ-4 address the storage and handling of hazardous materials.

The Proposed Project incorporates provisions for the installation of a self-serve fueling station for avgas conceptually located on the west side of the Airport. The size of the aviation fuel tank for the self-service fueling station is not yet determined, although a standard tank size ranges from 5,000 to 20,000 gallons for each fuel type. These facilities can be installed above ground or underground; however, it is anticipated that the tank associated with self-serve fueling station would be above ground. The most probable accident scenario for the bulk fuel storage tanks involves minor leakage or release of fuel (e.g., from valves or seals). The design requirements for the self-serve fuel station would include a secondary containment system. As noted in Section 3, Project Description, the containment can be in the form of a wall surrounding the tank area or a double-walled tank. This would minimize the potential for a spill that would extend beyond the Airport. As discussed above, OCFA personnel from the ARFF station are located on site to intervene to prevent a fire, contain the spill, and/or prevent spilled fuel from entering the storm drain system. The potential hazards associated with the self-service fueling station are not substantially different from the other fuel storage facilities located on the Airport. Further, the Proposed Project would not result in a substantial increase in the amount of fuel used at the Airport. This scenario would result in a reduction in general aviation aircraft; however, there would be a slight change in the fleet mix. The current BMPs for handling of the fuel would continue to apply; and, therefore, it is not a reasonably foreseeable significant hazard to the public or environment. Because the Airport has adopted procedures for handling fuel spills and implemented structural improvements to prevent them, the potential impacts associated with hazardous materials would not be considered significant. At the Airport, all hazardous materials are handled in full compliance with applicable codes. In addition, the Airport has obtained all necessary permits for the handling of hazardous wastes. Compliance with RR HAZ-3 would be required for all fuel handling and transport activities.

The access route to the general aviation fuel farm used by fuel trucks would not be modified as a result of the Proposed Project. Fuel trucks would continue to take either the exit at MacArthur Boulevard from I-405 traveling southbound and continue south onto Campus Drive, or SR-73 at the Campus Drive exit and turn north up to Quail Street. Minor modifications to the Campus Drive and Quail Street intersection are proposed to eliminate the curved entrance through the parking lot. Access would continue to be right-in and right-out. These design changes would not complicate fuel delivery or result in an unsafe condition. Fuel delivery would still be required to adhere to all local, state and federal regulations, as well as the utilization of BMPs when handling hazardous materials. Fuel trucks accessing the proposed self-serve fueling station would access from Paularino Avenue on the west side of the Airport. The avgas delivery trucks would follow a route similar to trucks that deliver Jet-A fuel to the existing commercial fuel farm, but turn south after proceeding through the Paularino gate. The risks associated with the fuel delivery and storage practices would not substantially change from current conditions, and the Proposed Project would not result in a significant impact.

One potential option that may be considered during the design and implementation phases of the Proposed Project would be to connect the Full Service Northeast FBO to the hydrant fueling system for Jet-A fuel. Currently, the commercial carriers receive fuel from hydrants on the commercial apron, which are connected by underground pipelines from the fuel farms located on the west side of the Airport. The hydrant fueling system extends to the RON parking apron for commercial aircraft located south of the passenger terminal building. Connection of the Full Service Northeast FBO to the underground hydrant fueling system would require extension of the pipeline for only a short distance and construction of a new hydrant fueling station. This would be constructed by trenching from the current terminus at the RON area and installing a new length of pipe. The fueling station would be installed per manufacturer requirements and FAA standards. This would allow the FBO to pump Jet-A fuel from the commercial fuel farm directly to the eastside FBO refueling trucks. The extension of the hydrant fueling system would not increase the potential for spills related to the transport of hazardous materials because the method for fuel delivery to the Airport would not change. The extension of the hydrant fueling system would minimize the number of fueling trucks crossing the Airport. In addition to a more efficient method of fuel delivery to the FBO, this method has the potential to incrementally reduce risk of upset.

The Proposed Project would continue the general aviation operations and support services at JWA. Activities involving the use of hazardous materials at JWA are associated with fueling, maintenance, and repair of aircraft. Compliance with the County's established guidelines consistent with State and federal regulations pertaining to hazardous materials shall ensure that the risk associated with the use and storage of the materials is minimal. JWA provides for temporary collection and storage of waste oils and solvents generated by aircraft owners that are County tie-down tenants. Compared to existing conditions, the Proposed Project would involve a reduction in general aviation aircraft and operations at JWA. With the continuation of the Airport's stringent fuel safety protocols and associated low incidence of fuel releases, as well as compliance with applicable regulations and permits, there is substantial evidence that the Proposed Project would not create a significant hazard to the public or the environment related to routine transport, use, or disposal of hazardous materials or the release of hazardous materials or a risk of upset that would involve a release of hazardous materials into the environment. The Proposed Project would result in a less than significant impact, and no mitigation is required.

Impact Conclusion: *The Proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. There would be a less than significant impact under Thresholds 4.5-1 and 4.5-2.*

Alternative 1

Short-Term Construction Impacts

As with the Proposed Project, Alternative 1 would involve the use, storage, and handling of hazardous and non-hazardous materials as well as the generation of hazardous waste. Alternative 1 proposes a different mix and configuration of facilities than the Proposed Project; however, the overall nature of the improvements and subsequent operations utilizing those facilities would be similar. The same short-term demolition and construction impacts related to hazardous materials such as asbestos-containing materials and lead-based paint discussed for the Proposed Project would apply to Alternative 1. Compliance with RR HAZ-1 and RR HAZ-2 would be required for all demolition and construction activities.

All hazardous materials used, or generated, would be regulated by existing federal, State, and local regulations. By adhering to regulatory requirements, application of Standard Conditions, and BMPs, potential impacts associated with hazardous material use or generation due to demolition and construction of Alternative 1 would be maintained to below a level of significance.

Long-Term Operational Impacts

As with the Proposed Project, general aviation activities at JWA would continue under Alternative 1. Operation and maintenance activities associated with Alternative 1 would be consistent with the existing conditions at JWA. Though Alternative 1 provides for three full service FBOs, this alternative does not substantially change the number of based aircraft or operations. Therefore, a substantial change in the quantities of fuel or other hazardous materials is not projected. The BMPs for handling of the fuel would continue to apply, and other adopted procedures for handling fuel spills would be applicable.

Compared to existing conditions, Alternative 1 would not create a significant hazard to the public or the environment related to routine transport, use, or disposal of hazardous materials or the release of hazardous materials or a risk of upset that would involve a release of hazardous materials into the environment. Alternative 1 would result in a less than significant impact, and no mitigation is required.

Impact Conclusion: *Alternative 1 would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. There would be a less than significant impact.*

Threshold 4.5-3

- ***Would the Project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?***

The Proposed Project and Alternative 1 would redevelop and operate on the same portion of the Airport site. The uses on the west side of the Airport, closest to existing schools are very similar. Therefore, the potential impacts associated with the handling of hazardous materials or waste within 0.25 mile of an existing school would be the same with either development scenario. To avoid undue repetition the evaluation of both development scenarios have been combined into a single discussion for each of the thresholds.

Proposed Project and Alternative 1

At its closest point, Mariner's Christian School, located at Red Hill Avenue and Fisher Avenue, is approximately 0.25 mile west of the Airport facilities. As discussed above, for the Proposed Project and Alternative 1, operation and maintenance activities would be consistent with the existing conditions at the Airport. The GAIP would not alter the delivery routes for fuel or require substantially greater quantities of fuel being delivered to the Airport. Both the Proposed Project and Alternative 1 would reduce the number of based aircraft and general aviation operations compared to existing conditions. None of the characteristics associated with the GAIP would substantially increase the quantity or nature of hazardous materials on the Airport. The GAIP does not propose changes to the adopted procedures for handling hazardous materials, which are all handled in full compliance with applicable codes. The adopted safety programs currently in operation are able to reduce the potential health risks because the fuel spills are contained and cleaned up on site and historically have not left the Airport. These adopted ongoing programs and procedures reduce the potential for risk of exposure to schools in proximity to the Airport.

The GAIP (Proposed Project and Alternative 1) would provide a self-serve fueling station on the west side of the Airport. The fueling station would be located approximately 0.5 mile from the closest point of the school property (i.e., the southeast corner). Assuming the fuel is delivered to the fueling station through the Paularino Avenue gate and trucks using the Perimeter Road, the closest point that fuel trucks would be to the school is approximately 0.25 mile. However, at this location the trucks would be traveling on an internal Airport road, which would reduce the potential for an accident that would result in a fuel release. The FBO fuel trucks currently use Perimeter Road when delivering fuel to aircraft on the west side of the airfield; therefore, this is not a change from existing conditions. The quantities and route for fuel deliveries to the general aviation fuel farm on the southeast side of the Airport would not change from existing conditions. Therefore, the Proposed Project and Alternative 1 would result in a less than significant impact related to handling of hazardous materials within 0.25 mile of a school, and no mitigation is required.

Impact Conclusion: *The Proposed Project and Alternative 1 would have a less than significant impact related to handling of hazardous materials within 0.25 mile of a school under Threshold 4.5-3.*

4.5.7 CUMULATIVE IMPACTS

Because hazardous materials are often site-specific and localized, the potential for cumulative impacts is limited. For cumulative hazards and hazardous materials impacts to occur, the projects would need to be relatively close to each other so Project-related impacts would collectively pose a significant impact. Four projects on the Airport have been identified as cumulative projects. The potential hazardous material impacts associated with the Paularino Gate Relocation Project and rehabilitation of Taxiway "B" would be only construction-related impacts. However, each of these projects is expected to be complete prior to the initiation of the GAIP improvements. The Wickland Pipeline project will provide fuel to the Airport via a pipeline and construction of two new fuel storage tanks south of the existing west side Airport fuel tanks. The project is under construction and is expected to be completed by the end of 2018, whereas, the construction of the GAIP improvements is expected to start in 2019. The Settlement Agreement Amendment project did not propose any physical improvements. Therefore, there would be nominal potential for the Proposed Project or Alternative 1 to contribute to cumulative construction impact.

The Wickland Pipeline and Settlement Agreement Amendment projects would both increase the amount of fuel stored and/or used at the Airport. The risks associated with the increased fuel storage were evaluated in the environmental documents prepared for these projects. The assessment in the Mitigated Negative Declaration prepared for the Wickland Pipeline project and the Settlement Agreement Amendment Program EIR identified the risks of a substantial spill or substantial rupture of the tanks as very remote. The most probable accident scenario for the bulk fuel storage tanks involves minor leakage or release of jet fuel (e.g., from valves or seals) into the bermed containment area that surrounds the tanks and does not represent a public or environmental health risk. The Wickland Pipeline project incorporates a substantial number of regulatory requirements, project design features, and mitigation measures that would reduce the potential impacts to less than significant. In light of the adopted safety programs that are currently in operation and would be applicable to all the projects on JWA, the potential health risks are low because the fuel spills are contained and cleaned up and do not enter the Airport drainage system.

Based on the above evaluation, the risk associated with cumulative hazardous materials and hazardous waste impacts would be less than significant for both the Proposed Project and Alternative 1.

4.5.8 MITIGATION PROGRAM

Compliance with applicable federal, State, and local requirements including Emergency Response, Spill Response, SWPPP, SPCC Plan, County Standards Conditions of Approval, BMPs, and Regulatory Requirements currently in place at JWA would continue to be applicable as the Project moves forward. As a result, no significant hazardous materials impacts would result from implementation of the Proposed Project and Alternative 1. Therefore, no additional hazardous materials mitigation measures have been identified.

4.5.9 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Due to the absence of significant impacts, no mitigation measures are necessary. As a result, there would be no significant, unavoidable impacts associated with the Proposed Project and Alternative 1. Due to the localized nature of the hazardous materials onsite and the regulatory framework to protect against the release of hazardous materials, the GAIP (Proposed Project and Alternative 1) would not contribute to cumulative hazardous materials impacts.

4.5.10 REFERENCES

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4.6 LAND USE AND PLANNING

This section describes the existing and land uses both on site and surrounding John Wayne Airport and assesses the impact of the Project on these uses. Additionally, the section identifies the plans and policies of applicable planning documents and the consistency of the Project with those policies.

Although the John Wayne Airport ("JWA" or "the Airport") General Aviation Improvement Program ("GAIP") proposes to upgrade facilities in the portion of the Airport used for general aviation, the nature of the Airport operations would not change. No physical changes would occur outside the Airport boundaries; therefore, the GAIP would not physically divide an established community. This topic is not discussed in this section (refer to the Notice of Preparation ["NOP"]/Initial Study in Appendix A).

4.6.1 BACKGROUND

Efforts to maximize land use compatibility surrounding the Airport have an extensive history. A mitigation measure in the EIR addressing the 1985 John Wayne Airport Master Plan adopted a two-prong approach to achieving compatibility. The first component was the development of the Santa Ana Heights Specific Plan, whereby portions of Santa Ana Heights were included in a redevelopment area that has resulted in the conversion of some residential areas to commercial use. This plan zoned the areas subject to the highest aircraft noise levels as Business Park. In 1990 this area had approximately 12.5 acres of residential uses, but it currently has less than 6 acres of non-conforming uses.

The second component was the adoption of the Santa Ana Heights Acoustical Insulation Program ("AIP"). AIP eligibility was based on the future 65-decibel ("dB") Community Noise Equivalent Level ("CNEL") contour predicted in the 1985 Master Plan.[1] Interior noise exposure greater than 45 CNEL was needed to be eligible for the program. In return for providing acoustical attenuation, an avigation easement would be provided to the County. An avigation easement is a type of easement which typically conveys the following rights: (i) a right-of-way for free and unobstructed passage of aircraft through the airspace over the property at any altitude above a surface specified in the easement (usually set in accordance with Federal Aviation Regulation ("FAR") Part 77 criteria); (ii) a right to subject the property to noise, vibrations, fumes, dust, and fuel particle emissions associated with normal airport activity; (iii) a right to prohibit the erection or growth of any structure, tree, or other object that would enter the acquired airspace; (iv) a right-of-entry onto the property, with proper advance notice, for the purpose of removing, marking, or lighting any structure or other object that enters the acquired airspace; and (v) a right to prohibit electrical interference, glare, misleading lights, visual impairments, and other hazards to aircraft flight from being created on the property.

The AIP has been extensively implemented. For dwelling units found to be non-conforming uses located in an area zoned for business park uses, prescriptive avigation easements were acquired. A prescriptive avigation easement is an avigation easement acquired by continued use without permission of the owner for a legally defined period of time.

[1] The 1985 65 CNEL contour is reflected in the Airport Environs Land Use Plan ("AELUP") and is often called the policy implementation line. The existing 65-CNEL contour is smaller than anticipated in the 1985 Master Plan.

The Santa Ana Heights AIP has been deemed completed. However, in conjunction with Final EIR 617 prepared for the 2014 Settlement Agreement Amendment, a second Sound Insulation Program ("SIP") was adopted. The SIP provides a monitoring program to compare future noise levels to those of the 2013 Annual Noise Report. The program recognizes the difference between the County of Orange noise impact standards and those adopted by the City of Newport Beach. For properties in the County jurisdiction, if the noise levels have increased by 1.5 dB or more over the 2013 levels at noise monitoring stations ("NMS") 1S, 2S, and 3S, all noise-sensitive uses represented by that NMS not previously insulated under the 1985 AIP will be eligible for evaluation for participation in the SIP.[2] The noise level impacting these uses and the measured noise reduction will be used to estimate the interior noise level. If the estimated interior noise level exceeds an average of 45 CNEL, then the use will be eligible for re-evaluation in the form of new interior noise level measurements. If the interior noise level in any habitable room exceeds an average of 45 CNEL, then the use will be eligible for the SIP. For properties in the City of Newport Beach, an increase of 1.0 dB has been established for evaluating eligibility.

When it is determined that a noise-sensitive use is significantly impacted based on measured noise levels and the relevant significance thresholds, that use will be evaluated by the County of Orange for eligibility for sound insulation. The evaluation will be performed by measuring the indoor noise levels for each habitable room or educational space. If the average noise level in all habitable rooms or education spaces of a use is greater than an average of 45 CNEL, then the use will be eligible for sound insulation. Additionally, if the average noise level is less than 45 CNEL, any use with a noise level greater than an average of 45 CNEL in any habitable room or educational space also will be eligible for sound insulation if the Federal Aviation Administration ("FAA") waives its requirement that noise levels be averaged across all habitable rooms or education spaces. The implementation of sound insulation will depend on satisfying the FAA criteria described in Chapter 812 of Order 5100.38C Airport Improvement Program Handbook.

To date an increase in noise levels sufficient to require implementation of the SIP has not occurred. Final EIR 617 did not identify a potential impact until Phase 3 (2026 to 2030) under the scenario that was adopted as part of the Settlement Agreement Amendment. It should also be noted that the analysis in Final EIR 617 assumed a continuation of the 2013 fleet mix. Improvements in aircraft may reduce the projected noise levels.

4.6.2 REGULATORY SETTING

One aspect of land use planning considered under the California Environmental Quality Act ("CEQA") is the consistency of the GAIP with relevant planning documents. Relevant planning documents associated with the GAIP include the *County of Orange General Plan*, the *Airport Environs Land Use Plan for John Wayne Airport*, and the Southern California Association of Governments ("SCAG") *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy* ("RTP/SCS"). In addition, for information purposes, this section provides an evaluation of the *City of Newport Beach General Plan,* the *City of Irvine General Plan,* and the *City of Costa Mesa General Plan* because these jurisdictions are immediately adjacent to the Airport.

[2] The Noise Monitoring System is discussed in Section 4.7.4.

State

California Administrative Code

Title 21 of the California Administrative Code establishes regulations pertaining to noise surrounding airports. The regulations establish a quantitative framework within which the airport proprietors, aircraft operators, local communities, counties and the state can work to reduce and prevent airport noise problems. Title 21 establishes the standard for the acceptable level of aircraft noise for persons living in the vicinity of airports as 65 dB CNEL. Section 5014 identifies incompatible land uses within the 65 CNEL contour as follows:

(a) Residences, including but not limited to, detached single-family dwellings, multi-family dwellings, high-rise apartments or condominiums, and mobile homes, unless:

(1) an avigation easement for aircraft noise has been acquired by the airport proprietor, or

(2) the dwelling unit was in existence at the same location prior to January 1, 1989, and has adequate acoustic insulation to ensure an interior CNEL due to aircraft noise of 45 dB or less in all habitable rooms. However, acoustic treatment alone does not convert residences having an exterior CNEL of 75 dB or greater due to aircraft noise to a compatible land use if the residence has an exterior normally occupiable private habitable area such as a backyard, patio, or balcony. Or,

(3) the residence is a high rise apartment or condominium having an interior CNEL of 45 dB or less in all habitable rooms due to aircraft noise, and an air circulation or air conditioning system as appropriate, or

(4) the airport proprietor has made a genuine effort as determined by the department in accordance with adopted land use compatibility plans and appropriate laws and regulations to acoustically treat residences exposed to an exterior CNEL less than 80 dB (75 dB if the residence has an exterior normally occupiable private habitable area such as a backyard, patio, or balcony) or acquire avigation easements, or both, for the residences involved, but the property owners have refused to take part in the program, or

(5) the residence is owned by the airport proprietor.

(b) Public and private schools of standard construction for which an avigation easement for noise has not been acquired by the airport proprietor, or that do not have adequate acoustic performance to ensure an interior CNEL of 45 dB or less in all classrooms due to aircraft noise;

(c) hospitals and convalescent homes for which an avigation easement for noise has not been acquired by the airport proprietor, or that do not have adequate acoustic performance to provide an interior CNEL of 45 dB or less due to aircraft noise in all rooms used for patient care;

(d) churches, synagogues, temples, and other places of worship for which an avigation easement for noise has not been acquired by the airport proprietor, or that do not have

adequate acoustic performance to ensure an interior CNEL of 45 dB or less due to aircraft noise.

Airport Environs Land Use Plan for John Wayne Airport

The Airport Environs Land Use Plan ("AELUP") is the comprehensive land use plan adopted and administered by the Airport Land Use Commission ("ALUC") for Orange County, as required by Section 21675 of the *California Public Utilities Code.* The AELUP, originally adopted by the ALUC in 1975 with subsequent revisions, establishes land use guidelines based on noise and safety impacts for areas surrounding airports. The most current AELUP for JWA was approved in April 2008.

The land use compatibility plan within the AELUP is intended to provide for JWA's 20-year planning future. The purpose of the plan is to "protect the public from the adverse effects of aircraft noise, to ensure that people and facilities are not concentrated in areas susceptible to aircraft accidents, and to ensure that no structures or activities adversely affect navigable air space." This compatibility plan for JWA affects the cities of Costa Mesa, Irvine, Newport Beach, Santa Ana, and Tustin, as well as unincorporated areas of the County of Orange because the *Federal Aviation Regulation* ("FAR") Part 77 notification area is used for defining the airport influence area ("AIA") for the AELUP. The 60 to 65 CNEL contour, is within the referral area when reviewing applicable land use guidelines, policies, and regulations. The AELUP also takes into account land use compatibility recommendations made in the *California Airport Land Use Planning Handbook,* prepared by the State of California, Department of Transportation Division of Aeronautics. Noise-sensitive land uses, defined in terms of use type and intensity, are specifically discouraged or not compatible within the 65 CNEL contour.

The ALUC and its implementation of the AELUP assists local agencies in ensuring compatible land uses around the Airport and assists in coordinating compatibility planning efforts. These local agencies are required to refer proposed General Plan Amendments, Specific Plans/Planned Communities Amendments or adoptions, zoning ordinances and amendments, or building regulations to the ALUC prior to adoption. The ALUC must determine whether the proposed plan(s) are compatible with the AELUP policies and notify the local agency of the proposed plan's consistency with the AELUP. A two-thirds vote of the local agency governing body is required to approve a plan that the ALUC has found to be inconsistent with the AELUP. Such an override must meet the notification requirements and be accompanied by specific findings pursuant to Section 21670 of the *California Public Utilities Code.*

The AELUP uses a policy implementation line, which was adopted by the Orange County Board of Supervisors in 1985 for establishing the Noise Impact Zones. This line is based on the highest noise level at a given location utilizing noise projections from both the 1990 and 2005 project case contours developed as part of the 1985 John Wayne Airport Master Plan and are used as the basis for planning in the vicinity of JWA. (County 2008).

Regional

Southern California Association of Governments

The SCAG is the Metropolitan Planning Organization ("MPO") for six counties: Orange, Los Angeles, San Bernardino, Riverside, Ventura, and Imperial. The SCAG region includes 191 cities in an area that encompasses more than 38,000 square miles (SCAG 2017). As the designated MPO, SCAG prepares plans for transportation, growth management, hazardous waste management, and air quality. Among the leading activities SCAG undertakes are:

- Maintaining a continuous, comprehensive, and coordinated planning process resulting in a Regional Transportation Plan ("RTP") and a Regional Transportation Improvement Program ("RTIP")
- Developing demographic projections plus the integrated land use, housing, employment, transportation programs, measures, and strategies portions of the South Coast Air Quality Management District's Air Quality Management Plan
- Determining, pursuant to the Federal Clean Air Act, the conformity of its projects, plans and programs to the Air Quality Management Plan
- Reviewing environmental impact reports for regionally significant consistency with regional plans
- Serving as the authorized areawide waste treatment management planning agency pursuant to federal water pollution control statutes
- Preparing the Regional Housing Needs Assessment pursuant to State law

SCAG has developed a number of plans to achieve its regional objectives. The plan most applicable to the GAIP is the Regional Transportation Plan/Sustainable Communities Strategy ("RTP/SCS"; adopted on April 7, 2016; Amendment No. 2 adopted on July 6, 2017). Proposed projects are reviewed and an assessment is made about whether each project is consistent with or supports specific policies of the RTP/SCS. Some of the policies within the RTP/SCS are advisory in nature, as discussed below.

2016–2040 Regional Transportation Plan/Sustainable Communities Strategy

The RTP/SCS is a long-range transportation plan that is developed and updated by SCAG every four years. The RTP provides a vision for transportation investments throughout the region. The SCS is a newly required element of the RTP. The SCS integrates land use and transportation strategies that would achieve California Air Resources Board ("CARB") emissions reduction targets pursuant to Senate Bill ("SB") 375. The 2016–2040 RTP/SCS includes goals and policies applicable to most effectively serving the regional demands for growth, economic development, and providing the associated infrastructure to serve the region. Section 4.6.7 evaluates the GAIP's consistency with applicable goals and policies in the 2016–2040 RTP/SCS.

Local

County of Orange General Plan

State law requires each county to adopt a comprehensive, long-range General Plan for its own physical development and for any land outside its boundaries related to its planning activities. The *Orange County General Plan* was adopted in 2005 and was last revised in 2015 to reflect adopted General Plan amendments to the Land Use Element (County 2005a). The General Plan is organized into nine elements: Land Use, Transportation, Public Services and Facilities, Resources, Recreation, Noise, Safety, Housing, and Growth Management. Seven of these elements are required by State law (i.e., Land Use, Transportation, Resources, Recreation, Noise, Safety, and Housing), and the remaining two (i.e., Public Services and Facilities and Growth Management) are either mandated by regional requirements or are optional elements addressing issues relevant to the development of the County. A discussion of the GAIP's consistency with applicable *County of Orange General Plan* goals and policies is provided in Section 4.6.7. Brief descriptions of applicable General Plan elements are provided below.[3]

Land Use Element

The Land Use Element describes objectives, policies, and land use patterns for all unincorporated Orange County territory. Land use categories are used to depict the general distribution, location, and extent of public and private uses of land. This element also establishes development criteria and standards, including population density and building intensity. The Land Use Element would be applicable to the Airport and the few remaining unincorporated islands in the area because the Airport and these islands are the only unincorporated lands in the vicinity of the Airport (LAFCO 2016).

Transportation Element

The Transportation Element contains the County's overall transportation system plan. It develops a strategy for planning, developing, and maintaining a surface transportation system to serve existing and planned land uses in the unincorporated areas of Orange County. The existing traffic conditions in the Airport area are discussed in Section 4.8, Transportation/Traffic, of this Program EIR.

Noise Element

The purpose of the Noise Element is to provide a statement of public policy and a decision framework for the maintenance of a quiet environment. The Noise Element identifies the sources of noise; analyzes the extent of the noise intrusion; and estimates the potential impact of noise on the County. This identification process, in turn, provides the basis for goals, policies, and implementation programs designed to preserve, where possible, a quiet environment in Orange

[3] The General Plan Elements for the County of Orange were reviewed for goals and policies that pertain to JWA, either directly or indirectly. The goals and policies were considered to be applicable if, through implementation, the GAIP had the potential to conflict with the provisions outlined in the General Plan. If no goals or policies were identified, then the Element was not included in the discussion.

County. A noise study has been conducted for the GAIP and is discussed in Section 4.7, Noise, of this Program EIR.

Safety Element

The Safety Element was updated in 2011. It is the primary document for identifying hazards that impact persons and property in the unincorporated areas of Orange County. The Element focuses on fire, flood, and geologic hazards; other hazards that are locally relevant to safety issues are also discussed.

Other Local Jurisdictions

In addition to the presence of several unincorporated County Islands (LAFCO 2016), the Airport is surrounded by the cities of Newport Beach, Irvine, and Costa Mesa. Although not identified as responsible or trustee agencies for the GAIP,[4] because of the proximity to these cities, an evaluation of the GAIP's consistency with applicable goals and policies of each city's General Plan is provided in Table 4.6-7. Additionally, for the City of Newport Beach, an encroachment permit may be required for improvements on Campus Drive. Similar to the approach used for the County of Orange, city General Plan Elements were reviewed for goals and policies that pertain to JWA, either directly or indirectly. The goals and policies were considered to be applicable if, through implementation, the GAIP had the potential to conflict with the provisions outlined in a surrounding city's General Plan. If no applicable goals or policies were identified, then the Element was not included in the discussion.

City of Newport Beach General Plan

The *City of Newport Beach General Plan* is the long-range guide for growth and development in the city. On July 25, 2006, the General Plan was adopted, and the Final EIR was certified by the Newport Beach City Council. At the General Municipal Election held on November 7, 2006, the City Electorate approved the land use plan of the General Plan, pursuant to City Charter Section 423. In November 2017, the City formally initiated a General Plan update, which is expected to be completed in 2020.

The *City of Newport Beach General Plan* contains the following ten elements: Land Use; Harbor and Bay; Housing; Historical Resources; Circulation; Recreation; Arts and Cultural; Natural Resources; Safety; and Noise*.* A discussion of the GAIP's consistency with applicable goals and policies in the *City of Newport Beach General Plan* is provided in Section 4.6.7. Brief descriptions of applicable General Plan elements are provided below.

Land Use Element

The General Plan Land Use Element presents goals and policies pertaining to how existing development is to be maintained and enhanced and how new development is to be implemented. The *City of Newport Beach General Plan* establishes goals and policies for land use development

[4] The CEQA Guidelines defines a "Responsible Agency" as "a public agency which proposes to carry out or approve a project, for which a Lead Agency is preparing or has prepared an EIR or Negative Declaration. For the purposes of CEQA, the term "Responsible Agency" includes all public agencies other than the Lead Agency which have discretionary approval power over the project."

in the City as well as its Sphere of Influence. The southern and southeastern boundaries of JWA are adjacent to the City of Newport Beach jurisdictional boundary.

Circulation Element

The Circulation Element governs the long-term mobility system of the City of Newport Beach. The goals and policies in this element are closely correlated with the Land Use Element and are intended to provide the best possible balance between the City's future growth and land use development, roadway size, traffic service levels, and community character. The existing traffic conditions in the Airport area are discussed in Section 4.8, Transportation/Traffic, of this Program EIR.

Natural Resources Element

The primary objective of the Natural Resources Element is to provide direction regarding the conservation, development, and use of natural resources. It identifies the City's natural resources and policies for their preservation, development, and wise use. This Element addresses water supply (as a resource) and water quality (includes bay and ocean quality, and potable drinking water); air quality; terrestrial and marine biological resources; open space; archaeological and paleontological resources; mineral resources; visual resources; and energy. The City's Local Coastal Program ("LCP") identifies a number of Environmentally Sensitive Areas ("ESAs"), including West Bay, Upper Newport Bay State Marine Park (formerly Ecological Reserve), and East Bluff Remnant—all of which are referred to as Upper Newport Bay in this EIR section. Upper Newport Bay is also identified as an important open space resource in the City.

Noise Element

The Noise Element of a General Plan is a tool for including noise control in the planning process in order to maintain compatible land use with environmental noise levels. This Noise Element identifies noise-sensitive land uses and noise sources, and defines areas of noise impact for the purpose of developing policies to ensure that Newport Beach residents would be protected from excessive noise intrusion. The Noise Element follows the revised State guidelines in Section 46050.1 of the *California Health and Safety Code*. The Element quantifies the community noise environment in terms of noise exposure contours for both short and long-term levels of growth and traffic activity. The information contained in the Noise Element provides the framework to achieve compatible land uses and to provide baseline levels and noise source identification for local Noise Ordinance enforcement.

Safety Element

The Safety Element of a General Plan is a tool to reduce the potential risk of death, injuries, property damage, and economic and social dislocation resulting from natural and human-induced hazards. The Safety Element recognizes and responds to public health and safety risks that could cause exposure to the residents of Newport Beach. Implementation of City, county, and state emergency response and mutual aid plans will enable the community to avert or minimize impacts to the extent practical and feasible, as well as allow restoration of the City in a timely manner after an event. The element specifically addresses coastal hazards, geologic hazards, seismic hazards, flood hazards, wildland and urban fire hazards, hazardous materials, aviation hazards, and disaster planning. JWA is described in the City's Safety Element as

generating nearly all aviation traffic above the City of Newport Beach. Three City areas identified in the Safety Element as being subject to increased vulnerability to aviation hazards are Balboa Peninsula, Balboa Island, and Upper Newport Bay.

Housing Element

The City of Newport Beach's Housing Element details the City's strategy for enhancing and preserving the community's character, identifies strategies for expanding housing opportunities and services for all household types and income groups, and provides the primary policy guidance for local decision-making related to housing. The Housing Element is mandated by Sections 65580 to 65589 of the Government Code, which includes the requirement that Housing Elements be updated at least every five years. The current City of Newport Beach Housing Element addresses the years 2014–2021. In the 2006 General Plan update process, several key areas in the City were identified for future housing opportunities, including the Airport Area near JWA, Newport Center, Banning Ranch, and the Balboa Peninsula area. The 2014-2021 Housing Element reiterates these areas as future housing opportunities.

City of Irvine General Plan

The City of Irvine *Year 2000 General Plan Update* (*City of Irvine General Plan*) was adopted on March 9, 1999, and has subsequently been updated. The *City of Irvine General Plan* is current with respect to amendments through June 2015 (Supplement 9, August 2015). The *City of Irvine General Plan* contains the following 13 elements: Land Use, Circulation, Housing, Seismic, Cultural Resources, Noise, Public Facilities, Integrated Waste Management, Energy, Safety, Parks and Recreation, Conservation and Open Space, and Growth Management. A discussion of the GAIP's consistency with applicable goals and policies in the *City of Irvine General Plan* is provided in Section 4.6.7. Brief descriptions of applicable General Plan elements are provided below.

Land Use Element

The *City of Irvine General Plan's* Land Use Element seeks to protect and enhance the quality of life in the community through land use policies that guide future growth and that define the quality of life in the city. The goal of the Land Use Element is to "promote land use patterns that maintain safe residential neighborhoods, bolster economic prosperity, preserve open space, and enhance the overall quality of life in Irvine." Land use policies determine how land is developed in the community and also guide and resolve many land use issues and constraints in order to define the quality of life in the city. The northern and northeastern boundaries of JWA are adjacent to the City of Irvine jurisdiction boundary.

Circulation Element

The Citywide circulation system can influence the pace of urban development and facilitate interaction among the City's planning areas. The Circulation Element describes the City's circulation system, which has been designed to: (1) create a hierarchy of roadways; (2) reinforce boundaries of planning areas; (3) respond to conservation, noise, air pollution, and wildlife preservation policies; and (4) satisfy City General Plan and Strategic Business Plan objectives. Four different types of systems comprise Irvine's circulation system: air, road, public transit, and transit.

City of Costa Mesa General Plan

The *City of Costa Mesa 2015-2035 General Plan* was adopted in June 2016 by City Council Resolution 16-50. The *City of Costa Mesa 2015-2035 General Plan* contains the following ten elements: Land Use, Circulation, Growth Management, Housing, Conservation, Noise, Safety, Community Design, Open Space and Recreation, and Historical and Cultural Resources. A discussion of the GAIP's consistency with applicable goals and policies in the *City of Costa Mesa 2015-2035 General Plan* is provided in Section 4.6.7. Brief descriptions of the applicable General Plan elements are provided below.

Land Use Element

The Land Use Element unifies the other elements by providing an overall policy context for future physical change. Goals and policies define the community's desired balance among social, environmental, and economic considerations, while maintaining those characteristics of the community that reinforce quality neighborhoods and viable business districts.

Circulation Element

The Circulation Element identifies and establishes the City's policies governing the system of roadways, intersections, bike paths, pedestrian ways, and other components of the circulation system, which collectively provide for the movement of persons and goods throughout the City.

Noise Element

The Noise Element describes existing noise levels and sources in the City of Costa Mesa. Aircraft noise from John Wayne Airport is identified as a source of noise in the city. The Noise Element includes an exhibit prepared in 2013, Figure N-2, Existing Noise Contours-2015, that depicts JWA's CNEL contours.

4.6.3 METHODOLOGY

This section describes the methods used for assessing potential land use impacts and consistency with applicable planning policies. The threshold from the County's *Environmental Analysis Checklist,* which is generally consistent with the State CEQA Guidelines Appendix G Checklist, provide the thresholds that have been used in this section of the Program EIR. Pursuant to Section 15125(a) of the State CEQA Guidelines, the discussion of the Airport is based on the conditions of the Airport when the NOP was published in March 2017 (JWA 2017).

On-Site Land Use Evaluation

The County General Plan does not have specific criteria for capacity considerations of the Airport facilities. Although the GAIP proposes physical improvements to general aviation facilities, the GAIP would not change the type of use (general aviation) on site. Therefore, the evaluation will assess the compatibility of the proposed general aviation facilities with uses on the Airport and the overall aviation operations. The assessment considers the aircraft storage capacity of general aviation facilities with capacity assumptions identified in Section 3.7, Project Description, of the Program EIR. The analysis of the on-site facilities is based on data provided in the *Orange*

County/John Wayne Airport (JWA) General Aviation Improvement Program (GAIP) Based Aircraft Parking-Capacity Analysis and General Aviation Constrained Forecasts Technical Memorandum provided in Appendix D.

Surrounding Land Use Evaluation

An important consideration when assessing land use compatibility surrounding an airport is the potential for incompatible land uses associated with excessive noise levels. The GAIP proposes new and improved facilities that would require several phases of construction, as identified in Section 3.7.2 for the Proposed Project and Section 3.7.3 for Alternative 1. The surrounding land use evaluation focuses on land use incompatibility associated with changes in noise levels from aircraft associated with the new and improved facilities serving general aviation.

The County of Orange General Plan has established compatibility standards and guidelines for various land uses in terms of CNEL and L_{eq}. The County generally uses the 65 CNEL as a standard for determining land use compatibility for noise-sensitive uses. For residential land uses, the County has established a maximum exterior noise level standard of 65 CNEL for private outdoor living areas and an interior standard of 45 CNEL. These standards are reproduced in Table 4.6-1.

TABLE 4.6-1
COUNTY OF ORANGE COMPATIBILITY MATRIX FOR LAND USE AND COMMUNITY NOISE EQUIVALENT LEVELS

Type of Use	65+ decibels CNEL	60 to 65 decibels CNEL
Residential	3a, b, e	2a, e
Commercial	2c	2c
Employment	2c	2c
Open Space		
Local	2c	2c
Community	2c	2c
Regional	2c	2c
Educational Facilities		
Schools (K through 12)	2c, d, e	2c, d, e
Preschool, college, other	2c, d, e	2c, d, e
Places of Worship	2c, d, e	2c, d, e
Hospitals		
General	2a, c, d, e	2a, c, d, e
Convalescent	2a, c, d, e	2a, c, d, e
Group Quarters	1a, b, c, e	2a, c, e
Hotel/Motels	2a, c	2a, c
Accessory Uses		
Executive Apartments	1a, b, e	2a, e
Caretakers	1a, b, c, e	2a, c, e

TABLE 4.6-1
COUNTY OF ORANGE COMPATIBILITY MATRIX FOR LAND USE AND COMMUNITY NOISE EQUIVALENT LEVELS

Type of Use	65+ decibels CNEL	60 to 65 decibels CNEL

CNEL: Community Noise Equivalent Level; L_{eq}: average noise level.

EXPLANATION AND DEFINITIONS

Action Required to Ensure Compatibility Between Land Use and Noise From External Sources:

1: Allowed if interior and exterior community noise levels can be mitigated.
2: Allowed if interior levels can be mitigated.
3: New residential uses are prohibited in areas within the 65 CNEL contour from any airport or air station and are allowed in other areas if interior and exterior community noise levels can be mitigated. The prohibition against new residential development excludes limited "infill" development within an established neighborhood.

Standards Required for Compatibility of Land Use and Noise:

a **Interior Standard:** CNEL of less than 45 decibels (habitable rooms only).
b **Exterior Standard:** CNEL of less than 65 decibels in outdoor living areas.
c **Interior Standard:** $L_{eq(h)}$ = 45 to 65 decibels interior noise level, depending on interior use.
d **Exterior Standard:** $L_{eq(h)}$ of less than 65 decibels in outdoor living areas.
e **Interior Standard:** As approved by the Board of Supervisors for sound events of short duration such as aircraft flyovers or individual passing railroad trains.

Key Definitions:

Habitable Room: Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking, or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms, and similar spaces.

Interior: Spaces that are covered and largely enclosed by walls.

$L_{eq(h)}$: The A-weighted equivalent sound level averaged over a period of "h" hours. An example would be $L_{eq(12)}$ where the equivalent sound level is the average over a specified 12-hour period (such as 7:00 AM to 7:00 PM). Typically, time period "h" is defined to match the hours of operation of a given type of use.

Outdoor Living Area: Outdoor living area is a term used by the County of Orange to define spaces that are associated with residential land uses typically used for passive private recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, and other outdoor areas associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are front yard areas, driveways, greenbelts, maintenance areas, and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

Source: Orange County General Plan Noise Element, Tables VIII-2 and VIII-3

Existing noise-sensitive land uses now located within the 65 CNEL contour as a result of the GAIP are assessed as potential incompatible land uses. The County's standard also identifies an interior noise standard of 45 CNEL. Therefore, a determination is made in this analysis regarding land use compatibility with both the exterior and interior noise standards for existing residential uses adjacent to the Airport. However, no interior noise readings have been taken at any locations as part of this Program EIR. As discussed in Section 4.7, Noise, the assessment assumes

the typical construction attenuates outdoor noise by 20 dBA with windows closed and 12 dBA with windows open. [5]

Title 21 establishes the standard for the acceptable level of aircraft noise for persons living in the vicinity of airports as 65 dB CNEL. Section 5014 identifies land uses within the 65 CNEL contour as compatible if an avigation easement for aircraft noise has been acquired by the airport proprietor. Therefore, if noise-attenuation (i.e., sound insulation) measures were installed as part of the 1985 JWA Master Plan and Santa Ana Heights Acoustical Insulation Program ("AIP"), then—even if the existing land use is within the 65 CNEL—no land use impact would occur at the residential units that received insulation and for which avigation easements were recorded. This is because there has been a meaningful reduction in aircraft noise inside the residences to satisfy the interior noise standard of CNEL 45 dB and an avigation easement has been recorded. The residences are compatible for purposes of Title 21 of the California Noise Standards.[6]

Additionally, a number of noise-sensitive land uses (e.g., schools and places of worship) are currently located in office/industrial buildings adjacent to the Airport. As part of the construction permit process, a standard condition implemented by the jurisdictions adjacent to the Airport is to require documentation demonstrating that these buildings can achieve appropriate interior noise standards. Therefore, even though these uses may be within the 65 CNEL contour, a noise impact would not occur; and the land use may be found to be compatible even though it is located in the 65 CNEL contour pursuant to Title 21 (see Section 4.6.2).

The land use analysis is based on the *John Wayne Airport General Aviation Improvement Program Noise Analysis Technical Report* prepared by Landrum and Brown and included in this Program EIR as Appendix G (Landrum & Brown 2018), review of aerial photographs; 2010 U.S. Census data; and review of relevant planning documents referenced in this section.

Policy Consistency Evaluation

As part of the land use analysis, the State CEQA Guidelines require an EIR to evaluate potential "conflicts with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project." For the GAIP, the County of Orange is the lead agency with jurisdiction. The plans and policies of the County of Orange have been used as the basis for making a determination of a significant impact. However, for informational purposes, information from other jurisdictions adjacent to the Airport (Newport Beach, Irvine, and Costa Mesa) and SCAG have been included in the analysis.

5 Detailed outdoor and indoor noise measurements were made in these neighborhoods as part of the AIP. The average outdoor-to-indoor noise reduction (measured from outside of the house to inside the house) before the insulation work was in the mid-20 dB range. This measured reduction is consistent with the general rule of thumb utilized by the FAA and State of California that the minimum outdoor-to-indoor noise reduction achieved by typical Southern California wood frame homes is 20 dBA with windows closed.

6 The AIP and a second Sound Insulation Program ("SIP"), which was adopted in conjunction with the 2014 Settlement Agreement Amendment, are further discussed in Section 4.7, Noise, of this Draft Program EIR.

4.6.4 EXISTING CONDITIONS

Land Uses

On-Site Land Uses

Existing facilities within the Airport property include general aviation facilities, airside facilities, passenger terminal facilities, support facilities, and Airport access and auto parking facilities. The existing general aviation on-site land uses are conceptually depicted on Exhibit 2-2, Conceptual Facilities Layout—Existing Facilities, in Section 2.0 of this Program EIR, and fully described in Section 2.0. A summary of the existing general aviation land uses is provided below. Additionally, Exhibit 1-3 provides an aerial photograph of the site with key facilities identified. The following are the existing conditions for the key land uses on the Airport.

General Aviation Facilities

JWA is the home base for more than 480 private general aviation aircraft and provides general aviation services including aircraft handling/support, ground transportation/customer parking, aircraft storage (tie-downs and box hangars), flight school/training/rental, aircraft charter and overall aircraft maintenance. JWA currently has two full service fixed-base operators ("FBOs") and two limited service FBOs. The full service FBOs provide aircraft fueling services, supplies, aircraft maintenance, flying lessons, and other services at the Airport. The two limited service FBOs at the Airport provide small aircraft maintenance and service. Additionally, the Lyon Air Museum is located at one of the limited service FBOs. The limited service FBOs are both located on the west side of the Airport. A general aviation fuel farm is located in the southeast area of the Airport and consists of seven underground storage tanks, which provide Jet A, avgas, diesel, and unleaded fuel.[7] Fuel is delivered to the general aviation fuel farm by tanker trucks accessing the Airport at the Campus Drive/Quail Street intersection. Refueling trucks, operated by the full service FBOs, are then used to deliver fuel from the fuel farm to the parked general aviation aircraft.

Non-General Aviation Facilities

The non-general aviation services at JWA consist of those used for commercial airline service. These include the passenger terminal building located at the north end of the airfield, parallel to and east of the runways. The JWA terminal building includes Terminals A, B and C.

The Airport has a commercial fuel farm located on approximately 2 acres on the west side of the airfield at the northern end, within the security fencing of the airfield. The fuel farm includes three approximately 300,000-gallon, aboveground storage tanks for the storage of jet fuel. An underground hydrant fuel system pumps fuel directly from the fuel farm to commercial aircraft parked at the passenger terminal building. Currently, fuel delivery to the commercial fuel farm is by tanker trucks each night. The County of Orange has recently approved a privately-initiated proposal by Wickland Pipelines LLC ("Wickland") to supply Jet-A fuel to the Airport. As part of the Wickland project, two fuel storage tanks with an operating capacity of approximately 1.5 million gallons each are under construction. This facility is located on the west side of the

[7] The size of the underground tanks is provided in Section 4.5, Hazards and Hazardous Materials.

Airport in proximity to the existing fuel tanks. These large tanks will be connected with an underground pipe to a larger off-site pipeline distribution system for delivery of Jet-A via pipeline.

Surrounding Land Uses

A majority of the area surrounding the Airport is within the cities of Newport Beach, Costa Mesa, and Irvine. The formerly unincorporated area of Santa Ana Heights was annexed into the City of Newport Beach in 2008. The Santa Ana Heights community is an area roughly bound by Upper Newport Bay to the south, Santa Ana Avenue to the west, Bristol Street to the north, and the Bayview Terrace area to the east. The Orange County Local Agency Formation Commission ("LAFCO") Unincorporated Islands Vicinity Map (2016) shows one island located immediately south of the Airport. This island, the Santa Ana Avenue/South Mesa Island, includes the Santa Ana Country Club ("SACC"), which has a land use designation of 5 – Open Space, while the remaining part of this island has land use designations of 1B-Suburban Residential and 2A-Community Commercial. The SACC/South Mesa Island remains unincorporated and has made no movement toward annexation (Tapia 2017).

The Airport is located in an urbanized area; therefore, the majority of land surrounding JWA is developed, generally in accordance with the adopted land use plans and policies of the relevant local jurisdictions. Surrounding land uses include the following:

- In the City of Newport Beach, RS-D (Single-Unit Residential Detached), RM (Multiple-Unit Residential), OS (Open Space), CO-G (General Commercial Office), PR (Parks and Recreation), and CG (General Commercial) in the Santa Ana Heights community to the south; and AO (Office Airport), CO-G (General Commercial Office), CG General Commercial, MU-H2 (Mixed Use Horizontal) and PF (Public Facilities) in the Airport Area to the east
- Business Park uses north of Interstate ("I") 405 in the City of Irvine and along MacArthur Boulevard, north of Campus Drive in the Irvine Business Complex ("IBC")
- Recreation and open space uses at the end of the runways south of the Airport in unincorporated Orange County and in the City of Newport Beach
- Industrial park uses west of the Airport between Red Hill Avenue and JWA in the City of Costa Mesa
- An important natural reserve and habitat to the south of the Airport, commonly known as the Upper Newport Bay Ecological Reserve, located in the City of Newport Beach

Sensitive Land Uses

Sensitive land uses include schools, hospitals, places of worship, and residential areas. The *Noise Analysis Technical Report*, included in Appendix H, identifies the number of surrounding schools, hospitals, places of worship, and dwellings within the contour bands between 60 and 65 CNEL, 65 and 70 CNEL, and greater than 70 CNEL. Six schools are in the contour band between 60 to 65 CNEL and no hospitals are within a contour of 60 CNEL or greater. Of the nine places of worship, five are between 60 and 65 CNEL, three are between 65 and 70 CNEL, and one is in the greater than 70 CNEL contour. For a determination that a noise-sensitive land use is incompatible, it must be in the 65 CNEL contour or greater.

General Plan Designations/Zoning

On-Site Designations/Zoning

The *County of Orange General Plan* categorizes JWA within land use Category 4 – Public Facilities. The public facilities land use category identifies major facilities built and maintained for public use. Included are civic buildings, airports, junior colleges, military installations, correctional institutions, hospitals, solid waste facilities, water facilities, and sewer facilities.

JWA is zoned A1, "General Agricultural" District. The A1 District is established to provide for agriculture, outdoor recreational uses, and low intensity uses that have a predominately open space character. The General Plan permits airports to be located within the A1 General Agricultural District. The County of Orange has exempted the Airport from the zoning code requirements (see County Zoning Code, Section 7-9-20[i]).

Surrounding Designations/Zoning

The majority of zoning classifications for areas around the Airport allow uses that are compatible with Airport operations and the land use compatibility requirements of the State Noise Standards (*California Administrative Code,* Title 21, Chapter 2.5, Subchapter 6, Section 5000 et seq.) as discussed in Section 4.6.2, Regulatory Setting.

Zones which may potentially include land uses that are incompatible with the requirements of Title 21 include zones that allow for residential uses. However, as discussed in Section 4.6.2, Title 21 establishes standards for the acceptable level of aircraft noise for persons living in the vicinity of airports as 65 dB CNEL. This includes residential uses with avigation easements for aircraft noise; residences with adequate acoustic insulation to ensure an interior CNEL due to aircraft noise of 45 dB or less in all habitable rooms; and when the airport proprietor has made a genuine effort in accordance with adopted land use compatibility plans to acoustically treat residences exposed to an exterior CNEL in excess of adopted Title 21 standards. The cities of Newport Beach, Costa Mesa, and Irvine surround the majority of the Airport. Each of these cities has its own land use designations and zoning for land uses surrounding the Airport. The zoning for each is as follows:

- Irvine zoning is 5.1 (IBC Multi-Use).
- Costa Mesa zoning is MP (Industrial Park) and CL (Commercial Limited).
- Newport Beach zoning is SP-7 (East Santa Ana Heights Specific Plan), RMD (Multiple Residential Detached), R-A (Residential-Agricultural), R-1 (Single-Unit Residential), R-1-6,000 (Single-Unit Residential – 6,000), PF (Public Facilities), PC-11 (Newport Place Planned Community), PC-15 (Koll Center Planned Community), CG (General Commercial), OG (Office – General), and OA (Office-Airport).

4.6.5 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's *Environmental Analysis Checklist* and Appendix G of the State CEQA Guidelines, the GAIP would result in a significant land use impact if it would:

Threshold 4.6-1 Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

The analysis for this threshold is broken down into three areas:

- Potential for conflict with a land use plan, policy, or regulation as it pertains to compatibility with land uses on site
- Potential for conflict with a land use plan as it pertains to compatibility with surrounding off-Airport land uses
- Potential conflict with applicable planning documents

4.6.6 REGULATORY REQUIREMENTS AND STANDARD CONDITIONS OF APPROVAL

No regulatory requirements or County standard conditions of approval are applicable to land use and planning. However, regulatory requirements identified elsewhere in this document are applicable to the GAIP and would serve to minimize potential land use compatibility concerns. RR AES-1 requires all projects to demonstrate compliance with the FAR Part 77 regulation, as it relates to building or structure heights, markings, lighting, and other standards. RR GHG-1 and RR GHG-2 would require building improvements to comply with the applicable Title 24 Energy Efficiency Standards for Nonresidential Buildings (*California Code of Regulations* [CCR], Title 24, Part 6). These standards are updated, approximately every three years, to incorporate improved energy efficiency technologies and methods. Additionally, development would be designed in accordance with the applicable *California Green Building Standards* (CALGreen) *Code* (24 CCR 11). Compliance with these requirements would serve to meet some of the policies discussed below.

4.6.7 IMPACT ANALYSIS

Threshold 4.6-1

- ***Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?***

Proposed Project

Compatibility with On-Site Land Uses

The Proposed Project would implement the various facilities, described in Section 3.6, Project Description, within the area currently used for general aviation activities at the Airport. The analysis considers the potential for conflict with a land use plan, policy, or regulation as it pertains to compatibility with land uses on site. The proposed GAIP improvements would not introduce any uses that would be incompatible with the current general aviation functions at the Airport because the type of improvements (i.e., FBOs, hangars, and tie-downs) are consistent with the type of uses currently on site. Additionally, the area on the Airport dedicated to general aviation uses would not substantially change. The only reduction in overall area for general aviation uses would be associated with the transient aircraft apron parking area located at the south end of the Airport. Aircraft are parked in an Object Free Area ("OFA") for Runway 2L, and the Proposed Project would correct this non-standard condition. It should also be noted, the removal of the 31 transient parking spaces in this area would not change the number of based aircraft at the Airport because it is used for transient parking only.

Recognizing the constrained capacity at the Airport, one of the objectives of the GAIP is to utilize limited land area efficiently and economically. The GAIP includes facilities that recognize the trend toward the reduction of small single-engine fixed-wing piston aircraft and an increase in turboprops and business/private jets and proposes facilities to accommodate this trend. As a result, the Proposed Project would result in a reduction in the overall number of aircraft that could be accommodated at JWA. Table 4.6-2 shows the reduction in the capacity for general aviation aircraft of the Proposed Project compared to the current capacity and the number of aircraft parking spaces currently being used at the Airport.

TABLE 4.6-2
NUMBER OF AIRCRAFT PARKING POSITIONS LOST FOR THE PROPOSED PROJECT

Facility	Change in Aircraft Parking Spaces (+/-)	
	Compared to Capacity	Compared to Current Use
Tie-Down Apron	-167	-87
T-Hangars	-15	-15
Box Hangars (includes OCSD)	-10	-10
FBO/Community Hangars	24	24
Shade Structures	-66	-66
FBO Apron Spaces	-8	26
Total	**-242**	**-128**

Note: The type and size of aircraft parked at an FBO facility may vary based on demand and can change frequently; therefore, the actual number and type of aircraft at the Airport may differ from what is shown in this table.

Source: AECOM 2018

The type of aircraft that would be most affected by the reduction in general aviation capacity would be the single-engine fixed-wing piston aircraft. Table 4.6-3 shows the projected change in the number of aircraft based on the facilities proposed by the Proposed Project.

TABLE 4.6-3
CHANGE IN NUMBER OF BASED AIRCRAFT BY TYPE
PROPOSED PROJECT

Year	Fixed Wing Piston[a]		Fixed Wing Turbine		Helicopter	Total Based Aircraft
	Single Engine	Multi-Engine	Turboprop	Turbo Jet		
2016	339	35	26	65	17	**482**
2026[b]	198	37	30	72	17	**354**
Change in the Number of Aircraft Accommodated	-141	2	4	7	0	**-128**

Note: Numbers may not add up due to rounding.

[a] The based aircraft totals for single-engine include one glider.

[b] Assume four existing single-engine piston aircraft would park at the vacant spaces for multi-engine piston aircraft and fill up capacity.

Source: AECOM 2018.

The loss of aircraft parking spaces may be perceived as adverse because it reduces the overall capacity at the Airport; however, it would not result in an incompatible land use or conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. The Airport is committed to maintaining general aviation uses; however, there are no requirements that establish a minimum or maximum amount of general aviation. JWA would continue to serve general aviation uses. The aircraft are accommodated on the Airport through lease agreements, which have established expiration dates or provisions for cancelation of the lease. Therefore, the reduction in the overall number of aircraft based at JWA would not result in a significant environmental impact.

Displaced aircraft can be accommodated elsewhere in the region. Fullerton Municipal Airport is also a general aviation airport in Orange County with capacity for 600 aircraft. For the year ending on October 31, 2017, 223 aircraft were based at the Fullerton Municipal Airport. Long Beach Airport has 380 based aircraft. Historically, Long Beach Airport has accommodated higher numbers of general aviation aircraft (AirNav.com 2018).

Implementation of the Proposed Project would not affect operations at the non-general aviation (commercial) services or facilities at the Airport. Impacts to on-site land use are less than significant, and no mitigation is required.

Construction Impacts

Construction of the Proposed Project would be phased to minimize disruption to Airport operations and minimize the need to temporarily relocate based aircraft to other airports in the region. Exhibit 3-3a depicts the 14 primary construction phases, while Exhibit 3-3b provides a corresponding listing of the improvements identified for each task. Given the space limitations

on the Airport, small segments of work would need to be conducted at a single time in order to minimize disruptions. During construction, current users of the general aviation facilities (i.e., FBOs and aircraft owners) would need to be temporarily relocated either to alternative locations on the Airport or to other airports in the region while each area on the Airport is under construction. The timing and precise number of aircraft that may need to relocate to other airports in the region cannot be known at this time. It will be a factor of the precise design of the improvements and number of aircraft based at the Airport at the time. As discussed above, aircraft are accommodated on the Airport through lease agreements, which have established expiration dates or provisions for cancelation of the lease. Therefore, the need to relocate a number of aircraft during construction would not result in a significant environmental impact.

Potential short-term, construction-related land use compatibility issues related to air quality, noise, and traffic are discussed in Sections 4.2, 4.7, and 4.8, respectively, of this Program EIR.

Compatibility with Surrounding Land Uses

The analysis considers the potential for conflict with a land use plan, policy, or regulation as it pertains to compatibility with surrounding land uses. Land use compatibility with existing adjacent land uses considers the impacts associated with different and incompatible land uses interfacing with each other. The Proposed Project would not change the nature of the uses on the Airport, so a direct incompatibility would not be associated with the surrounding land uses. As noted in existing conditions, the uses immediately adjacent to the Airport are industrial park uses west of the Airport between Red Hill Avenue and JWA and general commercial to the east of the Airport. These uses have been designed and constructed with the knowledge that the Airport is an adjacent use and appropriate sound attenuation has been incorporated into the design of these commercial/office buildings.

The greatest potential for impacts to surrounding land uses are associated with increased noise from the Airport operations on noise-sensitive land uses within the departure path to the south. Generally, the land uses within the 65 CNEL contour north of the Airport (i.e., approach path) are not noise sensitive uses. As noted in Section 4.7, no significant noise impacts have been identified for the Proposed Project compared to the Baseline (2016) condition. However, the thresholds established for defining a noise impact are slightly different than the policies established for determining land use compatibility.[8]

As identified above, if the noise impacts are of sufficient magnitude, noise-sensitive uses may be deemed an incompatible use. The 65 CNEL is generally considered the upper threshold for noise-sensitive uses (e.g., residences, places of worship, and schools/childcare facilities) to be considered compatible, unless noise-attenuation measures (such as insulation) have been implemented.

Based on the *Noise Analysis Technical Report* (Landrum & Brown), the CNEL noise contours in the Baseline Plus Proposed Project remain approximately the same size and shape as the Baseline (2016) noise contours. The change in general aviation operations from the GAIP has a negligible impact on the CNEL noise contours in the Baseline Plus Proposed Project scenario.

[8] For noise, the County uses a noise increase of 1.5 CNEL or more at a sensitive receptor where the existing exposure is 65 CNEL or above when identifying a noise increase as a significant impact. For land use, generally, inclusion of an additional noise-sensitive use in the 65 CNEL contour is considered potentially significant. However, as noted, use of attenuation and avigation easements may reduce these impacts to less than significant.

Table 4.6-4 provides a comparison to the Baseline (2016) of the land uses located within the CNEL contours for Baseline (2016) Plus the No Project, the Proposed Project, and Alternative 1 scenarios. The land use data for all the scenarios are provided in a single table to avoid duplication and assist in an easy comparison.

TABLE 4.6-4
LAND USES WITHIN THE CNEL CONTOURS

CNEL	Baseline (2016)	Baseline Plus No Project	Baseline Plus Proposed Project	Baseline Plus Alternative 1
Total Contour Area (sq. mi.)				
65-70	1.49	1.51	1.50	1.50
>70	0.91	0.93	0.92	0.92
Number of Schools				
60-65	6	6	6	6
65-70	0	0	0	0
>70	0	0	0	0
Number of Hospitals				
65-70	0	0	0	0
>70	0	0	0	0
Number of Places of Worship				
65-70	3	3	3	3
>70	1	1	1	1
Total Number of Dwelling Units				
65-70	247	257	257	259
>70	0	0	0	0
Total Number of Dwelling Units in the Acoustical Insulation Program Area				
65-70	247	257	257	259
>70	0	0	0	0
Total Number of Dwelling Units Outside the Acoustical Insulation Program Area				
65-70	0	0	0	0
>70	0	0	0	0
Source: Landrum & Brown 2018.				

As shown in Table 4.6-5, the changes as a result of the Proposed Project in the size of the contours and sensitive land uses located within the 65 CNEL contour or greater are nominal when compared to the Baseline (2016) data. For the Proposed Project, the total contour areas between 65 and 70 CNEL would increase by 0.01 square mile (0.6 percent) when compared to the Baseline (2016) noise contours. The area exceeding 70 CNEL will increase by 0.01 square mile (0.7 percent) over Baseline (2016) conditions. Exhibit 4.7-9 in Section 4.7, Noise, provides a comparison of the Baseline (2016) 60, 65, 70, and 75 CNEL contours and the projected contours with the Proposed Project.

TABLE 4.6-5
CHANGES IN LAND USES COMPARED TO BASELINE (2016) CONDITIONS

CNEL	Baseline Plus No Project	Baseline Plus Proposed Project	Baseline Plus Alternative 1
Total Contour Area (sq. mi.)			
65-70	0.02	0.01	0.01
>70	0.02	0.01	0.01
Number of Schools			
65-70	0	0	0
>70	0	0	0
Number of Hospitals			
65-70	0	0	0
>70	0	0	0
Number of Places of Worship			
65-70	0	0	0
>70	0	0	0
Total Number of Dwelling Units			
65-70	10	10	12
>70	0	0	0
Total Number of Dwelling Units in the Acoustical Insulation Program Area			
65-70	10	10	12
>70	0	0	0
Total Number of Dwelling Units Outside the Acoustical Insulation Program Area			
65-70	0	0	0
>70	0	0	0
Source: Landrum & Brown 2018.			

Though the physical area encompassed by the subject noise contours would increase, the assessment of land use impacts needs to consider the presence of sensitive receptors. No additional sensitive receptors would be within the greater than 70 CNEL contour of the Proposed Project compared to Baseline (2016) conditions. The total number of residences exposed to noise levels between 65 and 70 CNEL would increase by ten residences for the Proposed Project. However, as indicated in Section 4.7, the ten additional residences that would be included between the 65 and 70 CNEL contour compared to the Baseline (2016) condition are included in the area covered by the AIP approved in conjunction with the 1985 Master Plan (refer to Section 4.7 Noise). Of these additional ten units included in the 65 to 70 CNEL contour:

- Four multi-family units are non-conforming uses (residential use in a business park zone), and a prescriptive avigation easement has been acquired.
- Two units have received acoustical insulation, and an avigation easement has been acquired.

- One unit has participated in the purchase assurance program and received insulation, and an avigation easement was acquired.
- One unit declined the offer of acoustical insulation.
- A genuine effort to offer insulation to two units was made, but no response was received.

As noted above, consistent with the provisions of Title 21, for the seven residential units with avigation easements, impacts would be less than significant because attenuation has been provided and avigation easements have been granted. The other three residential units have a potential for incompatibility due to excessive interior and exterior noise levels.[9] Residences with outdoor living areas exposed to a greater than 65 CNEL would be incompatible with the County's exterior noise standard.[10] There is no feasible mitigation for the exterior noise levels. Therefore, the 65 CNEL contour expanding beyond the existing contour and including additional residences would be a significant land use compatibility impact. Based on the County standard, an indoor noise impact occurs when the interior noise level exceeds 45 CNEL in any habitable room of a residence or similar habitable space for schools, places of worship, and other noise-sensitive uses. As the 65 CNEL contour expands to include additional noise-sensitive uses, the interior noise levels would need to be verified on a house-by-house basis to determine if the average interior noise levels are in excess of 45 CNEL. However, this impact would not be a new land use compatibility impact. As noted above, these uses are all within the 65 CNEL contour from the 1985 Master Plan, which the AELUP uses as a policy implementation line for establishing the Airport Noise Impact Zones. Additionally, in 2014 when the Final EIR 617 was prepared for the Settlement Agreement Amendment, this area was again identified as being in a future (2026) 65 CNEL contour due to the increased commercial carrier flights.

These units would continue to be eligible for consideration of attenuation measures through the SIP adopted as part of Final EIR 617 because they fall within the 65 CNEL contour projected for 2026 due to the increased commercial carrier flights associated with the 2014 Settlement Agreement Amendment. However, Final EIR 617 identified a significant unavoidable impact because until interior noise measurements are taken after the increase in commercial carrier flights at the Airport, as projected in Final EIR 617, it cannot be determined if all the noise-sensitive uses with interior noise levels in excess of 45 CNEL would qualify for sound attenuation based on FAA criteria. Although the Board of Supervisors has already made a finding addressing this issue, it is being identified as a significant impact to ensure the decision-makers understand that the Proposed Project would result in three residential units not currently in the Baseline (2016) 65 CNEL contour to be identified as an incompatible.

[9] As previously discussed in Section 4.6.2, Title 21 does provide that a residential use can be determined to be compatible if " the airport proprietor has made a genuine effort as determined by the department in accordance with adopted land use compatibility plans and appropriate laws and regulations to acoustically treat residences exposed to an exterior CNEL less than 80 dB (75 dB if the residence has an exterior normally occupiable private habitable area such as a backyard, patio, or balcony) or acquire avigation easements, or both, for the residences involved, but the property owners have refused to take part in the program." Under this provision, these residential units could be found to be compatible despite being located in the 65 to 70 CNEL contour.

[10] Table 4.6-1 provides a definition of "outdoor living area." As noted in the definition, outdoor areas usually not included in this definition are front yard areas, driveways, greenbelts, maintenance areas, and storage areas associated with residential land uses.

Policy Consistency Analysis

Airport Environs Land Use Plan for John Wayne Airport

As noted above, the AELUP is the comprehensive land use plan adopted and administered by the ALUC for Orange County. The goal is to provide land use compatibility based on noise and safety impacts for areas surrounding the Airport. The AELUP establishes several compatibility zones for JWA and regulates the land uses and activities that are allowed within each zone. The general aviation facilities at the Airport are located within Zones 1 through 5, which have the following basic safety compatibility qualities related to general aviation facilities:

- Zone 1: Runway Protection Zone – Prohibits all new structures and residential uses, children's schools, and hospitals and avoids non-residential uses, except if very low intensity in character and confined to the sides and outer end of the area
- Zone 2: Inner Approach/Departure Zone – Prohibits residential uses, children's schools, and hospitals; limits non-residential uses to activities that attract few people; and prohibits hazardous uses (e.g., aboveground bulk fuel storage)
- Zone 3: Inner Turning Zone – Prohibits children's schools and hospitals; avoids non-residential uses having moderate or higher usage intensities; and avoids hazardous uses (e.g., aboveground bulk fuel storage)
- Zone 4: Outer Approach/Departure Zone – Prohibits children's schools and hospitals and limits non-residential uses having moderate or higher usage intensities
- Zone 5: Sideline Zone – Prohibits children's schools and hospitals; allows all common aviation-related activities provided that height-limit criteria are met; and limits other non-residential uses having moderate or higher usage intensities

None of the uses identified for the Proposed Project would conflict with the requirements of the zone where the use is proposed. The Proposed Project would not directly or indirectly change any land uses off site.

As noted above, the AELUP uses a policy implementation line, which was adopted by the Orange County Board of Supervisors in 1985 for establishing the Noise Impact Zones. This line is used for assessing consistency with applicable land use guidelines, policies, and regulations related to the 60 and 65 CNEL contours. The 60 and 65 CNEL contours for the Proposed Project would be consistent with the policy implementation line in the AELUP. The Proposed Project would be consistent with the provisions of the JWA AELUP, and no significant impacts would occur.

2016–2040 Regional Transportation Plan/Sustainable Communities Strategy

The 2016–2040 RTP/SCS includes goals and policies applicable to most effectively serving the regional demands for growth, economic development, and providing the associated infrastructure to serve the region. The RTP/SCS recognizes the importance of the airport system in the SCAG region. In the six-county region, passenger and cargo air travel is supported by seven commercial airports with scheduled passenger service, five additional facilities with the infrastructure to accommodate scheduled service, seven active military air fields, and more than forty general aviation airports. Though the RTP/SCS does identify capacity at the key commercial airports in the region, these demand forecasts are focused on the capacity of the airfield and

other constraints. For JWA, the capacity is shown as 12.5 million annual passengers ("MAP"), which is reflective of the Settlement Agreement Amendment. General aviation capacity numbers have been included in the 2016 RTP/SCS. The Proposed Project would not conflict with any of the assumptions in the RTP/SCS for JWA.

In the development of the RTP/SCS, SCAG identified 18 performance measures to analyze existing environmental justice parameters in the region and to address any potential impacts of the 2016 RTP/SCS on the various environmental justice population groups.[11] Performance Measure 12 pertains to aviation noise impacts. The evaluation assessed income levels, disability, age, and race/ethnicity of affected populations of those exposed to adverse effects from aircraft and airport noise. The RTP/SCS discussed the role of the Airport Land Use Commission in each county for ensuring that new noise-sensitive land uses are not allowed near airports. In Orange County this is implemented through the AELUP (see above). Further, the RTP/SCS concluded that given land use controls, noise attenuation programs, jet engine technology, and airline scheduling trends, the noise created by aircraft is forecast to have minimal impact beyond current levels, even out to 2040. The Proposed Project would not substantially change the Airport noise contours or conflict with the aviation assumptions in the RTP/SCS.

In addition to these aviation-specific aspects of the RTP/SCS, the Proposed Project's consistency was evaluated in comparison to the relevant goals adopted in the 2016-2040 RTP/SCS. These goals are broad and reflect what SCAG hopes to achieve in the region by linking the goal of sustaining mobility with the goals of fostering economic development; enhancing the environment; reducing energy consumption; promoting transportation-friendly development patterns; and encouraging fair and equitable access to residents impacted by socioeconomic, geographic, and commercial conditions. The analysis presented in Table 4.6-6 provides an evaluation of the Proposed Project in relation to the applicable goals in the 2016-2040 RTP/SCS. A consistency evaluation of Alternative 1 is also included in Table 4.6-6 to reduce duplication and provide an easy comparison.

[11] SCAG identifies Environmental Justice as being equal and fair access to a healthy environment, with the goal of protecting underrepresented and poorer communities from incurring disproportionate environmental impacts.

TABLE 4.6-6
SCAG 2016–2040 REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY
GOALS CONSISTENCY ANALYSIS

	Proposed Project	Alternative 1
SCAG 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy		
Goals		
RTP/SCS G1 Align the plan investments and policies with improving regional economic development and competitiveness.	This goal is for the RTP/SCS investments and policies to focus on improving the regional economic development. The Proposed Project would improve general aviation facilities at JWA to be responsive to trends in the aviation community. By being responsive to trends in the market, the Proposed Project would utilize limited land area efficiently and economically. The Proposed Project is consistent with this goal.	Alternative 1 is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
RTP/SCS G3 Ensure travel safety and reliability for all people and goods in the region. **RTP/SCS G9** Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.	JWA meets the required security requirements established by federal and state requirements. The Airport is required to have and maintain plans for evacuation, handling of hazardous materials, and emergency response. Infrastructure (e.g., the fire stations and sheriff substation) and personnel (TSA, ICE, OCFA, and OC Sheriff) are all located at the Airport to serve this need. None of the elements of the Proposed Project would conflict with or require modification of current security procedures. The Proposed Project is consistent with these goals.	The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
RTP/SCS G2 Maximize mobility and accessibility for all people and goods in the region. **RTP/SCS G4** Preserve and ensure a sustainable regional transportation system. **RTP/SCS G5** Maximize the productivity of our transportation system.	Given the trends in general aviation toward a decline in single-engine piston airplanes and an increase in turboprop and turbo jet aircraft, the Proposed Project would provide for facilities that serve a share of the regional market demand. This allows the Airport to utilize limited land area efficiently and economically. It would allow the Airport to maximize the use of the facilities for air transportation. The Proposed Project is consistent with these goals.	Alternative 1 is consistent with these goals. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
RTP/SCS G6 Protect the environment and health for our residents by improving air quality and encouraging active transportation (non-	JWA's website provides information on ground transportation (including public buses and trains) and shuttle services that provide service to the airport. Information on bus schedules and regional train service is also provided.	Alternative 1 would not conflict with these goals. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.

TABLE 4.6-6
SCAG 2016–2040 REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY
GOALS CONSISTENCY ANALYSIS

	Proposed Project	Alternative 1
motorized transportation, such as bicycling and walking). **RTP/SCS G8** Encourage land use and growth patterns that facilitate transit and non-motorized transportation.	The Proposed Project does not include any modifications to the surrounding areas that would impede or otherwise change access to transit or active transportation facilities. The Proposed Project does not propose any changes to land uses or actions that would indirectly influence growth patterns or the transit system. The Airport has taken actions to improve air quality through the implemented improvements and programs that reduce air emissions associated with Airport operations. Additionally, the Airport has developed the *John Wayne Airport Climate Action Plan* ("CAP") that includes requirements that would encourage alternative modes of transportation by providing facilities to accommodate bicyclists and also acknowledges the Airport-wide support of transit. MN GHG-1 requires that the general aviation leases incorporate the provisions of the CAP (MN GHG-1 and an analysis of the CAP is provided in Section 4.4, Greenhouse Gas Emissions). The Proposed Project would not conflict with these goals.	
RTP/SCS G7 Actively encourage and create incentives for energy efficiency, where possible.	The Proposed Project would provide new facilities that would meet current Title 24 Energy Efficiency Standards and the *California Green Building Standards* (see RR GHG-1 and RR GHG-2). Additionally, MN GHG-1 requires the Proposed Project to construct new facilities consistent with the requirements of the Airport CAP. These measures would ensure the Proposed Project would maximize energy efficiency. The Proposed Project is consistent with this goal.	Alternative 1 is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.

ICE: U.S. Immigration and Customs Enforcement; JWA: John Wayne Airport; OCFA: Orange County Fire Authority; OC Sheriff: Orange County Sheriff's Department; RTP/SCS: Regional Transportation Plan/Sustainable Communities Strategy; SCAG: Southern California Association of Governments; TSA: Transportation Security Administration

Source: goals taken from 2016–2040 RTP/SCS, SCAG 2016

County of Orange General Plan

The majority Airport is in unincorporated Orange County, and the County of Orange is the lead agency for the Proposed Project.[12] Therefore, the goals and policies of the Orange County General Plan would be the applicable planning program for the Proposed Project. Table 4.6-7 provides an evaluation of the Proposed Project in relation to the applicable goals and policies addressed in the relevant documents previously discussed. A consistency evaluation of Alternative 1 is also included in Table 4.6-7 to reduce duplication and provide an easy comparison.

Other Jurisdictions

As discussed in Section 4.6.3, Methodology, for this Project, the plans and policies of the County of Orange have been used as the basis for making a determination of a significant impact because it is the agency with jurisdiction over the Project. For informational purposes, an evaluation of the Proposed Project's consistency with the goals from the General Plans for the adjacent jurisdictions is provided in Table 4.6-8. Similar to the other consistency evaluation tables, Alternative 1 is also included in Table 4.6-8 to reduce duplication and provide an easy comparison.

[12] A portion of the Airport facilities on the west side of the Airport are within the City of Costa Mesa.

TABLE 4.6-7
COUNTY OF ORANGE GENERAL PLAN
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative 1
Transportation Element		
Goal 5 Manage peak hour traffic congestion to achieve an acceptable level of service (LOS) on existing and future circulation plan facilities in the unincorporated areas of the County.	As discussed in Section 4.8, Transportation/Traffic, the Proposed Project would result in fewer trips than existing Baseline (2016) conditions and would not cause a change in LOS at the study area intersections. All intersections would operate at an acceptable LOS D or better. The Proposed Project is consistent with this goal.	Alternative 1 is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Noise Element		
Policy 5: Noise/Land Use Planning To fully integrate noise considerations in land use planning to prevent new noise/land use conflicts. **Policy 6: Noise Sensitive Land Uses** To identify and employ mitigation measures in order to reduce the impact of noise levels and attain the standards established by the Noise Element, for both interior areas and outdoor living areas for noise sensitive land uses.	Although ten additional residences would be included in the 65 and 70 CNEL contour compared to Baseline (2016) condition, these homes are included in the area covered by the AIP approved in conjunction with the 1985 Master Plan. Additionally, the noise contours for the Baseline (2016) Plus Proposed Project does not exceed the policy implementation line shown in the AELUP for the Noise Impact Zones for JWA. The Proposed Project is consistent with these policies of the General Plan.	Alternative 1 is consistent with these policies. With Alternative 1, the total number of residences exposed to noise levels between the 65 and 70 CNEL contour compared to Baseline (2016) condition would increase by 12 residences. These homes are included in the area covered by the AIP approved in conjunction with the 1985 Master Plan. Additionally, the noise contours for the Baseline (2016) Plus Alternative 1 do not exceed the policy implementation line shown in the AELUP for the Noise Impact Zones for JWA. Alternative 1 is consistent with these policies of the General Plan.
Safety Element		
Goal 2 Minimize the effects of public safety hazards through implementation of appropriate regulations and standards which maximize protection of life and property.	The Proposed Project is consistent with this goal. The Airport is heavily regulated by federal, State, and local regulations. The County has established guidelines consistent with State and federal regulations pertaining to hazardous materials to minimize the risk associated with the use and storage of the hazardous materials. Numerous safeguards are in place that preclude or substantially reduce the likelihood of occurrence or severity of safety hazards. These include physical measures incorporated into the facilities at the Airport or designation of safety zones; as well as	Alternative 1 is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.

TABLE 4.6-7
COUNTY OF ORANGE GENERAL PLAN
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative 1
	Best Management Practices associated with the handling of hazardous materials. The Proposed Project would also correct four non-standard conditions that are present at the Airport under current operations. With the Proposed Project, these conditions would be consistent with FAA design standards.	

AELUP: Airport Environs Land Use Plan; AIP: Santa Ana Heights Acoustical Insulation Program; CNEL: Community Noise Equivalent Level; FAA: Federal Aviation Administration; JWA: John Wayne Airport; LOS: level of service

Source (goals and policies): General Plan 2005, County of Orange 2005, last updated 2015.

TABLE 4.6-8
GENERAL PLAN GOALS AND POLICIES CONSISTENCY ANALYSIS
FOR THE CITIES OF NEWPORT BEACH, IRVINE, AND COSTA MESA

	Proposed Project	Alternative 1
City of Newport Beach General Plan		
Land Use Element		
Policy 6.15.3: Airport Compatibility Require that all development be constructed in conformance with the height restrictions set forth by Federal Aviation Administration ("FAA"), Federal Aviation Regulations ("FAR") Part 77, and Caltrans Division of Aeronautics, and that residential development be located outside of the 65 dBA CNEL noise contour specified by the 1985 JWA Master Plan.	The Proposed Project would construct new facilities that would be designed to be in compliance with FAA height standards. The noise contours for the Baseline (2016) Plus Proposed Project does not exceed the policy implementation line shown in the AELUP for the Noise Impact Zones for JWA and within 65 CNEL noise contour specified by the 1985 JWA Master Plan. As noted above, the additional residences within the 65 to 70 CNEL contour are within the AIP, which was developed to mitigate the impacts associated with the policy implementation line. The Proposed Project is consistent with this policy.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Circulation Element		
Policy CE 3.1.2: Integration of Transportation Systems with Adjoining Communities and the Region Interface with regional and surrounding local agencies, such as Caltrans, OCTA, the County of Orange, John Wayne Airport, the Cities of Irvine, Costa Mesa, and Huntington Beach, and the University of California, Irvine to implement systems that serve the needs of regional travelers in a way that minimizes impacts on Newport Beach residents.	Input was solicited from the adjacent jurisdictions on the methodology used in the Traffic Impact Analysis prepared for this EIR. As discussed in Section 4.8, Transportation/Traffic, the Proposed Project would result in fewer trips than existing Baseline (2016) conditions and would not cause a change in LOS at the study area intersections. All intersections would operate at an acceptable LOS D or better. The Proposed Project is consistent with this policy.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Policy CE 4.1.5: John Wayne Airport Shuttles Encourage the use of airport shuttle services to minimize the impacts of air travelers on the local roadway system.	JWA's website provides information on shuttle service companies that provide service to the Airport. While it is expected that general aviation flyers are less likely to use the shuttle service, the Proposed Project would not preclude the use of shuttle service to/from the Airport.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.

TABLE 4.6-8
GENERAL PLAN GOALS AND POLICIES CONSISTENCY ANALYSIS
FOR THE CITIES OF NEWPORT BEACH, IRVINE, AND COSTA MESA

	Proposed Project	Alternative 1
Policy CE 6.2.1: Alternative Transportation Modes Promote and encourage the use of alternative transportation modes, such as ridesharing, carpools, vanpools, public transit, bicycles, and walking; and provide facilities that support such alternate modes.	JWA's website provides information on ground transportation (including public buses and trains) and shuttle services that provide service to the airport. Information on bus schedules and regional train service is also provided and can be found at www.ocair.com/groundtransportation/default.aspx As indicated above, no changes would occur to the facilities at the Airport that would modify access by these providers. The Proposed Project would not preclude the use of alternative modes of transportation to/from the Airport.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Natural Resources Element		
Goal NR 9 Reduced air pollution emissions from aircraft ground operations at John Wayne Airport. **Policy NR 9.1: Efficient Airport Operations** Work with John Wayne Airport to minimize air pollution generated by stationary and non-stationary sources. **Policy NR 9.2: Aircraft and Equipment Emission Reduction** Work with John Wayne Airport to encourage development and use of reduced emission ground service equipment and transit vehicles.	JWA has developed a climate action plan to establish a framework to minimize GHG emissions. JWA has implemented a number of measures to reduce emissions, such as installing pre-conditioned air and electric power infrastructure for aircraft so that onboard auxiliary power units can be turned off while aircraft are parked at the loading gates. Additionally, the current operation of the Airport has incorporated various measures to reduce air emissions associated with ground support equipment ("GSE"), including working with the airlines to phase in electrification of the GSE equipment. However, these efforts are focused on the commercial carriers where the greatest gains can be achieved. The Proposed Project would continue this effort. MN AQ-2 requires the general aviation FBOs to employ Zero Emission Vehicle ("ZEV") GSE where available for 90 percent or greater of the GSE operating hours (see Section 4.2, Air Quality for MN AQ-2). Therefore, the Proposed Project is working to implement and would be consistent with this goal and related policies.	Alternative 1 is consistent with this goal and related polices. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.

TABLE 4.6-8
GENERAL PLAN GOALS AND POLICIES CONSISTENCY ANALYSIS
FOR THE CITIES OF NEWPORT BEACH, IRVINE, AND COSTA MESA

	Proposed Project	Alternative 1
Safety Element		
Goal S 8 Residents, property, and the environment are protected from aviation-related hazards.	Although these measures do not pose aviation hazards to the residents of Newport Beach, the Proposed Project would correct four non-standard conditions present at the Airport. Three of these conditions pertain to modifications to facilities because they are within the Object Free Area of Runway 2L. The fourth condition would remove two community hangars from the Full Service Southeast FBO to comply with FAA height restrictions. The Proposed Project would correct these non-standard conditions to be consistent with FAA design standards. The Proposed Project would be consistent with this policy.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Policy S 8.5 **Limit John Wayne Airport Expansion** Oppose any facility expansions that would increase air operations at John Wayne Airport, except those described in the Settlement Agreement Extension.	The Proposed Project includes improvements to facilities, which would accommodate an increased number of larger general aviation aircraft. However, with the Proposed Project the number of aircraft based at the Airport and the associated number of general aviation operations would be reduced. The Proposed Project is consistent with this policy.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Policy S 8.6 **John Wayne Airport Traffic Pattern Zone** Use the most currently available John Wayne Airport (JWA) Airport Environs Land Use Plan (AELUP) as a planning resource for evaluation of land use compatibility and land use intensity in areas affected by JWA operations. In particular, future land use decisions within the existing JWA Clear Zone/Runway Protection Zone (Figure S5) should be evaluated to minimize the risk to life and property associated with aircraft operations.	The JWA AELUP reflects the 1985 JWA Master Plan noise contours. The Proposed Project's noise contours are contained within the 1985 JWA Master Plan, and the Proposed Project would not jeopardize the noise-related safeguards provided in the AELUP. No modifications to the AELUP would be required. Additionally, the Proposed Project would correct four non-standard conditions that are present at the Airport under current conditions. The Proposed Project would not require amending the existing JWA Clear Zone/Runway Protection Zone, which is related to safety concerns. The	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.

TABLE 4.6-8
GENERAL PLAN GOALS AND POLICIES CONSISTENCY ANALYSIS
FOR THE CITIES OF NEWPORT BEACH, IRVINE, AND COSTA MESA

<table>
<tr><th></th><th>Proposed Project</th><th>Alternative 1</th></tr>
<tr><td></td><td>Proposed Project would be consistent with this policy.</td><td></td></tr>
<tr><td>Policy H 3.2
Enable construction of new housing units sufficient to meet City quantified goals by identifying adequate sites for their construction. Development of new housing will not be allowed within the John Wayne Airport (JWA) 65 dB CNEL contour, no larger than shown on the 1985 JWA Master Plan.</td><td>The Proposed Project is consistent with this policy. Policy H 3.2 from the Housing Element pertains to new residential development within the City. Specifically, this policy provides for land use protections for future residential development in the Airport Area in order to minimize land use compatibility conflicts. Exhibit 4.7-10 in Section 4.7 shows the 1985 Master Plan contours and the Proposed Project noise contours. Within the City of Newport Beach, the noise contours associated with the Proposed Project encompasses less area than the 1985 Master Plan 65 CNEL contour. Therefore, the Proposed Project would not restrict housing in the Airport Area.</td><td>Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1. Exhibit 4.7-12 in Section 4.7 shows the 1985 Master Plan contours and Alternative 1 noise contours.</td></tr>
<tr><td colspan="3">Noise Element</td></tr>
<tr><td>Policy N 1.8
Significant Noise Impacts; Require the employment of noise mitigation measures for existing sensitive uses when a significant noise impact is identified. A significant noise impact occurs when there is an increase in the ambient CNEL produced by new development impacting existing sensitive uses. The CNEL increase is shown in the table below.

<table><tr><th>CNEL (dBA)</th><th>dBA increase</th></tr><tr><td>55</td><td>3</td></tr><tr><td>60</td><td>2</td></tr><tr><td>65</td><td>1</td></tr><tr><td>70</td><td>1</td></tr><tr><td>Over 75</td><td>Any increase is considered significant</td></tr></table></td><td>The Proposed Project would be consistent with this policy of the General Plan. None of the increases at any of the noise monitoring stations would be greater than the significance threshold. See Table 4.7-8 for the changes in CNEL values compared to the Baseline (2016) at each of the noise monitoring stations.</td><td>Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.</td></tr>
</table>

TABLE 4.6-8
GENERAL PLAN GOALS AND POLICIES CONSISTENCY ANALYSIS
FOR THE CITIES OF NEWPORT BEACH, IRVINE, AND COSTA MESA

	Proposed Project	Alternative 1
Goal N 3 Protection of Newport Beach residents from the adverse noise impacts of commercial air carrier operations at John Wayne Airport as provided in the City Council Airport Policy.	The noise contours associated with the Proposed Project would not exceed the noise contours contained in the 1985 JWA Master Plan, which is the basis for the Settlement Agreement, as amended. The JWA AELUP reflects the 1985 JWA Master Plan noise contours so the Proposed Project would not jeopardize the safeguards provided for in the AELUP. Exhibit 4.7-10 in Section 4.7 shows the 1985 Master Plan contours and the Proposed Project noise contours within the City of Newport Beach. The Proposed Project would be consistent with this goal.	Alternative 1 is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1. Exhibit 4.7-12 in Section 4.7 shows the 1985 Master Plan contours and Alternative 1 noise contours.
Policy N 3.3 Avigation Easement; Consider requiring the dedication of avigation easements in favor of the County of Orange when noise sensitive uses are proposed in the JWA planning area, as established in the JWA Airport Environs Land Use Plan (AELUP).	The Proposed Project would not construct noise-sensitive uses or expand the need for avigation easements. Although the Proposed Project would increase the number of residences in the 65 CNEL contour compared to Baseline (2016), the impacts would not extend beyond the policy implementation line provided in the AELUP. As noted above, avigation easements have been obtained on several of the affected residences. The Proposed Project is consistent with this policy.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Policy N 3.4 Existing Noise Restrictions; Take any action necessary to oppose any attempt to modify the existing noise restrictions, including the existing curfew and the General Aviation Noise Ordinance.	The Proposed Project does not modify the curfew and GANO. As indicated above, the noise contours associated with the Proposed Project are less than those identified in the 1985 JWA Master Plan and the Settlement Agreement. The Proposed Project is consistent with this policy.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Policy N 3.5 Additional Facilities at John Wayne Airport; Take any action necessary to oppose any attempt to construct a second air carrier runway including the acquisition of land necessary to provide required separation of the existing air carrier runway and any proposed facility.	The Proposed Project includes improvements to general aviation services and facilities and does not propose construction of a second air carrier runway. With the Proposed Project, new facilities would be located in generally the same location as the current general aviation facilities. The Proposed Project is consistent with this policy.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.

TABLE 4.6-8
GENERAL PLAN GOALS AND POLICIES CONSISTENCY ANALYSIS
FOR THE CITIES OF NEWPORT BEACH, IRVINE, AND COSTA MESA

	Proposed Project	Alternative 1
Policy N 3.6 Existing Level of General Aviation Operations; Support any plan or proposal that maintains, and oppose any plan or project that proposes any significant changes to the existing level of general aviation operations and general aviation support facilities.	Although the Proposed Project includes new support facilities to serve the general aviation operations at the Airport, the improvements would not significantly change operations. The overall number of based aircraft and their associated number of operations is projected to be reduced with implementation of the GAIP. The Proposed Project is consistent with this policy.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Policy N 3.7 Remote Monitoring Systems; Support preservation or enhancement of the existing remote monitoring systems ("RMS") and the public reporting of the information derived from the RMS.	The Proposed Project would not modify or interfere with the RMS or reporting mechanisms. The Proposed Project is consistent with this policy.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Policy N 3.8 Meeting Air Transportation Demand; Support means of satisfying some of Orange County's air transportation demand at airports other than John Wayne Airport or through alternative means of transportation.	The Proposed Project recognizes that the Airport does not have sufficient capacity to accommodate all of the aircraft that wish to be based JWA. The Proposed Project acknowledges the trend for a reduction in single-engine piston aircraft with an increased demand for business jets. As a result, the Proposed Project would require a component of the general aviation demand be accommodated at other airports in the region. The Proposed Project is consistent with this policy.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Policy N 3.9 John Wayne Airport Amended Settlement Agreement; Take all steps necessary to preserve and protect the validity of the John Wayne Airport Amended Settlement Agreement, including the following: • Oppose, or seek protection from any federal legislative or regulatory action that would or could affect or impair the County's ability to operate John Wayne Airport consistent with the provisions of	The Proposed Project would not influence the Settlement Agreement, as amended. The Settlement Agreement is focused on commercial carrier operations, whereas the GAIP is for general aviation. The Proposed Project is consistent with this policy.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.

TABLE 4.6-8
GENERAL PLAN GOALS AND POLICIES CONSISTENCY ANALYSIS
FOR THE CITIES OF NEWPORT BEACH, IRVINE, AND COSTA MESA

	Proposed Project	Alternative 1
the John Wayne Airport Amended Settlement Agreement or the City's ability to enforce the Amended Settlement Agreement. • Approving amendments of the John Wayne Airport Settlement Agreement to ensure continued validity provided amendments are consistent with the City Council Airport Policy, do not materially impair the quality of life, and are in the long-term best interests of Newport Beach residents. • Continuing to monitor possible amendment of the Airport Noise and Capacity Act of 1990, as well as various FAA Regulations and Advisory Circulars that relate to aircraft departure procedures.		
City of Irvine General Plan		
Circulation Element		
Objective B-1 Policy (c) Develop, on an incremental basis, a vehicular circulation system responding to local and regional access requirements. The following Level of Service (LOS) Standards shall be the goal applied to arterial highways, which are in the City of Irvine or its sphere of influence, and which are under the City's jurisdiction. • LOS "E" or better shall be considered acceptable within the Irvine Business Complex (IBC-PA 36), Irvine Center (PA 33), and at the intersection of Bake Parkway and the I-5 northbound off-ramp.	As discussed in Section 4.8, Transportation/Traffic, the Proposed Project would result in fewer trips than existing Baseline (2016) conditions and would not cause a change in LOS at the study area intersections. All intersections would operate at an acceptable LOS D or better. The Proposed Project is consistent with this policy.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.

TABLE 4.6-8
GENERAL PLAN GOALS AND POLICIES CONSISTENCY ANALYSIS
FOR THE CITIES OF NEWPORT BEACH, IRVINE, AND COSTA MESA

	Proposed Project	Alternative 1
• In conjunction with individual subdivision map level traffic studies for development proposed in Planning Areas 5B, 6, 8A and 9, a LOS "E" standard would be considered acceptable for application to intersections impacted in Planning Areas 13, 31, 32, 34, 35 and 39. • In conjunction with individual subdivision map level traffic studies for development proposed in Planning Areas 30 and 51, a LOS "E" standard would be considered acceptable for application to intersections impacted in Planning Areas 13, 30, 31, 32, 34, 35 and 39.		
Objective B-1 Policy (e) Cooperate with state, county and local governments to assure orderly development. **Objective B-1 Policy (f)** Work with the county, landowners, and other agencies in developing compatible land use and circulation plans for the area northerly of the sphere of influence, recognizing that new development in this area can have a significant impact on the existing City circulation system.	The Airport has coordinated with the City of Irvine and other adjacent jurisdictions as needed throughout the development of the traffic impact analyses. A primary source of traffic forecast data is the Irvine Transportation Analysis Model ("ITAM"), and the recent update to ITAM includes growth for JWA that reflects the 2014 Settlement Agreement Amendment. The Proposed Project is consistent with these objectives.	Alternative 1 is consistent with these objectives. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Objective B-7 Policy (a) Coordinate public and local transit with planning for air transportation.	JWA's website provides information on ground transportation (including public buses and trains) and shuttle services that provide service to the airport. The information can be found at www.ocair.com/groundtransportation/default.aspx. The Proposed Project would not preclude the use of public or local transit use. The Proposed Project is consistent with this objective.	Alternative 1 is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.

TABLE 4.6-8
GENERAL PLAN GOALS AND POLICIES CONSISTENCY ANALYSIS
FOR THE CITIES OF NEWPORT BEACH, IRVINE, AND COSTA MESA

	Proposed Project	Alternative 1
Objective B-7 Policy (b) Support expansion of service at John Wayne Airport as long as all environmental impacts such as noise, air pollution, and traffic congestion can be mitigated.	The Proposed Project is inconsistent with this objective. Based on the analysis, the Proposed Project would result in a potential significant land use compatibility impact that would not be mitigated to a level considered less than significant. Other impacts would all be less than significant.	Alternative 1 is inconsistent with this objective. Alternative 1 would result in a potential significant land use compatibility impact.
Objective B-7 Policy (d) Encourage use of Los Angeles and Ontario International Airports for continental and international flights. Explore commercial airport potential of existing and closing military facilities within Los Angeles, San Bernardino, Riverside and San Diego counties, as well as existing commercial airport and general aviation airports which have expansion potential in order to meet the growing passenger demand on a regional basis. Discourage the development or expansion of airfields which are not now operating as commercial airports, or the expansion of existing commercial airports which would adversely impact existing urban communities.	The RTP/SCS reflects the MAP allocation provided for in the 2014 Settlement Agreement Amendment. The Proposed Project would not change these assumptions. Further, the Proposed Project would not result in the development of additional area not currently being used for aviation activities. As noted above, the Proposed Project would require a component of the general aviation demand be accommodated at other airports in the region. The Proposed Project is consistent with this objective.	Alternative 1 is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Objective B-7 Policy (e) Develop, in cooperation with the City of Newport Beach, an activity center transportation system to alleviate the ground access congestion related to John Wayne Airport.	This objective outlines an action to be taken by the Cities of Irvine and Newport Beach. JWA has encouraged the use of transit, shuttle service, and direct access to/from the JWA remote long-term parking lot to minimize congestion immediately adjacent to the Airport. No provisions in the Proposed Project would preclude a future activity center as a connection point to JWA. The Proposed Project is consistent with this objective.	Alternative 1 is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.

TABLE 4.6-8
GENERAL PLAN GOALS AND POLICIES CONSISTENCY ANALYSIS
FOR THE CITIES OF NEWPORT BEACH, IRVINE, AND COSTA MESA

	Proposed Project	Alternative 1
City of Costa Mesa General Plan		
Land Use Element		
Policy LU-3.13 Prohibit construction of buildings which would present a hazard to air navigation, as determined by the Federal Aviation Administration (FAA).	The Proposed Project does not propose the development of any buildings that are not consistent with FAA standards and, therefore, would not present a hazard to air navigation as determined by the FAA. The Proposed Project is consistent with this objective.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Policy LU-6.3 Continue to prioritize commercial and industrial park use of properties north of I-405 and within the Airport Industrial District.	The Proposed Project does not propose the development of any sensitive land uses, nor would it result in off-site effects that would necessitate the changes of land uses within the city of Costa Mesa in order to maintain land use compatibility. The Proposed Project is consistent with this policy.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Circulation Element		
Policy C-2.8 Continue the use of the Intersection Capacity Utilization (ICU) methodology to address local traffic level of service and impacts, with Level of Service "D" as the threshold for meeting the City's significance criteria.	The Airport has coordinated with the City of Costa Mesa and other adjacent jurisdictions as needed throughout the development of the traffic impact analyses. The analyses use the ICU methodology and the long-range (2035) plans from the City of Costa Mesa when assessing potential impacts. The Proposed Project would not result in any significant impacts to intersections located in Costa Mesa. The Proposed Project is consistent with this policy.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Noise Element		
Policy N-1.6 Discourage sensitive land uses from locating within the 65 CNEL noise contour of John Wayne Airport. Should it be deemed by the City as appropriate and/or necessary for a sensitive land use to locate in the 65 CNEL noise contour, ensure that appropriate interior noise levels are met and that minimal outdoor activities are allowed.	Within the city of Costa Mesa, the Proposed Project would not expand the 65 CNEL contour to include any residential areas or known noise-sensitive uses. Currently, noise-sensitive uses (schools and places of worship) are adjacent to the Airport. This area has been built as office uses, and sound attenuation has been incorporated into the design	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.

TABLE 4.6-8
GENERAL PLAN GOALS AND POLICIES CONSISTENCY ANALYSIS
FOR THE CITIES OF NEWPORT BEACH, IRVINE, AND COSTA MESA

	Proposed Project	Alternative 1
	of the buildings. The Proposed Project is consistent with this policy.	
Policy N-1.7 Support alternative methods for the reduction of noise impacts at John Wayne Airport while continuing to maintain safety and existing limitations on aircraft daily departures.	Noise reduction methods associated with aircraft operations (e.g., changes in flight path or power cutback) are the jurisdiction of the FAA and would not be a consideration of the Proposed Project. The Proposed Project would result in the reduction of general aviation operations, thereby reducing the number of single event noise episodes. The Proposed Project does not conflict with this policy.	Alternative 1 does not conflict with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Goal N-1: Noise Hazards and Conditions The City of Costa Mesa aims to protect residents, local works, and property from injury, damage, or destruction from noise hazards and to work towards improved noise abatement. **Objective N-1A** Control noise levels within the City for the protection of residential areas and other sensitive land uses from excessive and unhealthful noise.	The 65 CNEL contour would not result in new off-site areas in the city of Costa Mesa with incompatible land uses due to aviation noise. The Proposed Project would be consistent with this goal and objective.	Alternative 1 is consistent with this goal and objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Safety Element		
Policy S-1.17 Utilize the John Wayne Airport Environs Land Use Plan (AELUP) as a planning resource for evaluation of land use compatibility and land use intensity in areas affected by airport operations. In particular, future land use decisions within the Safety/Runway Protection Zone will be evaluated in light of the risk to life and property associated with aircraft operations.	The noise contours associated with the Proposed Project would not exceed the noise contours contained in the JWA AELUP. Therefore, no modification to the AELUP would be required, and the AELUP would continue to be an effective tool for future land use decisions with regard to noise and safety as it pertains to the Airport. The Proposed Project would be consistent with this policy.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.

TABLE 4.6-8
GENERAL PLAN GOALS AND POLICIES CONSISTENCY ANALYSIS
FOR THE CITIES OF NEWPORT BEACH, IRVINE, AND COSTA MESA

	Proposed Project	Alternative 1
Policy S-1.18 Comply with Federal Aviation Regulations (FAR) and the John Wayne AELUP requirements relative to Objects Affecting Navigable Airspace.	The Proposed Project would correct four current non-standard conditions that exist at the Airport, one of which pertains to aircraft parked in an Object Free Area for Runway 2L. The Proposed Project would be consistent with this policy.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Policy S-1.19 Use the Federal Aviation Regulations as a guideline to establish the ultimate height of structures as defined in FAR Part 77.	The Proposed Project would be required to comply with the height of structures in compliance with FAR Part 77 (see RR AES-1). The Proposed Project would be consistent with this policy.	Alternative 1 is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
Policy S-1.20 Minimize hazards to aeronautical operations by ensuring land uses do not emit excessive glare, light, steam, smoke, dust, or electronic interference in compliance with FAR regulations and the John Wayne AELUP.	The Proposed Project would be required to comply with the lighting requirements in compliance with FAR Part 77 to minimize potential light and glare (see RR AES-1). The Proposed Project would be consistent with this policy.	Alternative 1 is consistent with these policies. The consistency analysis presented for the Proposed Project would be applicable to Alternative 1.
AELUP: Airport Environs Land Use Plan; AIP: Santa Ana Heights Acoustical Insulation Program; CNEL: Community Noise Equivalent Level; FAA: Federal Aviation Administration; FAR: Federal Aviation Regulations; FBOs: fixed based operators; GAIP: General Aviation Improvement Program: GANO: General Aviation Noise Ordinance; GSE: ground service equipment; ICU: Intersection Capacity Utilization; ITAM: Irvine Transportation Analysis Model; JWA: John Wayne Airport; LOS: level of service; MAP: million annual passengers; OCTA: Orange County Transportation Authority; RTP/SCS: Regional Transportation Plan/Sustainable Communities Strategy; RMS: remote monitoring system Sources (goals and policies): City of Newport Beach General Plan, Newport Beach 2006; The City of Irvine General Plan, Irvine 1999, last updated 2015; 2015-2035 General Plan, Costa Mesa 2016.		

Impact Conclusion: *The Proposed Project would result in a reduction in the number of general aviation aircraft that could be based at the Airport. The reduction would be 242 fewer aircraft parking spaces compared to current capacity and 128 fewer aircraft parking spaces compared to the number of currently used aircraft parking spaces at the Airport. Although this would be perceived as adverse to the general aviation community, it would not be a significant environmental impact under Threshold 4.6-1*.

The Proposed Project would result in 10 residential units being exposed to noise levels in excess of 65 CNEL compared to the Baseline (2016) condition. Avigation easements have been obtained for seven of these units and therefore, land use compatibility impacts are less than significant. For the remaining three units, the noise exposure would potentially result in interior and exterior noise levels in excess of policies adopted to avoid or mitigate an environmental effect. This has been identified as a significant land use compatibility impact. However, this impact has been identified in previous studies done for the Airport so it is not a new land use compatibility impact. These residences are located within the policy implementation line used in the AELUP for establishing the Airport Noise Impact Zones. Final EIR 508 certified in conjunction with the 1985 Master Plan and Final EIR 617 certified for the adoption of the 2014 Settlement Agreement Amendment identified significant unavoidable land use compatibility impacts because noise-sensitive uses would be located in an area exposed to future noise levels of 65 CNEL or greater. Although the Board of Supervisors has already made a finding addressing this issue, it is being identified as a significant impact under Threshold 4.6-1 to ensure it is understood that the Proposed Project would result in three residential units not currently in the Baseline (2016) 65 CNEL contour now being identified as incompatible.

Alternative 1

Compatibility with On-Site Land Uses

Alternative 1 improvements would not introduce any uses that would be incompatible with the current general aviation functions at the Airport because, as with the Proposed Project, the type of improvements (i.e., FBOs, hangars, and tie-downs) are consistent with the type of uses currently on site. The portion of the Airport dedicated to general aviation uses would not substantially change. The only reduction in overall area for general aviation uses would be associated with the removal of transient aircraft apron parking in the OFA for Runway 2L. This is a correction of a non-standard condition. As previously noted, the removal of the 31 transient parking spaces in this area would not change the number of based aircraft at the Airport because it is used for transient parking only.

The facilities proposed in Alternative 1 recognize the trend toward the reduction of small single-engine fixed-wing piston aircraft and an increase in turboprops and business/private jets and proposes facilities to accommodate this trend. However, this would result in a reduction in the overall number of aircraft that could be accommodated at JWA. Table 4.6-9 shows the reduction in capacity for general aviation aircraft of Alternative 1 compared to the current capacity and the number of aircraft parking spaces currently being used at the Airport.

TABLE 4.6-9
NUMBER OF AIRCRAFT PARKING POSITIONS LOST
FOR ALTERNATIVE 1

Facility	Change in Aircraft Parking Spaces (+/-)	
	Compared to Capacity	Compared to Currently Used
Tie-Down Apron	-183	-103
T-Hangars	3	3
Box Hangars (includes OCSD)	-40	-40
FBO/Community Hangars	39	39
Shade Structures	-66	-66
FBO Apron Spaces	7	41
Total	**-240**	**-126**

Note: The type and size of aircraft parked at an FBO facility may vary based on demand and can change frequently; therefore, the actual number and type of aircraft at the Airport may differ from what is shown in this table.

Source: AECOM 2018

The type of aircraft that would be most affected by the reduction in general aviation capacity would be the single-engine fixed-wing piston aircraft. Table 4.6-10 shows the projected change in the number of aircraft based on the facilities proposed by Alternative 1.

TABLE 4.6-10
CHANGE IN NUMBER OF BASED AIRCRAFT BY TYPE
ALTERNATIVE 1

Year	Fixed Wing Piston[a]		Fixed Wing Turbine		Helicopter	Total Based Aircraft
	Single Engine	Multi-Engine	Turboprop	Turbo Jet		
2016	339	35	26	65	17	**482**
2026[b]	200	37	26	76	17	**356**
Change in the Number of Aircraft Accommodated	-139	2	0	11	0	**-126**

Note: Numbers may not add up due to rounding.

[a] The based aircraft totals for single-engine include one glider.

[b] Assume four existing single-engine piston aircraft would park at the vacant spaces for multi-engine piston aircraft and fill up capacity.

Source: AECOM 2018.

As with the Proposed Project, the loss of aircraft parking spaces may be perceived as adverse because it reduces the overall capacity at the Airport; however, it would not result in an incompatible land use or conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. The Airport is committed to maintaining general aviation uses; however, there are no requirements that establish a minimum or maximum amount of general aviation. JWA would continue to serve general aviation uses. The aircraft are accommodated on the Airport through lease agreements, which have established expiration dates or provisions for cancelation of the lease. Therefore, the reduction in the overall number of aircraft based at JWA would not result in a significant environmental impact.

Displaced aircraft can be accommodated elsewhere in the region. As noted above, Fullerton Municipal Airport and Long Beach Airport have sufficient capacity to accommodate the displaced aircraft.

Implementation of Alternative 1 would not affect operations at the non-general aviation (commercial) services or facilities at the Airport. Impacts to on-site land use are less than significant, and no mitigation is required.

Construction Impacts

Construction of Alternative 1 would be phased to minimize disruption to Airport operations and minimize the need to temporarily relocate based aircraft to other airports in the region. Exhibit 3-5a depicts the 15 primary construction phases, while Exhibit 3-5b provides a corresponding listing of the improvements identified for each task. Given the space limitations on the Airport, small segments of work would need to be conducted at a single time in order to minimize disruptions. During construction, current users of the general aviation facilities (i.e., FBOs and aircraft owners) would need to be temporarily relocated either to alternative locations on the Airport or to other airports in the region while each area on the Airport is under construction. The timing and precise number of aircraft that may need to relocate to other airports in the region cannot be known at this time. It will be a factor of the precise design of the improvements and number of aircraft based at the Airport at the time. As discussed above, aircraft are accommodated on the Airport through lease agreements, which have established expiration dates or provisions for cancelation of the lease. Therefore, the need to relocate the number of aircraft during construction would not result in a significant environmental impact.

Potential short-term, construction-related land use compatibility issues related to air quality, noise, and traffic are discussed in Sections 4.2, 4.7, and 4.8, respectively, of this Program EIR.

Compatibility with Surrounding Land Uses

The increased number of sensitive receptors and physical area projected to occur in the 65 to 70 CNEL contour with Alternative 1 is identified in Table 4.6-4, provided above. As shown in Table 4.6-5, when compared to the Baseline (2016) noise contours, the total contour area between 65 and 70 CNEL would increase by 0.01 square mile (0.6 percent). The area exceeding 70 CNEL will increase by 0.01 square mile (0.7 percent) over Existing conditions. Alternative 1 would not result in any additional schools, hospitals, or places of worship being included in the 65 CNEL or greater contour. The incremental increase in the 65 to 70 CNEL contour would result in 12 residential parcels being exposed to noise levels in excess of the threshold established for compatibility. However, as noted above, use of attenuation and avigation easements may reduce

potential impacts to less than significant. Exhibit 4.7-11 in Section 4.7, Noise, provides a comparison of the Baseline (2016) 60, 65, 70 and 75 CNEL contours and the projected contours with Alternative 1. Of the additional 12 units included in the 65 to 70 CNEL contour:

- Six multi-family units are non-conforming uses (residential use in a business park zone), and a prescriptive avigation easement has been acquired.
- Two units have received acoustical insulation, and an avigation easement has been acquired.
- One unit has participated in the purchase assurance program and received insulation, and an avigation easement was acquired.
- One unit declined the offer of acoustical insulation.
- A genuine effort to offer insulation to two units was made but no response was received.

Similar to the Proposed Project, for the nine residential units with avigation easements, the impacts would be less than significant because mitigation has been provided to the conforming uses (i.e., those in a residential land use designation); and the avigation easement was granted for all nine of the units. The other three residential units have a potential for incompatibility due to excessive interior and exterior noise levels. Residences with outdoor living areas exposed to a greater than 65 CNEL would be incompatible with the County's exterior noise standard. Therefore, the 65 CNEL contour expanding beyond the existing contour and including additional residences would be a significant land use compatibility impact.

As noted above, these uses are all within the 65 CNEL contour from the 1985 Master Plan, which the AELUP uses as a policy implementation line for establishing the Airport Noise Impact Zones. Additionally, in 2014 when Final EIR 617 was prepared for the Settlement Agreement Amendment, this area was again identified as being in a future (2026) 65 CNEL contour due to the increased commercial carrier flights.

These units would continue to be eligible for consideration of attenuation measures through the SIP adopted as part of Final EIR 617 if they fall within the 65 CNEL contour due to the increased commercial carrier flights in 2026 as projected in Final EIR 617. However, Final EIR 617 identified a significant unavoidable impact because until interior noise measurements are taken after the increase in commercial carrier flights at the Airport, as projected in Final EIR 617, it cannot be determined if all the noise-sensitive uses with interior noise levels in excess of 45 CNEL would qualify for sound attenuation based on FAA criteria. Although the Board of Supervisors has already made a finding addressing this issue, it is being identified as a significant impact to ensure the decision-makers understand that Alternative 1 would result in three residential units not currently in the Baseline (2016)65 CNEL contour now being identified as incompatible.

Policy Consistency Analysis

The policy consistency analysis provided for the Proposed Project would also be applicable to Alternative 1.

Impact Conclusion: *Alternative 1 would result in a reduction in the number of general aviation aircraft that could be based at the Airport. The reduction would be 240 fewer aircraft parking spaces compared to current capacity and 126 fewer aircraft parking spaces compared to the number of currently used spaces at the Airport. Although this would be perceived as adverse to the general aviation community, it would not be a significant environmental impact under Threshold 4.6-1.*

Alternative 1 would result in 12 residential units being exposed to noise levels in excess of 65 CNEL compared to the Baseline (2016) condition. Avigation easements have been obtained for nine of these units and therefore, land use compatibility impacts are less than significant. . For the remaining three units, the noise exposure would potentially result in interior and exterior noise levels in excess of policies adopted to avoid or mitigate an environmental effect. This has been identified as a significant land use compatibility impact. However, this impact has been identified in previous studies done for the Airport so it is not a new land use compatibility impact. These residences are located within the policy implementation line used in the AELUP for establishing the Airport Noise Impact Zones. Final EIR 508 certified in conjunction with the 1985 Master Plan and Final EIR 617 certified for the adoption of the 2014 Settlement Agreement Amendment identified significant unavoidable land use compatibility impacts because noise-sensitive uses would be located in an area exposed to future noise levels of 65 CNEL or greater. Although the Board of Supervisors has already made a finding addressing this issue, it is being identified as a significant impact under Threshold 4.6-1 to ensure it is understood that Alternative 1 would result in three residential units not currently in the Baseline (2016) 65 CNEL contour now being identified as incompatible.

4.6.8 CUMULATIVE IMPACTS

The Proposed Project and Alternative 1 would result in a significant land use impact under Threshold 4.6-1 because it would result in three residential units not currently in the Baseline (2016) 65 CNEL contour now being identified as incompatible due to noise (i.e., in the 65 CNEL contour). This is a conservative approach to the impact assessment because the provisions of Title 21 do indicate that if the airport proprietor has made a genuine effort to provide attenuation, the residential use can be assessed as compatible (this is further discussed in Section 4.6.2).

The Proposed Project and Alternative 1 would also result in the displacement of general aviation aircraft from the Airport; however, this was not identified as a significant environmental impact. The potential for cumulative effect for both of these impacts is discussed below.

From a cumulative perspective, the additional commercial flights approved as part of the 2014 Settlement Agreement Amendment would contribute to an increase in noise levels in future years for the area surrounding the Airport. This area would be the same area affected by the GAIP (Proposed Project and Alternative 1); therefore, these two projects would have the potential for a cumulative noise increase resulting in a land use compatibility impact.

Although the *Noise Analysis Technical Report* did not identify a cumulative noise impact (i.e., the cumulative noise increase would not exceed the noise thresholds) when compared to the Baseline (2016) noise levels, the size of the 65 CNEL and greater noise contours would be larger. However, the increase in the size of the contours is as a result of the future increased commercial carrier operations approved as part of the 2014 Settlement Agreement Amendment.[13] As discussed in Section 4.7 of this Program EIR and supported by the *Noise Analysis Technical Report,* the GAIP (the Proposed Project and Alternative 1) would not contribute substantial noise associated with the cumulative scenario, as demonstrated by the GAIP's small incremental noise increase shown in Table 4.7-8, which quantifies the noise increase directly attributable to the GAIP. Therefore, the GAIP's (Proposed Project and Alternative 1) contribution to cumulative noise would be less than significant.

Table 4.7-12 in the Noise Section, identifies four NMSs (1S, 2S, 3S and 8N) that would exceed the 65 CNEL in 2026.[14] However, it should be noted, these NMS exceed the 65 CNEL level in the Baseline (2016), as well as with the Proposed Project, Alternative 1, and No Project scenarios. The 65 CNEL contour is used to assess potential land use compatibility impacts. The land uses surrounding NMS 8N are not considered noise-sensitive uses; therefore, there would not be land use compatibility concerns adjacent to this NMS. Additionally, although the noise level at NMS 1S exceeds the 65 CNEL standard, the projected values in 2026 are less than the Baseline (2016) value.[15] A discussion on the potential for incompatible land uses from this cumulative increase in noise is provided below.

Table 4.6-11 identifies the changes in the greater than 65 CNEL contours for the Baseline (2016) and future (2026) cumulative scenarios. The table identifies the number of noise-sensitive uses, which allows a comparison to the Baseline (2016) condition, as well as to the future No Project Alternative. Compared to the Baseline (2016), with the cumulative scenario, there would be an increase of 0.6 square mile of area in the 65 CNEL contour for the Proposed Project and Alternative 1, and a 0.7 square mile increase with the No Project Alternative.[16] As shown, the cumulative increase is virtually the same for all the scenarios, which demonstrates that the increased area is substantially associated with the increased commercial carrier operations

[13] A discussion of the 2015 changes to the noise monitoring equipment and associated parity study is provided in Section 4.7.4. Additionally, it should be noted that the FAA model used for calculating the noise impacts in this DEIR is different than the model used in Final EIR 617 (see Section 4.7.3).

[14] The locations of the NMS are depicted in Exhibit 4.7-7. NMS 1S, 2S, and 3S are all located south of the Airport in the City of Newport Beach. NMS 8N is located in the City of Irvine.

[15] As discussed in Section 4.7.8, the cumulative noise analysis take into account an increase in the use of the Boeing 737-MAX and Airbus A320-NEO families. These aircraft families include substantial noise reduction features and are beginning to operate at JWA now and are projected to continue to operate in increasing numbers at the Airport in the future.

[16] The comparable data is provided in Table 4.6-4 for the Baseline (2016) Plus Future (2026) GAIP alternative scenarios (Proposed Project, Alternative 1, and No Project Alternative. This allows the increased noise associated with the GAIP to be isolated separate from the future growth in commercial carrier operations approved as part of the 2014 Settlement Agreement. Table 4.7-8 also provides the change in noise levels at each of the NMS for the Baseline (2016) Plus Future (2026) GAIP alternative scenarios (Proposed Project, Alternative 1, and No Project Alternative.

(2014 Settlement Agreement Amendment). The increased size of the contour will result in an increase in the number of residential units exposed to noise levels in excess of 65 CNEL. The change in the area in the greater than 70 CNEL contour (approximately 0.86 square mile) would also be substantially associated with commercial carrier operations. As shown in Table 4.6-11, a decrease in the size of the contour is projected when compared to the Baseline (2016) condition. This is due to the increased usage of aircraft that provide substantial noise reduction features by 2026 (see discussion in Section 4.7.8).

TABLE 4.6-11
LAND USES WITHIN THE CUMULATIVE (2026)
65 CNEL AND GREATER NOISE CONTOURS

CNEL	Baseline (2016)	Future (2026) No Project	Future (2026) Proposed Project	Future (2026) Alternative 1
Total Contour Area (sq. mi.)				
65-70	1.49	1.56	1.55	1.55
>70	0.91	0.86	0.86	0.86
Number of Schools				
65-70	0	0	0	0
>70	0	0	0	0
Number of Hospitals				
65-70	0	0	0	0
>70	0	0	0	0
Number of Places of Worship				
65-70	3	2	2	2
>70	1	1	1	1
Total Number of Dwelling Units				
65-70	247	273	274	276
>70	0	2	2	2
Total Number of Dwelling Units in the Airport Implementation Program Area				
65-70	247	271	272	274
>70	0	0	0	0
Total Number of Dwelling Units Outside of the Airport Implementation Program Area				
65-70	0	2	2	2
>70	0	0	0	0

[a] Multifamily unit impacts are calculated by multiplying the area (acres) in the multifamily complex impacted by the contour band by the total number of dwelling units per acre in the complex.

Source: Data taken from Landrum & Brown 2018

Based on the cumulative noise levels, there would be an increase in the number of units in the 65 to 70 CNEL contour when compared to the Baseline (2016) condition. Under the cumulative scenario the number of units in the 65 to 70 CNEL contour increases by 27 units for the Proposed

Project, 29 units for Alternative 1,[17] and 26 units for the No Project Alternative, when compared to the Baseline (2016). All but two of these units are located within the AIP Area from the 1985 Master Plan (these units are discussed below). For the units in the AIP that have received sound attenuation, the land use impacts would be less than significant. However, similar to the GAIP impacts identified under Threshold 4.6-1 for both the Proposed Project and Alternative 1, there are residential units where the homeowner has been offered sound attenuation, although it has not been implemented for any variety of reasons. In these cases, the noise exposure would potentially result in interior and exterior noise levels in excess of policies adopted to avoid or mitigate an environmental effect. For these units there would be a significant cumulative land use compatibility impact. As previously noted, this impact has been identified in previous studies done for the Airport so it is not a new land use compatibility impact. All but two of these residences are located within the policy implementation line used in the AELUP for establishing the Airport Noise Impact Zones. Final EIR 508 certified in conjunction with the 1985 Master Plan and Final EIR 617 certified for the approval of the 2014 Settlement Agreement Amendment identified significant unavoidable land use compatibility impacts because noise-sensitive uses would be located in an area exposed to future noise levels of 65 CNEL or greater. Although the Board of Supervisors has already made a finding addressing this issue, it is being identified as a cumulative significant impact.

As noted above, there are two parcels in the 2026 65 CNEL contour that are outside of the AIP. These units have not been offered sound attenuation. However, the 65 CNEL contour from the 1985 Master Plan, which was the basis for the AIP, extended along the edge of the two parcels. They were not included in the AIP because the livable areas (i.e., the houses and backyards) were not in the 65 CNEL contour. This condition remains unchanged (i.e., both the 1985 and the projected 2026 65 CNEL contour line for the Proposed Project, Alternative 1, and the No Project Alternative do not include areas that would be considered a habitable room or outdoor living areas based on the General Plan). Only the periphery of these long parcels would be affected. Because the living areas would not be exposed to the projected cumulative 65 CNEL contour, there would not be a land use compatibility impact based on the Orange County General Plan standard for either the Proposed Project or Alternative 1 (see Table 4.6-1).

There would also be two units in the greater than 70 CNEL contour. Both of these residences received sound insulation through the AIP and avigation easements have been recorded. Therefore, these two residences would not be identified as incompatible uses.

The SIP, adopted in conjunction with the 2014 Settlement Agreement Amendment, provides for noise-sensitive uses to be evaluated and if interior noise levels are in excess of applicable standards, the SIP would be implemented to achieve interior noise levels consistent with County standards. This measure, which has already been adopted by the Board of Supervisors, would address the potential cumulative land use impact identified above, However, when recommending the SIP as a mitigation measure for the 2014 Settlement Agreement Amendment, Final EIR 617 identified due to the FAA requirements, the average interior noise level must exceed 45 CNEL or insulation would not be allowed. As result, there may be some portions of the habitable portions of residential units with noise levels in excess of 45 CNEL but if the average noise levels in rooms is less than 45 CNEL, mitigation would not be feasible.

[17] The additional units impacted by Alternative 1 is due to how impacts on a multifamily complex is calculated. The differences between the No Project and Alternative 1, compared to the Proposed Project is due to rounding.

Although in the cumulative condition, there would be a potential significant land use compatibility impact for interior noise levels, a more detailed review of the data was done to determine the GAIP contribution to the cumulative impacts. The evaluation compared the increase in sensitive land uses using the 2026 data with the GAIP (Proposed Project and Alternative 1) to the 2026 No Project Alternative. This allows the GAIP's contribution to the cumulative impacts to be isolated. As noted above, in the 2026 cumulative scenario, the Proposed Project would result in one additional residence (a single-family residence) being exposed to noise levels in excess of 65 CNEL. Alternative 1 would result in three additional residences in the 65 CNEL (one single-family residence and two multi-family units). However, an avigation easement has been recorded on the additional single-family residence identified for both the Proposed Project and Alternative 1.[18] A prescriptive avigation easement has been acquired for the entire multifamily development area where the two multifamily units are located; which is a non-conforming use. As noted above, for the units that have received sound attenuation and/or there is an avigation easement, the land use impacts would be less than significant. Therefore, based on this evaluation, the incremental effect of the GAIP (Proposed Project and Alternative 1) would not be cumulatively considerable.[19]

Similarly, the land area in the 65 CNEL or greater, is not projected to increase as a result of the GAIP. As shown in Table 4.6-11, the increased area within the 65-70 CNEL contour for the No Project Alternative and Alternative 1 is the same, and the increased area for the Proposed Project is slightly less than the No Project Alternative. Therefore, although a significant unavoidable cumulative land use compatibility impact is identified, the GAIP is not substantially contributing to the cumulative impact.

As shown in Table 4.6-11, for all the scenarios (Baseline 2016, Proposed Project, Alternative 1, and the No Project Alternative), no schools/educational facilities would be located in the 65 CNEL or greater contour. Therefore, there would be no significant land use impacts on schools/educational facilities.

Places of worship are also a noise sensitive land use. As shown in Table 4.6-11, under the Baseline (2016) there would be places of worship in the 65 to 70 CNEL contour and one in the greater than 70 CNEL contour. In the Cumulative (2026) scenarios (Proposed Project, Alternative 1, and the No Project Alternative), the number of places of worship in the 65 CNEL or greater contour is reduced compared to the Baseline (2016) condition. Therefore, no significant cumulative impact on places of worship are anticipated. The reduction is because of increased usage of the MAX and NEO aircraft in the cumulative (2026) scenario. The MAX and NEO aircraft are quieter on departure; therefore, the contours are narrower when compared to the Baseline (2016).

The second, though less than significant, land use impact pertains to the displacement of general aviation aircraft from the Airport. None of the other cumulative projects would result in a loss of

[18] As noted above, multifamily unit impacts are calculated by multiplying the area (acres) in the multifamily complex impacted by the contour band by the total number of dwelling units per acre in the complex. The entire multifamily development has a prescriptive avigation easement

[19] Section 15065(a)(3) of the CEQA Guidelines defines cumulatively considerable as, ". . . the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects."

general aviation spaces; therefore, there would be no cumulative loss of general aviation aircraft parking spaces.

4.6.9 MITIGATION PROGRAM

The SIP adopted by the Board of Supervisors in 2014 would serve to mitigate land use compatibility impacts associated with noise for the Proposed Project and Alternative 1. However, until interior noise measurements are taken after the year 2026 when there will be an authorized increase in the number of commercial carrier flights at the Airport, as projected in Final EIR 617, it cannot be determined if all the noise-sensitive uses with interior noise levels in excess of 45 CNEL would qualify for sound attenuation based on FAA criteria. No additional mitigation measures are feasible.

4.6.10 LEVEL OF SIGNIFICANCE AFTER MITIGATION

With the GAIP (Proposed Project and Alternative 1) there would be three residential units that would be included in the future (2026) cumulative 65 CNEL contour that do not have avigation easements and have not received (although they were offered) attenuation through the AIP to ensure interior noise levels do not exceed 45 CNEL. Additionally, potential significant cumulative land use impacts associated with the future commercial carrier operations have been identified. However, the SIP adopted in conjunction with 2014 Settlement Agreement Amendment would provide sound attenuation for the noise sensitive land uses that would be affected by the increased commercial carrier operations. Because the three units affected by the GAIP are also included in the number of residential units that may be exposed to cumulative impacts, the SIP would serve as mitigation for both direct and cumulative impacts. However, until interior noise measurements are taken after 2026 when the GAIP is fully implemented and the commercial activity increases at the Airport, it cannot be determined if all the noise sensitive uses with interior noise levels in excess of 45 CNEL would qualify for sound attenuation based on FAA criteria. Given the uncertainty that this measure is feasible to adequately reduce interior noise levels at all potentially impacted uses, these impacts have been determined to be significant and unavoidable.

Impacts associated with displaced aircraft would be less than significant for both direct and cumulative scenarios.

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4.7 NOISE

This section discusses potential General Aviation Improvement Program ("GAIP")-related impacts to the human noise environment in the vicinity of John Wayne Airport ("JWA" or "the Airport"). The noise analysis in this section is based on the *John Wayne Airport General Aviation Improvement Program Noise Analysis Technical Report* prepared by Landrum & Brown and included in this Program EIR as Appendix H (Landrum & Brown 2018). The Technical Report includes definitions, acronyms, and large data tables that are not repeated in this section.

As discussed in Section 2.3.2, the thresholds pertaining to vibration and projects in proximity to an airstrip were focused out of this Program EIR at the time the Notice of Preparation was issued (refer to the Notice of Preparation ["NOP"]/Initial Study in Appendix A).

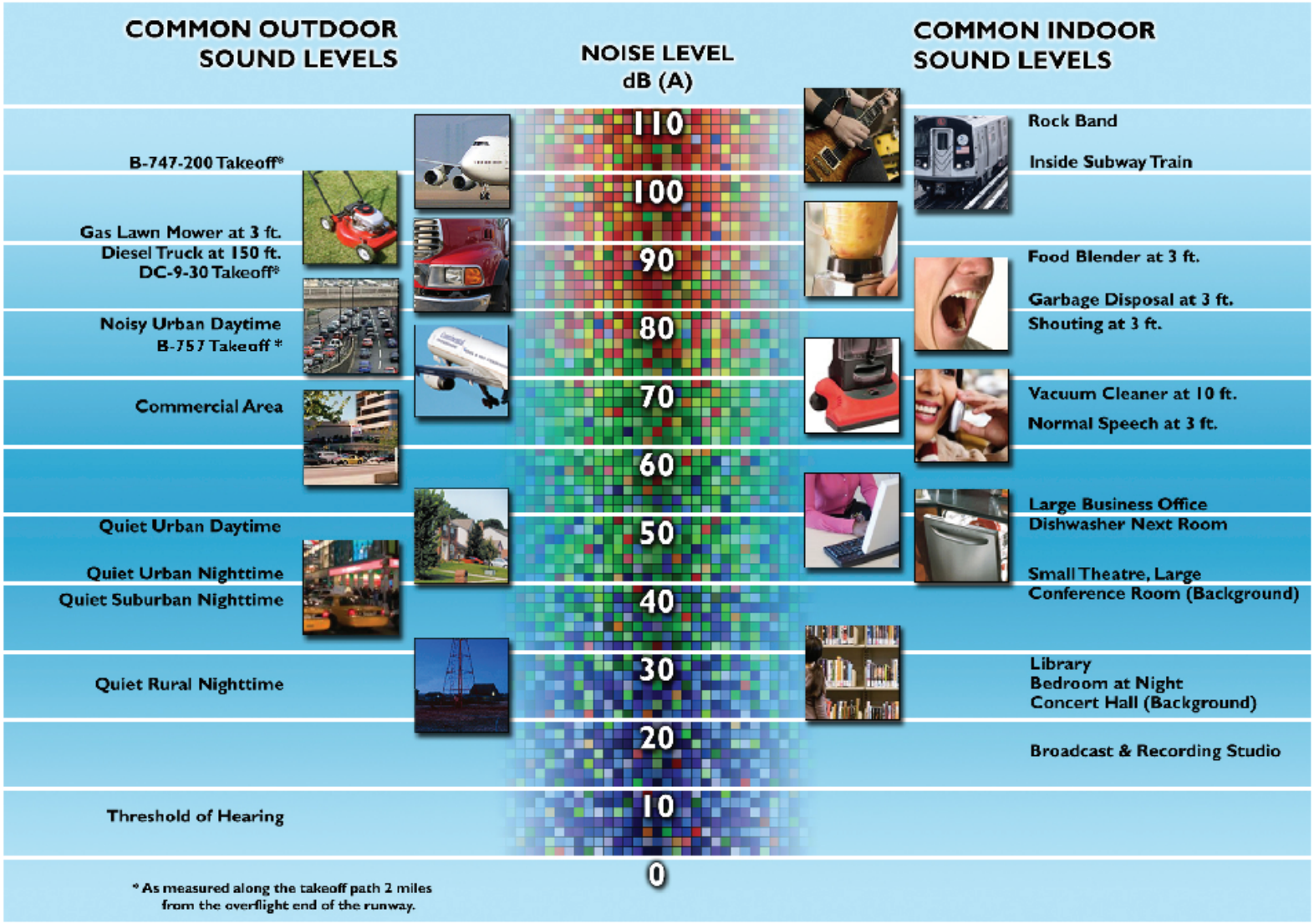
4.7.1 BACKGROUND

Sound can be described in terms of the sound pressure (amplitude) and frequency (similar to pitch). Sound pressure is a direct measure of the magnitude of a sound without consideration for other factors that may influence its perception. The range of sound pressures that occur in the environment is so large that it is convenient to express these pressures on a logarithmic scale that compresses the wide range of sound pressures to a more usable range of numbers. The standard unit of measurement of sound is the decibel ("dB"), which describes the pressure of a sound relative to a reference pressure.

The frequency (pitch) of a sound is expressed as Hertz ("Hz") or cycles per second. The normal audible frequency for young adults is 20 Hz to 20,000 Hz. Community noise, including aircraft and motor vehicles, typically ranges between 50 Hz and 5,000 Hz. The human ear is not equally sensitive to all frequencies, with some frequencies judged to be louder for a given signal than others. As a result of this, the A-weighted decibel scale ("dBA") was developed to approximate the sensitivity of the human ear. In the A-weighted decibel, everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). Examples of various sound environments, expressed in dBA, are presented in Exhibit 4.7-1.

Outdoor sound levels decrease as the distance from the source to the receiver increases. This decrease in sound level is a result of wave divergence, atmospheric absorption, and ground attenuation. Sound radiating from a source in an undisturbed manner travels in spherical waves. As the sound wave travels away from the source, the sound energy is dispersed over a greater area, decreasing the sound power of the wave. Spherical spreading of the sound wave reduces the noise level at a rate of 6 dB per doubling of the distance.

Atmospheric absorption also influences the sound levels received by the observer. The greater the distance traveled, the greater the influence of the atmosphere and the resultant fluctuations. Atmospheric absorption becomes important at distances of greater than 1,000 feet. The degree of absorption varies depending on the frequency of the sound as well as the humidity and temperature of the air. In addition to atmospheric absorption, aircraft noise can also be affected by the physical properties of the surrounding terrain.



Source: Landrum & Brown, 1974

Typical A-Weighted Noise Levels

Exhibit 4.7-1

John Wayne Airport General Aviation Improvement Program

JOHN WAYNE AIRPORT ORANGE COUNTY

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Duration of Sound. Annoyance from a noise event increases with its duration. The "effective duration" of a sound is the time between when a sound rises above the background sound level until it drops back below the background level.

The relationship between duration and noise level is the basis of the equivalent energy principle of sound exposure. Reducing the acoustic energy of a sound by one half results in a 3-dB reduction in total energy. Doubling the duration of the sound increases the total energy of the event by 3 dB. This equivalent energy principle is based upon the premise that the potential for a noise to impact a person is dependent on the total acoustical energy content of the noise.

Change in Noise. The human ear is a far better detector of relative differences in sound levels than absolute values of levels. Under controlled laboratory conditions, when listening to a steady, unwavering pure tone sound that can be changed to slightly different sound levels, a person can just barely detect a sound level change of approximately 1 decibel for sounds in the mid-frequency region. When ordinary noises are heard, a young, healthy ear can detect changes of 2 to 3 decibels. A 5-dB change is readily noticeable, while a 10-dB change is judged by most people as a doubling or a halving of the loudness of the sound. It is typical in environmental documents to consider a 3-dB change as potentially discernible.

Masking Effect. The ability of one sound to limit a listener from hearing another sound is known as the masking effect. The presence of one sound effectively raises the threshold of audibility for the hearing of a second sound. For a signal to be heard, it must exceed the threshold of hearing for that particular individual and exceed the masking threshold for the background noise.

The masking characteristics of sound depend on many factors, including the frequency characteristics of the two sounds, the sound pressure levels, and the relative start time of the sounds. Masking effect is greatest when the frequencies of the two sounds are similar or when low frequency sounds mask higher frequency sounds. High frequency sounds do not easily mask low frequency sounds.

Human Response to Noise. Many factors influence sound perception and annoyance. This includes not only physical characteristics of the sound but also secondary influences such as sociological and external factors. These factors are summarized in Table 4.7-1.

TABLE 4.7-1
FACTORS THAT AFFECT INDIVIDUAL ANNOYANCE TO NOISE

Primary Acoustic Factors
Sound Level
Frequency
Duration
Secondary Acoustic Factors
Spectral Complexity
Fluctuations in Sound Level
Fluctuations in Frequency
Rise-time of the Noise
Localization of Noise Source
Non-acoustic Factors
Physiology
Adaptation and Past Experience
How the Listener's Activity Affects Annoyance
Predictability of When a Noise will Occur
Is the Noise Necessary?
Individual Differences and Personality
Source: Landrum & Brown 2018 (taken from C. Harris 1979)

Sound Rating Scales

Various rating scales approximate the human subjective assessment of the "loudness" or "noisiness" of a sound. Noise metrics have been developed to account for additional parameters such as duration and the cumulative effect of multiple events. Single event metrics describe the noise from individual events, such as one aircraft flyover. Cumulative metrics describe the noise in terms of the total noise exposure throughout a defined period. The metrics used in this section are all based upon the dBA scale, which has shown good correlation with community response and is easily measured. Noise metrics used in this study are summarized below.

Single Event Metrics

Frequency Weighted Metrics. In order to simplify the measurement and computation of sound loudness levels, frequency-weighting networks have obtained wide acceptance. The A-weighting scale (also identified as dBA) has become the most prominent of these scales and is widely used in community noise analysis. Its advantages are that it has shown good correlation with community response and is easily measured. The metrics used in this study are all based upon the dBA scale.

Maximum Noise Level. The highest noise level reached during a noise event is called the Maximum Noise Level ("L_{max}"). For example, as an aircraft approaches, the sound of the aircraft begins to rise above ambient noise levels. The closer the aircraft gets, the louder it is until the aircraft is at its closest point directly overhead. Then, as the aircraft passes, the noise level

decreases to ambient levels. Such a history of a flyover is plotted at the top of Exhibit 4.7-2. It is this metric to which people generally instantaneously respond when an aircraft flyover occurs.

Single Event Noise Exposure Level and Sound Exposure Level. Another metric that is reported for aircraft flyovers is the Single Event Noise Exposure Level ("SENEL"). This metric is essentially equivalent to the Sound Exposure Level ("SEL") metric. It is computed from dBA sound levels. Referring again to the top of Exhibit 4.7-2, the shaded area, or the area within 10 dB of the maximum noise level, is the area from which the SENEL is computed. The SENEL value is the integration of all the acoustic energy contained within the event.[1] Speech and sleep interference research can be assessed relative to SENEL.

The SENEL metric takes into account the maximum noise level of the event and the duration of the event. For aircraft flyovers, the SENEL value is typically about 10 dBA higher than the maximum noise level. This metric is useful in that airport noise models contain aircraft noise curve data based upon the SENEL metric.

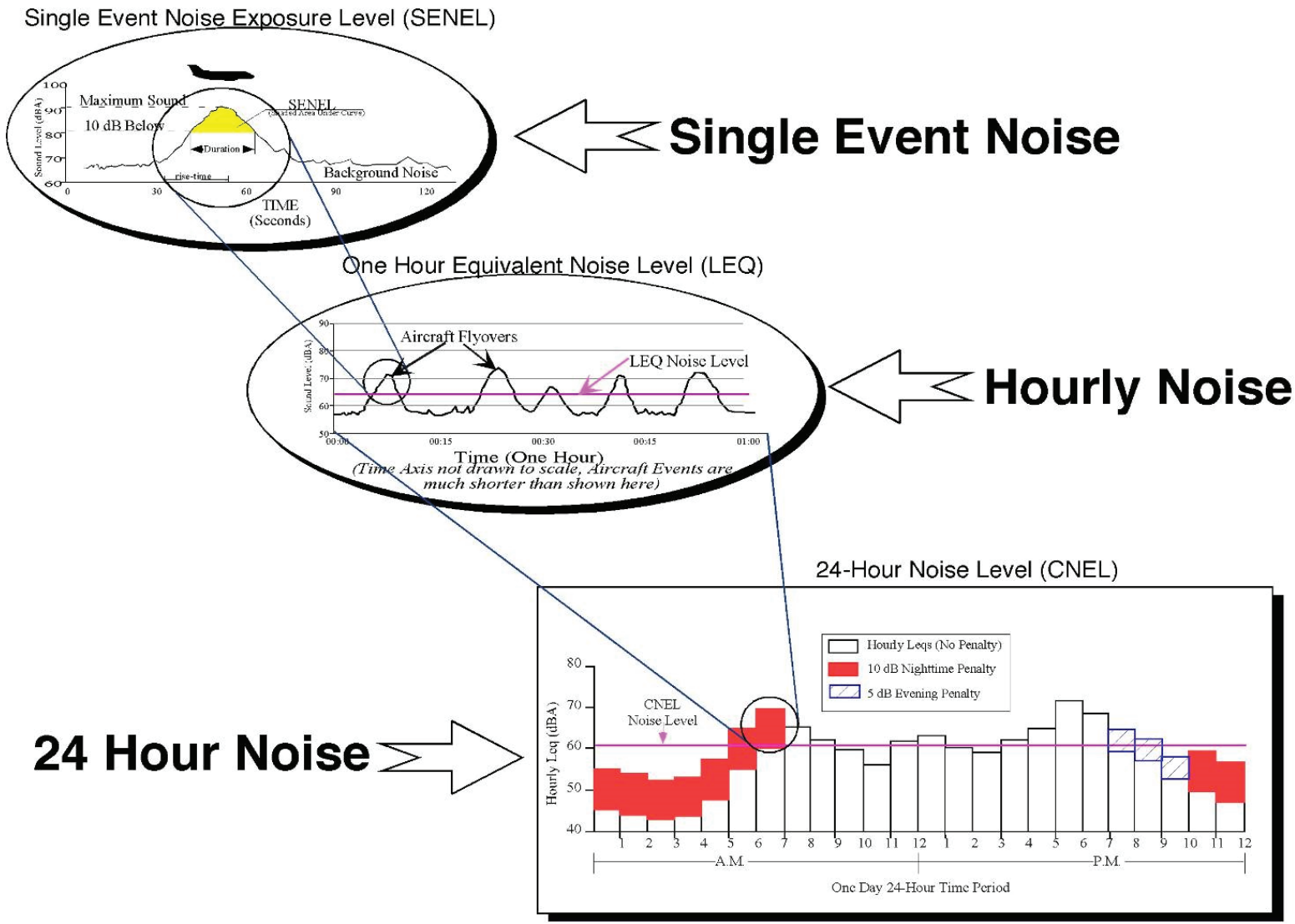
Cumulative Noise Metrics

Cumulative noise metrics assess community response to noise by including the loudness of the noise, the duration of the noise, the total number of noise events and the time of day these events occur in one single number rating scale.

Equivalent Noise Level. The Equivalent Noise Level ("L_{eq}") is the sound level corresponding to a steady-state, A-weighted sound level containing the same total energy as several SENEL events during a given sample period. L_{eq} is the "energy" average noise level during the time period of the sample. It is based on the observation that the potential for noise annoyance is dependent on the total acoustical energy content of the noise. This is graphically illustrated in the middle graph of Exhibit 4.7-2. L_{eq} can be measured for any time period but is typically measured for 15 minutes, 1 hour, or 24 hours. L_{eq} for one hour is used to develop Community Noise Equivalent Level ("CNEL") values.

Community Noise Equivalent Level. CNEL is a 24-hour, time-weighted energy average noise level based on the A-weighted decibel. It is a measure of the overall noise experienced during an entire day. The term "time-weighted" refers to the penalties attached to noise events occurring during certain sensitive time periods. On the CNEL scale, noise occurring between the hours of 7:00 PM and 10:00 PM is penalized by approximately 5 dB. This penalty accounts for the greater potential for noise to cause communication interference during these hours; it also accounts for the typically lower ambient noise levels during these hours. Noise that takes place during the night (10:00 PM to 7:00 AM) is penalized by 10 dB. This penalty was selected to attempt to account for the higher sensitivity to noise in the nighttime and the expected further decrease in background noise levels that typically occur in the nighttime. CNEL is graphically illustrated in the bottom of Exhibit 4.7-2. Examples of various noise environments in terms of CNEL are presented in Exhibit 4.7-3. CNEL is specified for use in the California Airport Noise Regulations and is used by local planning agencies in their General Plan Noise Element for land use compatibility planning.

[1] The SENEL value is not shown in Exhibit 4.7-2. The energy represented by the shaded area is "squeezed" into a one-second interval to determine the SENEL value.



Source: Landrum & Brown, 2014

Single and Cumulative Noise Metric Definitions

Exhibit 4.7-2

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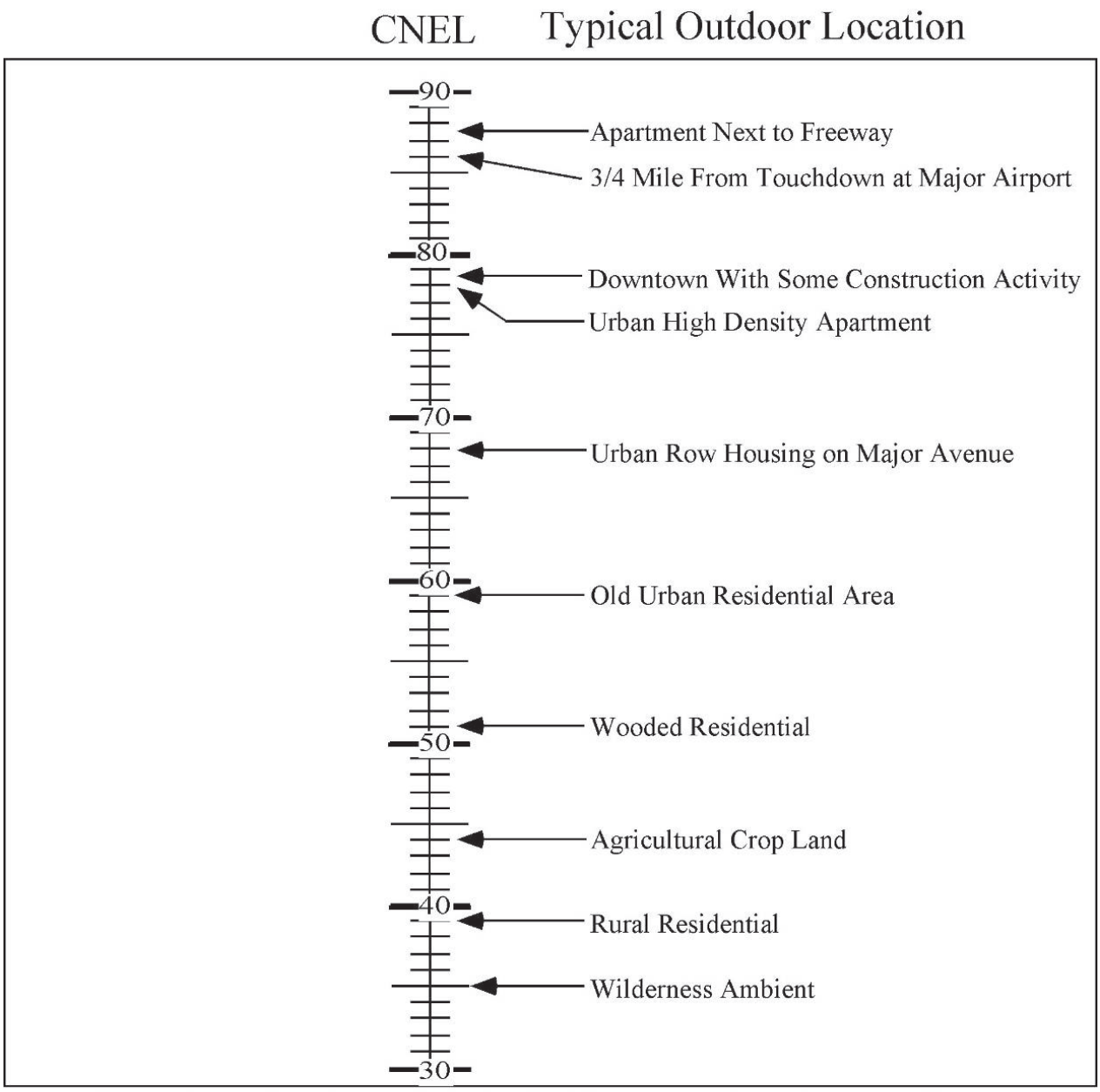

Source: Adapted from "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare With an Adequate Margin of Safety", EPA, 1974

Source: EPA, 1974

Typical Outdoor Noise Levels

Exhibit 4.7-3

John Wayne Airport General Aviation Improvement Program

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Day Night Noise Level. The Day Night Noise Level ("DNL") is very similar to CNEL, but it does not include the evening (7:00 PM to 10:00 PM) penalty; however, it does include the nighttime (10:00 PM to 7:00 AM) penalty. Typically, DNL is about 1 dB lower than CNEL, although the difference may be greater if there is an abnormal concentration of noise events in the 7:00 PM to 10:00 PM time period. DNL is specified by the Federal Aviation Administration ("FAA") for airport noise assessments and by the U.S. Environmental Protection Agency ("USEPA") for community noise and airport noise assessment. The FAA guidelines allow for the use of CNEL as a substitute to DNL.

Effects of Noise on Humans

Noise, often described as unwanted sound, is known to have several adverse effects on humans. From these known adverse effects of noise, criteria have been established to help protect the public health and safety and to prevent disruption of certain human activities. These criteria are based on effects of noise on people, such as hearing loss, communication interference, sleep interference, physiological responses, and annoyance.

Hearing Loss is generally not a concern, even very near a major airport or a major freeway. The potential for noise-induced hearing loss is more commonly associated with occupational noise exposures in heavy industry, very noisy work environments with long-term exposure, or certain very loud recreational activities (e.g., target shooting, motorcycle or car racing). The Occupational Safety and Health Administration ("OSHA") identifies a noise exposure limit of 90 dBA for 8 hours per day to protect from hearing loss; higher limits are allowed for shorter duration exposures. Noise levels in neighborhoods, even in very noisy neighborhoods, are not sufficiently loud to cause hearing loss.

Communication Interference is one of the primary concerns. Communication interference includes speech interference and interference with activities, such as watching television. Normal conversational speech is in the range of 60 to 65 dBA, and any noise in this range or louder may interfere with speech.

Sleep Interference is a major noise concern and, of course, is most critical during nighttime hours. Noise can make it difficult to fall asleep; creates momentary disturbances of natural sleep patterns by causing shifts from deep to lighter stages; and causes awakening. Noise may even cause awakening which a person may, or may not, be able to recall.

Extensive research has been conducted on the effect of noise on sleep disturbance. Recommended values for desired sound levels in residential bedroom spaces range from 25 to 45 dBA, with 35 to 40 dBA being the norm. The *Noise Analysis Technical Report* (Appendix C Section 2.3, Factors Influencing Human Response to Sound), describes data and studies developed since the 1970s.

In 2008, the American National Standards Institute ("ANSI") published a standard method of estimating sleep disturbance, and this method was adopted by the Federal Interagency Committee on Aviation Noise ("FICAN"). The ANSI standard divided the population into two groups, based on their habituation to the noise source. For a population that has not been habituated to nighttime noise, the FICAN curve shown in Exhibit 4.7-4 is recommended for estimating awakenings due to noise. For communities habituated to nighttime noise, the rate of awakening is considerably lower, as shown in Exhibit 4.7-4. The exhibit shows that, for a

habituated population, the rate of awakening for a given indoor noise level is substantially lower than for a population newly exposed to nighttime noise.

Physiological Responses are those measurable effects of noise on people that are realized as changes in pulse rate, blood pressure, or other physical responses. While such effects can be induced and observed, the extent to which these physiological responses cause harm or are a sign of harm is not known. Generally, physiological responses are a reaction to a loud short-term noise, such as a rifle shot or a very loud jet overflight.

Health effects from noise have been studied around the world for nearly 30 years. Apart from auditory damage—which is amply understood—scientists have attempted to determine whether high noise levels can adversely affect other aspects of human health. These research efforts have covered a broad range of potential impacts from cardiovascular response to fetal weight and mortality. Yet, while a relationship between noise and health effects seems plausible, it has remained a difficult effect to quantify (that is, shown in a manner that can be repeated by other researchers while yielding similar results).

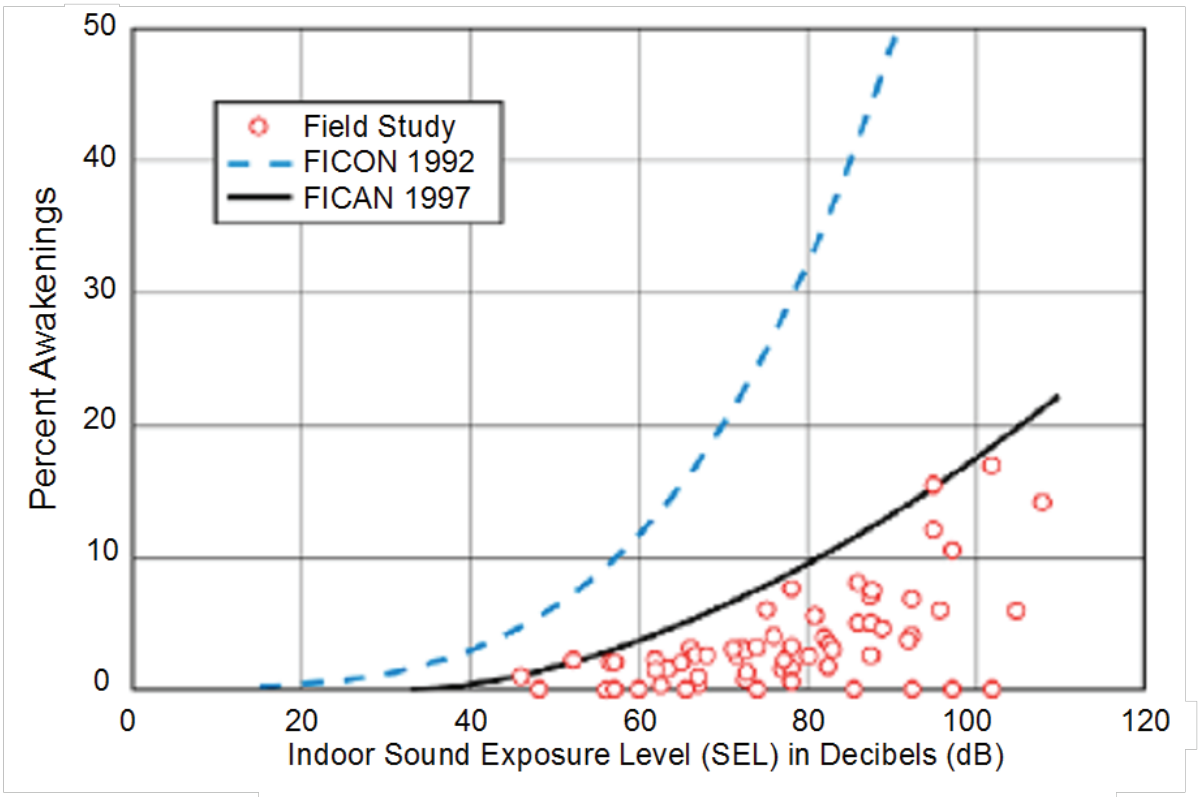
In addition to noise, health effects are also associated with a wide variety of other environmental stressors, including air pollution. Isolating the effects of aircraft noise as a source of long-term physiological change has proven to be almost impossible, as many of the effects that may be associated with noise are also the same as well-known effects of air pollution. As discussed in the *Noise Analysis Technical Report* (Appendix C Section 2.4.3, Effects of Noise on Humans), in 2008, the Airport Cooperative Research Board ("ACRP"), a part of the National Academies, published a synthesis on the effects of aircraft noise and concluded, "Despite decades of research, including review of old data and new research efforts, health effects of aviation noise continues to be an enigma. Most, if not all, current research concludes that it is yet impossible to determine causal relations between health disorders and noise exposure, despite well-founded hypotheses."

In October 2013, two studies on cardiovascular disease associated with aircraft noise were published in the British Medical Journal. The first was done in the United Kingdom ("UK") around Heathrow Airport in London, and the second was done in the United States as part of a multi-airport retrospective study led by researchers from Boston University and the Harvard School of Public Health as part of the Partnership for Air Transportation Noise and Emissions Reduction ("PARTNER") program sponsored by the FAA. The U.S. study focused on Medicare patients, and the British study was based on the total population living around Heathrow.

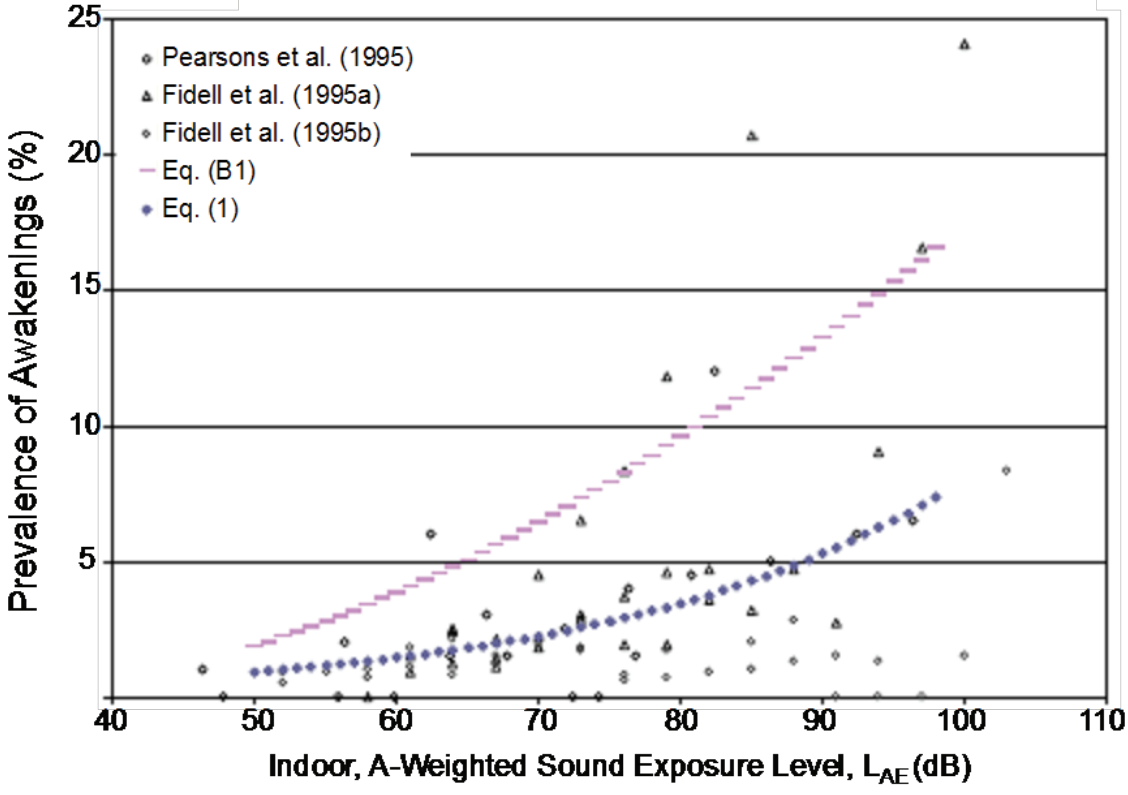
The British study concluded, in part:

> Our results suggest that high levels of aircraft noise are associated with an increased risk of stroke, coronary heart disease, and cardiovascular disease. As well as the possibility of causal associations, alternative explanations should be considered. These include the potential for incompletely controlled confounding and ecological bias, as we did not have access to individual level confounder data such as ethnicity and smoking. Further work to understand better the possible health effects of aircraft noise is needed, including studies clarifying the relative importance of nighttime compared with daytime noise, as this may affect policy response. (See the *Noise Analysis Technical Report*, Appendix H, Page 17)

FICAN 1997 Recommended Sleep Disturbance Dose-Response Relationship



ANSI 2008 Recommended Sleep Disturbance Dose-Response Relationship



Source: Federal Interagency Committee on Aviation Noise (FICAN), 1997; American National Standards Institute, 2008

Sleep Disturbance vs. Noise Level FICAN vs. ANSI — Exhibit 4.7-4

John Wayne Airport General Aviation Improvement Program

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The U.S. study concluded:

> **Results** Averaged across all airports and using the 90th centile noise exposure metric, a zip code with 10 dB higher noise exposure had a 3.5% higher (95% confidence interval 0.2% to 7.0%) cardiovascular hospital admission rate, after controlling for covariates.
>
> **Conclusions** Despite limitations related to potential misclassification of exposure, we found a statistically significant association between exposure to aircraft noise and risk of hospitalization for cardiovascular diseases among older people living near airports." (Abstract, Page 1)
>
> **Limitations of this study**. Our analysis has limitations. Although Medicare data covers nearly the entire US older population, this database was developed for administrative purposes and has been shown to be subject to misclassification and geographic variability in evaluation and management. We only used primary diagnosis, which should reduce misclassification of outcomes, and our analyses of combined cardiovascular disease outcomes are unlikely to have significant misclassification. Other limitations of the Medicare data include limited individual data on risk factors. For example, we were not able to control for smoking and diet, strong risk factors for cardiovascular disease. These variables would only confound the association between aircraft noise and hospitalization for cardiovascular disease if there were significant correlations between aircraft noise exposures and these risk factors. Noise contours display fairly sharp gradients and skew as a function of prevailing wind directions, given runway orientation, and arrival and departure patterns, which may limit spatial confounding. (See the *Noise Analysis Technical Report*, Appendix H, Pages 17 through 19.)

These very recent British and U.S. studies provide more correlation linking noise to cardiovascular disease but still fall short of providing the definitive noise dose and the response relationship that defines at what noise level these effects start and what is the rate of increase in response as noise level increases. As such, no applicable regulatory agency has established standards specific to physiological response for the purpose of the California Environmental Quality Act ("CEQA"), the National Environmental Policy Act ("NEPA"), or any other environmental compliance/assessment law. The absence of such regulations can be attributed, at least in part, to the uncertainty of the science.

Further, the current noise standards used in California ("65 CNEL") and by the FAA ("65 DNL") were adopted with full knowledge that noise effects include physiological responses that include cardiovascular effects. However, as of yet, there is insufficient data on the dose/response relationship to determine whether any revision to the adopted noise standards is warranted. Further, it is not yet clear that the effects being attributed to noise are not, in fact, the effects of air pollution. A great deal more research is necessary to fully understand the relationship between noise and cardiovascular health.

Section 15145 of the State CEQA Guidelines directs Lead Agencies who find a particular impact too speculative after a thorough investigation to note this conclusion and terminate discussion of the impact. The discussion above shows that, at this time, the effects of noise on cardiovascular

health at noise levels below 65 CNEL are too speculative for further evaluation in this CEQA document.

However, one of the authors of the U.S. study, Jonathan Levy, suggested what could be done in the interim to protect human health.

> "Our study emphasizes that interventions that reduce noise exposures could reduce cardiovascular risks among people living near airports. This can be done through improved aircraft technology and optimized flight paths, by using runways strategically to avoid when possible residential areas when people are sleeping, and by soundproofing of homes and other buildings."

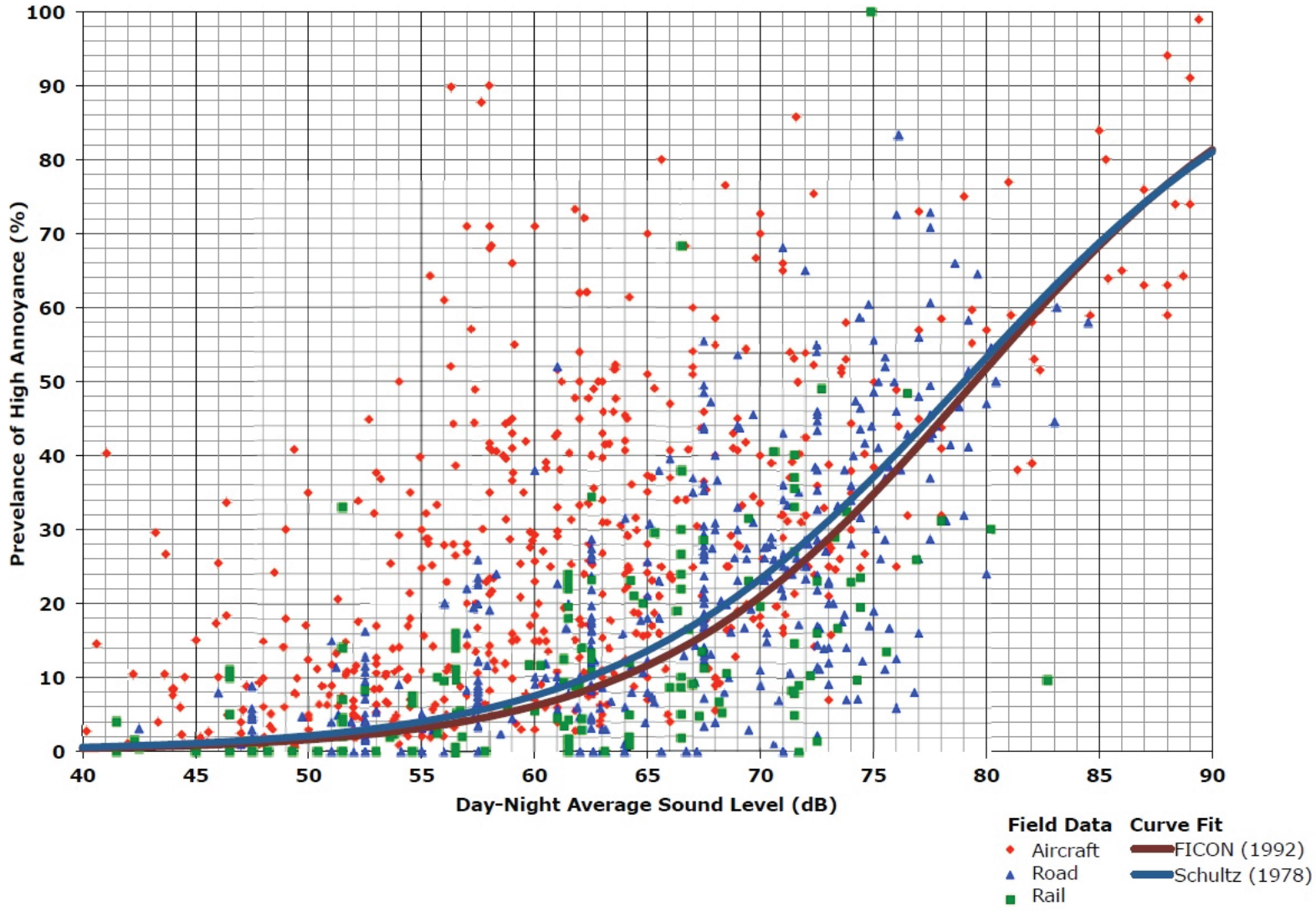
All of the interventions specifically mentioned by the study author are already underway at JWA. Despite the lack of standards or thresholds, the County has taken action to minimize and/or reduce the physiological effects of noise on the surrounding population.

Annoyance is the most difficult of all noise responses to describe. Annoyance is a very individual characteristic and can vary widely from person to person. What one person considers tolerable can be quite unbearable to another of equal hearing capability. The level of annoyance, of course, depends on the characteristics of the noise (i.e., loudness, frequency, time, and duration), and how much activity interference (e.g., speech interference and sleep interference) results from the noise. However, the level of annoyance is also a function of the attitude of the receiver. Personal sensitivity to noise varies widely. It has been estimated that 2 to 10 percent of the population is highly susceptible to annoyance from any noise not of their own making, while approximately 20 percent are unaffected by noise. Attitudes are affected by the relationship between the person and the noise source. Whether we believe that someone is trying to abate the noise would also affect the level of annoyance.

Annoyance levels have been correlated to CNEL levels. Exhibit 4.7-5 relates DNL noise levels to community response from two of these surveys. The curves display the percent of a population that can be expected to be annoyed by various DNL (CNEL in California) values for residential land use with outdoor activity areas. One of the survey curves presented in Exhibit 4.7-5 is the well-known Schultz curve that was developed from a survey of several types of transportation noises such as road traffic, railroad, and aircraft noises. At 65 dB DNL, the Schultz curve predicts that approximately 14 percent of the exposed population will be "highly annoyed." At 60 dB DNL, this decreases to approximately 8 percent of the population.

The curves in Exhibit 4.7-5 include data having a very wide range of scatter, with communities near some airports reporting much higher percentages of annoyance than others. While the precise reasons for this increased noise sensitivity were not identified, it is possible that non-acoustic factors may have played a role in increasing the sensitivity of this community during the period of the survey.

In recent years, researchers have suggested that the noise dose and response curve for annoyance from aircraft noise is different than it is for road and rail noise. In these studies, it has been suggested that the percentage of the population highly annoyed at 65 DNL is closer to 30 percent of the population and not the 14 percent suggested by the Schultz curve. Some studies go on further to describe that communities form unique attitudes about noise and that differing



Source: Schultz (1978) & Ficon (1992)

Percent of Population Highly Annoyed as a Function of DNL

Exhibit 4.7-5

John Wayne Airport General Aviation Improvement Program

JOHN WAYNE AIRPORT ORANGE COUNTY

communities show a wide range of annoyance response for the same noise exposure that can be attributed to non-acoustic factors.

School Room Effects. Interference with classroom activities and learning from aircraft noise is an important consideration and the subject of much recent research. Studies from around the world indicate that vehicle traffic, railroad, and aircraft noise can have adverse effects on reading ability, concentration, motivation, and long-term learning retention. A complicating factor in this research is the extent of background noise from within the classroom itself. The studies finding the most adverse effects examine cumulative noise levels equivalent to 65 CNEL or higher and single event maximum noise levels ranging from 85 to 95 dBA. In other studies, the level of noise is unstated or ambiguous. According to these studies, a variety of adverse schoolroom effects can be expected from interior noise levels equal to or exceeding 65 CNEL and/or 85 dBA SENEL.

Some interference with classroom activities can be expected with noise events that interfere with speech. High level single events are of concern because speech interference can disrupt a presentation and other classroom activities and learning. As previously discussed, speech interference typically begins at 65 dBA, which is the level of normal conversation. Typical construction attenuates outdoor noise by 20 dBA with windows closed and 12 dBA with windows open. Thus, some interference of classroom activities can be expected at outdoor levels of 77 to 85 dBA.

Noise Attenuation Programs

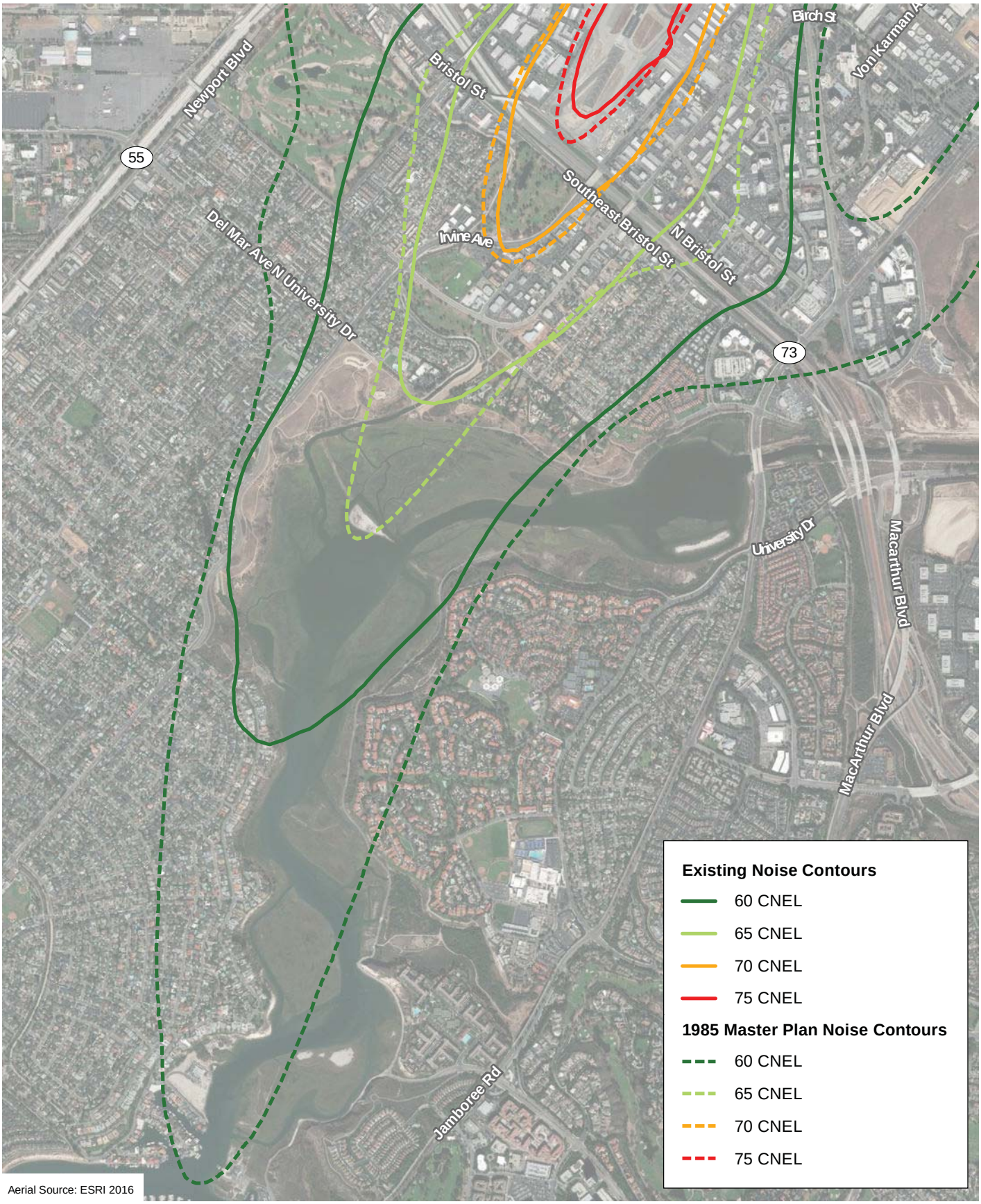
Santa Ana Heights Acoustical Insulation Program

The Airport has adopted two noise attenuation programs. The Santa Ana Heights Acoustical Insulation Program ("AIP") was extensively implemented at JWA as a mitigation measure for the 1985 Master Plan EIR. AIP eligibility was based on the future 65-CNEL contour predicted in the 1985 Master Plan. Exhibit 4.7-6 depicts the 1985 Master Plan departure noise contours, which was the basis for the AIP, along with the existing noise contours. As shown, the existing 65-CNEL contour is much smaller than anticipated in the 1985 Master Plan. Sound insulation was provided for 71 percent of the eligible residences (427 residences) in the AIP area. Of those not insulated, five residences were found to already have sufficient insulation to reduce interior noise levels to less than 45 CNEL. Avigation easements were acquired from the property owners for 16 residences.[2] Seventy six (76) dwelling units were found to be non-conforming uses located in an area zoned for business park uses; prescriptive avigation easements were acquired for these residences. Of the 78 remaining residences that were not insulated, 19 homeowners declined the offer, and 59 homeowners did not respond despite a good faith effort to contact them.

2014 Sound Insulation Program

A second Sound Insulation Program ("SIP") was adopted in conjunction with the 2014 Settlement Agreement Amendment. The program, adopted with the certification of Final EIR 617, provides a monitoring program to compare future noise levels to those of the 2013 Annual Noise Report. The program recognizes the difference between the County of Orange noise impact

[2] An avigation easement is a recorded document which grants a perpetual non-exclusive easement for aircraft operations, sound and noise, avigation and flight, hazard and airspace in, to, over, and through the owner's property.



Aerial Source: ESRI 2016

D:\Projects\LAN\0102\MXDs\EIR\Noise_Contours\ex_Comparison_1985_and_Existing_Noise_20180815.mxd

Comparison of 1985 Master Plan and Existing Departure Noise Contours

Exhibit 4.7-6

John Wayne Airport General Aviation Improvement Program

N W E S

2,000 1,000 0 2,000 Feet

JOHN WAYNE AIRPORT ORANGE COUNTY

standards and those adopted by the City of Newport Beach. For properties in the County jurisdiction, if the noise levels have increased by 1.5 dB or more, over the 2013 levels at noise monitoring stations ("NMS") 1S, 2S, and 3S, all noise-sensitive uses represented by that NMS not previously insulated under the 1985 AIP, will be eligible for evaluation for participation in the SIP.[3] The noise level impacting these uses and the measured noise reduction will be used to estimate the interior noise level. If the estimated interior noise level exceeds an average of 45 CNEL, then the use will be eligible for re-evaluation in the form of new interior noise level measurements. If the interior noise level in any habitable room exceeds an average of 45 CNEL, then the use will be eligible for the SIP. For properties in the City of Newport Beach, an increase of 1.0 dB has been established for evaluating eligibility.

When it is determined that a noise-sensitive use is significantly impacted based on measured noise levels and the relevant significance thresholds, that use will be evaluated by the County of Orange for eligibility for sound insulation. The evaluation will be performed by measuring the indoor noise levels for each habitable room or educational space. If the average noise level in all habitable rooms or education spaces of a use is greater than an average of 45 CNEL, then the use will be eligible for sound insulation. Additionally, if the average noise level is less than 45 CNEL, any use with a noise level greater than an average of 45 CNEL in any habitable room or educational space also will be eligible for sound insulation if the FAA waives its requirement that noise levels be averaged across all habitable rooms or education spaces. The implementation of sound insulation will depend on satisfying the FAA criteria described in Chapter 812 of Order 5100.38C Airport Improvement Program Handbook.

To date an increase in noise levels sufficient to require implementation of the SIP has not occurred. Final EIR 617 did not identify a potential impact until Phase 3 (2026 to 2030) under the scenario that was adopted as part of the Settlement Agreement Amendment. It should also be noted that the analysis in Final EIR 617 assumed a continuation of the 2013 fleet mix. Improvements in aircraft may reduce the projected noise levels.

4.7.2 REGULATORY SETTING

Federal Aviation Administration

Federal Aviation Regulations, Part 36

Federal Aviation Regulations ("FAR"), Part 36, "Noise Standards: Aircraft Type and Airworthiness Certification" prescribes noise standards for issuance of new aircraft type certificates. Part 36 prescribes limiting noise levels for certification of new types of propeller-driven, small airplanes as well as for transport category, large airplanes. Subsequent amendments extended the standards to certain newly produced aircraft of older type designs. Other amendments have at various times extended the required compliance dates. Aircraft may be certificated as Stage 1, Stage 2, Stage 3, or Stage 4 aircraft based on their noise level, weight, number of engines and, in some cases, number of passengers. Stage 1 and Stage 2 aircraft are no longer permitted to operate in the United States. As of December 31, 2015, all civil jet aircraft, regardless of weight were required to meet Stage 3 or Stage 4 certification to fly within the contiguous United States. Although aircraft meeting Part 36 standards are noticeably quieter

[3] The Noise Monitoring System is discussed later in Section 4.7.4.

than many of the older aircraft, the regulations make no determination that such aircraft are acceptably quiet for operation at any given airport.

Federal Aviation Noise Abatement Policy

This policy, adopted in 1976 by the U.S. Department of Transportation and FAA, sets forth the noise abatement authorities and responsibilities of the federal government, airport proprietors, State and local governments, air carriers, air travelers and shippers, and airport area residents and prospective residents. The basic thrust of the policy is that the FAA's role is primarily one of regulating noise at its source (the aircraft), plus supporting local efforts to develop airport noise abatement plans. The FAA gives high priority in the allocation of Airport Development Aid Program ("ADAP") funds to projects designed to ensure compatible use of land near airports, but it is the role of State and local governments and airport proprietors to undertake the land use and operational actions necessary to promote compatibility.

Aviation Safety and Noise Abatement Act of 1979

Further weight was given to the FAA's supporting role in noise compatibility planning by congressional adoption of this legislation. Among the stated purposes of this act is "To provide assistance to airport operators to prepare and carry out noise compatibility programs". The law establishes funding for noise compatibility planning and sets the requirements by which airport operators can apply for funding. This is also the law by which Congress mandated that the FAA develop an airport community noise metric to be used by all federal agencies assessing or regulating aircraft noise. The result was DNL. Because California already had a well-established airport community noise metric in CNEL, and because CNEL and DNL are so similar, FAA expressly allows CNEL to be used in lieu of DNL in noise assessments performed for California airports. The law does not require any airport to develop a noise compatibility program.

Federal Aviation Regulations, Part 150

As a means of implementing the Aviation Safety and Noise Abatement Act, the FAA adopted Regulations on Airport Noise Compatibility Planning Programs. These regulations are spelled out in FAR Part 150. FAR Part 150 includes noise and land use compatibility charts to be used for land use planning with respect to aircraft noise. Table 4.7-2 includes relevant data from the FAR Part 150, Appendix A guidelines.

TABLE 4.7-2
FEDERAL AVIATION REGULATION PART 150 LAND USE GUIDELINES

Land Use	Yearly Day-Night Average Sound Level (L_{dn} dBA)					
	<65	65–70	70–75	75–80	80–85	>85
Residential						
Residential, other than mobile homes and transient lodgings	Y	N[1]	N[1]	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N[1]	N[1]	N[1]	N	N
Public Use						
Schools	Y	N[1]	N[1]	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y[2]	Y[3]	Y[4]	Y[4]
Parking	Y	Y	Y[2]	Y[3]	Y[4]	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail—building materials, hardware, and farm equipment	Y	Y	Y[2]	Y[3]	Y[4]	N
Retail trade—general	Y	Y	25	30	N	N
Utilities	Y	Y	Y[2]	Y[3]	Y[4]	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing, general	Y	Y	Y[2]	Y[3]	Y[4]	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y[6]	Y[7]	Y[8]	Y[8]	Y[8]
Livestock farming and breeding	Y	Y[6]	Y[7]	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y[5]	Y[5]	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

Ldn: day night average sound level; dBA: A-weighted noise level

TABLE 4.7-2
FEDERAL AVIATION REGULATION PART 150 LAND USE GUIDELINES

Land Use	Yearly Day-Night Average Sound Level (L_{dn} dBA)					
	<65	65–70	70–75	75–80	80–85	>85
Table Key						
Y (Yes) =Land Use and related structures compatible without restrictions.						
N (No) =Land Use and related structures are not compatible and should be prohibited.						
NLR =Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.						
25, 30, or 35 = Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.						

Notes

(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB; thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

(2) Measures to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.

(3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.

(4) Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal level is low.

(5) Land use compatible provided special sound reinforcement systems are installed.

(6) Residential buildings require an NLR of 25.

(7) Residential buildings require an NLR of 30.

(8) Residential buildings not permitted.

Disclaimer: The designations contained in this table do not constitute a federal determination that any use of land covered by the program is acceptable or unacceptable under federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

Source: Landrum & Brown 2018.

These guidelines represent recommendations to local authorities for determining acceptability and permissibility of land uses and recommend a maximum amount of noise exposure in terms of the DNL that might be considered acceptable or compatible to people in living and working areas. These noise levels are derived from case histories involving aircraft noise problems at civilian and military airports and the resultant community response. Note that residential land use is deemed acceptable for noise exposures up to 65 dB DNL. Recreational areas are also considered acceptable for noise levels above 65 dB DNL (with certain exceptions for amphitheaters). However, the FAA guidelines indicate that ultimately "the responsibility for determining the acceptability and permissible land uses remains with the local authorities."

Federal Aviation Orders 5050.4 and 1050.1F for Environmental Analysis of Aircraft Noise around Airports

The FAA has developed guidelines (Order 5050.4B) for the environmental analysis of airports. Specific policies and procedures for evaluating environmental impacts are described in Order 1050.1F CHG 1 Effective Date March 20, 2006. The noise analysis-related policies and procedures are presented in Section 14 of the Appendix A of the Order. The Significant Impact thresholds are presented in Section 14.3, which reads:

> A significant noise impact would occur if analysis shows that the proposed action will cause noise sensitive areas to experience an increase in noise of DNL 1.5 dB or more at or above DNL 65 dB noise exposure when compared to the no action alternative for the same timeframe. For example, an increase from 63.5 dB to 65 dB is considered a significant impact.

Section 14.4c specifies that impacts to receptors with noise exposures between 60 and 65 DNL should be examined in accordance with the 1992 FICON Recommendations.

> In accordance with the 1992 FICON (Federal Interagency Committee on Noise) recommendations, examination of noise levels between DNL 65 and 60 dB should be done if determined to be appropriate after application of the FICON screening procedure. If screening shows that noise sensitive areas at or above DNL 65 dB will have an increase of DNL 1.5 dB or more, further analysis should be conducted to identify noise-sensitive areas between DNL 60-65 dB having an increase of DNL 3 dB or more due to the proposed action. The potential for mitigating noise in those areas should be considered, including consideration of the same range of mitigation options available at DNL 65 dB and higher and eligibility for federal funding. This is not to be interpreted as a commitment to fund or otherwise implement mitigation measures in any particular area.

Section 14.5e specifies the supplemental analysis that should be performed for projects with study areas that are larger than the immediate vicinity of the airport.

> For air traffic airspace actions where the study area is larger than the immediate vicinity of an airport, incorporates more than one airport, or includes actions above 3,000 feet AGL, noise modeling will be conducted using Noise Integrated Routing System ("NIRS"). For those types of studies, NIRS will be used to determine noise impacts from the ground to 10,000 feet AGL. This noise analysis will focus on the change in noise levels as compared to populations and demographic information at population points throughout the study area. Noise contours will not be prepared for the NIRS analysis. However, NIRS will be used to produce change-of-exposure tables and maps at population centroids using the following criteria:
>
> DNL 60-65 dB ± 3 dB
>
> DNL 45-60 dB ± 5 dB"

Airport Noise and Capacity Act of 1990

Subsequent to the JWA 1985 Settlement Agreement, the U.S. Congress enacted the Airport Noise and Capacity Act of 1990 ("ANCA" or "the Noise Act") (49 United States Code U.S.C.] 47521 et seq.). As a general matter, ANCA precludes the local imposition of noise and access restrictions that are not otherwise in accordance with the national noise policy unless the restrictions are "grandfathered" under ANCA, in which case the restrictions are free from the restrictions that ANCA otherwise would impose. Specifically, ANCA established two broad directives to the FAA: (1) establish a method to review aircraft noise, airport use, or airport access restrictions proposed by airport proprietors; and (2) institute a program to phase-out Stage 2 aircraft over 75,000 pounds by December 31, 1999. Stage 2 aircraft are older, noisier aircraft (B-737-200, B-727, and DC-9); Stage 3 aircraft are newer, quieter aircraft (B-737-300, B-757, MD80/90). To implement ANCA, the FAA amended Part 91 and issued a new Part 161 of the FAR. Part 91 addresses the phase-out of large Stage 2 aircraft and the phase-in of Stage 3 aircraft. Part 161 establishes a stringent review and approval process for implementing use or access restrictions by airport proprietors.

The amended Part 91 required that all Stage 2 commercial aircraft over 75,000 pounds be out of the domestic fleet by December 31, 1999. The State of Hawaii and Alaska are not affected by this regulation. Since 2000, the domestic commercial airline fleet has consisted of all Stage 3 or Stage 4 aircraft. As of December 31, 2015, all civil jet aircraft, regardless of weight were required to meet Stage 3 or Stage 4 certification to fly within the contiguous United States.

In July 2005, the FAA adopted more stringent Stage 4 standards for certification of aircraft, effective January 1, 2006. Any aircraft that meets Stage 4 standards will meet Stage 3 standards. Accordingly, policies for review of noise restrictions affecting Stage 3 aircraft may be applied to Stage 4 aircraft as well.

Part 161 sets out the requirements and procedures for implementing new airport use and access restrictions by airport proprietors. Proprietors must use the DNL metric to measure noise effects and the Part 150 land use guideline table, including 65-dB DNL as the threshold contour to determine compatibility, unless a locally adopted standard is more stringent. CNEL would be an acceptable surrogate for DNL.

The regulation identifies three types of use restrictions and treats each one differently: (1) negotiated restrictions, (2) Stage 2 aircraft restrictions, and (3) Stage 3 aircraft restrictions. Generally speaking, any use restriction affecting the number or times of aircraft operations will be considered an access restriction. Even though the Part 91 phase-out does not apply to aircraft under 75,000 pounds, the FAA has determined that Part 161 limitations on proprietors' authority applies as well to the smaller aircraft.

Negotiated restrictions are more favorable from the FAA's standpoint, but still require unwieldy procedures for approval and implementation. In order to be effective, the agreements normally must be agreed to by all airlines using the airport.

Stage 3 restrictions are even more difficult to implement. A Stage 3 restriction involves considerable additional analysis, justification, evaluation, and financial discussion. In addition, a Stage 3 restriction must result in a decrease in noise exposure of the 65-dB DNL to

noise-sensitive land uses (residences, schools, places of worship, parks). The regulation requires both public notice and FAA approval.

ANCA applies to all new local noise restrictions and amendments to existing restrictions proposed after October 1990. Here, ANCA's limitations do not apply to the existing noise regulations and access restrictions established and approved by the County of Orange at JWA because the 1985 Settlement Agreement is "an intergovernmental agreement including an airport noise or access restriction in effect on November 5, 1990." (49 U.S.C. 47524(d)(3)). The amendments made to the 1985 Settlement Agreement to allow for the revised JWA noise abatement departure procedures, and other amendments including, but not limited to, updating the noise monitoring system and corresponding noise limits at the Airport, have been approved by the settlement parties and the County. The FAA provided a "legal opinion letter" for each of these amendments prior to approval indicating that the amendments would not jeopardize the FAA grandfathered status of the Settlement Agreement and the noise regulations and access restrictions at the Airport.

U.S. Environmental Protection Agency Noise Assessment Guidelines

Federal Interagency Committee on Noise (FICON) Report of 1992

The use of the CNEL or DNL metric and the 65-dB CNEL criteria have been reviewed by various interest groups in order to assess its usefulness in assessing aircraft noise impacts. At the direction of the USEPA and the FAA, the FICON was formed to review specific elements of the assessment of airport noise impacts and to make recommendations regarding potential improvements. FICON includes representatives from the Departments of Transportation, Defense, Justice, Veterans Affairs, Housing and Urban Development, the Environmental Protection Agency, and the Council on Environmental Quality.

FICON was formed to review federal policies used to assess airport noise impacts and the manner in which noise impacts are determined. This included whether aircraft noise impacts are fundamentally different from other transportation noise impacts; the manner in which noise impacts are described; and the extent to which impacts outside of 65-dB DNL should be reviewed in federal environmental impact statements.

The committee determined that no new descriptors or metrics of sufficient scientific standing exist to substitute for DNL. The DNL noise exposure metric and the dose-response relationships used to determine noise impact were determined to be proper for assessing noise from civil and military aviation in the general vicinity of airports. The report supported agency discretion in the use of supplemental noise analysis. The report recommended improvement in public understanding of the DNL, supplemental methodologies, and aircraft noise impacts.

The report endorsed and expanded traditional FAA environmental screening criteria for potential airport noise impacts. FICON recommended that if screening analysis determines noise-sensitive areas at or above 65-dB DNL show an increase of DNL 1.5 dB or more, then further analysis should be conducted of noise-sensitive areas between DNL 60 and 65 dB having an increase of DNL 3 dB or more, consistent with the most recent FAA guidelines 1050.1F.

STATE/REGIONAL

California Airport Noise Regulations

California Airport Noise Regulations promulgated in accordance with the State Aeronautics Act and set forth in Section 5000 et seq. of the California Code of Regulations (Title 21, Division 2.5, Chapter 6) are enforced by the Aeronautics Division of the California State Department of Transportation ("Caltrans"). These regulations establish 65 dB CNEL as a noise impact boundary within which there shall be no incompatible land uses. This requirement is based, in part, upon the determination in the Caltrans regulations that 65 dB CNEL is the level of noise which should be acceptable to "...a reasonable man residing in the vicinity of an airport." Airports are responsible for achieving compliance with these regulations. Compliance can be achieved through noise-abatement measures, land acquisition, land use conversion, land use restrictions, or sound insulation of structures. Airports not in compliance can operate under variance procedures established within the regulations.

California Noise Insulation Standards

California Code of Regulations, Title 24 — known as the California Building Code — contains standards for allowable interior noise levels associated with exterior noise sources. These Regulations include the California Noise Insulation Standards which apply to all multi-family dwellings built in the state. Single-family residences are exempt from these regulations. With respect to community noise sources, the regulations require that all multi-family dwellings with exterior noise exposures greater than 60 dB CNEL must be sound insulated such that the interior noise level will not exceed 45 dB CNEL. These requirements apply to all roadway, rail, and airport noise sources.

General Plan Noise Elements

The State of California requires that all municipal General Plans contain a Noise Element. The requirements for the Noise Element of the General Plan include describing the noise environment quantitatively using a cumulative noise metric such as CNEL or DNL, establishing noise/land use compatibility criteria, and establishing programs for achieving and/or maintaining compatibility. Noise elements shall address all major noise sources in the community, including mobile and stationary sources.

Airport Land Use Commissions

Airport Land Use Commissions were created by State Law for the purpose of establishing a regional level of land use compatibility between airports and their surrounding environs. The Airport Land Use Commission for Orange County has adopted Airport Environs Land Use Plans ("AELUPs") for Orange County airports, including JWA, Los Alamitos Joint Forces Training Base, and Fullerton Municipal Airport. The AELUPs establish noise/land use acceptability criteria for residential and other sensitive land uses at 65 dB CNEL for outdoor areas and 45 dB CNEL for indoor areas of residential land uses. These criteria are compatible with the criteria used by the County of Orange.

County of Orange

General Plan

The General Plan Noise Element of the County of Orange establishes noise/land use planning criteria for the unincorporated areas of the County. These noise guidelines and standards cover roadway noise, rail noise, and airport noise, including military and civilian airports. The County has adopted noise standards for various land uses in terms of CNEL and L_{eq}. These standards, Tables VIII-2 and VIII-3 of the Noise Element, are combined and reproduced here as Table 4.7-3. For residential land uses, the County has established a maximum exterior noise level standard of 65 dB CNEL for private outdoor living areas and an interior standard of 45 dB CNEL.

TABLE 4.7-3
COUNTY OF ORANGE COMPATIBILITY MATRIX FOR LAND USE AND COMMUNITY NOISE EQUIVALENT LEVELS

Type of Use	65+ decibels CNEL	60 to 65 decibels CNEL
Residential	3a, b, e	2a, e
Commercial	2c	2c
Employment	2c	2c
Open Space		
Local	2c	2c
Community	2c	2c
Regional	2c	2c
Educational Facilities		
Schools (K through 12)	2c, d, e	2c, d, e
Preschool, college, other	2c, d, e	2c, d, e
Places of Worship	2c, d, e	2c, d, e
Hospitals		
General	2a, c, d, e	2a, c, d, e
Convalescent	2a, c, d, e	2a, c, d, e
Group Quarters	1a, b, c, e	1a, b, e
Hotel/Motels	2a, c	2a, c
Accessory Uses		
Executive Apartments	1a, b, e	2a, e
Caretakers	1a, b, c, e	2a, c, e

dB: decibels; CNEL: Community Noise Equivalent Level; L_{eq}: average noise level.

EXPLANATION AND DEFINITIONS

Action Required to Ensure Compatibility Between Land Use and Noise From External Sources:

1: Allowed if interior and exterior community noise levels can be mitigated.
2: Allowed if interior levels can be mitigated.
3: New residential uses are prohibited in areas within the 65 dB CNEL contour from any airport or air station and are allowed in other areas if interior and exterior community noise levels can be mitigated. The prohibition against new residential development excludes limited "infill" development within an established neighborhood.

Standards Required for Compatibility of Land Use and Noise:

TABLE 4.7-3
COUNTY OF ORANGE COMPATIBILITY MATRIX FOR LAND USE AND COMMUNITY NOISE EQUIVALENT LEVELS

Type of Use	65+ decibels CNEL	60 to 65 decibels CNEL
[a] **Interior Standard:** CNEL of less than 45 decibels (habitable rooms only). [b] **Exterior Standard:** CNEL of less than 65 decibels in outdoor living areas. [c] **Interior Standard:** $L_{eq(h)}$ = 45 to 65 decibels interior noise level, depending on interior use. [d] **Exterior Standard:** $L_{eq(h)}$ of less than 65 decibels in outdoor living areas. [e] **Interior Standard:** As approved by the Board of Supervisors for sound events of short duration such as aircraft flyovers or individual passing railroad trains. Key Definitions: **Habitable Room:** Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking, or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms, and similar spaces. **Interior:** Spaces that are covered and largely enclosed by walls. **$L_{eq(h)}$:** The A-weighted equivalent sound level averaged over a period of "h" hours. An example would be $L_{eq(12)}$ where the equivalent sound level is the average over a specified 12-hour period (such as 7:00 AM to 7:00 PM). Typically, time period "h" is defined to match the hours of operation of a given type of use. **Outdoor Living Area:** Outdoor living area is a term used by the County of Orange to define spaces that are associated with residential land uses typically used for passive private recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, Jacuzzi areas, and other outdoor areas associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are front yard areas, driveways, greenbelts, maintenance areas, and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas). Source: Landrum & Brown 2018.		

Additionally, the County of Orange requires that the 45-dB CNEL interior noise limit for habitable rooms of residences be met with windows open or windows closed (not necessarily both). Residences with windows closed will provide at least a 20-dB outdoor to indoor noise reduction (based on typical pre-1981 construction practice and Uniform Building Code requirements; newer residences provide additional noise reduction). Residences with windows open will provide a 12-dB outdoor to indoor noise reduction (largely independent of date of construction). The County, therefore, requires that new residences with exterior noise exposure greater than 57 dB CNEL (45 dB plus 12 dB) provide some means of mechanical ventilation in order to ensure that residents are able to close windows and obtain fresh air at a rate specified in the Uniform Building Code. New residences subject to this requirement are typically air-conditioned or supplied with a fresh air switch as part of the forced air heating unit.

The County of Orange has historically restricted nighttime operations at the Airport. Air carriers are not permitted to depart JWA before 7:00 AM on Monday through Saturday, 8:00 AM on Sundays, or after 10:00 PM on any day. Air carriers are not permitted to arrive at JWA before 7:00 AM on Monday through Saturday, 8:00 AM on Sundays, or after 11:00 PM on any day. General aviation aircraft are permitted to operate at night provided that they meet strict

nighttime noise limits. These nighttime restrictions predate the 1985 Settlement Agreement and the Phase 2 Commercial Airline Access Plan and Regulation and are exempt under ANCA.

The Phase 2 Commercial Airline Access Plan and Regulation

The Phase 2 Commercial Airline Access Plan and Regulation at JWA was adopted by the County of Orange, in its capacity as the proprietor and certificated operator of JWA, and under the authority of federal law, and the laws of the State of California, which designate the County as the proper local entity to balance the needs of the Orange County community for adequate commercial air transportation facilities, and the desire of the local community for environmentally responsible air transportation operations at JWA. The Access Plan contains the rules and regulations for commercial, cargo, and commuter carrier operations at the Airport.

The General Aviation Noise Ordinance

The General Aviation Noise Ordinance ("GANO") adopted by the County of Orange establishes noise limits and other restrictions for aircraft operating at JWA. Generally, general aviation operations are permitted 24 hours a day, subject to daytime and nighttime noise limits.

4.7.3 METHODOLOGY

Aircraft Noise Modeling

The FAA's Aviation Environmental Design Tool ("AEDT") Version 2d was used to model aircraft operations at JWA. AEDT is a software system that models aircraft performance that estimates fuel consumption, emissions, noise, and air quality emissions data. AEDT has an extensive database of civilian and military aircraft noise characteristics and incorporates advanced plotting features. Noise contour files from AEDT were loaded into the ArcView™ Geographic Information System ("GIS") software for plotting airport noise contours and land use analysis.[4]

AEDT requires the input of the physical and operational characteristics of the airport. Physical characteristics include runway coordinates, airport altitude, and temperature, and optionally, topographical data. Operational characteristics include various types of aircraft data. This includes not only the aircraft types and flight tracks, but also departure procedures, arrival procedures and stage lengths (flight distance) that are specific to the operations at the airport.

Key assumptions for the noise modeling include:

- The percentage of day, evening, and night distribution of future aircraft operations would be consistent with the percentage of existing operations.
- The total yearly aircraft operations by aircraft type (fleet mix) for the Baseline (2016) plus No Project, the Baseline (2016) plus Proposed Project, and Baseline (2016) plus Alternative 1 scenarios are the same for commercial operations. The operations and fleet mix for the general aviation operations was developed based on the *Orange County/John Wayne Airport (JWA) General Aviation Improvement Program (GAIP) Based Aircraft*

[4] A noise contour is a line on a map that represents equal levels of noise exposure.

Parking—Capacity Analysis and General Aviation Constrained Forecasts (April 3, 2018), provided as Appendix D to this Program EIR.

- The flight tracks and runway use developed for the Baseline (2016) has been used for all scenarios. Runway use at JWA is based on aircraft size with commercial aircraft and large jets using Runway 20R and smaller general aviation aircraft using Runway 20L.

The significance of noise impacts attributable to the GAIP is evaluated based on the County of Orange significance threshold criteria, which is summarized in Table 4.7-4. It should be noted that the adjacent Cities of Costa Mesa, Irvine, and Tustin have also adopted the County of Orange's significance thresholds.

TABLE 4.7-4
COUNTY OF ORANGE CNEL INCREASE
SIGNIFICANCE THRESHOLD

Noise Exposure With Project	CNEL Increase Over Existing Conditions
>65 CNEL	1.5 dB or greater
60-65 CNEL	3.0 dB or greater
45-60 CNEL	5.0 dB or greater
Source: Landrum & Brown 2018	

Traffic Noise Modeling

The significance of traffic noise impacts attributable to the GAIP is evaluated based on two criteria:

1. The change in traffic noise (increase or decrease) attributable to traffic generated by the GAIP (Proposed Project or an alternative)
2. The absolute traffic noise level that results with inclusion of traffic from the Proposed Project or the alternative being evaluated in combination with other vehicle traffic

Both criteria must be exceeded for a significant impact to occur.

With respect to the first criterion, changes in traffic noise levels resulting from traffic volume increases can be calculated based on the changes in traffic volumes. The increase in traffic noise over existing conditions is calculated by taking ten times the base 10 logarithm of the ratio of the future traffic volume to the existing traffic volume. Similarly, the increase due to the Proposed Project or an alternative can be calculated by taking ten times the base 10 logarithm of the ratio of the future traffic volume with the Proposed Project/Alternative to the future traffic volume without the Project/Alternative. Traffic volumes used to calculate traffic noise level changes were provided by Austin Transportation Consulting (the *Traffic Impact Analysis* is provided as Appendix I to this Program EIR).

With respect to the second criterion, absolute noise levels can be difficult to predict accurately over a wide area because it is not only dependent on the roadway characteristics (width, posted speed limit, traffic volume) but it is also dependent on intervening structures and topography between the road and the receptor. Nonetheless, noise modeling software is available to allow

for accurate predictions in this regard. To determine traffic noise impacts as a result of the project, the FHWA (Federal Highway Administration) noise model was used. The FHWA noise model utilizes various traffic-flow parameters (e.g., traffic volume, speed, mix, etc.) to predict noise levels that result from the operation of motor vehicles on the roadways.

Traffic noise impact significance is determined using the same increase thresholds for aircraft presented above.

4.7.4 EXISTING CONDITIONS

The Airport serves both general aviation and scheduled commercial passenger airline and cargo operations. The use of the Airport is heavily regulated as a result of its limited area and facilities and the environmental sensitivity of the local area and because of a long history of Airport-related litigation extending back at least to 1969.

Noise Monitoring System at the Airport

JWA has a long history of noise analysis. Extensive data from its noise monitoring system and from a myriad of other studies relating to aircraft operations and noise levels enables precise modeling and prediction of noise levels. Radar tracks and sophisticated use of noise monitoring stations has produced very accurate depictions of flight tracks and aircraft noise. The noise levels of all commercial aircraft operations and general aviation operations are recorded at ten permanent NMSs around the Airport. Both CNEL and SENEL are monitored and calculated for each day and each aircraft. In accordance with State of California airport noise standards, a detailed report is compiled every three months summarizing this information; and each year an annual CNEL contour is computer modeled and included in the quarterly report. Noise complaint data is also recorded and analyzed. All of the data for the past three decades is contained in the Noise Abatement Quarterly Reports, which are obtainable from the JWA Access and Noise Office.

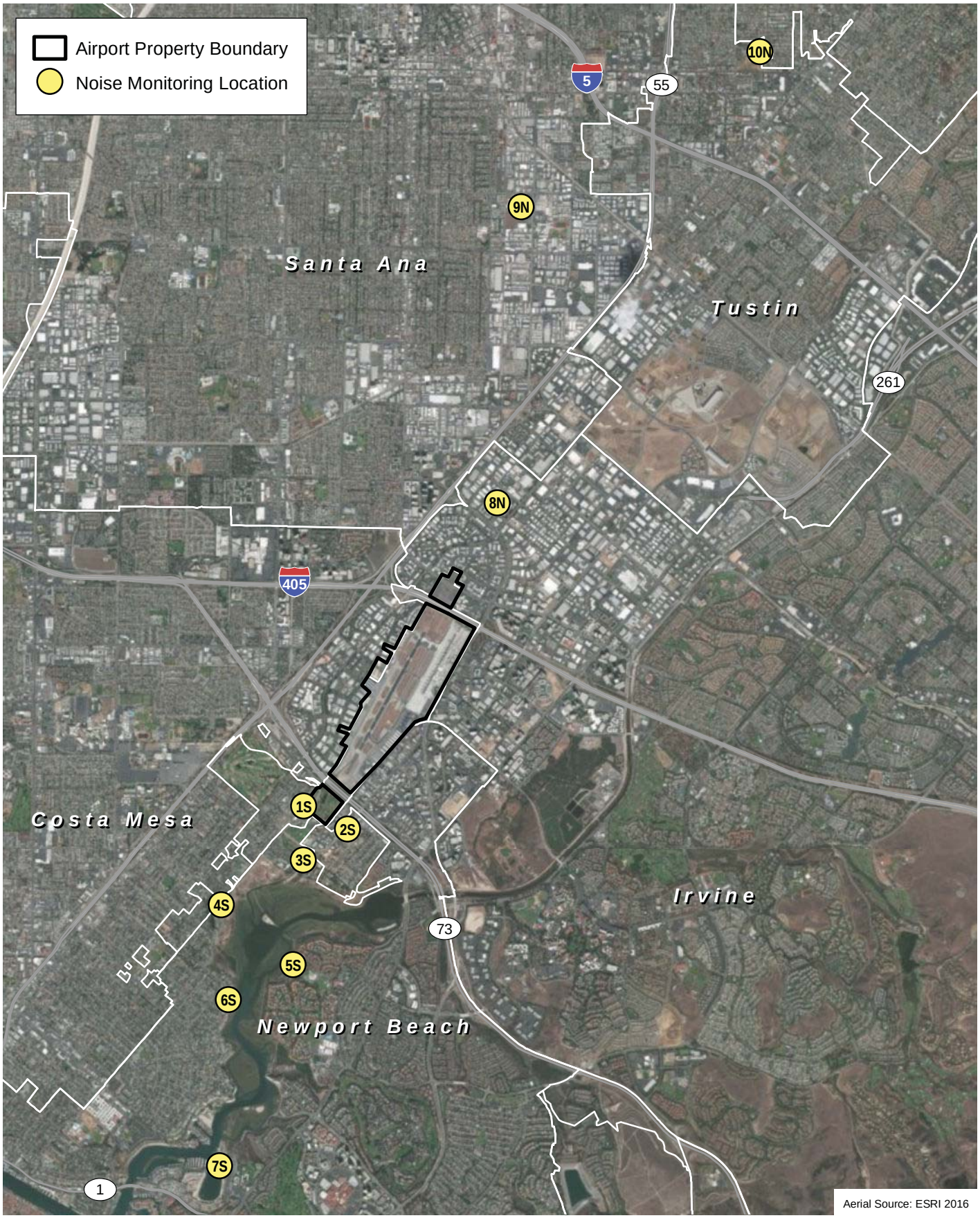
The locations of the ten permanent NMS are shown in Exhibit 4.7-7. This exhibit also shows the boundaries of the local jurisdictions. Seven are located in the City of Newport Beach (Terminals 1S through 7S)[5]; one is in Irvine (8N); one is in Santa Ana (9N); and one is in Tustin (10N).

2015 Changes to the Noise Monitoring System

In 2015 a new JWA noise monitoring system that is more sensitive was installed. A side-by-side comparison of noise levels as recorded by the new system and the old system was conducted from March 1 through May 31, 2015. Based upon the results of the comparison, the Board of Supervisors approved technical adjustments to the permitted noise levels surrounding the Airport in order to maintain parity with the existing noise levels at JWA and to maintain the grandfathered status of the County's noise and access restrictions under ANCA. The Board approved similar parity adjustments for the same reasons in 1999 when the prior noise monitoring equipment was installed.

Based upon an analysis of the side-by-side noise data, the Board approved noise level adjustments for Class A and Class E commercial aircraft operations, as referenced in the Phase 2

[5] Three of the NMT (1S, 2S, and 3S) are located in the area previously identified Santa Ana Heights, which has been annexed by the City of Newport Beach.



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Noise Monitoring Station Locations

Exhibit 4.7-7

John Wayne Airport General Aviation Improvement Program

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JOHN WAYNE AIRPORT ORANGE COUNTY

Access Plan, at NMS 1S, 2S, 3S, 4S, 5S, 6S, and 7S. Additionally, the Board approved adjustments to permitted noise levels for general aviation aircraft operations at NMS 1S, 2S, 3S (daytime and nighttime hours), and NMS 4S, 5S, 6S, 7S, 8N, 9N, and 10N (nighttime hours) by revising applicable sections of the GANO, which regulates noise levels for general aviation aircraft. The approved adjustments in the permitted noise levels are shown in Table 4.7-5.

TABLE 4.7-5
PARITY ADJUSTMENTS AT THE
NOISE MONITORING STATIONS

Site	Prior SENEL	Adjusted SENEL	Change
Class A Aircraft			
NMS 1S	101.8 dB	102.5 dB	0.7 dB
NMS 2S	101.1 dB	101.8 dB	0.7 dB
NMS 3S	100.7 dB	101.1 dB	0.4 dB
NMS 4S	94.1 dB	94.8 dB	0.7 dB
NMS 5S	94.6 dB	95.3 dB	0.7 dB
NMS 6S	96.1 dB	96.8 dB	0.7 dB
NMS 7S	93.0 dB	93.7 dB	0.7 dB
Class E Aircraft			
NMS 1S	93.5 dB	94.1 dB	0.6 dB
NMS 2S	93.0 dB	93.5 dB	0.5 dB
NMS 3S	89.7 dB	90.3 dB	0.6 dB
NMS 4S	86.0 dB	86.6 dB	0.6 dB
NMS 5S	86.6 dB	87.2 dB	0.6 dB
NMS 6S	86.6 dB	87.2 dB	0.6 dB
NMS 7S	86.0 dB	86.6 dB	0.6 dB
General Aviation Noise Ordinance			
Daytime			
NMS 1S	101.8 dB	102.5 dB	0.7 dB
NMS 2S	101.1 dB	101.8 dB	0.7 dB
NMS 3S	100.7 dB	101.1 dB	0.4 dB
Curfew			
NMS 1S	86.8 dB	87.5 dB	0.7 dB
NMS 2S	86.9 dB	87.6 dB	0.7 dB
NMS 3S	86.0 dB	86.7 dB	0.7 dB
NMS 4S	86.0 dB	86.7 dB	0.7 dB
NMS 5S	86.0 dB	86.7 dB	0.7 dB
NMS 6S	86.0 dB	86.7 dB	0.7 dB
NMS 7S	86.0 dB	86.7 dB	0.7 dB
NMS 8N	86.0 dB	86.9 dB	0.9 dB
NMS 9N	86.0 dB	86.9 dB	0.9 dB
NMS 10N	86.0 dB	86.9 dB	0.9 dB
Source: Landrum & Brown 2018			

Flight Path Changes

As discussed in Section 1.9, the FAA has implemented flight path changes around the Airport's airspace beginning in 2016. These changes concentrate aircraft flight paths, specifically departures to the southwest, on a more narrowly defined flight corridor when compared with a more dispersed flight corridor prior to 2016. As a result, the measured NMS noise levels for the baseline (2016) conditions are not directly comparable to measured NMS noise levels shown in previous years and studies.

Baseline (2016) Airport Operations

In 2016, there were 284,246 aircraft operations at JWA. Of these operations, approximately 192,800 were general aviation operations. A detailed a summary of the annual operations and fleet mix at JWA, organized by AEDT aircraft type, operation type, and during the daytime (7:00 AM to 6:59 PM), evening (7:00 PM to 9:59 PM) nighttime (10:00 PM to 6:59 AM) periods is provided in the *Noise Analysis Technical Report* (provided as Appendix H to this Program EIR).

The flight paths at JWA are well established to take advantage of the runway configuration and prevailing wind conditions. Runway 20R/02L is approximately 5,700 feet long and is the only runway suitable for larger commercial aircraft. With winds predominantly coming from the ocean, aircraft typically depart to the southwest and arrive from the northeast about 95 percent of the time with slight variations from year to year. The reverse (depart to northeast and arrive from southwest) occurs primarily when Santa Ana wind conditions occur, but there are times where winds aloft, or other weather conditions may cause operations to go into reverse. Additional information on aircraft flight paths are provided in the *Noise Analysis Technical Report*.

Baseline (2016) Airport CNEL Contours and Land Use Impacts

The CNEL contours, used to depict "existing" or Baseline (2016) noise exposure from the Airport as derived from the 2016 conditions, are depicted on Exhibit 4.7-8**.** The contours were developed by calibrating the results of AEDT modeling to the measurements from the ten permanent NMS. A description of the size and identification of noise-sensitive uses in each of the contours is provided below. In addition, Table 4.7-6 provides the CNEL values at each of the NMS from the noise modeling of Baseline 2016 conditions.

- 70 CNEL contour: 582.4 acres/0.91 square miles, including one (1) place of worship but no other noise sensitive land uses. This place of worship is considered compatible as it has been sound attenuated.
- 65 to 70 CNEL contour: 953.6 acres/1.49 square miles, including 247 residential dwellings with approximately 401 residents and 3 places of worship but no other noise sensitive land uses. These three places of worship and 247 dwelling units have been sound attenuated, the Airport has made a genuine effort to sound attenuate, or the structures did not qualify for sound attenuation.
- 60 to 65 CNEL contour: 2,150.4 acres/3.36 square miles, including 1,365 residences with approximately 2,772 residents, 5 places of worship, and 6 schools.

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Baseline (2016) CNEL Noise Contours

Exhibit 4.7-8

John Wayne Airport General Aviation Improvement Program

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JOHN WAYNE AIRPORT ORANGE COUNTY

TABLE 4.7-6
BASELINE (2016) CNEL AT NOISE MONITORING STATIONS (NMS)

NMS	1S	2S	3S	4S	5S	6S	7S	8N	9N	10N
Measured CNEL	**67.8**	**66.7**	**66.4**	59.6	58.9	59.9	56	**67.7**	43.9	56.4
Modeled CNEL	**67.8**	**66.7**	**66.5**	59.6	59.0	60.0	56.0	**68.3**	45.6	55.3
Difference	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.6	1.7	-1.1

Note: Noise monitors within the 65 CNEL are shown in **bold**. The 65 and 70 CNEL contours shall be validated by measurements made by noise monitors and be within a tolerance of plus or minus 1.5 dB CNEL.
Source: Landrum & Brown, 2018 (obtained from John Wayne Airport Access/GANO Software System Database Data, January 2016-December 2016)

4.7.5 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist and Appendix G of the CEQA Guidelines, the Project would result in a significant noise impact if it would:

Threshold 4.7-1 Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies.

Threshold 4.7-2 Cause substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

Threshold 4.7-3 Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Threshold 4.7-4 Expose people residing or working within an airport land use plan area to excessive noise levels.

For the GAIP, the County's applicable noise standards for determining a potential significant impact for these thresholds are as follows:

- A noise increase of 1.5 CNEL or more at a sensitive receptor where the existing exposure is 65 CNEL or above.
- A noise increase of 3.0 CNEL or more at a sensitive receptor where the existing exposure is between 60 and 65 CNEL.
- A noise increase of 5.0 CNEL or more at a sensitive receptor where the existing exposure is between 45 and 60 CNEL.

4.7.6 REGULATORY REQUIREMENTS AND STANDARD CONDITIONS OF APPROVAL

Regulatory Requirement

RR NOI-1 The Orange County Municipal Code Article 3 Section 2-1-30, General Aviation Noise Ordinance, prohibits nighttime general aviation operations for operations that exceed the specified SENEL noise limit at each of the noise monitoring locations.

Standard Conditions of Approval

The following standard conditions of approval would apply to the GAIP:

SC NOI-1 Except when the interior noise level exceeds the exterior noise level, the applicant shall sound attenuate all nonresidential structures against the combined impact of all present and projected noise from exterior noise sources to meet the interior noise criteria as specified in the Noise Element and Land Use/Noise Compatibility Manual.

Prior to the issuance of any building permits, the applicant shall submit to the Manager, Building and Safety, an acoustical analysis report prepared under the supervision of a County-certified acoustical consultant which describes in detail the exterior noise environment and the acoustical design features required to achieve the interior noise standard and which indicates that the sound attenuation measures specified have been incorporated into the design of the project. (County Standard Condition N02)

4.7.7 IMPACT ANALYSIS

Thresholds 4.7-1, 4.7-2, and 4.7-4

- ***Would the project expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?***
- ***Would the project cause substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?***
- ***Would the project expose people residing or working within an airport land use plan area to excessive noise levels?***

Proposed Project

Aviation Noise Impacts

The analysis of the Proposed Project compared to the Baseline (2016) condition took the baseline noise contours and applied the Proposed Project 2026 general aviation fleet mix and operations. The specific CNEL values at each NMS for the Baseline (2016) and the Baseline (2016) Plus Proposed Project scenarios are provided in Table 4.7-7. This provides an assessment of the change in noise values compared to baseline conditions that would be attributable to the Proposed Project. To facilitate comparison and minimize duplication, the CNEL values for the Baseline Plus Alternative 1 and the Baseline Plus No Project scenarios is also provided in Table 4.7-7. NMS with noise levels equal to or above 65 CNEL are shown in bold type. Only the close-in NMS 1S, 2S, 3S located in the Santa Ana Heights community in the City of Newport Beach and NMS 8N located in the City of Irvine show noise levels above 65 CNEL for any case. However, it should be noted that NMS 8N is located in a commercial area with no nearby sensitive uses.

TABLE 4.7-7
BASELINE (2016) PLUS GAIP SCENARIOS
CNEL AT NOISE MONITORING STATIONS

NMS[a]	Baseline (2016)	Baseline Plus No Project	Baseline Plus Proposed Project	Baseline Plus Alternative 1
1S	**67.77**	**67.85**	**67.86**	**67.87**
2S	**66.66**	**66.74**	**66.73**	**66.74**
3S	**66.46**	**66.60**	**66.61**	**66.63**
4S	59.62	59.72	59.73	59.74
5S	58.95	59.05	59.06	59.07
6S	59.95	60.10	60.11	60.13
7S	56.00	56.04	56.04	56.04
8N	**68.31**	**68.36**	**68.37**	**68.37**
9N	45.59	45.65	45.64	45.63
10N	55.27	55.32	55.32	55.31

CNEL: Community Noise Equivalent Level; NMS: Noise Monitoring Terminal

[a] NMS 1S, 2S, and 3S are located in the Santa Ana Heights Community of the City of Newport Beach; NMS 4S, 5S, 6S and 7S are located in the City of Newport Beach, NMS 8N is located in the City of Irvine, NMS 9N is located in the City of Santa Ana; and NMS 10N is located in the City of Tustin.

Source: Landrum & Brown 2018

Table 4.7-8 presents the change in noise level in terms of CNEL relative to Baseline (2016) conditions. NMS that are located in areas with noise levels above 65 CNEL are bolded.[6] The noise contours for the Baseline Plus Proposed Project are shown in Exhibit 4.7-9. A comparison of the Baseline (2016) 60, 65, 70, and 75 CNEL contours and the projected contours for the Baseline with the Proposed Project are shown. As shown, the CNEL noise contours in the Baseline (2016) Plus Proposed Project remain approximately the same size and shape as the Baseline (2016) noise contours. The change in general aviation operations from the Proposed Project has a

[6] The AEDT computes the noise level to hundredths of a decibel, but that the overall absolute accuracy of the model is more in the range of plus or minus 1.5 to 2 dB.

negligible impact on the CNEL noise contours. In this scenario, the total contour areas between 60 and 65 CNEL would increase by 0.03 square mile (0.9 percent), and the area between 65 and 70 CNEL would increase by 0.01 square mile (0.6 percent) when compared to the Baseline (2016) noise contours. The area exceeding 70 CNEL would increase by 0.01 square mile (0.7 percent) over Baseline (2016) conditions. The total number of residences exposed to noise levels between 65 and 70 CNEL would increase by 10 residences (4.0 percent). No additional dwelling units would be exposed to 70+ CNEL. However, based on the thresholds identified above, the change in aviation noise level would not increase at a level greater than the significance threshold at any NMS. Although additional residences would be in the 65 to 70 CNEL contour compared to the Baseline (2016) condition, these residences are included in the area covered by the AIP approved in conjunction with the 1985 Master Plan (see discussion under Background). Exhibit 4.7-10 depicts the 1985 Master Plan contour, which was the basis for the AIP, and the Baseline (2016) with the Proposed Project 65 CNEL contour.[7] Of these units, four multi-family units are non-conforming uses (residential use in a business park zone) and a prescriptive avigation easement has been acquired; two units have received acoustical insulation and an avigation easement has been acquired; one unit refused the offer of acoustical insulation; a genuine effort to offer insulation to two units was made but no response was received; and one unit has participated in the purchase assurance program, received insulation, and an avigation easement was acquired.

TABLE 4.7-8
CHANGES IN CNEL VALUES COMPARED TO BASELINE (2016)
AT NOISE MONITORING STATIONS

NMS[a] Baseline (2016)	Baseline Plus No Project	Baseline Plus Proposed Project	Baseline Plus Alternative 1
1S	**0.08**	**0.09**	**0.10**
2S	**0.08**	**0.07**	**0.08**
3S	**0.14**	**0.15**	**0.17**
4S	0.10	0.11	0.12
5S	0.10	0.11	0.12
6S	0.15	0.16	0.18
7S	0.04	0.04	0.04
8N	**0.05**	**0.06**	**0.06**
9N	0.06	0.05	0.04
10N	0.05	0.05	0.04

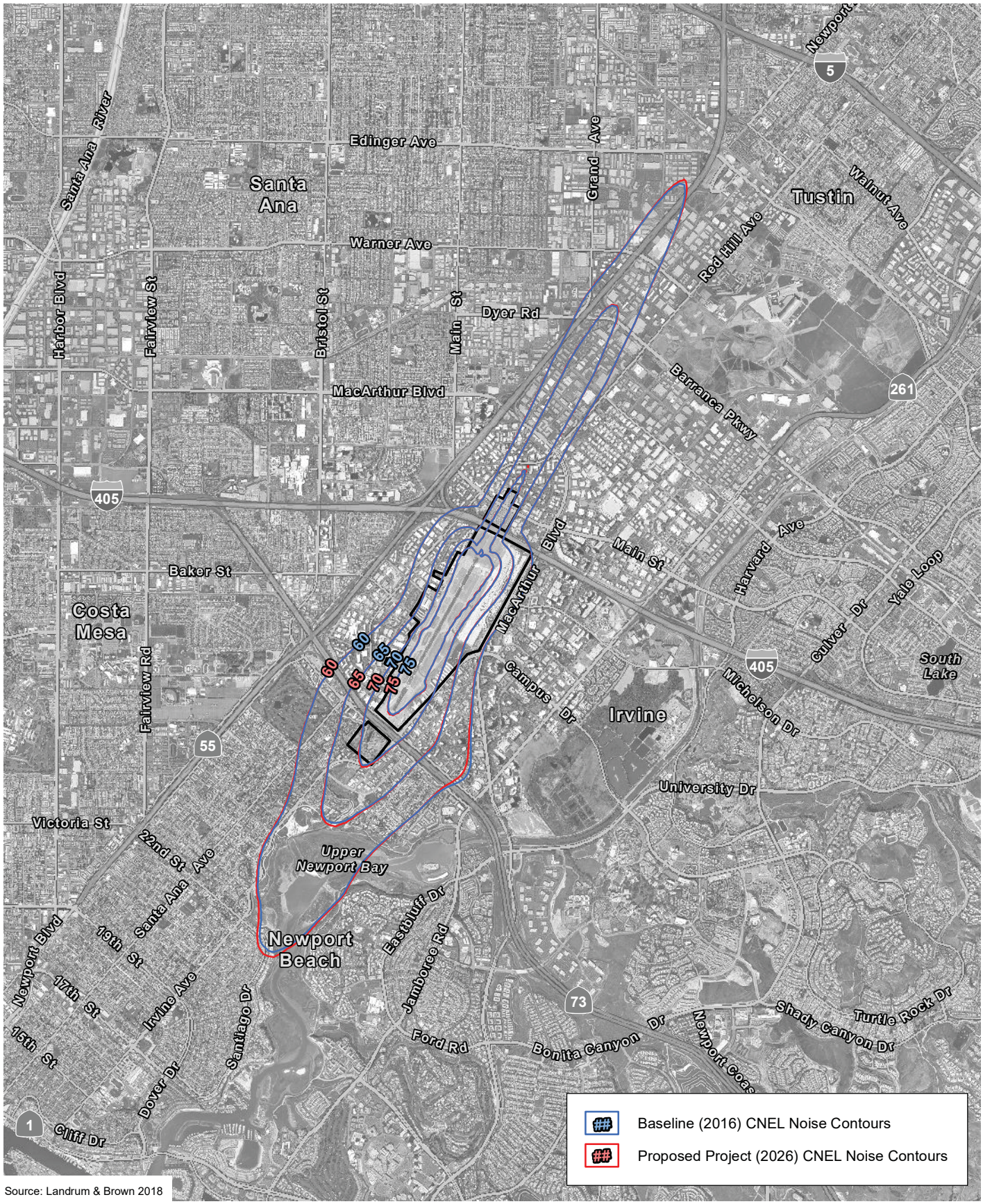
CNEL: Community Noise Equivalent Level; NMS: Noise Monitoring Terminal

[a] Noise monitors within the 65 CNEL are shown in **bold**.

Source: Landrum & Brown 2018

Since none of the increases at any of the NMS would be greater than the significance threshold, impacts for the Proposed Project would be less than significant for the Baseline (2016) Plus Proposed Project scenario.

[7] As shown in Exhibit 4.7-10 the 65 CNEL contour is generally larger with the 1985 Master Plan than with the Proposed Project 2026 noise contours. There is one location east of Britch Street where the Proposed Project contour is slightly larger; however, this area consists of non-noise sensitive land uses (i.e., office buildings).



Source: Landrum & Brown 2018

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Baseline (2016) and Baseline Plus Proposed Project CNEL Noise Contours

Exhibit 4.7-9

John Wayne Airport General Aviation Improvement Program

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JOHN WAYNE AIRPORT ORANGE COUNTY

Source: Landrum & Brown 2018
Aerial Source: ESRI 2016

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1985 Master Plan Departure and Baseline (2016) Plus Proposed Project 65 CNEL Noise Contour

Exhibit 4.7-10

John Wayne Airport General Aviation Improvement Program

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JOHN WAYNE AIRPORT
ORANGE COUNTY

The Proposed Project does provide for construction of new office space and a flight school, which would be required to meet the interior noise criteria as specified in the Noise Element and Land Use/Noise Compatibility Manual. This requirement is contained in SC NOI-1.

Traffic Noise Impacts

Changes in traffic patterns caused by the Proposed Project would result in a slight increase in traffic noise levels along the roadways on the west side of the Airport and a slight decrease in traffic noise levels on the east side of the Airport. Changes in CNEL traffic noise levels along roadways in the vicinity of JWA were calculated using the traffic volumes provided in the *Traffic Impact Analysis* (Appendix I to this Program EIR).[8]

Table 4.7-9 shows the traffic noise level increases in dB CNEL on each of the roadway segments affected by the Proposed Project. The first column lists the roadway and segment analyzed. The second column of the table lists the Baseline (2016) average daily traffic ("ADT") volume for the roadway segment. The third column lists the additional ADT attributable to the Proposed Project. The fourth column lists the Baseline (2016) Plus Proposed Project ADT volume. The fifth column lists the increase in noise level due to the Proposed Project. The values listed in this column are due to the difference between the Baseline (2016) traffic volumes and the Baseline Plus Proposed Project traffic volumes. The noise increase is due solely to the Proposed Project and represents the greatest increase that can be attributable to the Proposed Project.

[8] The traffic analysis is presented in Section 4.8 of this Program EIR.

TABLE 4.7-9
TRAFFIC NOISE LEVEL INCREASES
PROPOSED PROJECT COMPARED TO BASELINE (2016)

Roadway and Segment	Baseline (2016) ADT	Proposed Project ADT	Baseline Plus Proposed Project ADT	Increase in Noise Level (dB)
Paularino Avenue				
West of SR-55	16,000	80	16,080	0.0
SR-55 to Red Hill Avenue	12,000	480	12,480	0.2
Red Hill Avenue to Airway Avenue	4,000	520	4,520	0.5
Baker Street				
West of SR-55	27,000	40	27,040	0.0
SR-55 to Red Hill Avenue	20,000	140	20,140	0.0
Red Hill Avenue to Airway Avenue	6,000	220	6,220	0.2
Bristol Street				
Paularino Avenue to I-405	36,000	80	36,080	0.0
Red Hill Avenue				
North of SR-73	19,000	80	19,080	0.0
South of Baker Street	15,000	80	15,080	0.0
Baker Avenue to Paularino Avenue	18,000	60	18,060	0.0
Paularino Avenue to Airport Loop Drive	19,000	40	19,040	0.0
Airport Loop Drive to Main Street	20,000	40	20,040	0.0
Campus Drive				
SR-73 to Quail Street	34,000	-440	33,560	-0.1
n/o Dove Street	32,000	-450	31,550	-0.1
s/o MacArthur Blvd	32,000	-300	31,700	0.0
MacArthur Blvd to Von Karman Avenue	13,000	-40	12,960	0.0
MacArthur Blvd				
Campus Drive to Michelson Drive	35,000	-260	34,740	0.0
Michelson Drive to I-405	53,000	-250	52,750	0.0

ADT: Average Daily Traffic; dB: decibels; Blvd: Boulevard; I: Interstate; SR: State Route ; n/o: north of; s/o: south of
Source: Landrum & Brown 2018

As shown in Table 4.7-9, no roadways with existing adjacent noise-sensitive uses are projected to experience a traffic noise level increase greater than 0.5 dB. Therefore, the Proposed Project would not result in a significant traffic noise impact.

Impact Conclusion: *The Proposed Project would result in minor increases in aviation noise levels compared to the Baseline (2016) condition. The increases would occur at four NMS that are within the 65 CNEL contour (NMS 1S, 2S, 3S, and 8N). The largest increase (NMS 3S) is 0.15 CNEL, which is 0.01 CNEL higher than the Baseline Plus No Project Alternative. The increase in aviation noise would*

result in ten residences currently outside the 65 CNEL contour being included in the 65 CNEL contour. However, these units are already included in the AIP program adopted as part of the 1985 Master Plan, which was adopted to mitigate noise impacts to sensitive land uses south of the Airport. Interior noise levels for the new facilities at the Airport would be consistent with the Orange County requirements through the implementation of SC NOI-1.

In addition to aviation noise, the redistribution in traffic would result in increased traffic on the west side of the Airport, which would result in an incremental increase in traffic noise levels. The greatest increase is projected to be 0.5 dB. Additionally, no noise-sensitive uses adjacent to the roadways would be exposed to the increased noise level.

None of the increases in noise level exceed the performance standard established for determining a significant impact under Thresholds 4.7-1, 4.7-2, and 4.7-4.

Alternative 1

Aviation Noise Impacts

As with the Proposed Project, the analysis of Alternative 1 compared to the Baseline (2016) condition took the baseline noise contours and applied the 2026 general aviation fleet mix and operations proposed for Alternative 1. The specific CNEL values at each NMS for the Baseline (2016) and the Baseline (2016) Plus Alternative 1 are provided in Table 4.7-7, above. This provides an assessment of the change in noise values compared to baseline conditions that would be attributable to Alternative 1. Only the close-in NMS 1S, 2S, 3S located in the Santa Ana Heights community in the City of Newport Beach and NMS 8N located in the City of Irvine show noise levels above 65 CNEL, which is the case for the Baseline (2016) scenario as well.

Table 4.7-8, also presented above, shows that the largest increase with Alternative 1 compared to the Baseline (2016) condition is an increase of 0.18 CNEL. The noise contours for the Baseline Plus Alternative 1 are shown in Exhibit 4.7-11. The CNEL noise contours in the Baseline (2016) Plus Alternative 1 remain approximately the same size and shape as the Baseline (2016) noise contours. The change in general aviation operations from Alternative 1 has a negligible impact on the CNEL noise contours. In this scenario, the total contour areas between 60 and 65 CNEL will increase by 0.03 square mile (0.9 percent), and the area between 65 and 70 CNEL will increase by 0.01 square mile (0.6 percent) when compared to the Baseline (2016) noise contours. The area exceeding 70 CNEL will increase by 0.01 square mile (0.7 percent) over Baseline (2016) conditions. The number of residences between 65 and 70 CNEL would increase by 12 residences (4.9 percent), and no additional dwelling units would be exposed to 70+ CNEL. Of these units, six multi-family units are non-conforming uses (residential use in a business park zone) and a prescriptive avigation easement has been acquired; two units have received acoustical insulation and an avigation easement has been acquired; one unit declined the offer of acoustical insulation; a genuine effort to offer insulation to two units was made but no response was received; and one unit has participated in the purchase assurance program, received insulation, and an avigation easement was acquired.

As with the Proposed Project, the change in noise level associated with Alternative 1 would not increase at a level greater than the significance threshold at any NMS. Although additional residences would be in the 65 to 70 CNEL contour compared to the Baseline (2016) condition, these residences are included in the area covered by the AIP approved in conjunction with the 1985 Master Plan (see discussion under Background). Exhibit 4.7-12 depicts the 1985 Master Plan contour, which was the basis for the AIP, and the Baseline (2016) with the Alternative 1 65 CNEL contour.

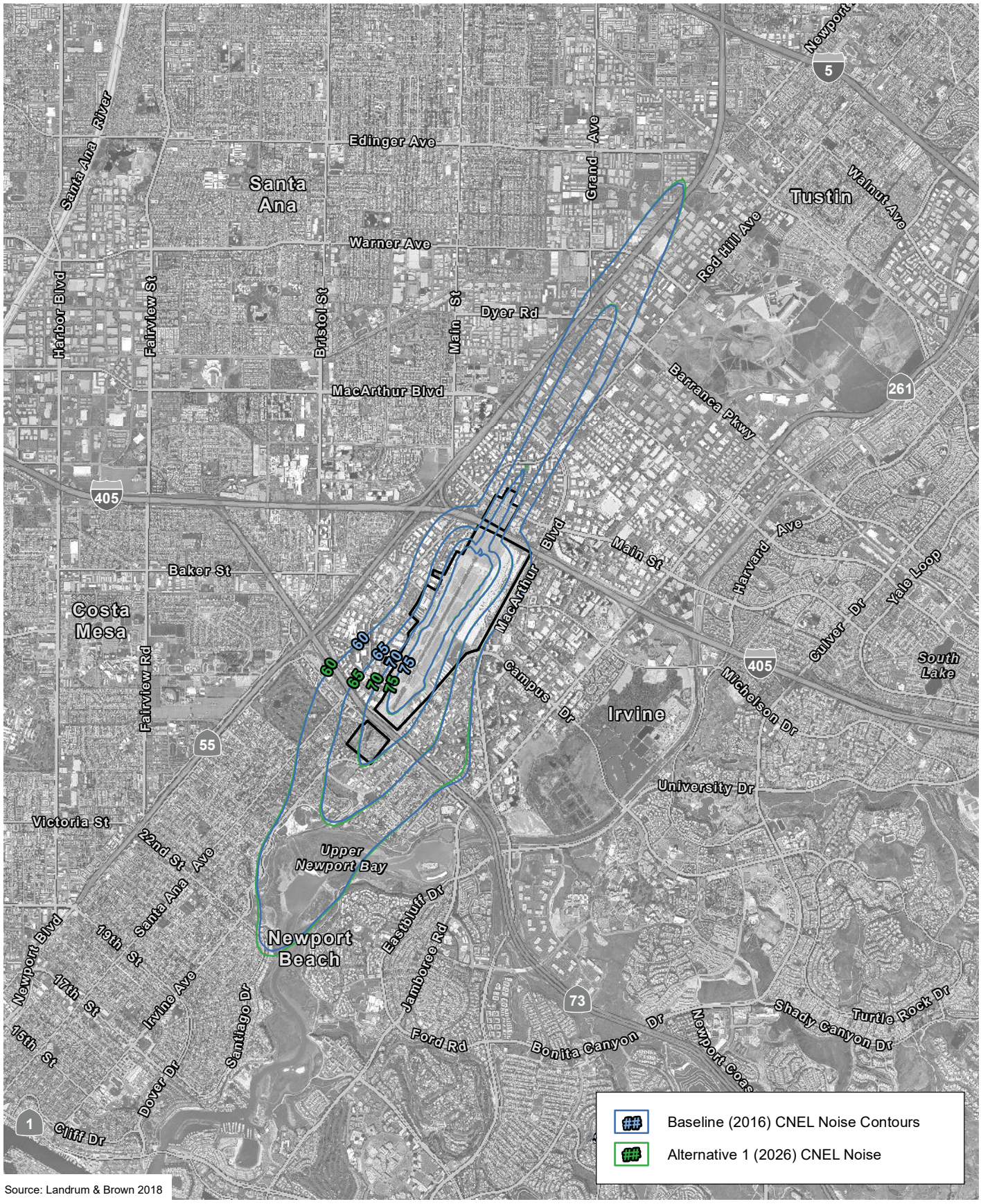
The change in noise level does not increase at a level greater than the significance threshold at any NMS. Therefore, impacts for Alternative 1 would be less than significant for the Baseline (2016) Plus Alternative 1 scenario.

Alternative 1 does provide for construction of new office space and the flight school, which would be required to meet the interior noise criteria as specified in the Noise Element and Land Use/Noise Compatibility Manual. This requirement is contained in SC NOI-1.

Traffic Noise Impacts

As with the Proposed Project, changes in traffic patterns caused by Alternative 1 would result in a slight increase in traffic noise levels along the roadways on the west side of the Airport and a slight decrease in traffic noise levels on the east side of the Airport. Changes in CNEL traffic noise levels along roadways in the vicinity of JWA were calculated using the traffic volumes provided in the *Traffic Impact Analysis*.

Table 4.7-10 shows the traffic noise level increases in dB CNEL on each of the roadway segments affected by Alternative 1. The first column lists the roadway and segment analyzed. The second column of the table lists the Baseline (2016) average daily traffic ("ADT") volume for the roadway segment. The third column lists the additional ADT attributable to Alternative 1. The fourth column lists the Baseline (2016) Plus Alternative 1 ADT volume. The fifth column lists the increase in noise level due to Alternative 1. The values listed in this column are due to the difference between the Baseline (2016) traffic volumes and the Baseline Plus Alternative 1 traffic volumes. The noise increase is due solely to Alternative 1 and represents the greatest increase that can be attributable to Alternative 1.



Source: Landrum & Brown 2018

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Baseline (2016) and Baseline Plus Alternative 1 CNEL Noise Contours

Exhibit 4.7-11

John Wayne Airport General Aviation Improvement Program

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JOHN WAYNE AIRPORT ORANGE COUNTY

Source: Landrum & Brown 2018
Aerial Source: ESRI 2016

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1985 Master Plan Departure and Baseline (2016) Plus Alternative 1 65 CNEL Noise Contour

Exhibit 4.7-12

John Wayne Airport General Aviation Improvement Program

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JOHN WAYNE AIRPORT
ORANGE COUNTY

TABLE 4.7-10
TRAFFIC NOISE LEVEL INCREASES
ALTERNATIVE 1 COMPARED TO BASELINE (2016)

Roadway and Segment	Baseline (2016) ADT	Alternative 1 ADT	Baseline Plus Alternative 1 ADT	Increase in Noise Level (dB)
Paularino Avenue				
West of SR-55	16,000	60	16,060	0.0
SR-55 to Red Hill Avenue	12,000	380	12,380	0.1
Red Hill Avenue to Airway Avenue	4,000	410	4,410	0.4
Baker Street				
West of SR-55	27,000	30	27,030	0.0
SR-55 to Red Hill Avenue	20,000	110	20,110	0.0
Red Hill Avenue to Airway Avenue	6,000	170	6,170	0.1
Bristol Street				
Paularino Avenue to I-405	36,000	60	36,060	0.0
Red Hill Avenue				
North of SR-73	19,000	60	19,060	0.0
South of Baker Street	15,000	60	15,060	0.0
Baker Avenue to Paularino Avenue	18,000	45	18,045	0.0
Paularino Avenue to Airport Loop Drive	19,000	30	19,030	0.0
Airport Loop Drive to Main Street	20,000	30	20,030	0.0
Campus Drive				
SR-73 to Quail Street	34,000	-340	33,660	0.0
n/o Dove Street	32,000	-350	31,650	0.0
s/o MacArthur Blvd	32,000	-230	31,770	0.0
MacArthur Blvd to Von Karman Avenue	13,000	-30	12,970	0.0
MacArthur Blvd				
Campus Drive to Michelson Drive	35,000	-200	34,800	0.0
Michelson Drive to I-405	53,000	-190	52,810	0.0

ADT: Average Daily Traffic; Blvd: Boulevard; dB: decibels; I: Interstate; SR: State Route
Source: Landrum & Brown 2018

As shown in Table 4.7-9, no roadways with existing adjacent noise-sensitive uses are projected to experience a traffic noise level increase greater than 0.5 dB. Therefore, the Proposed Project would not result in a significant traffic noise impact.

Impact Conclusion: *Alternative 1 would result in minor increases in aviation noise levels compared to the Baseline (2016) condition. The increases would occur at four NMS that are within the 65 CNEL contour (NMS 1S, 2S, 3S, and 8N). The largest increase (NMS 3S) is 0.17 CNEL and is 0.03 CNEL higher than the Baseline Plus No Project Alternative. The increase in aviation noise would*

result in 12 residences currently outside the 65 CNEL contour being included in the 65 CNEL contour. However, these units are already included in the AIP program adopted as part of the 1985 Master Plan, which was adopted to mitigate noise impacts to sensitive land uses south of the Airport. Interior noise levels for the new facilities at the Airport would be consistent with the Orange County requirements through the implementation of SC NOI-1.

In addition to aviation noise, the redistribution in traffic would result in increased traffic on the west side of the Airport, which would result in an incremental increase in traffic noise levels. The greatest increase is projected to be 0.4 dB. Additionally, no noise-sensitive uses adjacent to the roadways would be exposed to the increased noise level.

None of the increases in noise level exceed the performance standard established for determining a significant impact under Thresholds 4.7-1, 4.7-2, and 4.7-4.

Threshold 4.7-3

- ***Would the project cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?***

Proposed Project and Alternative 1

Construction activities would result in a temporary increase in ambient noise. Construction equipment can be considered to operate in two modes: stationary and mobile. Noise impacts from stationary equipment are assessed from the center of the equipment, while noise impacts for mobile construction equipment are assessed as emanating from the center of the equipment activity or construction site. The construction activities for the Proposed Project and Alternative 1 would be similar; therefore, they are addressed together.

Construction noise is related primarily to the use of heavy equipment. Typical maximum noise levels generated by representative pieces of construction equipment are listed in Table 4.7-11; however, not all this equipment would be utilized during construction of the GAIP improvements. Noise levels at any receptor point vary as equipment moves around a site. Noise levels of individual pieces of equipment also vary as equipment use ranges from full power to idle. The typical percentage of time at full power is indicated by the acoustic usage factors in Table 4.7-11. Each phase of construction has a different equipment mix depending on the work to be accomplished during that phase. Each phase also has its own noise characteristics; some will have higher continuous noise levels than others, and some have high-impact noise levels. The loudest phases of the Proposed Project and Alternative 1 are anticipated to be demolition and grading. However, the GAIP would involve limited grading because the site has already been developed. Following grading, construction noise levels are less because fewer pieces of construction equipment are used and the equipment used is generally smaller and quieter than demolition and grading equipment. For point sources, such as construction equipment, the sound level attenuates (or drops off) at a rate of 6 dBA for each doubling of the distance (i.e., if the noise level is 70 dBA at 25 feet, it is 64 dBA at 50 feet).

TABLE 4.7-11
TYPICAL MAXIMUM CONSTRUCTION NOISE LEVELS

Equipment	Noise Level (dBA) at 50 ft	Acoustic Usage Factor
Auger Drill Rig	85	20%
Backhoe	80	40%
Blasting	94	1%
Chain Saw	85	20%
Clam Shovel	93	20%
Compactor (ground)	80–82	20%
Compressor (air)	80	40%
Concrete Mixer Truck	85	40%
Concrete Pump	82	20%
Concrete Saw	90	20%
Crane (mobile or stationary)	85	20%
Dozer	85	40%
Dump Truck	84	40%
Excavator	85	40%
Front End Loader	80	40%
Generator (25 KVA or less)	70	50%
Generator (more than 25 KVA)	82	50%
Grader	85	40%
Hydra Break Ram	90	10%
In situ Soil Sampling Rig	84	20%
Jackhammer	85	20%
Mounted Impact Hammer (hoe ram)	90	20%
Paver	85	50%
Pile Driver, Impact (diesel or pneumatic)	95–101	20%
Pile Driver, Vibratory	95	20%
Pneumatic Tools	85	50%
Pumps	77	50%
Rock Drill	85	20%
Scraper	85	40%
Tractor	84	40%
Vacuum Excavator (vac-truck)	85	40%
Vibratory Concrete Mixer	80	20%

dBA: A-weighted decibels; ft: foot/feet; KVA: kilovolt amps
Source: Thalheimer 2000; FTA 2006

Construction activities are exempt from the quantitative limits of the Orange County Noise Ordinance provided the construction does not take place between the hours of 8:00 PM and 7:00 AM on weekdays, including Saturday, or at any time on Sunday or a federal holiday. However, due to FAA safety restrictions it is anticipated that some night construction would occur.

The nearest sensitive land uses to the GAIP construction is a new multi-story residential building on the south corner of Baker Street and SR-55. These residences are located about 1,760 feet from the nearest section of the construction zone. Existing commercial buildings are located between the Airport and the residential buildings, which provides attenuation to the construction noise. Based on this distance and the height of the intervening buildings, the worst-case mitigated peak (L_{max}) construction noise levels would be in the 44- to 59-dBA range at those residences on the east side of SR-55 for very short periods. The average noise levels are typically 5 to 15 dB lower than the peak noise levels. Average noise levels (L_{eq}) at the nearby residences could be in the range of 34 to 49 dBA. These noise levels are below the nighttime noise ordinance level (50 dBA) for the City of Costa Mesa, and the resultant noise levels are lower than existing ambient conditions in this area, which are about 65 dB CNEL. Therefore, noise from construction activities at the Airport for the Proposed Project would not impact the noise-sensitive land uses nearest to the proposed construction area.

Impact Conclusion: *Construction activities for the Proposed Project and Alternative 1 would generate noise. Although construction activities are exempt from the quantitative limits of the Orange County Noise Ordinance, nighttime construction activities may be required. The closest residences to the construction area are approximately 1,760 feet away. This distance and the intervening commercial buildings would provide enough attenuation that construction noise impacts would be less than significant under Threshold 4.7-3.*

4.7.8 CUMULATIVE IMPACTS

For purposes of CEQA, "cumulative impacts" refer to individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Because of the way noise levels are combined, in order for two noise sources to result in a cumulative impact, the noise levels generated by the sources need to generate similar noise levels that are just below or exceeding an applicable noise standard, 65 CNEL for residences. Two noise sources generating equal noise levels will result in a cumulative noise level 3 dB greater than the level from only one of the sources. Therefore, the noise levels from two individual sources would need to be within 3 dB of the standard for a cumulative impact to be possible. If the noise levels from two sources differ by 10 dB or more, the cumulative noise level is the same as the louder noise source. The noise levels must be within 4 dB of each other for the cumulative noise level to be 1.5 dB greater than the loudest noise level. These facts considerably limit the situations where cumulative noise impacts could occur.

The cumulative projects that would contribute to a change in the noise environment at the Airport are the FAA's SoCal Metroplex project and the 2014 John Wayne Airport Settlement Agreement Amendment. The final procedures in the Metroplex were implemented in April 2017; however, the departure patterns were modified three times in 2017, with the latest

modifications occurring in December 2017. As noted in Section 1.9, the FAA is reviewing the possible implementation of the City-requested procedure that would utilize satellite guidance to more accurately direct aircraft along the middle of the Upper Newport Bay. Due to the uncertainty of the final departure pattern, the cumulative noise analysis does not assume different flight paths than those currently being used because it would be speculative.

As noted in Section 4.0, the 2014 Settlement Agreement Amendment provided for the modification to the terms of an agreement between the Orange County Board of Supervisors, City of Newport Beach, and two community groups pertaining to the commercial carrier operations at JWA. The amendment extends the term of the agreement through 2030 and allows an incremental increase in the number of regulated flights and passengers at the Airport. The amendment will allow an increase from 10.8 million annual passengers ("MAP") up to 12.5 MAP in 2026.[9] The 2014 Final EIR 617, prepared for the Settlement Agreement Amendment, identified significant unavoidable impacts for noise, for which a Statement of Overriding Considerations was adopted. The noise impact and the associated land use impact result from an increase in the number of noise-sensitive uses exposed to noise levels in excess of the 65-dBA CNEL contour for JWA exterior noise standard. Although Final EIR 617 included a Sound Insulation Program as a mitigation measure, this program would reduce impacts associated with excess interior noise levels only to less than significant levels. There are no feasible mitigation measures for exterior noise level (See Section 4.7.1 for a discussion of the adopted sound insulation programs).

The cumulative analysis assumes the Phase 3 (2026 to 2030) operation of the commercial carriers consistent with the 2014 JWA Settlement Agreement Amendment. The assumptions on the total yearly general aviation aircraft operations by aircraft type (fleet mix) for the No Project, the Proposed Project, and Alternative 1 scenarios are provided in the *Noise Analysis Technical Report* (Appendix H of this Program EIR). The cumulative analysis reflects the number of air carrier flights and passenger levels consistent with year 2026 analysis in Final EIR 617, prepared for the 2014 Settlement Agreement Amendment.[10] The proposed GAIP would change only the general aviation operations and fleet mix at JWA. The Proposed Project and Alternative 1 do not change the number of air carrier operations, runway use, or flight tracks. The air carrier operations at JWA are the greatest influence on the size and shape of the noise contours, while the general aviation traffic contributes only a small amount to the contour size and shape. The assumptions for commercial operations are consistent for each of the GAIP scenarios evaluated.

A direct comparison of the analysis in this Program EIR to the data presented in Final EIR 617 cannot be made for several reasons. First, the FAA model used for calculating the noise impacts is different from the model used in Final EIR 617. As discussed in Section 4.7.3, the FAA has

[9] The Settlement Agreement, at the time amendment was being processed, allowed up to 85 Class A Average Daily Departures ("ADD") 10.8 Million Annual Passengers ("MAP"). The amendment assumes the flight and passenger levels allowed under the Settlement Agreement would remain unchanged until January 1, 2021, at which point it would be allowed to increase to 95 Class A ADDs and 11.8 MAP. On January 1, 2026, the number of passengers would again be able to increase, to up to 12.5 MAP, depending upon the actual service levels in the preceding five years. The analysis in Final EIR 617 and this Program EIR assume the full number of allowed flights and passengers served would occur on January 1, 2026.

[10] The noise analysis does take into account the Boeing 737-MAX and Airbus A320-NEO families increasing in operation at JWA. The forecasted increase at JWA is based on the current aircraft orders reported by Boeing and Airbus in the U.S. These aircraft families include substantial noise reduction features and are beginning to operate at JWA now. The AEDT version 2d includes the Boeing 737-MAX aircraft in the model; however, the A320-NEO is not currently included in the model. Therefore, measured data at the NMT for the NEO was used to create a new aircraft type in the AEDT that reflects the operating characteristics of the NEO..

developed AEDT for evaluating aircraft noise impacts in the vicinity of airports. The AEDT replaced the Integrated Noise Model ("INM"), which was used in Final EIR 617, for predicting noise impacts in the vicinity of airports. Per the FAA, many updates and corrections representing the best available science have been incorporated into AEDT, which will result in differences when comparing results from AEDT with the "legacy tools" (FAA 2016).[11]

Additionally, since the preparation of the 2014 JWA Settlement Agreement Amendment Final EIR 617, a new JWA noise monitoring system was installed in 2015 replacing the system that was in place during the preparation of the 2014 Settlement Agreement Amendment. Because of the noise sensitivity of the new noise monitoring equipment, among other reasons, the Airport conducted a side-by-side noise analysis to compare the two noise monitoring systems prior to switching over to the new noise monitoring equipment. Based upon an analysis of the side-by-side noise data, the parties to the 1985 Settlement Agreement, as amended, and the Board approved noise level adjustments for Class A and Class E commercial aircraft operations at JWA noise monitoring stations (NMS) 1S, 2S, 3S, 4S, 5S, 6S, and 7S. Specifically, Class A and Class E aircraft noise levels of the Phase 2 Access Plan, which regulate noise levels for scheduled commercial operations, were revised. Additionally, the settlement parties and the Board approved adjustments to permitted noise levels for general aviation aircraft operations at NMS 1S, 2S, 3S (daytime and nighttime hours), and NMS 4S, 5S, 6S, 7S, 8N, 9N, and 10N (nighttime hours) by revising applicable sections of the GANO, which regulate noise levels for general aviation aircraft. This is further discussed above under Existing Conditions with comparative information shown in Table 4.7-5.

In the context of these approved adjustments, it is important to note, although ideally the new noise monitoring system would measure the exact same level for each noise event as the previous system, this type of accuracy is not technologically feasible because the new equipment is more advanced and more sensitive than the previous equipment. The approved adjustments were required solely to reflect the technical capabilities of the new equipment in comparison to the previous equipment. The comparative values for each NMS are presented in Table 4.5-7. For example, the parity study identified a noise level at NMS 5S of 94.6 dB for a Class A flight with the previous noise monitoring system and a noise level of 95.3 dB with the new noise monitoring system when monitoring the same noise event. The 0.7 dB increase is not a change in the amount of noise actually generated, rather an adjustment to ensure that the change in noise monitoring technology and equipment neither increased nor decreased the noise levels permitted in the County's access and noise regulations. This issue is more fully explained in the discussion of the Noise Monitoring System in Section 4.7.4

Finally, the FAA has studied and implemented flight path changes around the Airport's airspace since 2016. These FAA flight path changes concentrate aircraft flight paths, specifically departures to the southwest, on a more narrowly defined flight corridor when compared with a more dispersed flight corridor prior to 2016. As a result of these FAA initiated flight path changes, the measured NMS noise levels for the Existing (2016) conditions are not directly comparable to the 2013 measured NMS noise levels shown in the 2014 Settlement Agreement Amendment Final EIR 617. Additionally, since the Existing (2016) and Future (2026) noise

[11] The FAA references "legacy tools" as previous FAA tools used for modeling noise, emissions, and fuel consumption. These legacy tools include the INM, Emissions and Dispersion Modeling System ("EDMS"), and Noise Integrated Routing System ("NIRS") (FAA 2016).

contours in this report are based on the 2016 measured NMS noise levels, these contours are also not directly comparable to those in the Final EIR 617 report.

CNEL values have been calculated for each NMS. Table 4.7-12 presents CNEL values at each of the NMS for Existing (2016) conditions, and all of the future (2026) scenarios. NMS with noise levels equal to or above 65 CNEL are shown in bold type. Only the close-in NMS 1S, 2S, 3S located in the Santa Ana Heights community in the City of Newport Beach and NMS 8N located in the City of Irvine show noise levels above 65 CNEL for any case. However, NMS 8N is located in a commercial area with no nearby sensitive uses.

TABLE 4.7-12
CUMULATIVE (2026) MODELED CNEL VALUES COMPARED TO BASELINE (2016) AT NOISE MONITORING STATIONS

NMS[a]	Baseline (2016)	Future (2026) No Project	Future (2026) Proposed Project	Future (2026) Alternative 1
1S	**67.77**	**67.60**	**67.61**	**67.63**
2S	**66.66**	**66.72**	**66.73**	**66.75**
3S	**66.46**	**66.90**	**66.95**	**66.98**
4S	59.62	59.68	59.70	59.72
5S	58.95	59.56	59.59	59.61
6S	59.95	60.81	60.86	60.88
7S	56.00	57.06	57.10	57.12
8N	**68.31**	**69.18**	**69.20**	**69.20**
9N	45.59	48.08	48.08	48.07
10N	55.27	57.54	57.54	57.53

Noise monitors within the 65 CNEL are shown in **bold**.

[a] NMS 1S, 2S, and 3S are located in the Santa Ana Heights Community of the City of Newport Beach; NMS 4S, 5S, 6S, and 7S are located in the City of Newport Beach, NMS 8N is located in the City of Irvine, NMS 9N is located in the City of Santa Ana; and NMS 10N is located in the City of Tustin.

Source: Landrum & Brown 2018

Table 4.7-13 presents the change in noise level in terms of CNEL relative to existing year 2016 conditions. Using the County significance thresholds (see Table 4.7-4), none of the NMSs that exceed 65 CNEL in the baseline would experience an increase equal to or greater than 1.5 dB.[12] Since NMSs 9N and 10N have existing and projected noise levels below 60 CNEL the threshold for the identification of a significant impact is a 5 dB or greater increase. It should also be noted, these two NMS do not have noise sensitive land uses nearby. Additionally, as demonstrated by a comparison of the data for the Proposed Project and Alternative 1 to the Future No Project Alternative, the majority of the change in noise levels in 2026 is associated the approved increase in commercial carrier operations provided for through the 2014 JWA Settlement Agreement

[12] For disclosure purposes, the City of Newport Beach identifies a noise increase of 1.0 CNEL or more at a sensitive receptor where the existing exposure is 65 CNEL or above as a significant impact. Additionally, the City standards indicate when the resulting noise level is between 60 and 65 CNEL, a 2 dB increase results in a significant impact. None of the changes in noise levels between the 2016 Baseline and the 2026 cumulative condition at NMS in the City of Newport Beach would exceed the City's thresholds.

Amendment (i.e., there is nominal change associated with the Proposed Project and Alternative 1 when compared to the No Project).[13]

However, the change in noise level does not increase at a level greater than the significance threshold at any NMS even when comparing the 2026 cumulative noise levels (i.e., increase in commercial carrier operations and the GAIP operations) to the Baseline (2016) condition.

TABLE 4.7-13
CUMULATIVE (2026) CHANGES IN CNEL VALUES COMPARED TO BASELINE (2016) AT NOISE MONITORING STATIONS

NMS[1]	Future (2026) No Project	Future (2026) Proposed Project	Future (2026) Alternative 1
1S[a]	**-0.17**	**-0.16**	**-0.14**
2S	**0.06**	**0.07**	**0.09**
3S	**0.44**	**0.49**	**0.52**
4S	0.06	0.08	0.10
5S	0.61	0.64	0.66
6S	0.86	0.91	0.93
7S	1.06	1.10	1.12
8N	**0.87**	**0.89**	**0.89**
9N	2.49	2.49	2.48
10N	2.27	2.27	2.26

Noise monitors within the 65 CNEL are shown in **bold**.

[a] The reduction at NMS 1S reflects the increased usage of aircraft in the Boeing 737-MAX and Airbus A320-NEO families. These aircraft families include substantial noise reduction features, which are greatest at take-off with the most benefit realized in the closest proximity to the Airport.

Source: Landrum & Brown 2018

As shown in Table 4.17-13, in the cumulative scenarios, neither the Proposed Project nor Alternative 1 are projected to result in a significant noise impact at any NMS (i.e., an increase of 1.5 CNEL or more at a sensitive receptor where the existing exposure is 65 CNEL or above). In addition to CNEL values at the NMS, CNEL contours have been developed for the cumulative scenarios. As noted, the cumulative scenarios include the approved changes to commercial carrier operations (increased number of regulated flights and passengers served) in addition to the changes that would occur as a result of the GAIP. Exhibits 4.7-13 and 4.7-14 depict CNEL contours for the cumulative scenario departure path with the Proposed Project and Alternative 1, respectively. To provide a comparison, the Baseline (2016) and future (2026) No Project Alternative contours have been included on each of these exhibits. The No Project scenario is relevant for comparison because noise contours are dominated by the commercial carrier operations, and these will occur independently of the GAIP. The GAIP would make no changes to the terms of the 2014 Settlement Agreement Amendment, including no changes to the commercial operations levels or noise levels approved as part of the 2014 Settlement Agreement Amendment. The graphic depictions demonstrate that the increase in size of the noise contours

[13] Table 4.7-8, which quantifies the noise increase directly attributable to the GAIP, demonstrates the GAIP's small incremental noise increase for the Baseline (2016) Plus GAIP (the Proposed Project and Alternative 1).

from 2016 to 2026 is mainly due to the increase in commercial carrier aircraft previously addressed in Final EIR 617.

The specific land uses affected by these increases are discussed in Section 4.6.7 of this Program EIR. However, for the cumulative condition, the noise contours are dominated by the commercial carrier operations. A comparison to the noise contours for the cumulative GAIP (Proposed Project and Alternative 1) to the cumulative No Project noise contours shows that even though areas exposed to noise levels in excess of 65 CNEL would increase, the GAIP (Proposed Project and Alternative 1) would not substantially contribute to the cumulative noise increase. The reason for this is the Proposed Project and alternatives do not affect the number of commercial operations, fleet mix, runway use or flight tracks. Therefore, the cumulative impacts for the GAIP would be less than significant. Additionally, two noise mitigation programs have been previously adopted to address cumulative noise impacts. The eligibility for the Santa Ana Heights AIP, which has been extensively implemented as a mitigation measure for the 1985 Master Plan EIR, was based on the future 65 CNEL contour predicted in the 1985 Master Plan. This program was supplemented as part of the 2014 Settlement Agreement Amendment with the SIP. The SIP is designed to provide attenuation to residences significantly impacted by the commercial carrier operations. As previously noted in Section 4.7.1, to date there has not been a sufficient increase in noise levels to require implementation of the SIP. Final EIR 617 did not identify a potential impact until Phase 3 (2026 to 2030), which is reflected in the cumulative analysis used in this Program EIR.

4.7.9 MITIGATION PROGRAM

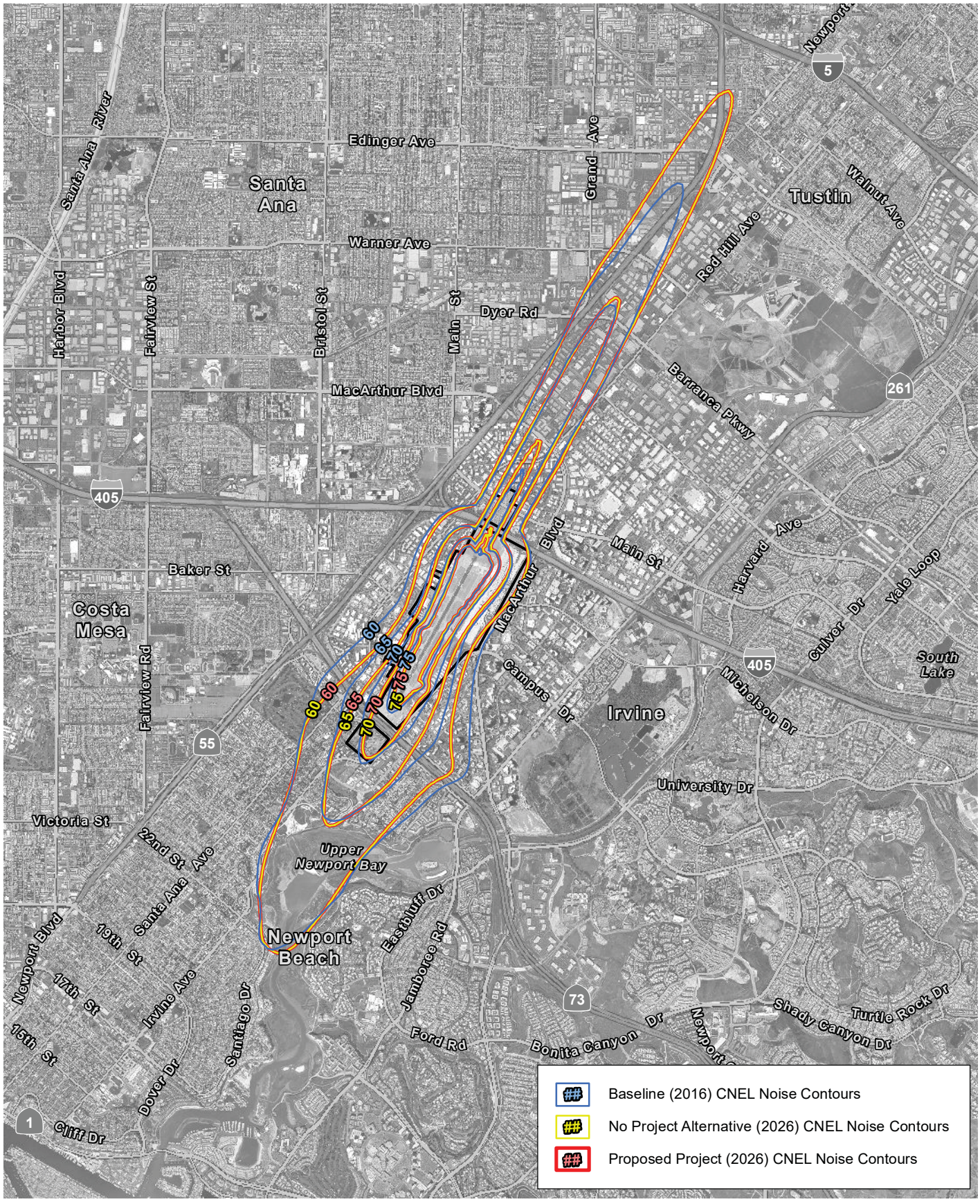
No significant noise impacts were identified; therefore, no additional noise mitigation measures are required. However, it should be noted that RR NOI-1 and SC NOI-1, identified in Section 4.7.6 would apply to the GAIP (Proposed Project and Alternative 1).

RR NOI-1 identifies that the Orange County Municipal Code Article 3 Section 2-1-30, General Aviation Noise Ordinance, would apply to general aviation activities and would serve to avoid potential noise impacts from daytime and nighttime operations.

SC NOI-1 would serve to ensure interior noise standards specified in the Noise Element and Land Use/Noise Compatibility Manual are achieved for noise-sensitive uses at the Airport, such as office space.

4.7.10 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Project and cumulative impacts would be less than significant for the Proposed Project and Alternative 1; however, RR NOI-1 and SC NOI-1 would apply to the GAIP (Proposed Project and Alternative 1).



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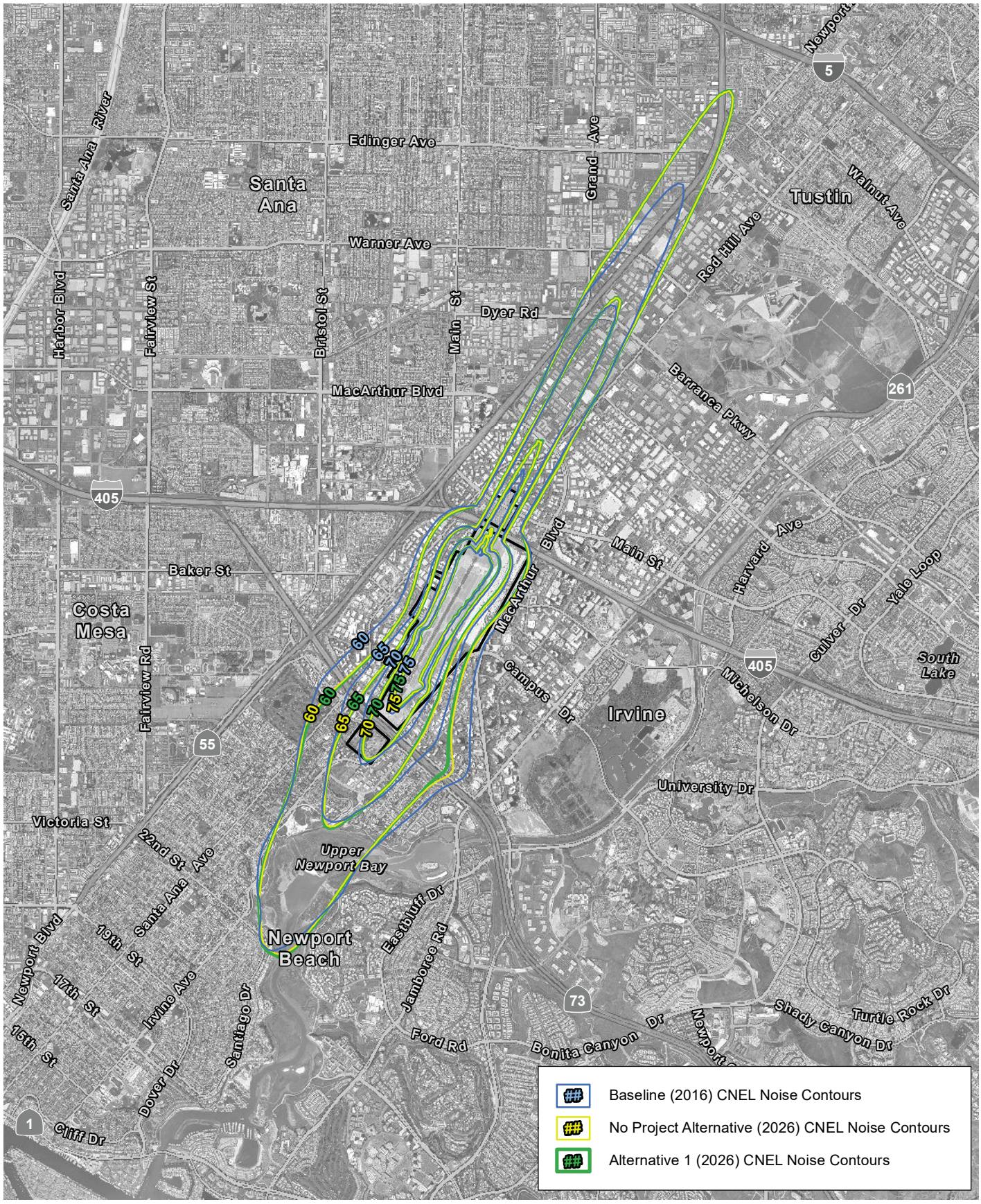
Baseline (2016), No Project Alternative (2026) and Cumulative with the Proposed Project (2026) CNEL Noise Contours

Exhibit 4.7-13

John Wayne Airport General Aviation Improvement Program



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Baseline (2016), No Project Alternative (2026) and Cumulative with Alternative 1 (2026) CNEL Noise Contours

Exhibit 4.7-14

John Wayne Airport General Aviation Improvement Program

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JOHN WAYNE AIRPORT ORANGE COUNTY

4.7.11 REFERENCES

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4.8 TRANSPORTATION/TRAFFIC

This section evaluates the potential for the General Aviation Improvement Program ("GAIP") to have adverse effects on transportation and traffic. Information in this section is based on the *General Aviation Improvement Program Traffic Impact Analysis* ("TIA") prepared for this Project by Austin Transportation Consulting ("ATC") (2018), which is provided as Appendix I to this Program EIR.

As discussed in Section 2.3.2, the thresholds pertaining to air traffic operations, design hazards due to incompatible uses, emergency access, and conflict with policies pertaining to alternative modes of transportation were focused out of this Program EIR at the time the Notice of Preparation was issued (refer to the Notice of Preparation ["NOP"]/Initial Study in Appendix A).

4.8.1 REGULATORY SETTING

State/Regional

Orange County Congestion Management Program

The Orange County Congestion Management Program ("CMP") was originally adopted in 1991 and updated most recently in November 2017. The goals of the Orange County CMP are to support regional mobility and air quality objectives by reducing traffic congestion, provide a mechanism for coordinating land use and development decisions that support the regional economy, and determine gas tax fund eligibility. To meet these goals, the CMP contains a number of policies designed to monitor and address system performance issues. The Orange County Transportation Authority ("OCTA") was designated as the Congestion Management Agency ("CMA") for the County. As a result, OCTA is responsible for the development, monitoring, and biennial updating of Orange County's CMP.

A key element of the CMP is the Land Use Impact Analysis Program, which requires local jurisdictions, in conjunction with approval of development projects, to analyze the potential impact of the approval on the CMP Highway System through the preparation of a CMP TIA. The CMP TIAs are designed to provide an improved basis for assessing the impacts of land use decisions on the regional transportation system, both within and outside the permitting jurisdiction, by providing a consistent format to identify impacts and mitigations and to evaluate mitigation costs. A CMP TIA has additional requirements and evaluations compared to a typical traffic study. A CMP TIA helps to determine appropriate mitigation measures and financial responsibilities for resolution of the ongoing CMP system impacts and for developing appropriate mitigations for future development projects.

General Plan Policies

The General Plans for the local jurisdictions contain policies on providing a balanced land use and transportation network. Many of these General Plans outline level of service ("LOS") standards. Where applicable, these standards have been incorporated into the thresholds of significance for determining if the GAIP would result in a significant traffic impact. As discussed in Section 4.8.2, Methodology, the thresholds used were developed in cooperation with the local jurisdictions surrounding the Airport (i.e., cities of Costa Mesa, Newport Beach, and Irvine).

However, the applicable General Plan would be the County of Orange General Plan since John Wayne Airport ("JWA" or "Airport") is an unincorporated area and the County is the lead agency for the GAIP. In addition, for informational disclosure purposes, the goals and policies applicable to JWA from the General Plans for the cities of Newport Beach, Irvine, and Costa Mesa have been addressed in Section 4.6, Land Use and Planning.

Senate Bill 743

The State Office of Planning and Research ("OPR") is currently developing revisions to the California Environmental Quality Act (CEQA) Guidelines under Senate Bill ("SB") 743. The revised CEQA Guidelines will establish new criteria for determining the significance of transportation impacts and will define alternative metrics to replace LOS. The legislation does not preclude the application of local general plan policies, zoning codes, conditions of approval, thresholds, or any other planning requirements related to level of service; rather, it identifies alternative performance metrics related to minimizing vehicle miles of travel ("VMT").

On August 6, 2014, OPR released the SB 743 guidelines in a document entitled *Updating Transportation Impacts Analysis in the CEQA Guidelines;* a revised proposal was released for public review on January 20, 2016. This was subsequently updated in November 2017. VMT is the proposed transportation metric for identifying impacts under CEQA, and the use of automobile delay described solely by LOS as the basis for impact significance will be replaced in Transit Priority Areas immediately once the guidelines go into effect. This is anticipated to occur in early 2018 after the draft guidelines are submitted to the Natural Resources Agency and go through the formal rulemaking process upon filing the guidelines with the Secretary of State. Outside of Transit Priority Areas, lead agencies may elect to be governed by the new guidelines once they go into effect or wait until they become mandatory.

As SB 743 guidelines have not yet been adopted, they are not required to be applied, and are not being applied, to the analysis for the GAIP. However, VMT data is provided for informational purposes.

4.8.2 METHODOLOGY

Traffic Study Area

The traffic study area for the GAIP was identified in cooperation with the local jurisdictions surrounding the Airport (i.e., cities of Costa Mesa, Newport Beach, and Irvine).[1] The analysis considers two study areas. The "primary study area" encompasses those intersections that are included in the peak hour impact analysis. The criteria for selecting this primary study area mirrors the significance criteria used for identifying Project impacts and includes those intersections that have a "measurable" change in traffic as defined by the performance criteria of the local jurisdiction (i.e., a peak hour ICU increase of more than 1.0 percent). The "secondary study area" is the area for which average daily traffic ("ADT") data is presented and includes the roadway system surrounding the Airport. Because of the specific intersection selection, the primary study area is more focused than the secondary study area.

[1] Section 7.0 (Table 7-2) provides a summary of the coordination efforts on the scope of the traffic analysis.

The primary study area encompasses intersections that are included in the peak-hour impact analysis. These intersections, which are shown in Exhibit 4.8-1, are listed below:

- State Route ("SR-") 55 Southbound ("SB") Ramps and Paularino Avenue
- SR-55 Northbound ("NB") Ramps and Paularino Avenue
- Red Hill Avenue and Paularino Avenue
- SR-55 SB Ramps and Baker Street
- SR-55 NB Ramps and Baker Street
- Red Hill Avenue and Baker Street

Baseline and Forecast Years

Pursuant to the requirements of the California Environmental Quality Act ("CEQA"), the analysis in this Program EIR evaluates the potential impacts associated with the "Existing Plus Project" scenario. For this hypothetical scenario, the GAIP traffic is added to the Baseline (2016) traffic.[2] The Baseline (2016) (i.e., Existing Conditions) Plus Project scenario does not account for future population growth projected in Orange County. For this scenario, the traffic forecasts that have been prepared for the 2026 GAIP general aviation activity is added to the Baseline (2016) traffic volumes. This is a hypothetical scenario because it assumes that the full build-out of the GAIP would be added to the Baseline traffic volumes all at once (i.e., now).

In addition, a future, long-range analysis is provided. This long-range analysis consists of the traffic associated with build-out of the GAIP (using the 2026 traffic volumes developed from the GAIP aviation forecasts) plus the cumulative growth from the surrounding cities. This long-range analysis (GAIP 2026 plus cumulative growth) is identified as the Future Scenario, which also serves as a cumulative analysis.[3] The development of the traffic forecasts is discussed below.

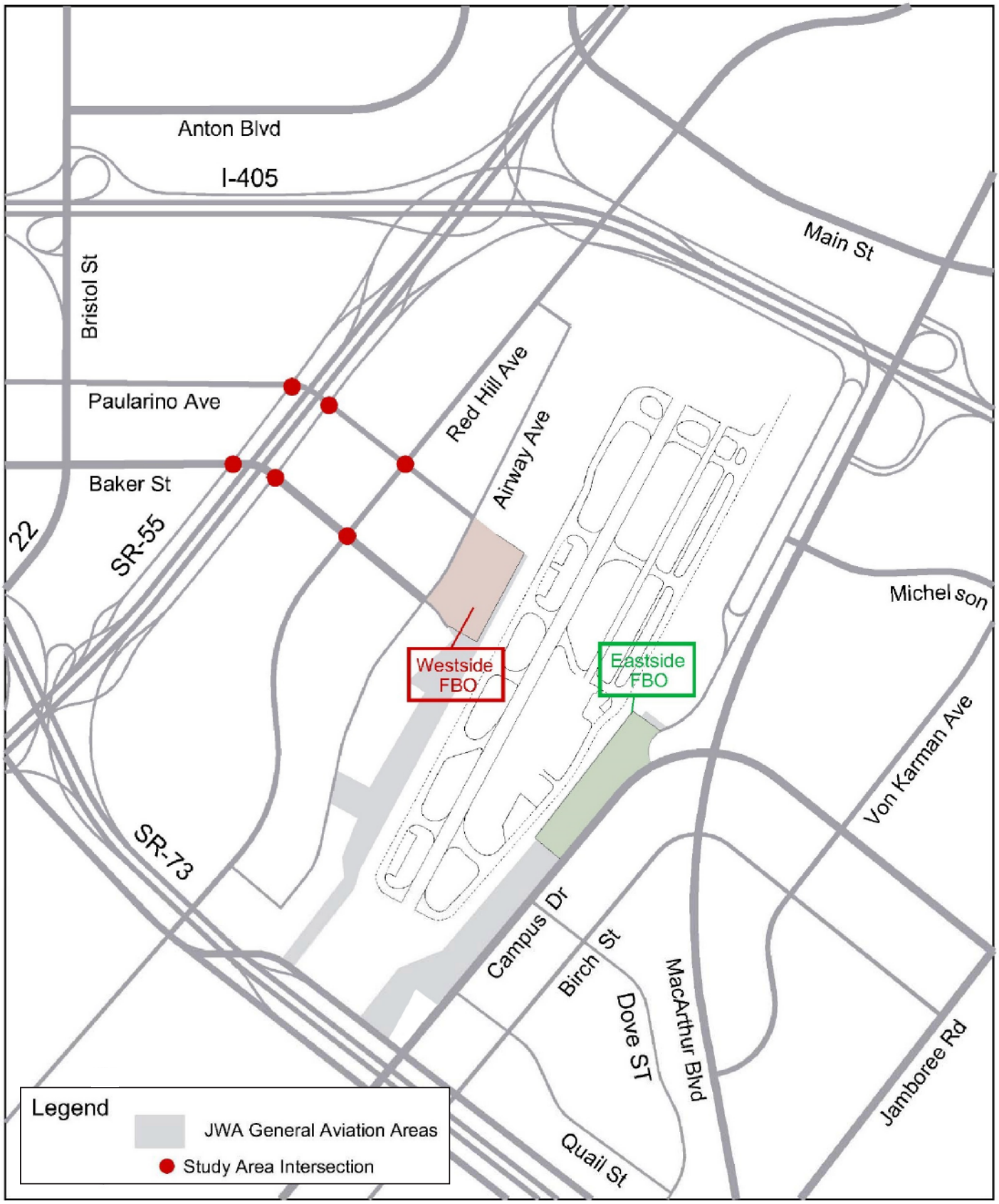
The traffic analysis evaluates potential construction-related (short-term) impacts and long-term operational impacts and considers the potential transportation impacts associated with the displacement of aircraft from JWA and the need for pilots to travel to other airports that offer general aviation in the region.

GAIP Traffic Forecasts

The traffic forecast data used to portray future cumulative conditions is taken from the traffic modeling forecasts prepared by the three cities in the project vicinity. They represent long range cumulative conditions rather than a specific year (for example the Irvine Transportation Analysis Model ["ITAM"] volumes are labeled as "post-2035" while the Costa Mesa forecasts are

[2] The 2016 baseline was identified in the Notice of Preparation (provided in Appendix A of this Program EIR) because it was the most recent year with complete information. Pursuant to Section 15125 of the CEQA Guidelines: "An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or . . . at the time environmental analysis is commenced . . . This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant."

[3] The TIA, provided in Appendix G, also provides an evaluation of 2021 traffic conditions, which represents an interim year. However, the 2026 timeframe is used in the Program EIR because it represents the GAIP horizon year and would have the greater project traffic impacts.



Source: Austin Transportation Consulting 2018

GAIP Traffic Study Intersection Locations

Exhibit 4.8-1

John Wayne Airport General Aviation Improvement Program

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referred to as "2035"). Hence they include cumulative projects plus other anticipated growth in each city, and also growth in the region through traffic on those roadways that serve regional and local traffic. On the east side of the Airport, the primary source of traffic forecast data is the, ITAM, which includes growth for JWA that reflects the 2014 Settlement Agreement (the Settlement Agreement established a ceiling on commercial operations at JWA). While the Costa Mesa traffic forecasts have yet to be updated, the future increase in traffic due to the Settlement Agreement does not affect any of the Costa Mesa roadways analyzed here.

The GAIP features that relate to potential traffic impacts are the location and function of general aviation facilities and aircraft operations. Of importance in this regard are the fixed-base operators ("FBOs") which account for a large proportion of such activities. For the Proposed Project and Alternative 1, a key feature of importance to the traffic analysis is the location of a full service FBO on the west side of the Airport. The traffic impact analysis uses this activity information to estimate the distribution of traffic on the surrounding roadway system and identify the potential impacts of that traffic. The traffic forecasts, which estimate the amount of traffic generated by each of the GAIP scenarios, use the constrained forecasts of general aviation operations at the Airport (see Section 3.5 for the unconstrained Aviation Forecast and Sections 3.6.2 and 3.6.3 for the constrained forecasts for the Proposed Project and Alternative 1, respectively). Forecasts are provided for average daily weekday vehicle trips and peak-hour trips (AM and PM).

The roadway network on the east side of the Airport is minimally affected by the GAIP. Currently, the two full service FBOs are based on the east side of the Airport; however, one of the FBOs has hangars located on the west side of the Airport. Having the function of a full service FBO consolidated on the west side would allocate more trips on the west side and would reduce the number of trips on the east side of the Airport when compared to the Baseline (2016). Alternative 1 does maintain two full service FBOs on the east side and provides for an additional third full service FBO on the west side. However, the addition of the third full service FBO does not result in a substantial increase in the number of trips because the total number of aircraft parking spaces does not substantially increase. This is discussed under the impact analysis provided in Section 4.8.6.

Airport Trip Generation

The variable used in the general aviation trip rates is aircraft operations (i.e., take-offs plus landings of general aviation aircraft). This is a representative measure of general aviation activity and, thereby, of general aviation-related trips to and from the Airport. The data are separated into four types of general aviation aircraft (piston aircraft, turbine aircraft, jets, and helicopters). The forecasts indicate a change in the aircraft mix over time, with fewer piston aircraft and more jet aircraft compared to existing general aviation operations.[4] This in turn means more of the larger general aviation aircraft, which, due to their higher passenger occupancy, have a greater number of ground transportation trips per aircraft.[5]To account for this change over time, trip generation rates have been developed for each of the four types of general aviation aircraft at JWA. The trip rates for each aircraft type remain constant for the forecast

[4] Historical trends at the Airport are discussed in Section 2.4 of this Program EIR.

[5] The GAIP will not improve or modify the JWA commercial flight terminal and will not change the commercial carrier operations. As discussed in Section 4.0, 1, Cumulative Project, the number of commercial carrier operations and annual passengers are controlled by the 2014 Settlement Agreement Amendment.

years, and the average rate changes for the forecast years in response to the change in aircraft mix. It should be noted that the existing and future aircraft operations are also separated into those by "based aircraft" and those by "transient aircraft." The traffic generation rates by aircraft type are summarized in Table 4.8-1 below.

TABLE 4.8-1
GENERAL AVIATION TRIP GENERATION RATES BY AIRCRAFT TYPE

Trip Rate	Piston	Turbine	Jet	Helicopter	Average[a]
Trip Ends/Annual Operations (thousands)	5.83	13.57	19.43	9.74	8.55

Trip Ends: Arriving plus departing ground transportation vehicle trips

[a] Average trip rate for 2016 aircraft mix (varies for forecast years due to different aircraft mix)

Source: ATC 2018

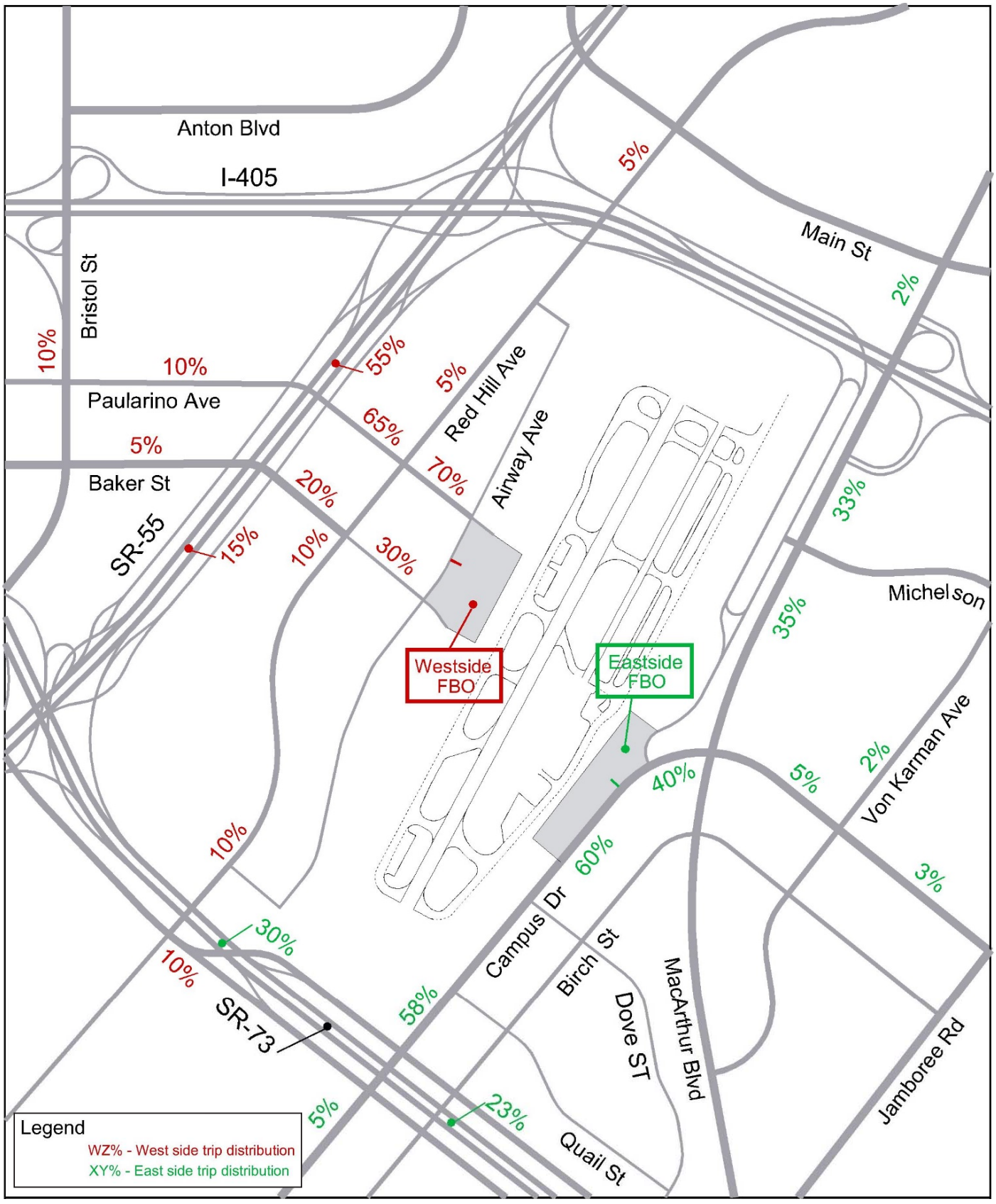
For the traffic impact analysis, the peak-hour trip generation (AM and PM) is used to identify potential traffic impacts. This is consistent with the traffic impact analysis methodology used by the local jurisdictions adjacent to the Airport and focuses on intersection performance during the two peak hours.

Based on the geographic distribution of aircraft owners/pilots for JWA general aviation aircraft, the average distance is 15.25 miles from JWA. This applies to the based aircraft, which account for around 50 percent of the total general aviation operations, with the remainder being from transient aircraft. Local destinations for passengers on transient aircraft are primarily major activity centers, and an average distance of 10.0 miles is representative for these uses. Therefore, the average trip distance for general aviation ground transportation trips used for this analysis is 12.6 miles for both LOS and VMT calculations.

Trip Distribution

The geographic distribution of general aviation-related traffic would be the same for the Proposed Project and Alternative 1 and is illustrated in Exhibit 4.8-2. The trip distribution has been estimated here by considering the two components of general aviation operations—those aircraft based at JWA and transient aircraft based elsewhere and flying into JWA.

For the based aircraft, the distribution of ground transportation trips is related to the locations of registered pilots and/or aircraft owners. This locational data, taken from the *General Aviation Forecasting and Analysis Technical Report* (AECOM 2018), was used to estimate a representative geographic distribution for this traffic component. For transient aircraft, ground transportation trips are assumed to be generally related to activity areas, such as the Irvine Business Complex, Irvine Spectrum, the Anaheim resort area, etc. The geographic distribution of trips for this component was estimated by considering the demographics of the surrounding area and Orange County in particular. For both general aviation trip components, freeway accessibility is a key consideration in determining the local streets used to access the general aviation facilities on each side of the Airport.



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Source: Austin Transportation Consulting 2018

GAIP Trip Distribution

Exhibit 4.8-2

John Wayne Airport General Aviation Improvement Program

Construction Traffic Trip Generation Rates

Construction traffic trip generation rates were based on State-recognized California Emissions Estimation Model ("CalEEMod") that is used throughout the State for estimating emissions produced by land use projects. The model estimates vehicle trips related to construction and also to the post-construction land uses in the project when those uses are operational. For the GAIP, the rates for office/industrial uses are considered the most applicable and are shown in Table 4.8-2. While the corresponding peak-hour trip rates are not given in CalEEMod, a peak-hour derivation can be made by considering the daily pattern of construction trips. For example, those made by construction workers peak between 6:00 to 8:00 AM and 3:30 to 4:30 PM; and vendor trips are relatively constant from 8:00 AM to 4:00 PM. Table 4.8-3 summarizes the representative peak-hour/ADT factors used in the derivation of the peak-hour trip.

TABLE 4.8-2
CONSTRUCTION TRIP GENERATION RATES

Trip Type	Rate Metric	Rate
Worker Trips	Daily trips per 1,000 sq ft of building area	0.4200
Vendor Trips	Daily trips per 1,000 sq ft of building area	0.1639
Source: ATC 2018, (taken from CalEEMod User's Guide Appendix A, Calculation Details) sq ft = square feet		

TABLE 4.8-3
CONSTRUCTION TRIP PEAK HOUR FACTORS

Percent of ADT - AM Peak Hour			Percent of ADT - PM Peak Hour		
Workers	**Vendors**	**Total Trips**	**Workers**	**Vendors**	**Total Trips**
0.2000	0.1250	0.1789	0.1000	0.1250	0.1070
ADT: Average Daily Traffic Source: ATC 2018					

It should be noted that these factors apply to the peak hours of the adjacent streets and differ from the peak hours of the construction trips (which for workers tend to be earlier than those of the adjacent streets). The application of these factors to the daily rates gives the corresponding peak-hour trip rates for construction traffic.

Performance Criteria

For this analysis, peak-hour intersection performance measures are used for evaluating traffic volumes at the primary study area intersections. The peak-hour performance measure used in the analysis is "intersection capacity utilization" ("ICU"). This determines intersection capacity based on the lane geometry of the intersection and then estimates the amount of that capacity that is "utilized" by the specific peak-hour turn movement volumes. A level of service ("LOS")

value is then determined from that ICU value. The LOS values are A through F (best to worst), with LOS D being the maximum acceptable value adopted by the local jurisdictions in the area. Table 4.8-4 provides the LOS ranges for the ICU volume/capacity analysis.

TABLE 4.8-4
LEVEL OF SERVICE AND INTERSECTION CAPACITY UTILIZATION CRITERIA

Level of Service	Description	ICU Volume / Capacity
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	<0.60
B	Operations with low delay occurring with good progression and/or short cycle lengths.	0.61–0.70
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	0.71–0.80
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	0.81–0.90
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	0.91–1.00
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	>1.00

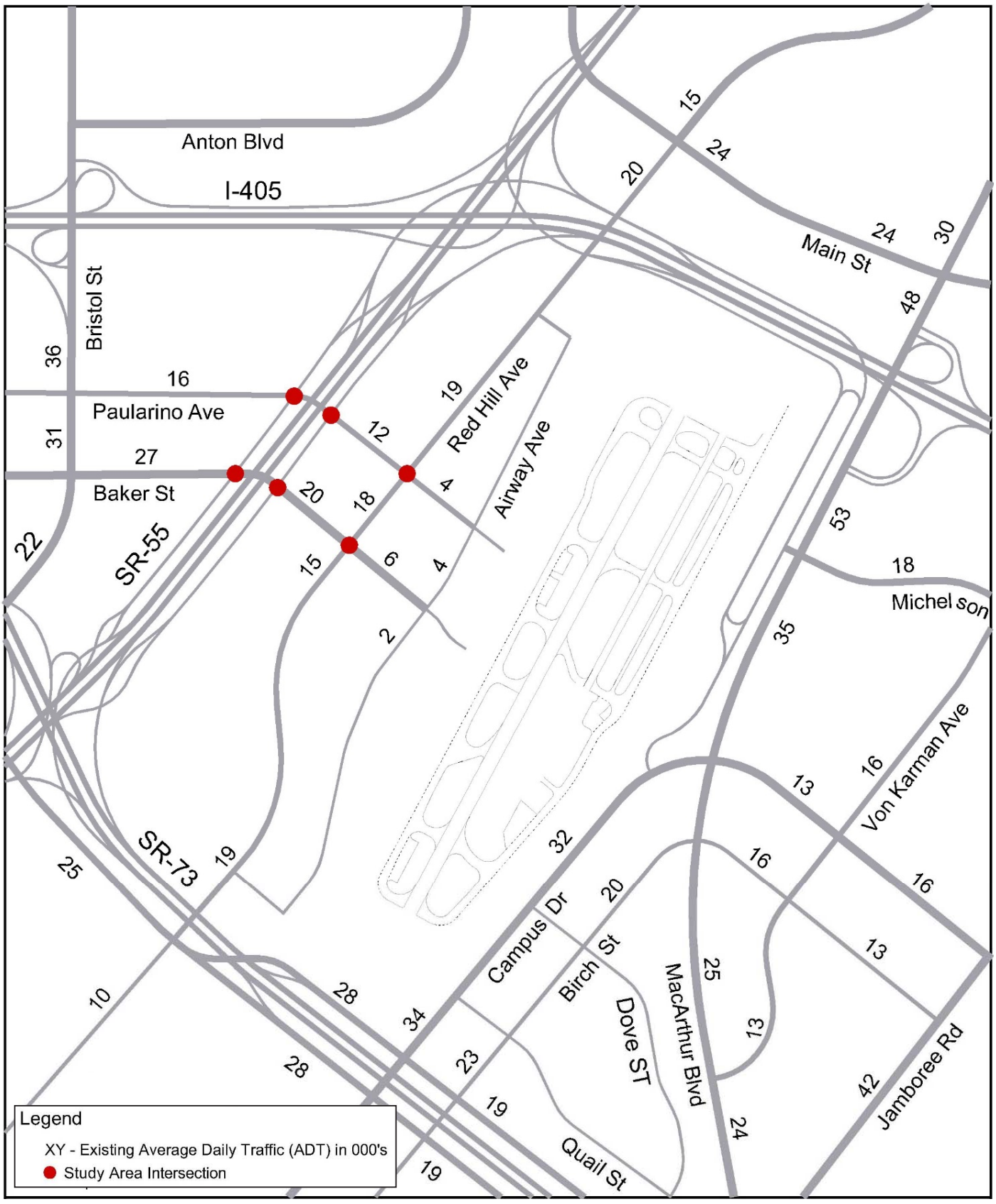
V/C = volume to capacity
Source: ATC 2018

4.8.3 EXISTING CONDITIONS

Existing Intersection Operations

Existing ADT traffic volumes in the vicinity of the Airport are shown in Exhibit 4.8-3. These volumes include data collected by the three cities in this area (Costa Mesa, Irvine, and Newport Beach) and the traffic flow map prepared by OCTA.[6] As noted under Performance Criteria above, for this analysis peak-hour intersection performance measures are used for evaluating traffic impacts. The intersections that would have a measurable increase in peak-hour traffic as a result of the GAIP consist of six intersections in Costa Mesa on the west side of the Airport. The City of Costa Mesa uses LOS D (ICU to not exceed 0.90) as the acceptable performance standard. As shown in Table 4.8-5, in the baseline condition all of the study intersections are operating at an acceptable LOS C or better based on the ICU methodology. To provide context for the future scenario, Table 4.8-5 also provides the projected ICU and LOS values for the future No Project Alternative (without the GAIP but with the cumulative growth) for the study area intersections. For both of these scenarios, all study area intersections are projected to operate at an acceptable LOS.

[6] The ADT volumes provide context and are used in the air quality analysis.



Source: Austin Transportation Consulting 2018

Existing Average Daily Trip Volumes

Exhibit 4.8-3

John Wayne Airport General Aviation Improvement Program

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TABLE 4.8-5
BASELINE (2016) AND NO PROJECT FUTURE ICU AND LOS
AT STUDY AREA INTERSECTIONS

Location	Scenario[a]	AM Peak Hour		PM Peak Hour	
		ICU	LOS	ICU	LOS
SR-55 SB Ramps and Paularino Avenue	Existing	0.71	C	0.64	B
	Future	0.78	C	0.77	C
SR-55 NB Ramps and Paularino Avenue	Existing	0.68	B	0.71	C
	Future	0.74	C	0.83	D
Red Hill and Paularino Avenue	Existing	0.43	A	0.56	A
	Future	0.56	A	0.68	B
SR-55 SB Ramps and Baker Street	Existing	0.66	B	0.69	B
	Future	0.73	C	0.79	C
SR-55 NB Ramps and Baker Street	Existing	0.67	B	0.75	C
	Future	0.83	D	0.87	D
Red Hill and Baker Street	Existing	0.34	A	0.63	B
	Future	0.43	A	0.72	C

ICU: Intersection Capacity Utilization; LOS: Level of Service; NB: Northbound; SB: Southbound; SR: State Route

[a] "Future" is the GAIP No Project 2026 traffic volumes with cumulative growth.

Source: ATC 2018

Mass Transit and Non-Motorized Travel

OCTA has four bus routes that are accessible to the east side and/or west side general aviation areas. Routes 76 and 212 serve the JWA commercial terminal, Route 71 provides service along Red Hill Avenue, and Route 178 provides service along Birch Street. No designated bike routes are located immediately adjacent to the Airport.

4.8.4 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist and Appendix G of the CEQA Guidelines, the Project would result in a significant transportation and traffic impact if the following thresholds were exceeded:

Threshold 4.8-1 Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Threshold 4.8-2 Would the project conflict with an applicable congestion management program, including, but not limited to level of service standard and travel

demand measures, or other standards established by the county congestion management agency for designated roads or highways?

4.8.5 REGULATORY REQUIREMENTS AND STANDARD CONDITIONS OF APPROVAL

Implementation of the GAIP assumes compliance with existing regulations and the County's Standard Conditions of Approval related to transportation and traffic. No regulatory requirement is specific to transportation and traffic. However, with the proposed improvements to the Campus Drive and Quail Street intersection (see Section 3.6 Project Description), the following County of Orange Standard Conditions of Approval ("SC") would apply:

Standard Conditions

SC TRA-1: Prior to the issuance of any grading permits, the applicant shall provide adequate sight distance per Standard Plan 1117 at all street intersections, in a manner meeting the approval of the Manager, Building and Safety OC Infrastructure/Traffic Engineering Permit Services. The applicant shall make all necessary revisions to the plan to meet the sight distance requirement such as removing slopes or other encroachments from the limited use area in a manner meeting the approval of the Manager, Building and Safety Permit Services. (County Standard Condition of Approval T10)

4.8.6 IMPACT ANALYSIS

Threshold 4.8-1

- ***Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?***

Proposed Project

Future-Term Operations

Trip Generation and Distribution

The Proposed Project proposes a Full Service West FBO and a Full Service East FBO. The total aircraft storage capacity under the Proposed Project would be reduced by approximately 27 percent compared to the number of general aviation aircraft currently based at the Airport. As a result, the number of overall trips generated from the Proposed Project would decrease compared to baseline (2016) conditions. The reduction in overall trips related to general aviation is shown in Table 4.8-6, which provides a comparison of the No Project and the Proposed Project trip generation for both the baseline condition (2016) and future (2026) time

frame. The reduction in trips is not proportional to the reduction in the number of annual operations (e.g., from 192,800 in the 2016 baseline to 167,900 in 2026) because the lower number of aircraft operations in the future is offset by the higher average trip generation rates caused by the greater proportion of larger aircraft. The average trip generation rate difference due to this change in aircraft mix can be seen in Table 4.8-7.

TABLE 4.8-6
GENERAL AVIATION OPERATIONS AND TRIP GENERATION FOR THE PROPOSED PROJECT AND NO PROJECT ALTERNATIVE 2016 AND 2026

Alternative	Measure	2016	2026
No-Project	*Annual Operations*	*192,800*	*201,000*
	AM Peak-Hour Trip Ends	125	137
	PM Peak-Hour Trip Ends	120	130
	Daily Trips	1,648	1,796
Proposed Project	*Annual Operations*	*192,800*	*167,900*
	AM Peak-Hour Trip Ends	125	125
	PM Peak-Hour Trip Ends	120	119
	Daily Trips	1,648	1,638

Annual Operations - Total annual general aviation aircraft take-offs plus landings

AM Trip Ends - Average AM peak hour weekday general aviation vehicle trips to and from JWA

PM Trip Ends – Average PM peak hour weekday general aviation vehicle trips to and from JWA

ADT Trip Ends - Average weekday general aviation vehicle trips to and from JWA

Source: ATC 2018

TABLE 4.8-7
GENERAL AVIATION TRIP GENERATION RATE COMPARISON BASELINE VERSUS 2026—PROPOSED PROJECT

Project	Annual Aircraft Operations						Average ADT Rate[a] (in 1,000)
		Piston	Turbine	Jet	Helicopter	TOTAL	
Baseline (2016)	Total Operations	147,300	9,800	31,800	3,900	192,800	8.550
	Percent of Operations	*76.4%*	*5.1%*	*16.5%*	*2.0%*	*100.0%*	
Proposed Project	Total Operations	111,000	11,700	40,400	4,800	167,900	9.756
	Percent of Operations	*66.1%*	*7.0%*	*24.1%*	*2.9%*	*100.0%*	

[a] Average Daily Trip Rate for daily trip ends per annual operations in thousands based on mix of aircraft types.

Source: ATC 2018

Although the daily trip generation for the Proposed Project is actually less than for the No Project (1,638 versus 1,796), there is the potential for traffic impacts. The Proposed Project would redistribute some trips to the west side of the Airport because it would consolidate the activities of one of the full service FBOs, which are currently split between the east and west sides of the Airport. (As previously mentioned, currently one of the full service FBOs on the east side of the Airport has hangar space on the west side of the Airport). Trips associated with general aviation would be reduced on the east side compared to existing conditions and the No Project Alternative. Table 4.8-8 summarizes these differences for both the peak hours and the daily trips. This impact analysis provides a comparison of the Baseline (2016) (i.e., Existing Conditions) to the Baseline (2016) (i.e., existing traffic plus the Proposed Project traffic for 2026). Additionally, it compares the Proposed Project traffic volumes to the GAIP No Project conditions in a future setting (i.e., build-out of the GAIP and cumulative growth).

TABLE 4.8-8
GENERAL AVIATION TRAFFIC IMPACT VOLUMES
PROPOSED PROJECT AND NO PROJECT

			AM PEAK HOUR			PM PEAK HOUR			
	Comparison[a]	**Westside/ Eastside**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**ADT**
Proposed Project	Existing Plus Proposed Project forecasts compared to Baseline (2016) Difference	West Side Difference	35	22	57	25	29	54	738
		East Side Difference	-35	-22	-57	-25	-30	-55	-748
		Total Difference	0	0	0	0	-1	-1	-10
	Future Proposed Project forecast compared to 2026 No-Project Difference	West Side Difference	35	21	56	25	29	54	730
		East Side Difference	-42	-26	-68	-30	-35	-65	-888
		Total Difference	-7	-5	-12	-5	-6	-11	-158

ADT: Average Daily Trips

[a] Reference to "Future" scenarios includes traffic volumes with projected cumulative growth.

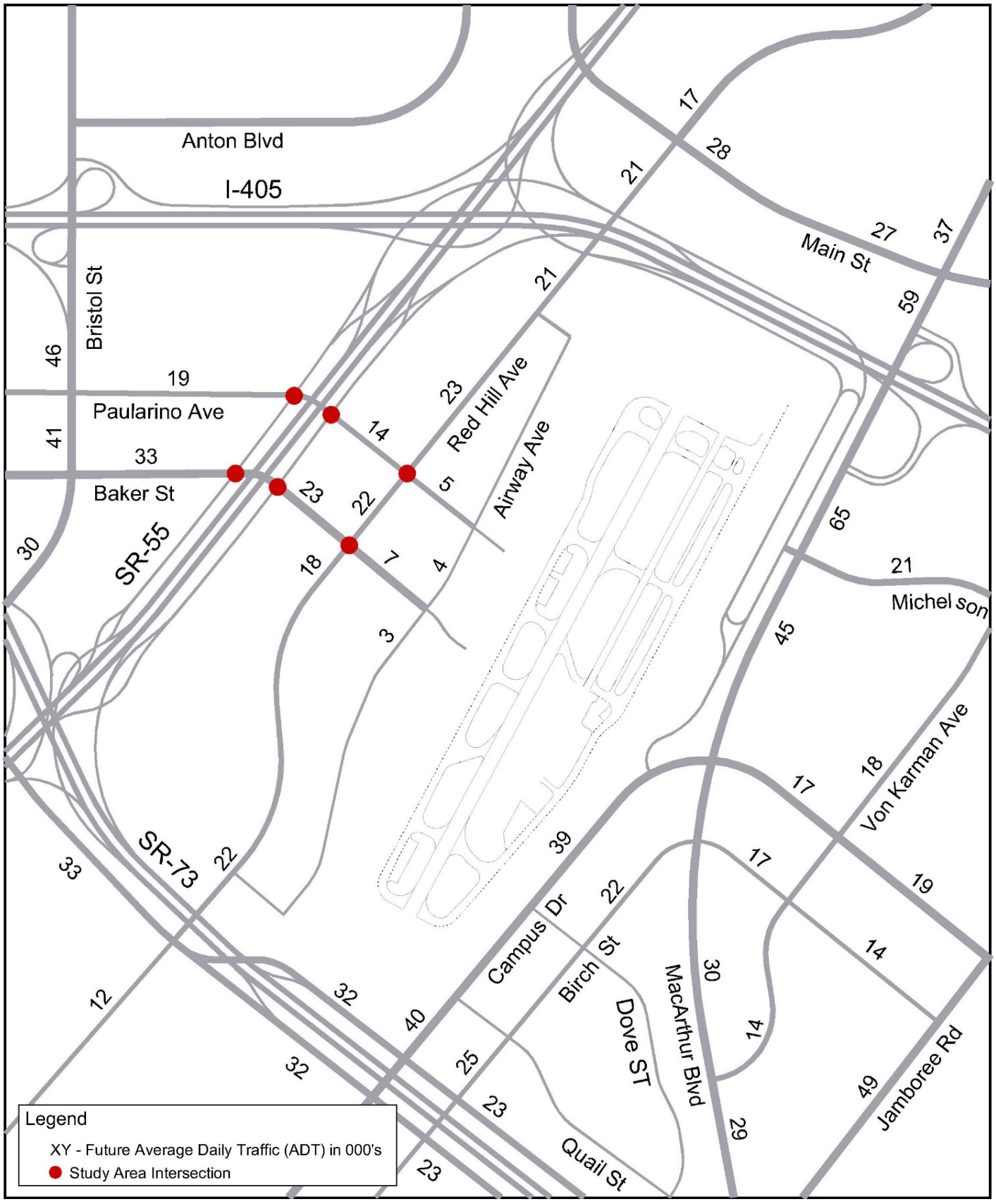
Source: ATC 2018

Exhibit 4.8-4 depicts the projected future (long-range) ADT in the vicinity of the Airport.[7] As shown in Table 4.8-8, the traffic the Proposed Project would add to the west side is a maximum of 738 ADT, with a comparable reduction in traffic on the east side. This information is graphically shown in Exhibit 4.8-5. During the peak hours, the Proposed Project would result in a maximum increase of 57 trips. The AM and PM peak-hour distributions are shown in Exhibit 4.8-6.

Peak-Hour Intersection Analysis

The Proposed Project ICU values and the corresponding LOS are provided in Table 4.8-9. The corresponding No Project values are also provided for comparison purposes. As shown, all the

[7] As indicated under Methodology, the long-range cumulative condition or "future volumes" reflect the build-out conditions for each of the local jurisdictions. The ITAM volumes are labeled as post-2035, while the City of Costa Mesa forecasts are referred to as 2035.



Source: Austin Transportation Consulting 2018

Future Average Daily Trip Volumes

Exhibit 4.8-4

John Wayne Airport General Aviation Improvement Program

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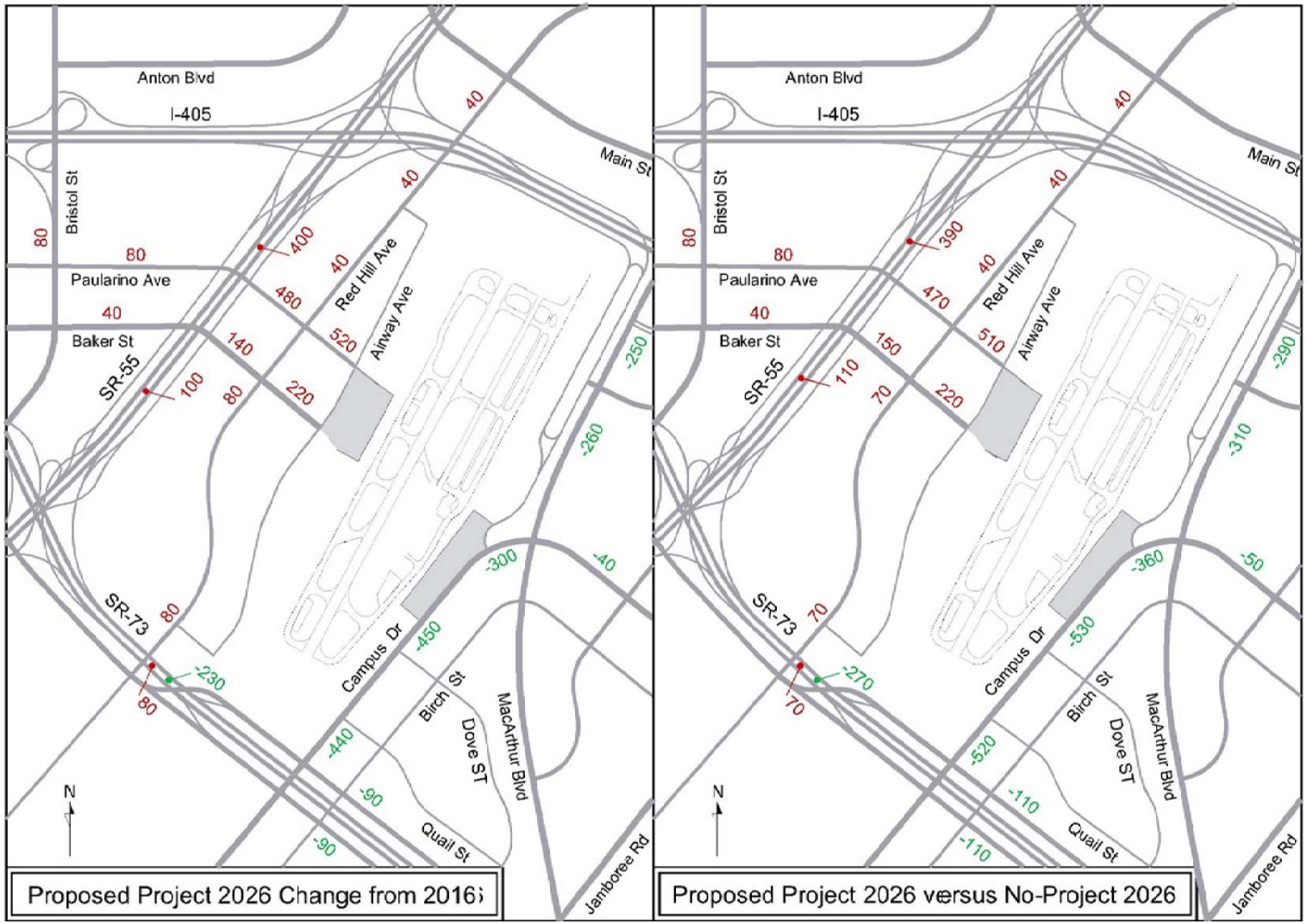

Legend

XY - Average Daily Traffic (ADT) - Positive difference

WZ - Average Daily Traffic (ADT) - Negative Difference

GA FBO's

Note: Project volume differences less than 30 not shown

Source: Austin Transportation Consulting 2018

Proposed Project Average Daily Trip Volumes

Exhibit 4.8-5

John Wayne Airport General Aviation Improvement Program

JOHN WAYNE AIRPORT ORANGE COUNTY

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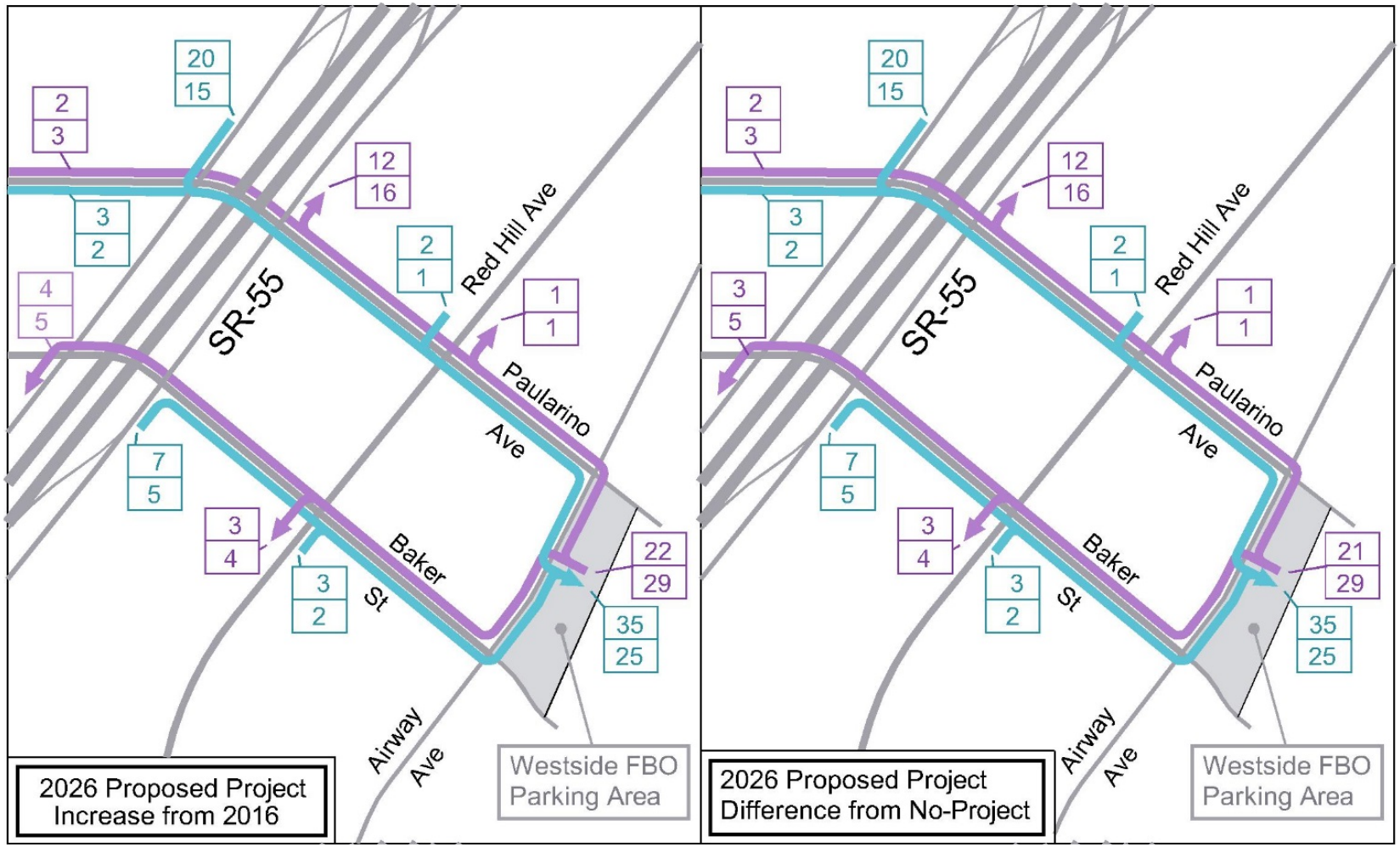


Legend

XY / WZ	AM Inbound / PM Inbound	XY / WZ	AM Outbound / PM Outbound

Source: Austin Transportation Consulting 2018

Proposed Project Peak Hour Trip Volumes

Exhibit 4.8-6

John Wayne Airport General Aviation Improvement Program

JOHN WAYNE AIRPORT ORANGE COUNTY

study intersections currently operate at LOS C or better. In the future year, all intersections would be operating at a satisfactory LOS D or better. The highest contribution by the Proposed Project to any ICU value is 0.01; however, the Proposed Project does not result in an exceedance of the LOS D performance criteria to be exceeded (ICU does not exceed 0.90). Therefore, the Proposed Project does not have any significant impacts at the study intersections.

TABLE 4.8-9
PEAK-HOUR ICU AND LOS SUMMARY

Location	Scenario[a]	AM Peak Hour		PM Peak Hour	
		ICU	LOS	ICU	LOS
SR-55 SB Ramps and Paularino Avenue	Existing (Baseline 2016)	0.71	C	0.64	B
	Existing Plus Proposed Project	0.72	C	0.64	B
	Future No Project	0.78	C	0.77	C
	Future Plus Proposed Project	0.79	C	0.77	C
SR-55 NB Ramps and Paularino Avenue	Existing (Baseline 2016)	0.68	B	0.71	C
	Existing Plus Proposed Project	0.68	B	0.71	C
	Future No Project	0.74	C	0.83	D
	Future Plus Proposed Project	0.75	C	0.84	D
Red Hill Avenue and Paularino Avenue	Existing (Baseline 2016)	0.43	A	0.56	A
	Existing Plus Proposed Project	0.44	A	0.57	A
	Future No Project	0.56	A	0.68	B
	Future Plus Proposed Project	0.57	A	0.69	B
SR-55 SB Ramps and Baker Street	Existing (Baseline 2016)	0.66	B	0.69	B
	Existing Plus Proposed Project	0.66	B	0.70	B
	Future No Project	0.73	C	0.79	C
	Future Plus Proposed Project	0.73	C	0.79	C
SR-55 NB Ramps and Baker Street	Existing (Baseline 2016)	0.67	B	0.75	C
	Existing Plus Proposed Project	0.67	B	0.75	C
	Future No Project	0.83	D	0.87	D
	Future Plus Proposed Project	0.83	D	0.87	D
Red Hill Avenue and Baker Street	Existing (Baseline 2016)	0.34	A	0.63	B
	Existing Plus Proposed Project	0.35	A	0.63	B
	Future No Project	0.43	A	0.72	C
	Future Plus Proposed Project	0.43	A	0.72	C

ICU: Intersection Capacity Utilization; LOS: Level of Service; SR: State Route; SB: Southbound; NB: Northbound

[a] Reference to "Future" scenarios includes traffic volumes with the projected cumulative growth.

Source: ATC 2018

Vehicle Miles Traveled

While the impact analysis above has followed the LOS procedures used by the adjacent jurisdictions for addressing traffic impacts, California SB 743 establishes guidelines for CEQA documents to address VMT (in addition to LOS if a local jurisdiction requires a LOS analysis). The VMT analysis is not specific to a defined study area but estimates the overall change in VMT caused by the Proposed Project's generated trips. Measures include the absolute change in VMT and the change in VMT per capita. The latter recognizes that VMT will increase with increasing population in a region, and the analysis thereby evaluates whether any increase in VMT is higher or lower than the increase in population in the area being considered. Table 4.8-10 shows an average weekday VMT summary for the No Project and Proposed Project.

TABLE 4.8-10
AVERAGE WEEKDAY VMT SUMMARY

	2016		2026		*Increase*
Alternative	**ADT**	**VMT**	**ADT**	**VMT**	***2016-2026***
No Project	1,648	20,765	1,796	22,630	*9.0%*
Proposed Project	1,648	20,765	1,638	20,639	*-0.6%*
ADT: Average daily traffic generated by the GAIP VMT - Vehicle miles traveled for GAIP trips (Based on average distance of 12.6 miles)					
Source: ATC 2018					

The highest increase compared to the 2016 baseline is for the No Project with an increase in VMT of 9.0 percent. The Proposed Project shows a slight decrease in VMT from 2016 to 2026. Therefore, the Proposed Project would not result in a substantial increase in regional VMT.

Short-Term Construction Impacts

Construction work for the GAIP is planned to take place over slightly more than a seven-year period, commencing in 2019 and extending through 2026. During that time, construction workers and service vehicles would access the site on a daily basis. Construction-related trips, broken out by the primary phases, for the Proposed Project are provided in the Table 4.8-11. Each phase of construction would generate a different number of daily and peak-hour trips. The activities listed in these tables for each phase are from the overall construction schedule (see Exhibit 3-3a and 3-3b for the phasing concept for the Proposed Project) and are those that overlap with the highest number of construction trips in that phase. In cases where the construction involves facilities such as T-hangars and box-hangars, the use of the construction trip rates for office/industrial land use probably overestimates the trips for these facilities, since they have considerably less structural and architectural components than the office and FBO facilities.

TABLE 4.8-11
PROPOSED PROJECT CONSTRUCTION TRIPS

Phase[a]	Description	Square Feet (1,000)	Daily Trip Ends			Peak Hour Trip Ends	
			Workers	Vendors	Total	AM	PM
1	Sheriff's Office and FBO	63.7	27	10	37	7	4
2	Office and FBO	62.1	26	10	36	6	4
3-3A	FBO, office and aircraft service area	36.0	15	6	21	4	2
4	FBO and apron	28.1	12	5	17	3	2
5	FBO and apron	48.3	20	8	28	5	3
7–8	T-hangars	66.9	28	11	39	7	4
9A–9B	Flight School offices	10.0	4	2	6	1	1
10	T-hangars and apron	48.3	20	8	28	5	3
11	Box hangars	71.5	30	12	42	7	4
12	Box hangars and T-hangars	55.6	23	9	32	6	3
13	Offices, FBO hangars and customs area	139.3	59	23	82	15	9
Vehicle Trip Rates (trip ends per 1,000 square feet)			*0.4200*	*0.1639*	*0.5839*	*0.1045*	*0.0625*

[a] Phases 6 and 14 are relatively small road improvements and would not generate substantial daily traffic volumes.

Source: ATC 2018

The highest number of construction trips under the Proposed Project occurs in Phase 13 and comprises 82 daily vehicle trip ends, with 15 in the AM peak hour and 9 in the PM peak hour. For the west side, the peak-hour construction trip generation is considerably less than the general aviation trips calculated for the Proposed Project (57 and 54 in the AM and PM, respectively) (see Table 4.8-8, Traffic Impact Volumes). The full allocation of west side general aviation trips would not occur until the facilities are completed, so at no time would the construction trips be additive to the long-term operational trips. Hence, any potential impacts due to construction traffic would be less than those addressed above as part the general aviation traffic impact analysis. Therefore, the peak hour construction trips will not cause the LOS for any area intersections or road segments to become deficient, and therefore the Project's construction-related traffic impacts are less than significant.

For the east side, the construction trips would be additive to the background traffic. However, it must be noted that an early construction phase is the construction of the Full Service West FBO, after which some functions currently on the east side of the Airport would be relocated to the new facility on the west side. The currently split full service FBO will have all their activities located on the west side and some of the existing trips accessing the Airport on the east side would then access on the west side, thereby reducing the trips on the east side roadway network. Construction work would then commence on the east side. Hence, the construction traffic on the east side would be compensated for by the reduction in general aviation traffic due to relocation

of FBO facilities to the west side. Since the construction traffic is less than the relocated FBO traffic, the result is no net increase in traffic on the east side.

Displaced Aircraft Impact Analysis

In the 2016 baseline condition, 482 general aviation aircraft are based at JWA. With the Proposed Project, the capacity would be reduced to 354 general aviation aircraft. This represents a reduction of 128 aircraft (a 27-percent reduction). For existing conditions, 49 percent of the total general aviation operations are from based aircraft (aircraft stationed at the Airport) versus transient aircraft, which translates into 218 vehicle trips related to displaced aircraft. The *General Aviation Forecasting and Analysis Report* prepared for the GAIP examines 15 airports with general aviation facilities in an area defined as the Competitive Market Area ("CMA"). In addition to Orange County, the CMA includes parts of Los Angeles, Riverside, and San Bernardino Counties, and information in that report shows that 90 percent of JWA registered aircraft owners are in Orange County, with the remainder in those adjacent counties. It is estimated that the average trip distance for JWA-related general aviation trips is 15.25 miles. This gives a weekday VMT of 3,325 for trips generated by the displaced aircraft (218 trips times 15.25 miles). For the purpose of this analysis, it is assumed that the maximum increase in average trip length that could reasonably be expected is 100 percent (i.e., a doubling of the average trip length for all trips associated with the displaced aircraft). This is considered a worst case, given the 14 alternative airports in the CMA and hence the opportunity for relocation to facilities that do not involve substantially greater travel distances and, in some cases, shorter distances. This number of VMT was compared to total regional VMT to assess the likelihood of an impact on the regional circulation network. The added VMT for the Proposed Project represents an increase of 0.0022 percent. This increase would have a negligible impact on the region's traffic, and the impact is considered less than significant. The results of the VMT analysis for displaced aircraft are shown in Table 4.8-12.

TABLE 4.8-12
DISPLACED AIRCRAFT VMT

1. Displaced Aircraft	2. DA Weekday Trips	3. DA Weekday VMT	4. DA Added Weekday VMT	5. DA Percent of Regional VMT
128	218	3,325	6,649	0.0022%

DA: Displaced Aircraft; VMT: Vehicle Miles Traveled

1. Displaced aircraft in 2026 for Proposed Project

2. Displaced aircraft weekday ground trips to/from JWA

3. Vehicle miles traveled (VMT) by displaced aircraft (based on 15.25-mile average trip length)

4. Added VMT from displaced aircraft trips (based on 100-percent longer trips to those airports)

5. Added VMT compared to total regional weekday VMT (estimated at around 300M VMT)

Source: ATC 2018

Mass Transit and Non-Motorized Travel

As noted above, bus Routes 76 and 212 serve the JWA commercial terminal, Route 71 provides service along Red Hill Avenue, and Route 178 provides service along Birch Street. The GAIP (Proposed Project and Alternative 1) would not interfere with any of these routes because improvements are mostly internal to the Airport. The only potential element of the GAIP that would extend into public right-of-way would be the intersection improvements at Campus Drive and Quail Street. However, this would be a minimal encroachment during construction; and no transit stops are in this location. Additionally, no designated bike routes on Campus Drive would be impacted during construction. The sidewalk on the west side of Campus Drive ends at the Quail Street/Campus Drive intersection. Therefore, pedestrians would be directed to the east side of the street, thereby minimizing potential conflict with pedestrians. The vehicle trip estimates for the Proposed Project do not assume any use of public transit, but these bus routes do provide a transit mode option, particularly for general aviation workers. Additionally, no designated bike routes are located immediately adjacent to the Airport. Therefore, the Proposed Project would not result in impacts to transit or other non-motorized modes of transportation.

Impact Conclusion: *The Proposed Project would generate overall fewer trips than the No Project Alternative. It would not conflict with adopted plans, ordinances, or policies establishing measures of effectiveness for the circulation system, as it would not cause any change in LOS at the study area intersections. All intersections would operate at an acceptable LOS D or better. No conflicts with alternative modes of transportation would result. Impacts would be less than significant under Threshold 4.8-1.*

Alternative 1

Future-Term Operations

Trip Generation and Distribution

Alternative 1 proposes a Full Service West FBO and a two full service FBOs on the east side—the Full Service Northeast FBO and a Full Service Southeast FBO. The total aircraft storage capacity under Alternative 1 would be reduced by approximately 26 percent compared to the number of general aviation aircraft currently based at the Airport. As a result, the number of overall trips generated from Alternative 1 would decrease compared to baseline (2016) conditions. The reduction in overall trips related to general aviation is shown in Table 4.8-13, which provides a comparison of the No Project and Alternative 1 trip generation for both the baseline condition (2016) and future (2026) time frame. As with the Proposed Project, the reduction in trips is not proportional to the reduction in the number of annual operations (e.g., from 192,800 in the 2016 baseline to 168,600 in 2026) because the lower number of aircraft operations in the future is offset by the higher average trip generation rates caused by the greater proportion of larger aircraft. The average trip generation rate difference due to this change in aircraft mix can be seen in Table 4.8-14.

TABLE 4.8-13
GENERAL AVIATION OPERATIONS AND TRIP GENERATION FOR ALTERNATIVE 1 AND NO PROJECT ALTERNATIVE 2016 AND 2026

Alternative	Measure	2016	2026
No Project	*Annual Operations*	*192,800*	*201,000*
	AM Peak-Hour Trip Ends	125	137
	PM Peak-Hour Trip Ends	120	130
	Daily Trips	1,648	1,796
Alternative 1	*Annual Operations*	*192,800*	*168,600*
	AM Peak-Hour Trip Ends	125	125
	PM Peak-Hour Trip Ends	120	120
	Daily Trips	1,648	1,649

Annual Operations - Total annual general aviation aircraft take-offs plus landings
AM Trip Ends - Average AM peak-hour weekday general aviation vehicle trips to and from JWA
PM Trip Ends – Average PM peak-hour weekday general aviation vehicle trips to and from JWA
ADT Trip Ends - Average weekday general aviation vehicle trips to and from JWA
Source: ATC 2018

TABLE 4.8-14
GENERAL AVIATION TRIP GENERATION RATE COMPARISON BASELINE VERSUS 2026—ALTERNATIVE 1

Project		Annual Aircraft Operations					Average ADT Rate[a] (in 1,000)
		Piston	Turbine	Jet	Helicopter	Total	
Baseline (2016)	Total Operations	147,300	9,800	31,800	3,900	192,800	8.550
	Percent of Operations	*76.4%*	*5.1%*	*16.5%*	*2.0%*	*100.0%*	
Alternative 1	Total Operations	111,600	10,800	41,400	4,800	168,600	9.777
	Percent of Operations	*66.1%*	*6.4%*	*24.6%*	*2.8%*	*100.0%*	

[a] Average Daily Trip Rate for daily trip ends per annual operations in thousands based on mix of aircraft types.
Source: ATC 2018

Although the daily trip generation for Alternative 1 is actually less than for the No Project (1,649 versus 1,796), there is the potential for traffic impacts. Similar to the Proposed Project, Alternative 1 would redistribute some trips to the west side of the Airport because it would consolidate the activities of one of the full service FBOs to the west side of the Airport. (As previously mentioned, currently one of the full service FBOs on the east side of the Airport has hangar space on the west side of the Airport). Trips associated with general aviation would be reduced on the east side compared to existing conditions and the No Project Alternative.

Table 4.8-15 summarizes these differences for both the peak hours and the daily trips. This impact analysis provides a comparison of the Baseline (2016) (i.e., Existing Condition) to the Baseline (2016) Plus Alternative 1 (i.e., existing traffic plus the Alternative 1 traffic for 2026. Additionally, it compares the Alternative 1 traffic volumes to the GAIP No Project conditions in a future setting (i.e., build-out of the GAIP and cumulative growth).

TABLE 4.8-15
GENERAL AVIATION TRAFFIC IMPACT VOLUMES
ALTERNATIVE 1 AND NO PROJECT

Alternative	Comparison[a]	Westside/ Eastside	AM PEAK HOUR			PM PEAK HOUR			ADT
			In	Out	Total	In	Out	Total	
Alternative 1	Existing Plus Alternative 1 forecasts compared to Baseline (2016) Difference	West Side Difference	27	17	44	19	23	42	578
		East Side Difference	-27	-17	-44	-19	-23	-42	-578
		Total Difference	0	0	0	0	0	0	0
	Future Alternative 1 forecast compared to 2026 No-Project Difference	West Side Difference	27	16	43	19	23	42	570
		East Side Difference	-34	-21	-55	-24	-28	-52	-717
		Total Difference	-7	-5	-12	-5	-5	-10	-147

ADT: Average Daily Trips

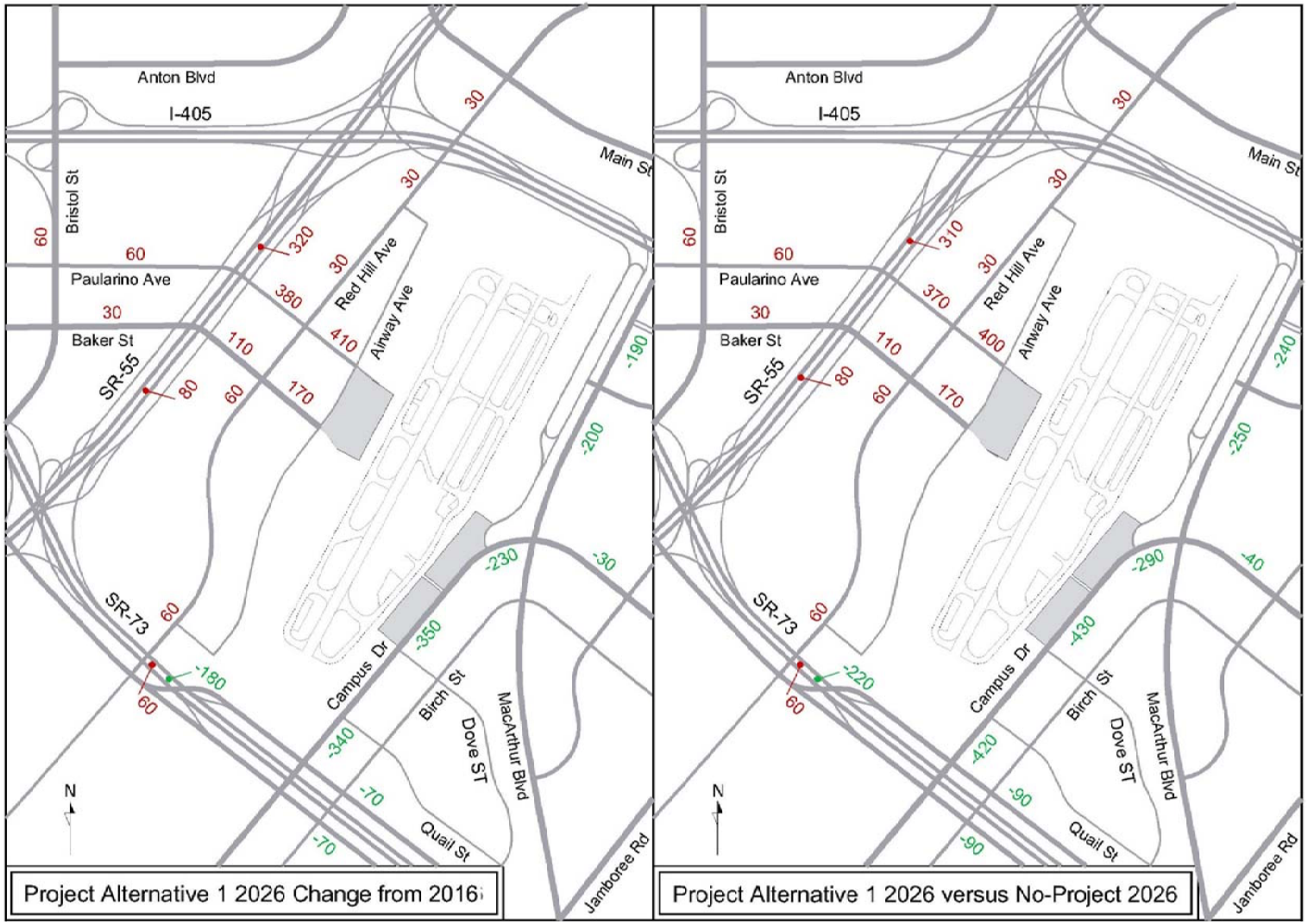
[a] Reference to "Future" scenarios includes traffic volumes with projected cumulative growth.

Source: ATC 2018

As shown in Table 4.8-15, Alternative 1 traffic added to the west side is a maximum of 578 ADT, with a comparable reduction in traffic on the east side. This is also less than for the Proposed Project (which is 738 ADT). This information is graphically shown in Exhibit 4.8-7. During the peak hours, Alternative 1 would result in a maximum increase of 44 trips. The AM and PM peak-hour distributions are shown in Exhibit 4.8-8.

Peak-Hour Intersection Analysis

Alternative 1 ICU values and the corresponding LOS are provided in Table 4.8-16. The corresponding No Project values are also provided for comparison purposes. As shown, all the study intersections currently operate at LOS C or better. In the future year, all intersections would be operating at a satisfactory LOS D or better. The highest contribution by Alternative 1 to any ICU value is 0.01. As with the Proposed Project, Alternative 1 does not result in an exceedance of the LOS D performance criteria to be exceeded (ICU does not exceed 0.90). Therefore, Alternative 1 does not have any significant impacts at the study intersections.



Legend

XY - Average Daily Traffic (ADT) - Positive Difference

WZ - Average Daily Traffic (ADT) - Negative Difference

GA FBO's

Note: Project volume differences less than 30 not shown

Source: Austin Transportation Consulting 2018

Alternative 1 Average Daily Trip Volumes

Exhibit 4.8-7

John Wayne Airport General Aviation Improvement Program

JOHN WAYNE AIRPORT ORANGE COUNTY

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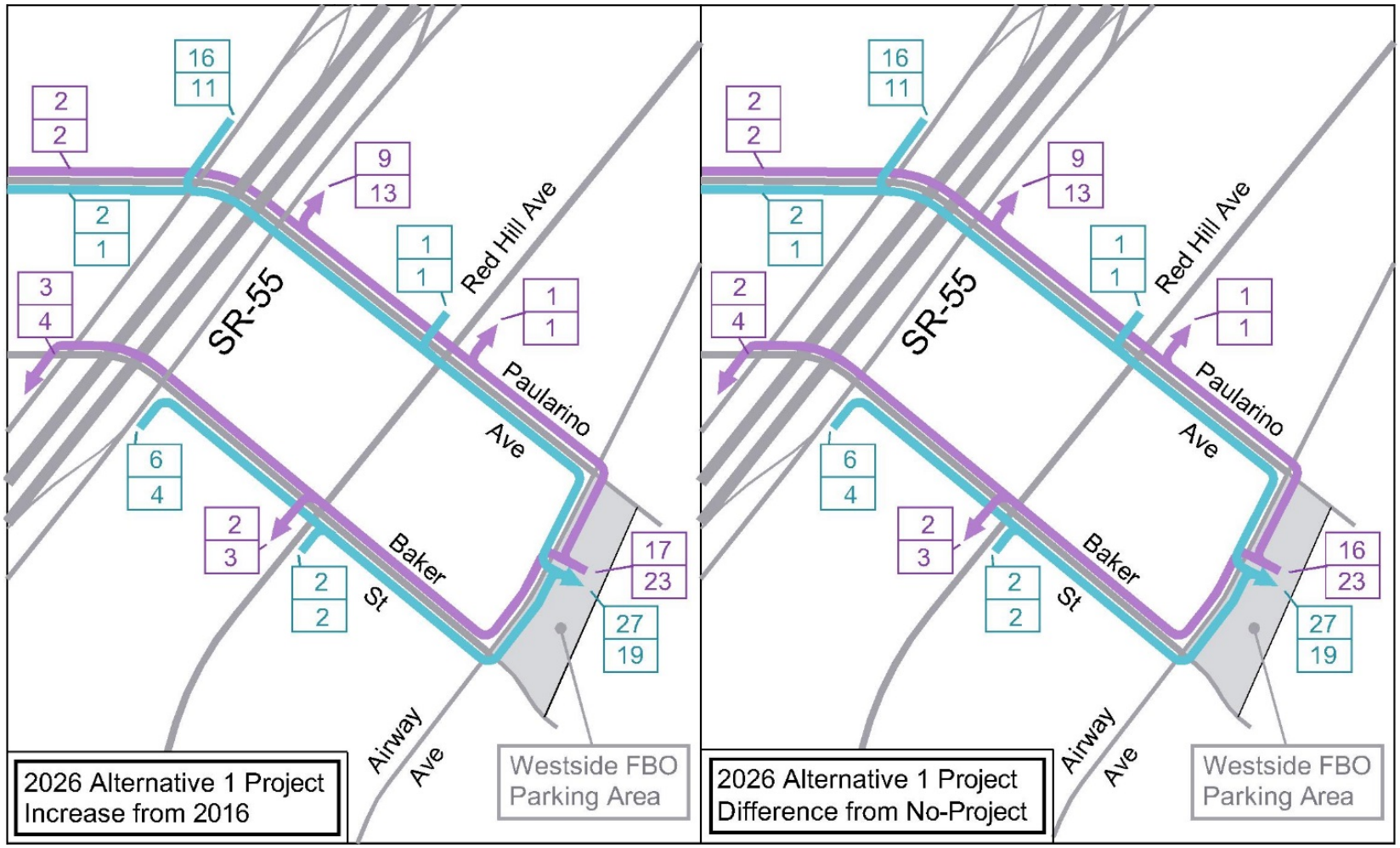

Legend

XY	AM Inbound	XY	AM Outbound
WZ	PM Inbound	WZ	PM Outbound

Source: Austin Transportation Consulting 2018

Alternative 1 Peak Hour Trip Volumes

Exhibit 4.8-8

John Wayne Airport General Aviation Improvement Program

TABLE 4.8-16
PEAK-HOUR ICU AND LOS SUMMARY

Location	Scenario[a]	AM Peak Hour		PM Peak Hour	
		ICU	LOS	ICU	LOS
SR-55 SB Ramps and Paularino Avenue	Existing (Baseline 2016)	0.71	C	0.64	B
	Existing Plus Alternative 1	0.72	C	0.64	B
	Future No Project	0.78	C	0.77	C
	Future Plus Alternative 1	0.79	C	0.77	C
SR-55 NB Ramps and Paularino Avenue	Existing (Baseline 2016)	0.68	B	0.71	C
	Existing Plus Alternative 1	0.68	B	0.71	C
	Future No Project	0.74	C	0.83	D
	Future Plus Alternative 1	0.75	C	0.84	D
Red Hill Avenue and Paularino Avenue	Existing (Baseline 2016)	0.43	A	0.56	A
	Existing Plus Alternative 1	0.44	A	0.57	A
	Future No Project	0.56	A	0.68	B
	Future Plus Alternative 1	0.57	A	0.68	B
SR-55 SB Ramps and Baker Street	Existing (Baseline 2016)	0.66	B	0.69	B
	Existing Plus Alternative 1	0.66	B	0.70	B
	Future No Project	0.73	C	0.79	C
	Future Plus Alternative 1	0.73	C	0.79	C
SR-55 NB Ramps and Baker Street	Existing (Baseline 2016)	0.67	B	0.75	C
	Existing Plus Alternative 1	0.67	B	0.75	C
	Future No Project	0.83	D	0.87	D
	Future Plus Alternative 1	0.83	D	0.87	D
Red Hill Avenue and Baker Street	Existing (Baseline 2016)	0.34	A	0.63	B
	Existing Plus Alternative 1	0.35	A	0.63	B
	Future No Project	0.43	A	0.72	C
	Future Plus Alternative 1	0.43	A	0.72	C

ICU: Intersection Capacity Utilization; LOS: Level of Service; SR: State Route; SB: Southbound; NB: Northbound

[a] Reference to "Future" scenarios includes traffic volumes with projected cumulative growth.

Source: ATC 2018

Vehicle Miles Traveled

As with the data presented for the Proposed Project, the VMT analysis is not specific to a defined study area but estimates the overall change in VMT caused by Alternative 1 generated trips. Measures include the absolute change in VMT and the change in VMT per capita. The latter recognizes that VMT will increase with increasing population in a region, and the analysis thereby evaluates whether any increase in VMT is higher or lower than the increase in population in the area being considered. Table 4.8-17 shows an average weekday VMT summary for the No Project and Alternative 1.

TABLE 4.8-17
AVERAGE WEEKDAY VMT SUMMARY

Alternative	2016		2026		*Increase*
	ADT	**VMT**	**ADT**	**VMT**	***2016-2026***
No Project	1,648	20,765	1,796	22,630	*9.0%*
Alternative 1	1,648	20,765	1,649	20,777	*0.0%*
ADT: Average daily traffic generated by the GAIP VMT - Vehicle miles traveled for GAIP trips (Based on average distance of 12.6 miles)					
Source: ATC 2018					

The highest increase compared to the 2016 baseline is for the No Project, with an increase in VMT of 9.0 percent. Alternative 1 shows a minimal change in VMT from 2016 to 2026. Therefore, Alternative 1 would not result in a substantial increase in regional VMT.

Short-Term Construction Impacts

Similar to the Proposed Project, construction work is planned to take place over slightly more than a seven-year period, commencing in 2019 and extending through 2026. Construction-related trips, broken out by the primary phases, for Alternative 1 are provided in the Table 4.8-18. Each phase of construction would generate a different number of daily and peak-hour trips, which correspond with the overall construction schedule (see Exhibit 3-5a and 3-5b) for the phasing concept for Alternative 1. When multiple tasks are included in a phase, the highest number of construction trips are used in this analysis. In cases where the construction involves facilities such as T-hangars and box-hangars, the use of the construction trip rates for office/industrial land use probably overestimates the trips for these facilities, since they have considerably less structural and architectural components than the office and FBO facilities.

TABLE 4.8-18
ALTERNATIVE 1 CONSTRUCTION TRIPS

Phase[a]	Description	Square Feet (1,000)	Daily Trip Ends			Peak Hour Trip Ends	
			Workers	Vendors	Total	AM	PM
1	Sheriff's Office and FBO	63.7	27	10	37	7	4
2	Office and FBO	62.1	26	10	36	6	4
3-3A	FBO, office and aircraft service area	30.0	13	5	18	3	2
4	FBO and apron	28.1	12	5	17	3	2
5	FBO and apron	81.3	34	13	47	8	5
7–8	T-hangars	69.2	29	11	40	7	4
9A–9B	Flight School offices	10.0	4	2	6	1	1
10	T-hangars and apron	51.0	21	8	30	5	3
11	Box hangars	76.0	32	12	44	8	5
12	Box hangars and T-hangars	47.6	20	8	28	5	3
13	Offices, FBO hangars, and customs area	139.3	59	23	82	15	9
Vehicle Trip Rates (trip ends per 1,000 square feet)			*0.4200*	*0.1639*	*0.5839*	*0.1045*	*0.0625*

[a] Phases 6, 14, and 15 are relatively small road improvements and would not generate substantial daily traffic volumes.

Source: ATC 2018

The highest number of construction trips with Alternative 1 occurs in Phase 13 and comprises 82 daily vehicle trip ends, with 15 in the AM peak hour and 9 in the PM peak hour. For the west side, the peak-hour construction trip generation is considerably less than the general aviation trips calculated for Alternative 1 (44 and 42 in the AM and PM, respectively) (see Table 4.8-15, Traffic Impact Volumes). The full allocation of west side general aviation trips would not occur until the facilities are completed, so at no time would the construction trips be additive to the long-term operational trips. Hence, any potential impacts due to construction traffic would be less than those addressed above as part the general aviation traffic impact analysis. Therefore, the peak hour construction trips will not cause the LOS for any area intersections or road segments to become deficient, and therefore the Project's construction-related traffic impacts are less than significant.

For the east side, the construction trips would be additive to the background traffic. However, it must be noted that an early construction phase is the construction of the Full Service West FBO, after which some functions currently on the east side of the Airport would be relocated to the new facility. The currently split full service will have all their activities located on the west side and some of the existing trips accessing the Airport on the east side would then access on the west side, thereby reducing the trips on the east side roadway network. Construction work would then commence on the east side. Hence, the construction traffic on the east side would be compensated for by the reduction in general aviation traffic due to relocation of FBO facilities to the west side. Since the construction traffic is less than the relocated FBO traffic, the result is no net increase in traffic on the east side.

Displaced Aircraft Impact Analysis

In the 2016 baseline condition, 482 general aviation aircraft are based at JWA. With Alternative 1, the capacity would be reduced to 356 general aviation aircraft. This represents a reduction of 126 aircraft (a 26-percent reduction). As noted in the discussion of the Proposed Project, under existing conditions 49 percent of the total general aviation operations are from based aircraft (versus transient aircraft). Alternative 1 would result in 210 vehicle trips related to displaced aircraft. Using the average trip distance for JWA-related general aviation trips of 15.25 miles, displaced aircraft under Alternative 1 result in a weekday VMT of 3,202 (210 trips times 15.25 miles). For the purpose of this analysis it is assumed that the maximum increase in average trip length that could reasonably be expected is 100 percent (i.e., a doubling of the average trip length for all trips associated with the displaced aircraft). This is considered a worst case, given the 14 alternative airports in the CMA and hence the opportunity for relocation to facilities that do not involve substantially greater travel distances and, in some cases, shorter distances. This number of VMT was compared to total regional VMT to assess the likelihood of an impact on the regional circulation network. The added VMT for Alternative 1 represents an increase of 0.0021 percent. This increase would have a negligible impact on the region's traffic, and the impact is considered less than significant. The results of the VMT analysis for displaced aircraft are shown in Table 4.8-19.

TABLE 4.8-19
DISPLACED AIRCRAFT VMT

1. Displaced Aircraft	2. DA Weekday Trips	3. DA Weekday VMT	4. DA Added Weekday VMT	5. DA Percent of Regional VMT
126	210	3,202	6,405	0.0021%

DA: Displaced Aircraft; VMT: Vehicle Miles Traveled

1. Displaced aircraft in 2026 for Alternative 1

2. Displaced aircraft weekday ground trips to/from JWA

3. Vehicle miles traveled (VMT) by displaced aircraft (based on 15.25-mile average trip length) (rounded)

4. Added VMT from displaced aircraft trips (based on 100 percent longer trips to those airports)

5. Added VMT compared to total regional weekday VMT (estimated at around 300M VMT)

Source: ATC 2018

Mass Transit and Non-Motorized Travel

Alternative 1 would not interfere with any of the bus routes serving the Airport. Intersection improvements at Campus Drive and Quail Street, proposed as part of the GAIP, may result in a minimal encroachment during construction; however, similar to the Proposed Project, it would not impact transit, bikeways, or pedestrians. The vehicle trip estimates for Alternative 1 do not assume any use of public transit, but these bus routes do provide a transit mode option, particularly for general aviation workers. Additionally, no designated bike routes are located immediately adjacent to the Airport. Therefore, Alternative 1 would not result in impacts to transit or other non-motorized modes of transportation.

Impact Conclusion: *Alternative 1 would generate overall fewer trips than the No Project Alternative. It would not conflict with adopted plans, ordinances, or policies*

establishing measures of effectiveness for the circulation system, as it would not cause any LOS change at the study area intersections. All intersections would operate at an acceptable LOS D or better. No conflicts with alternative modes of transportation would result. Impacts would be less than significant under Threshold 4.8-1.

Threshold 4.8-2

- ***Would the project conflict with an applicable congestion management program, including, but not limited to level of service standard and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?***

Proposed Project and Alternative 1

The study intersections were identified because the GAIP had the potential to result in "measurable" change in traffic as defined by the performance criteria of the local jurisdiction. None of the six study area intersections are CMP intersections, and none of the roadways adjacent to the Airport are part of the CMP Highway System (OCTA 2017). The closest CMP facility (i.e., roadway or intersection) is Jamboree Road located approximately 0.75 mile to the east of the Airport in the cities of Irvine and Newport Beach. To the west, the closest CMP facility is Harbor Boulevard located approximately three miles from the Airport in the city of Costa Mesa. Therefore, the GAIP (both the Proposed Project and Alternative 1) would not conflict with the OCTA CMP.

Impact Conclusion: *None of the six study area intersections fall within the jurisdiction of the OCTA CMP 2017. Therefore, neither the Proposed Project nor Alternative 1 would conflict with the OCTA CMP. No impacts would occur under Threshold 4.8-2.*

4.8.7 CUMULATIVE IMPACTS

The background traffic for the 2026 analysis represents "long range cumulative" conditions and uses future traffic volumes based on buildout of the General Plans of the three cities in the vicinity of the Airport. The volumes thereby address cumulative projects along with future development as embodied in those General Plans. The use of these forecasts satisfies the need to address cumulative projects while ensuring consistency with each city's long-range planning work.

Section 4.0 of this Program EIR identifies cumulative projects. From a traffic perspective, the JWA Settlement Agreement Amendment would have potential to result in cumulative impacts. Construction for the other projects would be completed, and the projects would be operational and would not add a substantial number of trips to the roadway network.

The 2014 Settlement Agreement Amendment would increase the number of commercial carrier operations and thus would increase the number of passengers travelling to JWA. Although Final EIR 617, prepared for the Settlement Agreement Amendment, did identify significant direct and cumulative traffic impacts associated with the increased number of commercial carrier flights

and passengers, these trips have been incorporated into the traffic volumes shown as the future traffic volumes; therefore, the 2026 analysis represents a cumulative analysis. As discussed above, the study intersections, which are the locations where the GAIP would result in a measurable change in traffic, are projected to operate at an acceptable level of service. No cumulative impacts are anticipated. Furthermore, it should be noted, the trips associated with the commercial operations would be predominately on the east side of the Airport where the commercial terminal is located.

4.8.8 MITIGATION PROGRAM

No significant impacts were identified; therefore, no mitigation program is required for either the Proposed Project or Alternative 1.

4.8.9 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The long range cumulative analysis (2026) reflects projected cumulative growth in the study area. No significant impacts were identified; therefore, GAIP-specific (Proposed Project or Alternative 1) and cumulative impacts would be less than significant.

4.8.10 REFERENCES

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4.9 TRIBAL CULTURAL RESOURCES

This section evaluates the Proposed Project's and Alternative 1's potential to have adverse effects on tribal cultural resources. The analysis in this section is based on the results of consultation with California Native American Tribes conducted by Airport staff, as required by the California Environmental Quality Act ("CEQA") (Public Resources Code ["PRC"] §§ 21080.3.1, 21080.3.2, 21082.3, 21084.2, and 21084.3) .

4.9.1 REGULATORY SETTING

Native American Historic Resource Protection Act

Established in 2002, the Native American Historic Resource Protection Act (PRC § 5097.993, *et seq*.) establishes a misdemeanor for unlawfully and maliciously excavating upon, removing, destroying, injuring, or defacing a Native American historic, cultural, or sacred site that is listed or may be eligible for listing in the California Register of Historic Resources ("CRHR"). The focus of this legislation was to provide additional legal protection for Native American historical and cultural sites, art, and other cultural artifacts found at those sites. The Act also encourages collaborative relationships for the protection of Native American cultural resources between Native Americans and landowners. Funding and other state assistance should be encouraged for support of voluntary agreements to conserve, maintain, and provide physical access for Native Americans to these cultural resources.

Assembly Bill 52

Assembly Bill ("AB 52") applies to projects that file a Notice of Preparation ("NOP") of an Environmental Impact Report ("EIR"), or adopt a Negative Declaration ("ND") or Mitigated Negative Declaration ("MND") on or after July 1, 2015. Under AB 52, the lead agency for any CEQA project must initiate consultation with all California Native American tribes that (i) are traditionally and culturally affiliated with the geographic area of the project and (ii) have requested such consultation prior to determining the type of CEQA documentation that is applicable to the project. (PRC § 21080.3.1(b).) AB 52 allows tribes 30 days after receiving notification to request consultation. The lead agency then has 30 days to initiate consultation. (*Ibid*.) Note that the consultation must commence prior to the public release of the CEQA document in question (i.e., the Negative Declaration, Mitigated Negative Declaration, or EIR). (*Ibid*.) The legislation also directs "the Office of Planning and Research to prepare and develop, and the Secretary of the Natural Resources Agency to certify and adopt, guidelines for the implementation of CEQA that include, among other things, criteria for public agencies to follow in determining whether or not a proposed project may have a significant effect on the environment." The Natural Resources Agency incorporated tribal cultural resources into the CEQA Environmental Checklist in September 2016.

PRC Section 21074 identifies what qualifies as a Tribal Cultural Resource. This section states:

(a) "Tribal Cultural Resources" are either of the following:

(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

(A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.

(B) Included in a local register of historical resources as defined in subdivision (k) of Section 5021.1.

(2) A resource determined by the Lead Agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for purposes of this paragraph, the Lead Agency shall consider the significance of the resource to a California Native American tribe.

(b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

(c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

With the above definition of a Tribal Cultural Resource, the CEQA statutes also provides criteria for public agencies to follow through the consultation process. PRC Section 21080.3.2 provides that as a part of the consultation process,

> . . . the parties may propose mitigation measures, . . . capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource. If the California Native American tribe requests consultation regarding alternatives to the project, recommended mitigation measures, or significant effects, the consultation shall include those topics. . . .
>
> The consultation shall be considered concluded when either of the following occurs:
>
> (1) The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource.
>
> (2) A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

PRC Section 21082.3 states that any mitigation measures agreed upon in the consultation process shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact and shall be fully enforceable.

PRC Section 21084.2 states that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant

effect on the environment. Furthermore, PRC Section 21084.3 directs, when feasible, the lead agency shall try and avoid damaging effects to any tribal cultural resource. When avoidance is not feasible, this section of the statutes also provides guidance on mitigation by providing examples of mitigation. An emphasis is to treat the resource "with culturally appropriate dignity considering the tribal cultural values and meaning of the resource".

4.9.2 METHODOLOGY

The Native American Heritage Commission ("NAHC") conducted a Sacred Lands File ("SLF") search for the GAIP area. Results were received on December 20, 2017. The search failed to identify any sacred places or objects with cultural value to a California Native American tribe on the Airport property. Consistent with requirements of AB 52, on December 23, 2016 the County of Orange sent letters to tribes that have expressed an interest in being consulted regarding Native American resources for the projects being undertaken in unincorporated Orange County. Letters were sent to the following tribal organizations on December 23, 2016:

- Gabrielino Band of Mission Indians – Kizh Nation Juaneño Band of Mission Indians – Acjachemen Nation
- San Gabriel Band of Mission Indians
- Soboba Band of Luiseño Indians

One tribe, the Gabrielino Band of Mission Indians – Kizh Nation responded by letter dated January 12, 2016. Mr. Salas (Tribal Chair), representing the Kizh Gabrielino Tribe, provided information regarding potential tribal resources in his letter. He indicated that the JWA Project site lies within an area where ancestral territories of Kizh Gabrielino Tribe villages adjoined and overlapped, at least during the Late Prehistoric (before European contact) and Protohistoric Periods (Post-contact). Mr. Salas recommended that a certified Native American monitor be onsite during ground disturbing activities related to the Project components, including but not limited to pavement removal, post holing, auguring, boring, grading, excavation and trenching to protect any cultural resources which may be affected during construction or development.

In response to Mr. Salas's letter, in February 2017, JWA requested a teleconference meeting. Mr. Salas and JWA discussed the Project components and JWA provided to Mr. Salas an aerial photograph of the airport boundary. Mr. Salas will provide the map to the tribe's in-house archaeologist and tribal elders for further discussion. JWA also agreed to provide Mr. Salas the proposed depths of grading related to construction activities as soon as the depths have been confirmed.

4.9.3 EXISTING CONDITIONS

Section 4.4 of this Program EIR provides an evaluation of cultural resources, including archaeological resources and human remains. As noted in that section, a cultural resources records search and literature review was conducted at the California Historical Resources Information System ("CHRIS"), which maintains records and literature regarding cultural resources within California. The CHRIS office for Orange County is located at California State University, Fullerton California. Although at least 50 cultural resources studies have been undertaken within ½ mile of the Project Site, only two of these studies included a portion of the

GAIP Site and only one recorded site is located within ½ mile of the GAIP Site. This site, ORA-1223, is a prehistoric site identified by shellfish remains and lithic implements and manufacturing debris. The site is not within the GAIP limits. As noted in Section 4.4, the GAIP site is heavily disturbed having been used for aviation uses since the 1920s.

Regional Ethnographies

Ethnography is a cultural anthropologic research method that strives to answer anthropological questions about different cultures' ways of life (University of Pennsylvania 2008), and the following described the ethnographic setting of the GAIP site. The Orange County region, including the GAIP site, was a contact point between two separate ethnolinguistic groups immediately prior to the arrival of Euro-Americans in California. These groups include the Gabrielino/Tongva and the Juaneño/Acjachemen. These groups, while maintaining their own respective cultural identity, did have similar traditions, beliefs systems, and languages, which were a result of intertribal interactions over several centuries.

Another tribe that influenced the cultures of the region is the Luiseño/Payomkawichum. They too, shared similar linguistic and cultural traits like the Juaneño/Acjachemen and the Gabrielino/Tongva. However, the Luiseno/Payomkawichum territory is located just outside the shared territory of the Gabrielino/Tongva and Juaneño/Acjachemen, along the Northern San Diego County coastline and inland Riverside County. Therefore, this Program EIR focuses on the Gabrielino/Tongva and the Juaneño/Acjachemen.

Gabrielino/Tongva

At the time of European contact, this part of Orange County was the home of the Gabrielino. The Gabrielino and their descendants are those people who became associated with Mission San Gabriel Arcángel, which was established in south-central Los Angeles County on September 8, 1771, in what has ever since been called the San Gabriel Valley. Today, these people are sometimes referred to as the *Tongva,* although the term apparently originally (i.e., before the arrival of Euro-Americans) referred to the inhabitants of the San Gabriel Valley only. In either case, the inhabitants of Santa Catalina Island and San Clemente Island are often included as being parts of this tribe, as are the Fernandeño, who inhabited most of the San Fernando Valley. Note that the Eastern Gabrielino refers to those who lived south of the San Gabriel Mountains, mainly in the San Gabriel Valley, while the Western Gabrielino refers to those who lived along the western coast of Los Angeles County, from Malibu to Palos Verdes, and includes the people living in the San Fernando Valley.

The ancestral Gabrielino arrived in the Los Angeles Basin probably before 500 BCE as part of the so-called Shoshonean (Takic speaking) Wedge from the Great Basin region and gradually displaced the indigenous peoples, probably Hokan speakers. Large, permanent villages were established in the fertile lowlands along rivers and streams and in sheltered areas along the coast. Eventually, Gabrielino territory encompassed the watersheds of the Los Angeles, San Gabriel, Rio Hondo, and Santa Ana Rivers (which includes the greater Los Angeles Basin) to perhaps as far south as Aliso Creek, as well as portions of the San Fernando, San Gabriel, and San Bernardino Valleys. Gabrielino territory also included the islands of San Clemente, San Nicholas, and Santa Catalina. Recent studies suggest the population may have numbered as many as 10,000 individuals at their peak in the Pre-contact Period.

The subsistence economy of the Gabrielino was one of hunting and gathering. The surrounding environment was rich and varied, and the natives were able to exploit mountains, foothills, valleys, deserts, and coasts. As was the case for most native Californians, acorns were the staple food (by the Intermediate Horizon), supplemented by the roots, leaves, seeds, and fruit of a wide variety of flora (i.e., cactus, yucca, sage, and agave). Fresh and saltwater fish, shellfish, birds, insects, and large and small mammals were exploited.

A wide variety of tools and implements were employed by the Gabrielino to gather, collect, and process food resources. The most important hunting tool was the bow and arrow. Traps, nets, blinds, throwing sticks, and slings were also employed. Fish were an important resource and nets, traps, spears, harpoons, hooks, and poisons were utilized to catch them. Ocean-going plank canoes and tule balsa canoes were used for fishing and for travel by those groups residing near the Pacific Ocean.

The processing of food resources was accomplished in a variety of ways: nuts were cracked with hammer stone and anvil; acorns were ground with mortar and pestle; and seeds and berries were ground with mano and metate. Yucca, a valuable resource in many areas, was eaten by the natives and exploited for its fibers.

Strainers, leaching baskets and bowls, knives, bone saws, and wooden drying racks were also employed. Food was consumed from a variety of vessels. Catalina Island steatite was used to make ollas and cooking vessels.

Gabrielino houses were circular domed structures of willow poles thatched with tule. They were actually quite large and could, in some cases, hold 50 individuals. Other structures served as sweathouses, menstrual huts, and ceremonial enclosures.

Anthropologist Alfred Kroeber considered the Gabrielino:

> . . . to have been the most advanced group south of Tehachapi, except perhaps the Chumash. They certainly were the wealthiest and most thoughtful of all the Shoshoneans of the State, and dominated these civilizations wherever contacts occurred.

Juaneño/Acjachemen

During the Late Prehistoric and Contact Periods, the GAIP area was located also within the Juaneño territory. As with the Gabrielino, whose name signifies their mission association, the name Juaneño designates those peoples that fell under the control of the Mission at San Juan Capistrano. Specifically, it denotes the indigenous Native Americans living in and near the San Juan and San Mateo creek drainages, who called themselves the Acjachemen.

The Acjachemen population during the Precontact Period is thought to have numbered upwards of 3,500. It is known that 1,138 local Native Americans, consisting primarily of Acjachemen but including Gabrielino, coastal and interior Luiseño, Serrano, and Cahuilla, resided at Mission San Juan Capistrano in the year 1810. The Mission's death register shows as many as 1,665 native burials in its cemetery by this time, a number in addition to those who died unrecorded at the remaining villages from natural causes and introduced infectious diseases.

Overall, the Acjachemen territory consisted of the eastern Santa Ana Mountains to the coast and southward to San Juan Capistrano. The majority of the known ethnographic village sites are located primarily in this region. To this day, the San Juan Capistrano area has seen continuous habitation by the Juaneño people.

The Juaneño lived in structured villages, populated variously by 35 to 300 people, consisting of a single lineage to multiple clans in larger settings. While each village unit maintained economic and social ties to neighboring villages, they also maintained a well-defined resource area.

The Juaneño exploited a wide variety of resources for their dietary needs. These consisted primarily of plant foods, including seeds, nuts, fruits, tubers, and greens. Marine resources constituted the largest sources of meat and consisted mostly of shellfish and fish. Marine resources were collected from open water, bay, and estuary habitats. Birds and mammals made up most of the remainder of the diet. Many common bird species and most small rodents were exploited where available. Seasonal rounds of exploitation formed the basis for the successful procurement of various food types as evident by the settlement patterns still identifiable today from the remains of simple campsites to complex village sites.

4.9.4 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist and Appendix G of the CEQA Guidelines, the applicable thresholds of significance with regard to tribal cultural resources are included below. The GAIP could have a significant impact if it would:

Threshold 4.9-1 Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1 (k), or

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

4.9.5 REGULATORY REQUIREMENTS AND STANDARD CONDITIONS OF APPROVAL

There are no regulatory requirements or standard conditions of approval that are applicable to tribal cultural resources.

4.9.6 IMPACT ANALYSIS

Threshold 4.9-1

- ***Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:***

    i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or

    ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Proposed Project and Alternative 1

For purposes of impact analysis, a tribal cultural resource is considered a site, feature, place, cultural landscape, sacred place, or object which is of cultural value to a California Native American Tribe and is either eligible for the CRHR[1] or a local register. As indicated in Section 4.4 of this Program EIR, based on a record search there are no resources on the GAIP site that are currently listed on the CRHR. One archaeological site, CA-ORA-1223, is a prehistoric site identified by shellfish remains and lithic implements and manufacturing debris. This site is located approximately $^1/_3$ mile south of the Airport in a developed area. The site will not be affected from GAIP related activities. Therefore, the Proposed Project and Alternative 1 would not have an impact on tribal cultural resources associated with an impact to a resource that is listed or eligible for listing on the CRHR. The County of Orange does not have a local listing.

The second component of this threshold is if the GAIP would impact "A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe." Subdivision (c) states:

> A resource may be listed as an historical resource in the California Register if it meets any of the following National Register of Historic Places criteria:
>
> (1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
>
> (2) Is associated with the lives of persons important in our past.

[1] Section 5020.1 of the Public Resources Code established the California Register of Historic Resources, as "an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change."

(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

(4) Has yielded, or may be likely to yield, information important in prehistory or history.

Based on information available through the record search at the SCCIC and the long-term past use of the GAIP site for aviation purposes, there is no information available that indicates there are significant tribal resources on site that would be significant pursuant to criteria set forth in subdivision (c) of Public Resource Code Section 5024.1. However, as noted in Section 4.9.2, Methodology, the County requested consultation with tribes that had notified the County of Orange of a desire to be consulted with for projects in unincorporated Orange County.

The County received one response. Mr. Andrew Salas, the Tribal Chair for the Gabrielino Band of Mission Indians – Kizh Nation, responded on January 12, 2017.[2] He indicated that the GAIP site lies within an area where ancestral territories of Kizh Gabrielino Tribe villages adjoined and overlapped, at least during the Late Prehistoric (i.e., before European contact) and Protohistoric Periods (i.e., Post-contact).Mr. Salas did not identify specific known tribal cultural resources at the Airport; however, he stated "when the Native American Heritage Commission states there are 'no records of sacred sites in the project area' the NAHC will always refer lead agencies to the respective Native American Tribe because the NAHC is only aware of general information and are not the experts on each California Tribe." Mr. Salas recommended that a certified Native American monitor be onsite during ground disturbing activities related to the GAIP components, including but not limited to pavement removal, post holing, auguring, boring, grading, excavation and trenching to protect any cultural resources which may be affected during construction or development.

In response to Mr. Salas's letter, in February 2017, the Airport requested a teleconference meeting. Mr. Salas and JWA discussed the GAIP components and the likelihood of impacts given the disturbed nature of the site. The Airport provided Mr. Salas an aerial photograph of the Airport boundary. Mr. Salas was to provide the map to the tribe's in-house archaeologist and tribal elders for further discussion. The Airport also agreed to provide Mr. Salas the proposed depths of grading related to construction activities as soon as estimated depths have been confirmed. This information was provided to Mr. Salas on December 18, 2017. Additionally, as part of that same contact, Airport staff inquired if Mr. Salas had additional information based on his consultation with the tribe's in-house archaeologist and tribal elders. Mr. Salas contacted the Airport on December 29, 2017; however, no specific information regarding known tribal resources on the Airport has been provided. The Airport staff contacted Mr. Salas again on January 18, 2017 via email.

Based on coordination to date, Native American representatives have not provided information indicating there are resources that are significant to a California Native American tribe or otherwise qualify as Tribal Cultural Resources, as defined in Public Resources Code Section 21074. Notwithstanding the current lack of evidence of the known resources on site, it is acknowledged this portion of Orange County was inhabited by Native American tribes. Although

[2] The actual letter from Mr. Salas is dated January 12, 2016; however, since the inquiry on interest to consult was December 23, 2016, the actual date should have been January 12, 2017.

limited amounts of archaeological resources important to Native Americans have been identified near the GAIP site, there is always the possibility that undiscovered intact cultural resources, including tribal cultural resources may be present below the surface in native sediments. To minimize the potential direct impacts, a Minimization Measure (MN) has been included requiring Native American monitoring when construction activities are disturbing native soil.[3] Implementation of MN TCR-1 would provide for appropriate protection of tribal cultural resources that may be discovered during construction. Therefore, this impact would be less than significant.

Impact Conclusion: *The Proposed Project and Alternative 1 have a low potential to cause a substantial adverse change in the significance of a tribal cultural resource as defined by Section* 21074 *of the Public Resources Code. Implementation of MN TCR-1 would further minimize the potential for impacts should buried tribal cultural resources be discovered as part of grading activities. Under Threshold 4.9-1, impacts would be less than significant.*

4.9.7 CUMULATIVE IMPACTS

Although tribal cultural resources impacts are site-specific with regard to any given resource (e.g. resources of important cultural value to Native Americans), impacts may be considered cumulative simply because they relate to the loss of tribal cultural resources in general over time throughout the region. There are no tribal cultural resources listed or determined eligible for listing, on the national, state, or local register of historical resources on the Airport property. However, should buried resources be identified, the Proposed Project and Alternative 1 could lead to accelerated degradation of previously unknown tribal cultural resources. None of the cumulative projects identified on the Airport (see Section 4 for a discussion of cumulative projects) are expected to disturb unknown tribal cultural resources because of the shallow depth of excavation.

Cumulative development associated with regional growth (i.e., development off Airport property) would have similar potential for impacts to unknown resources. However, each of these development proposals would undergo environmental review and would be subject to similar resource protection requirements as determined by the local lead agency. Through the implementation of MN TCR-1 the Proposed Project and Alternative 1 would minimize the potential contribution to cumulative impacts on tribal cultural resources. Therefore, the Proposed Project and Alternative 1's contribution to cumulative impacts associated with tribal cultural resources would be less than significant.

[3] As discussed in Section 4.4, the site is heavily disturbed because of the long-term aviation use on site. Most of the construction associated with the Project is not expected to extend into native soils; however, the footing for larger buildings may extend down as deep as 25 feet. In certain locations on the Airport, this may be native soils. A minimization measure is a condition proposed to reduce an adverse effect of the Project even when that effect dos not result in a significant impact.

4.9.8 MITIGATION PROGRAM

Though no significant impacts have been identified, the following minimization measure would further reduce the potential for an impact to currently unknown tribal cultural resources should construction extend into native soil.

MN TCR-1 **Tribal Cultural Resources Observation and Salvage.** Prior to the issuance of any grading permit in which native soil is disturbed, the applicant shall provide written evidence to the Manager, Permit Services, that a Native American monitor has been retained to observe grading activities in native sediment and to salvage and catalogue tribal cultural resources as necessary. The Native American monitor shall be present at the pre-grade conference, shall establish procedures for tribal cultural resource surveillance, and shall establish, in cooperation with the County, procedures for temporarily halting or redirecting work to permit the sampling, identification, and evaluation of the tribal cultural resource as appropriate. If the tribal cultural resources are found to be significant, the Native American observer shall determine appropriate actions, in cooperation with the County for exploration and/or salvage.

4.9.9 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Project-specific and cumulative impacts to tribal cultural resources associated with the Proposed Project and Alternative 1 would be less than significant. Additionally, the GAIP proposes a minimization measure to further protect currently unknown resources.

4.9.10 REFERENCES

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4.10 UTILITIES AND SERVICE SYSTEMS

This section describes existing utilities and service systems serving John Wayne Airport ("JWA" or "Airport") and identifies and addresses potential impacts related to the following utilities, with the service provider indicated in parentheses:

- Wastewater conveyance (Costa Mesa Sanitary District ["CMSD"] and Orange County Sanitation District ["OCSD"])
- Wastewater treatment (OCSD)
- Water conveyance and supplies (Mesa Water District ["Mesa Water"])

As discussed in Section 2.3.2, Issues to be Addressed in the Program Environmental Impact Report ("EIR"), and in the Notice of Preparation ("NOP")/Initial Study in Appendix A, the Airport is fully developed, and the existing storm drain system has been constructed to accommodate storm flows in compliance with applicable standards. The General Aviation Improvement Program ("GAIP") would keep the site developed and would not require or result in the construction or expansion of storm drainage facilities. In addition, the Regional Landfill Options for Orange County ("RELOOC") report demonstrates that the County is able to provide sufficient long-term solid waste disposal capacity. Thus, the GAIP would be served by landfills with sufficient permitted capacity and would comply with federal, State, and local solid waste regulations. Therefore, less than significant impacts on storm drainage and solid waste disposal would occur, and these topics are not discussed in this section.

4.10.1 REGULATORY SETTING

State

General Waste Discharge Requirements for Sanitary Sewer Systems

The State Water Resources Control Board ("SWRCB") adopted Statewide General Waste Discharge Requirements (WDR) for Sanitary Sewer Systems, Order No. 2006-0003-DWQ on May 2, 2006. All public agencies that own or operate a sanitary sewer system that has more than one mile of pipes or sewer lines conveying wastewater to a publicly owned treatment facility must apply for coverage under this WDR. Coverage under the WDR requires these public wastewater agencies to develop and implement sewer system management plans and report all sewer system overflows to the SWRCB. The WDR prohibits sewer system overflows that result in a discharge of untreated or partially treated wastewater to waters of the United States or that creates a nuisance as defined in the *California Water Code*. It requires the public wastewater agency to take all feasible steps to eliminate overflows and, if an overflow occurs, to take all feasible steps to contain and mitigate the impacts of the overflow.

Urban Water Management Planning Act

The California Urban Water Management Planning Act (*California Water Code,* Sections 10610–10656) requires urban water suppliers to develop urban water management plans. While generally aimed at encouraging water suppliers to implement water conservation measures, it

also creates long-term planning obligations. The Urban Water Management Planning Act requires urban water suppliers that either provide over 3,000 acre-feet ("af") of water annually or serve more than 3,000 or more connections to assess the reliability of its water sources over a 20-year planning horizon and to update the data in their urban water management plans every five years. In preparing their 20-year management plans, water suppliers must directly address the subject of future population growth. The suppliers must also identify sources of supply to meet demand during normal, dry, and multiple dry years.

Senate Bill 610 and Senate Bill 221

Senate Bill ("SB") 610 amended State law to improve the link between information on water supply availability and certain land use decisions made by cities and counties.[1] Specifically, it requires land use planning entities (in this case, the County of Orange), when evaluating certain large development projects, to request an assessment of water supply availability from the water supply entity that would provide water to a project. A water supply assessment ("WSA") must be prepared in conjunction with the land use approval process and include an evaluation of the sufficiency of the water supplies available to the water supplier to meet existing and anticipated future demands, including the demand associated with the project in question, over a 20-year horizon that includes normal, single-dry, and multiple dry-years (DWR 2003). An SB 610 WSA is required for any "project" that is subject to the California Environmental Quality Act ("CEQA") and that, among other things, is a business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space; a proposed industrial, manufacturing, or processing plant or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land or having more than 650,000 square feet of floor area; or a project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling-unit project.

Due to the developed nature of the site and the proposed reconstruction and reconfiguration of buildings and site improvements associated with the GAIP that would retain the same land uses and activities, the anticipated increase in water use due to the level of development is not sufficient to require the preparation of a WSA pursuant to Section 10912 of the *California Water Code*, as required by SB 610.

Water Conservation Act of 2009

The Water Conservation Act of 2009 or Senate Bill 7 (SBX7-7) was approved in November 2009 and requires urban water retail suppliers in California to reduce per capita water use by at least 10 percent on or before December 31, 2015, and to achieve a 20-percent reduction by December 31, 2020. In their Urban Water Management Plans ("UWMPs"), urban retail water suppliers must include the baseline daily per capita water use, the urban water use target, the interim urban water use target, and the compliance daily per capita water use, along with the basis for determining those estimates and references to the supporting data. Urban retail water suppliers and agricultural water suppliers would not be eligible for State water grants or loans for surface water or groundwater storage, recycling, desalination, water conservation, water

[1] SB 610 amended Section 21151.9 of the *California Public Resources Code,* and amended sections 10631, 10656, 10910, 10911, 10912, and 10915 of, repealed section 10913 of, and added and amended section 10657 of, the *California Water Code.*

supply reliability, and water supply augmentation unless they comply with the water conservation requirements established by this Act.

The 20x2020 Water Conservation Plan, issued by the Department of Water Resources ("DWR") in 2010 pursuant to the Water Conservation Act of 2009, established a water conservation target of a 20-percent reduction in water use by 2020 compared to 2005 baseline use.

California Green Building Standards Code

The *2016 California Green Building Standards Code* (24 *California Code of Regulations* ["CCR"] Part 11), also known as the CALGreen Code, sets planning, design and development methods that promote energy efficiency, water efficiency and conservation, material conservation, and resource efficiency and encourages sustainable construction practices for improved environmental quality. The mandatory non-residential measures in the CALGreen Code include water efficiency and conservation regulations for water meters, plumbing fixtures and fittings, commercial kitchen equipment, and landscape irrigation (ICC 2017a).

Regional

Waste Discharge Requirements

The Santa Ana Regional Water Quality Control Board ("RWQCB") issued Order No. R8-2012-0035, which serves as the WDR and National Pollutant Discharge Elimination System ("NPDES") Permit for OCSD Reclamation Plant No. 1 and Treatment Plant No. 2. This Order sets the discharge prohibitions, effluent limitations and discharge specifications, and receiving water limitations that have been imposed on the OCSD plants for compliance with the Clean Water Act and NPDES program, as well as to protect groundwater and surface water quality in accordance with the California Ocean Plan and Santa Ana Region Basin Plan (Santa Ana RWQCB 2012).

OCSD Sewer System Management Plan

In compliance with the Statewide General WDR for Sanitary Sewer Systems, the OCSD has developed and is implementing a Sewer System Management Plan ("SSMP"). This plan describes its sewer system design and performance provisions for the installation of new sewer systems and the rehabilitation and repair of existing systems; operation and maintenance program; overflow emergency response plan; fats, oils, and grease control program; a Capital Improvement Plan to provide adequate hydraulic capacity for the sewer collection system; sewage discharge prohibitions; monitoring, measurement, and program modifications; periodic internal audits; and communication program (OCSD 2005a).

The SSMP contains the sewer design guidelines and master specifications and standard drawings for new sanitary sewer systems, pump stations, and other appurtenances. These guidelines are used in identifying deficiencies to be included in the Capital Improvement Plan to ensure adequate capacity to serve peak flow conditions and storm or wet weather events. The SSMP also outlines OCSD response procedures in the event of an overflow or spill and its associated reporting program.

OCSD Regulations

OCSD provides regional wastewater collection, treatment, recycling, and disposal services that are primarily paid for by property taxes (i.e., annual sewer service user fees) and fees and charges (through permit user fees and discharge permit fees), in accordance with Ordinance Nos. OCSD-41 (OCSD 2013b) and OCSD-46 (OCSD 2014a). In addition to the fees, the OCSD has adopted a number of regulations that establish specific requirements, permit conditions, discharge limits, prohibitions, on-site facilities (e.g., pretreatment equipment, pollution control facilities, spill containment facilities, accidental slug control plans, and monitoring/metering facilities), and operating and maintenance requirements.

Ordinance No. OCSD-25 adopts fats, oils, and grease control regulations to prevent sewer system overflows due to the blockage of sewer lines by fats, oils, and grease. The Ordinance establishes quantity and quality standards on wastewater discharges containing fats, oils, and grease. Food service establishments are required to obtain a permit and implement best management practices that minimize the discharge of fats, oils, and grease into the sewer system. The ordinance also prohibits food grinders and additives; the disposal of waste cooking oil, certain wastewaters, and wastes; and other permit conditions. It requires the installation of grease interceptors to separate and remove fats, oils, and grease in wastewater discharges or payment of a grease disposal mitigation fee (OCSD 2005a).

Ordinance No. OCSD-48 establishes wastewater discharge regulations to comply with State and federal laws, including the Clean Water Act and the Porter-Cologne Water Quality Control Act. This Ordinance prohibits pollutants, wastewater, or flows that would violate federal, State, and local requirements, including those that may cause obstruction of flows; create a fire or explosive hazard; produce noxious, malodorous liquids, gases, solids, or other wastewater; result in toxic gases, vapors, or fumes; contain radioactive wastes or isotopes; create foaming; and other specific prohibitions. Permits are required for specific discharges (e.g., significant industrial users, discharges other than sanitary wastes, dry weather urban runoff discharges, special purpose discharges, and waste hauler discharges), which come with specific conditions for pretreatment facilities, spill containment facilities, accidental slug control plans, monitoring and reporting, and/or inspection and sampling (OCSD 2016).

Costa Mesa Sanitary District Operations Code

The CMSD Operations Code is the ordinance establishing the CMSD and includes general regulations for all CMSD operations. The Operations Code requires that all sewer mains be constructed and installed in accordance with the standards and specifications of the CMSD and the California Plumbing Code. It includes the CMSD's sewer maintenance activities and required connection, user, fixture, and other fees, permits and charges for developments to obtain sewer collection services from CMSD. The Code also outlines grease control measures, including discharge prohibitions, food service establishment permits, best management practices to minimize the discharge of fats, oils, and grease, and pre-treatment and interceptor requirements. Mesa Water Urban Water Management Plan

Mesa Water District ("Mesa Water"; formerly Mesa Consolidated Water District) provides potable (domestic) water service to John Wayne Airport, which is located within the northeastern portion of Mesa Water's service area. In compliance with the California Urban

Water Management Planning Act, Mesa Water adopted its *2015 Urban Water Management Plan* ("UWMP") in June 2016. The UMWP identifies the Airport as one of the major regional facilities in the service area.

The 2015 UWMP states that Mesa Water will meet future demands using local groundwater and recycled water through 2040. Its available water supplies can meet projected demands of 20,610 to 20,874 af per year from 2020 to 2040, consisting mainly of groundwater and 1,100 af of recycled water. While Mesa Water will depend on local water supplies, imported water is available to supplement its supply, as provided in the Metropolitan Water District's *2010 Integrated Water Resources Plan*, which states that it can meet full-service demands of retail agencies under all foreseeable hydrologic conditions. The UWMP shows that Mesa Water can reliably meet demands during a normal year, a single-dry year, and multiple dry-years from 2020 to 2040.

In compliance with SBX7-7, the UWMP sets the baseline water use at 180 gallons per capita per day ("gpcd") and a 2015 target of 162 gpcd and a 2020 target of 144 gpcd. Actual water use in 2015 was 108 gpcd, which meets the 2015 and 2020 targets ahead of schedule. As a member of the Orange County 20x2020 Regional Alliance, the 2015 target for the region is 176 gpcd, and the 2020 target is 158 gpcd. Actual 2015 water use in the region was 125 gpcd, which also meets the 2015 and 2020 targets. The UWMP outlines the water conservation programs and plans the Mesa Water has implemented to reduce water demand and respond to water shortages, as well as regulations and prohibitions to reduce water use.

County

Orange County Municipal Code

Section 7-9-133.5, Landscape Water Use Standards, of the Orange County Code sets the estimated applied water use allowed for landscaped areas for water conservation and water waste prevention.

Section 7-1-12 of Title 7 of the Code adopts by reference the 2016 *California Building Code* and *California Green Building Standards Code* (CALGreen Code), among other codes, "to prescribe regulations for the erection, construction, enlargement, alteration, repair, improving, removal, conversion, demolition, occupancy, equipment, use, height, area and maintenance of all buildings and structures" in the unincorporated areas of the County.

4.10.2 METHODOLOGY

Information presented in this section was derived from the JWA EIR 617 for the *John Wayne Airport Settlement Agreement Amendment* and publicly available publications of Mesa Water, CMSD, and the OCSD, as referenced herein. The number of general aviation users was developed through the use of trip generation factors. In addition, Mesa Water and the OCSD were provided with the NOP to solicit comments on the proposed improvements to general aviation facilities at the Airport.

4.10.3 EXISTING CONDITIONS

Wastewater

The OCSD is responsible for collection, treatment, and disposal of the wastewater generated by 2.5 million people living in a 479-square-mile area of central and northwest Orange County, including the Airport (OCSD 2017b), except for a small area at the western boundaries of the Airport property, which is served by the CMSD[2]. The CMSD has gravity main lines in Airway Avenue, Paularino Avenue, Clinton Street, and nearby streets that are part of its 325-mile sewer network for wastewater collection and conveyance to OCSD facilities, which provide wastewater treatment and disposal (CMSD 2018a).

OCSD currently operates two wastewater treatment plants that treat wastewater to secondary standards: Reclamation Plant No. 1 in Fountain Valley and Treatment Plant No. 2 in Huntington Beach These plants have a combined capacity to treat 372 million gallons per day ("mgd") for primary treatment (208 mgd for Plant 1 and 168 mgd for Plant 2) and 332 mgd for secondary treatment (182 mgd for Plant 1 and 150 mgd for Plant 2). These plants treated a total of approximately 188 mgd in 2016-2017 (OCSD 2017d). Wastewater treatment requirements under Order No. R8-2012-0035 have been issued by the Santa Ana RWQCB for both OCSD treatment plants to ensure that adequate levels of treatment would be provided for the wastewater flows emanating from all land uses within its service area.

OCSD, in partnership with Orange County Water District, operates the Orange County Groundwater Replenishment System and Green Acres Project. The Groundwater Replenishment System purifies secondary treated wastewater and injects it into the seawater barrier or pumps it to ponds for percolation into deep aquifers. The Green Acres Project provides up to 8,400 af per year of recycled water for irrigation and industrial uses. Mesa Water provides recycled water from OCSD to customers for use in landscape irrigation and golf course irrigation.

The area along the western boundary of JWA is served by sewer mains in local streets that are owned and maintained by the CMSD (CMSD 2018b), but the majority of the JWA is tributary to two OCSD sewers: the 18-inch-diameter North Airport Diversion Sewer, located in Business Center Drive, and the 12-inch-diameter South Airport Diversion Sewer, located in Campus Drive. The two sewer lines cross MacArthur Boulevard on the eastside of JWA in the area referred to as the Irvine Business Complex (JWA 2014). OCSD also has a sewer main in Baker Street (west of JWA) and pump stations, sewer main lines, and a vortex structure north and southeast of the Airport but outside the project site (i.e., general aviation facilities) (OCSD 2014b, 2017c).

In conjunction with the development of the terminal facilities provided for in the 1985 Master Plan (Terminals A and B), JWA and OCSD developed a Sewer Service Agreement ("1990 Service Agreement") to accommodate all future discharges and ensure adequate capacity to serve 10.24 million annual passengers ("MAP"). This agreement assumed wastewater discharge for 10.24 MAP having a rated flow of 2.5 gallons per flush. In 2005, this agreement was modified in conjunction with a "will serve" letter from OCSD for the Terminal C improvements and 10.8 MAP. The "will serve" letter indicates that by installing water-efficient facilities (not more than one

[2] The CMSD provides solid waste and sewer collection services within its service boundaries but does not provide solid waste collection services to the Airport.

gallon per flush), the resulting discharge for 10.8 MAP would be at least 20 percent less than the earlier anticipated volume for the 10.24 MAP (OCSD 2005b). In conjunction with the Final EIR 617, it has been estimated that by using water-efficient facilities, there is capacity to serve approximately 12.96 MAP (10.8 MAP plus 20 percent). The 2014 Settlement Agreement Amendment provides for up to 12.5 MAP in Phase 3 (2026-2030).[3] Therefore, an increment of wastewater capacity is available under the 1990 Service Agreement. The required water-efficient facilities have been installed throughout the Terminal Buildings (Terminals A through C).

Water Supply

Mesa Water provides water service to an 18-square-mile service area that includes most of the city of Costa Mesa, portions of the city of Newport Beach, and a small portion of unincorporated County of Orange, including JWA. Mesa Water receives its water from two main sources: (1) the Lower Santa Ana River Groundwater Basin ("Basin"), which is managed by the Orange County Water District; and (2) imported water from the Municipal Water District of Orange County. It has approximately 317 miles of mainlines, 5,139 mainline valves, 3,383 fire hydrants, 2 booster pump stations, 3 storage reservoirs, and 7 groundwater wells (Mesa Water 2017a).

Groundwater is obtained from six wells that pump clear water from the Basin and two wells that pump colored water (amber-colored from historic redwood forests) located below the main production aquifer. The colored water is treated at the Mesa Water Reliability Facility ("MWRF"; formerly the Colored Water Treatment Facility). There is no groundwater well at the Airport; the nearest well is at the Newport Beach Golf Course. Imported water from the Colorado River via the Colorado River Aqueduct and from the Lake Oroville watershed through the State Water Project are treated at the Diemer Filtration Plant and delivered to Mesa Water through the imported water connections (Mesa Water 2016).

Groundwater is used to meet approximately 94 percent of Mesa Water's annual demand. In 2015, Mesa Water supplied approximately 16,844 acre-feet[4] of groundwater and 1,158 acre-feet of recycled water to meet demand. Imported water was available as a reserve but was not used to meet demand. Mesa Water also projects that 100 percent of its future water supply will come from local groundwater and recycled water (Mesa Water 2016).

Mesa Water obtains its groundwater supplies from the Orange County Groundwater Basin, which is managed by the Orange County Water District ("OCWD") (Mesa Water 2016). The California Department of Water Resources does not identify this groundwater basin as subject to critical conditions of overdraft (DWR 2016) but has designated it as a medium priority basin, pursuant to the Sustainable Groundwater Management Act (DWR 2015). The OCWD Groundwater Management Plan states that since the basin is operated to continuously fluctuate within the safe operating range, overdraft conditions in the traditional sense does not exist in the groundwater basin (OCWD 2015). Based on the Mesa Water 2015 UWMP, the 2015 water consumption within Mesa Water's service area was 108 gallons per capita per day (gpcd) (ratio

[3] The background on the 1985 Settlement Agreement Amendment and subsequent amendments is discussed in Section 2.6.3 of this Program EIR.

[4] One acre-foot is the volume of water that will cover an area of one acre to a depth of one foot, equivalent to 325,851 gallons

between total water consumption and service area population) or an average of approximately 39,420 gallons per year (0.12 afy) (Mesa Water 2016).

4.10.4 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist, the GAIP would result in a significant impact related to public services and utilities if it:

Threshold 4.10-1 Would exceed the wastewater treatment requirements of the applicable Regional Water Quality Control Board ("RWQCB").

Threshold 4.10-2 Would require or result in the construction of new water or wastewater treatment facilities or the expansion of existing facilities, the construction of which could cause significant environmental impacts.

Threshold 4.10-3 Would not have sufficient water supplies available to serve the project from existing entitlements and resources, or new or expanded entitlements would be needed.

Threshold 4.10-4 Would result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

4.10.5 REGULATORY REQUIREMENTS AND STANDARD CONDITIONS OF APPROVAL

Implementation of the GAIP assumes compliance with existing regulations related to water use and wastewater generation, as discussed under Section 4.10.1, Regulatory Setting, above. These include the following Regulatory Requirements ("RR"):

RR UTL-1 In conjunction with the development of the GAIP projects, building plans and site improvement plans shall show compliance with pertinent regulations of CMSD and/or OCSD related to sewer system connections, installation of on-site facilities for industrial dischargers and food service establishments (e.g., pretreatment equipment, pollution control facilities, spill containment facilities, accidental slug control plans, and monitoring/metering facilities), as well as obtain the necessary discharge permits and comply with the discharge limits, prohibitions, monitoring and reporting, inspection and sampling, and other provisions of the permit. Compliance shall be in a manner meeting the approval of the Manager, Building and Safety compliance prior to issuance of any building permit.

RR UTL-2 In conjunction with the development of the GAIP projects, building plans and site improvement plans shall demonstrate compliance with applicable non-residential mandatory measures in the California Green Building Standards Code (CALGreen Code) and the County's Landscape Water Use Standards in a manner

meeting the approval of the Manager, Building and Safety compliance prior to issuance of any building permit.[5]

RR UTL-3 In conjunction with the development of the GAIP projects, new or modified water service to the site shall comply with Mesa Water District's rules and regulations, including design and construction of connections and water facilities, payments for service, conditions for service, and compliance with its permanent and emergency water conservation programs that outline water waste prohibitions, escalating water restrictions under water supply shortage conditions and other general provisions.

4.10.6 IMPACT ANALYSIS

Given that the GAIP's proposed uses are consistent with the current uses at the Airport, the potential for increased demand for potable water supplies and generation of wastewater would be tied to the number of people served at the Airport. The following analysis is focused on potential impacts from the change in the number of people that currently use the general aviation facilities at the Airport under the existing conditions to those under the Proposed Project and Alternative 1.

Implementation of the GAIP is scheduled to occur over a multi-year period. Therefore, the analysis of impacts related to water demand and supplies, wastewater generation, and changes in water and sewer services associated with the construction of the proposed improvements and facilities that may occur with the Proposed Project and Alternative 1 considers phased redevelopment of the general aviation facilities at the Airport.

Thresholds 4.10-1, 4.10-2, and 4.10-4

- ***Would the project exceed the wastewater treatment requirements of the applicable Regional Water Quality Control Board?***

- ***Would the project require or result in the construction of new water or wastewater treatment facilities or the expansion of existing facilities, the construction of which could cause significant environmental impacts?[6]***

- ***Would the project result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?***

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[5] CALGreen Appendix A4 contains the voluntary measures (Tier 1 and Tier 2) that were developed to provide a statewide method of enhancing green construction practiced beyond the Code's minimum levels. It should be noted, although RR UTL-2 identifies compliance with the California Green Building Standards Code, the *John Wayne Airport Climate Action Plan* requires fixed based operators and vendors to meet stringent energy efficiency requirements equivalent of CalGreen Tier 1 and Envision Gold or higher for applicable components of GAIP facilities. This requirement is identified in the consistency evaluation with the CAP, provided in Table 4.4-10, item E-11 (included in Section 4.4, Greenhouse Gas Emissions).

[6] The following analysis addresses wastewater only. The analysis of potable water facilities under this threshold is addressed below in this section.

Proposed Project

Wastewater generated by general aviation facilities and activities at the JWA is currently treated by facilities owned and operated by OCSD and would continue to be treated by OCSD under the Proposed Project. The new, reconstructed and/or reconfigured general aviation facilities under the Proposed Project would have to comply with the wastewater regulations and requirements of OCSD and/or CMSD in order to obtain sewer service. This would include design and construction of sewer system connections; installation of required pretreatment equipment, pollution control facilities, spill containment facilities, accidental slug control plans, and/or monitoring/metering facilities; application for the necessary discharge permits; and compliance with CMSD and/or OCSD ordinances (RR UTL-1) that have been developed to comply with the Statewide General WDR for Sanitary Sewer Systems and the Santa Ana RWQCB's WDR and NPDES Permit for OCSD. OCSD and CMSD implementation of its SSMP would also avoid discharges that violate the WDR for wastewater. Therefore, the Project would not exceed the wastewater treatment requirements of the RWQCB.

The proposed demolition, new construction, reconstruction, and reconfiguration of general aviation facilities may require the removal of existing on-Airport sewer conveyance lines, as well as the construction of new sewer conveyance lines to serve new buildings and facilities. The construction of sewer lines and new sewer system connections would have to be made in compliance with OCSD or CMSD requirements.

Based on the number of aircraft parking space and vehicles coming to and from the site, the existing employees, visitors, and other people who come to the general aviation buildings at the site are estimated at 1,877 persons per day on a peak day. With the proposed reconstruction of general aviation buildings and facilities under the Proposed Project, it is projected that the number of people would increase to 1,905 persons per day on a peak day by 2026. Thus, wastewater generation is also anticipated to increase by approximately 1.5 percent.

The OCSD estimates wastewater generation at 3,167 gallons per acre for industrial land uses and the CMSD estimates wastewater generation at 3,500 gallons per acre (OCSD 2014c and CMSD 2012). Since no increase or decrease in the size of the Project site will occur, the increase in wastewater generation would come directly from the projected increase of 28 persons per day at the site, thus generating wastewater from the use of restrooms, kitchens, and other washing facilities. Using the OCSD's 2015 average per capita flow of 75 gallons per person per day (OCSD 2017e), the increase in 28 persons per day at the site would increase wastewater flows by 2,100 gallons per day. This estimate is very conservative, since many of the users would only be at the Airport for a short-period of time (i.e., prior to and immediately after their flights).

Reconstruction of the existing buildings would lead to the installation of facilities that comply with current code requirements and more water-efficient appliances and plumbing fixtures over those in existing older buildings, in compliance with the 2016 CALGreen Code (RR UTL-2). An estimated 20-percent decrease in indoor water use could be expected with compliance with the CALGreen Code (ICC 2017b). Thus, the 2,100-gallon or 1.5-percent increase in wastewater generation from the 28 additional persons at the general aviation facilities at the Airport is expected to be offset by the water-efficient appliances and fixtures that would be installed as part of newly constructed general aviation buildings under the Proposed Project. It should also be noted, the general aviation-related passengers and workers at JWA make up a small portion

of the total Airport users. In 2016, the Airport served nearly 10.5 million commercial carrier passengers (JWA 2017).

As noted under Existing Conditions, throughout the years, JWA has coordinated with OCSD to ensure sufficient wastewater treatment capacity exists to serve the Airport facilities. It has been estimated that by using water-efficient facilities at JWA, there is capacity to serve approximately 12.96 MAP, which exceeds the passenger level approved by the 2014 Settlement Agreement Amendment. Since the Proposed Project would increase the number of persons using general aviation facilities only by an estimated 28 persons per day and, at the same time, would be replacing older plumbing fixtures at the general aviation facilities with more water-efficient ones, the Proposed Project would not result in a significant impact related to the wastewater conveyance facilities that serve the Airport. Thus, the Proposed Project does not have the potential to require or result in the construction of new wastewater treatment facilities or expansion of existing facilities. Less than significant impacts are expected, and no mitigation is required.

Impact Conclusion: *The Proposed Project would not exceed the wastewater treatment requirements of the Santa Ana RWQCB or result in discharges that would require the construction of new wastewater treatment facilities or the expansion of existing facilities. RR UTL-1 requires all new construction to comply with CMSD and OCSD controls on discharge requirements. As noted above, the Proposed Project is projected to increase the number of average daily users at the Airport by approximately 28 additional persons. The installation of new water-efficient appliances and fixtures that would be installed as part of newly constructed general aviation buildings per RR UTL-2 would be expected to offset the incremental increase in wastewater generation. The Proposed Project would have less than significant impacts under Thresholds 4.10-1, 4.10-2, and 4.10-4 pertaining to wastewater.*

Alternative 1

The analysis provided for the Proposed Project for these thresholds would also be applicable to Alternative 1 with respect to compliance with OCSD and CMSD regulations for consistency with wastewater treatment requirements. Alternative 1 is projected to result in an increase in the number of persons using general aviation facilities from 1,877 persons per day in 2016 to 1,919 persons per day in 2026. This 42-person increase, which represents a 2.2-percent increase in general aviation users, would potentially result in an increase in wastewater generation. Using the OCSD's 2015 average per capita flow of 75 gallons per person per day (OCSD 2017e), the increase in 42 persons per day at the site would conservatively increase wastewater flows by 3,150 gallons per day under Alternative 1. However, as with the Proposed Project, the replacement of older plumbing fixtures and appliances at the site with fixtures and appliances that comply with current code requirements and water-efficient systems would offset the projected increase in wastewater generation. Thus, the wastewater generation under Alternative 1 would not affect the ability of OCSD to serve the wastewater treatment demand generated by the increase in the number of persons at the site. As indicated above, based on the construction of new buildings and the use of new water efficient facilities, it is anticipated that wastewater generation from the site would not increase; and the OCSD would have the capacity to serve general aviation activities under this Alternative. Thus, Alternative 1 does not have the

potential to require or result in the construction of new wastewater treatment facilities or expansion of existing facilities. Less than significant impacts are expected, and no mitigation is required.

Impact Conclusion: *Alternative 1 would not exceed the wastewater treatment requirements of the Santa Ana RWQCB or result in discharges that would require the construction of new wastewater treatment facilities or the expansion of existing facilities. RR UTL-1 requires all new construction to comply with CMSD and OCSD controls on discharge requirements. Alternative 1 is projected to increase the number of average daily users at the Airport by approximately 42 additional persons. The installation of new water-efficient appliances and fixtures that would be installed as part of newly constructed general aviation buildings per RR UTL-2 would be expected to offset the incremental increase in wastewater generation. Alternative 1 would have less than significant impacts under Thresholds 4.10-1, 4.10-2, and 4.10-4 pertaining to wastewater.*

Thresholds 4.10-2 and 4.10-3

- ***Would the project require or result in the construction of new water or wastewater treatment facilities or the expansion of existing facilities, the construction of which could cause significant environmental impacts?***[7]
- ***Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?***

Proposed Project

The actual building area (i.e., space that use water such as offices and terminal area) for the Proposed Project is projected to be less than currently exists (i.e., 97,000 square feet compared to the current 134,000 square feet). Therefore, using water demand factors based on the size of the new facilities would not be an appropriate characterization for the GAIP. The Proposed Project would result in an increase of approximately 28 persons per day using the new general aviation facilities on a peak day in 2026 compared to the existing facilities (2016). This represents an increase of 1.5 percent of the general aviation users at the Airport. This incremental increase may result in a higher demand for water for drinking, cleaning, washing, kitchen, and maintenance activities. Using the Mesa Water's average 2015 water consumption of 108 gallons per capita per day, the 28 additional persons at the site could increase water use by 3,024 gallons per day. However, many of the users would be at the Airport for a short-period of time (i.e., prior to and immediately after their flights); therefore, the actual demand would be considerably less than Mesa Water's average per capita daily consumption. As discussed above, the Proposed Project would be substantially below the threshold for requiring a WSA. The incremental increase in number of demand would reasonably be offset by installation of water-efficient plumbing fixtures as part of new construction in compliance with the CALGreen Code and the County's Landscape Water Use Standards (RR UTL-2) since the mandatory measures in the CALGreen Code would result in a 20-percent reduction in indoor water use over buildings

[7] The following analysis addresses potable water supply only. The analysis of wastewater treatment facilities under this threshold is addressed above in this section.

constructed before 2010 (ICC 2017b). Even without the increased efficiency, the Proposed Project would not substantially increase the demand for water, necessitating the construction of new facilities or expanded water supplies. The 2015 UWMP of Mesa Water indicates that it has adequate supplies to serve water demand under a normal, single dry-year, and multiple dry-years to 2040. This assumes the use of local groundwater and recycled water supplies only. Mesa Water also has imported water allocations that serve as supplemental supplies.

Mesa Water provides water service to its customers, subject to the availability of water and/or the facilities necessary to provide the service, conditional upon receipt of all required fees and charges, and in accordance with their rules and regulations. Any removal and construction of water distribution lines as under the Proposed Project shall be made in compliance with Mesa Water regulations, including payment for services and compliance with water conservation programs and water use restrictions (RR UTL-3).

The Proposed Project would result in less than significant impacts related to sufficient water supplies or the need for new or expanded water treatment facilities, and no mitigation is required.

Impact Conclusion: *The increase in the number of persons using the general aviation facilities associated with the Proposed Project would potentially result in an incremental increase in water usage; however, water-efficient plumbing fixtures and appliances that would be installed in new general aviation facilities, as required by RR UTL-2, would offset the minor increase in water demand under the Proposed Project. Thus, the Proposed Project would not require additional water supplies or create the need for new or expanded water treatment facilities. Impacts would be less than significant under Thresholds 4.10-2 and 4.10-3 pertaining to water usage.*

Alternative 1

The increase in water demand under Alternative 1 would be attributed to the 42-person increase in the number of persons using the general aviation facilities and generating additional water demand. Using the Mesa Water's average 2015 water consumption of 108 gallons per capita per day, the 42 additional persons at the site could conservatively increase water use by 5,184 gallons per day. Similar to the Proposed Project, water-efficient appliances, plumbing fixtures, and landscape irrigation systems installed in new construction would offset those in existing older buildings, in compliance with the CALGreen Code and the County's Landscape Water Use Standards (RR UTL-2). Thus, the increase in water demand from the general aviation facilities at JWA under Alternative 1 associated with 42 additional persons at the site would be offset by the associated water conservation measures. Thus, Alternative 1 would not create substantial demands for water nor require the construction of new water treatment facilities or expansion of existing facilities. Existing distribution water lines on site may be removed and new ones constructed to serve new buildings in accordance with Mesa Water regulations (RR UTL-3), but service connections and water mains would remain. Less than significant impacts are expected.

Impact Conclusion: *The increase in the number of persons using the general aviation facilities associated with Alternative 1 would potentially result in an incremental increase in water usage; however, water-efficient plumbing fixtures and appliances that would be installed in new general aviation facilities, as*

required by RR UTL-2, would offset the minor increase in water demand under Alternative 1. Thus, Alternative 1 would not require additional water supplies or create the need for new or expanded water treatment facilities. Impacts would be less than significant under Thresholds 4.10-2 and 4.10-3 pertaining to water usage.

4.10.7 CUMULATIVE IMPACTS

The GAIP (the Proposed Project and Alternative 1) would result in a limited increase in the average number of people using the Airport on an average day, resulting in a nominal increase in water demand and wastewater generation. A review of the cumulative projects indicate that only the 2014 Settlement Agreement Amendment would result in an increased demand for water and wastewater generation. The Settlement Agreement Amendment only addresses commercial carrier operations; therefore, the potential for cumulative wastewater impacts would only be associated with the OCSD, which services flows from the terminal building. As discussed above, in conjunction with the Final EIR 617, it has been estimated that by using water-efficient facilities, there is capacity to serve approximately 12.96 MAP (10.8 MAP plus 20 percent). Therefore, wastewater capacity under the 1990 Service Agreement between JWA and the OCSD would provide sufficient capacity to serve the increased demand associated with the 2014 Settlement Agreement Amendment (which provides for up to 12.5 MAP in Phase 3) and the GAIP facilities that would be serviced by OCSD. Cumulative impacts associated with wastewater treatment requirements or capacity would be less than significant.

During the preparation of Final EIR 617, the Mesa Water District concluded there are sufficient water supplies (which also included water treatment) to meet the estimated water demand for any of the 2014 Settlement Agreement Amendment alternatives through Phase 3.[8] At that time, Mesa Water District was in the process of updating their Water Master Plan and intended to incorporate the anticipated future water demand from JWA based on increased annual commercial passenger throughput. The general aviation activities would have been part of the baseline assumptions in Final EIR 617. Given that Mesa Water District determined there was sufficient capacity to accommodate the long-term demand at the Airport, and the GAIP (Proposed Project and Alternative 1) would not result in a substantial increase in people being served at the Airport, the cumulative impacts would result in less than significant impacts related to sufficient water supplies or the need for new or expanded water treatment facilities.

4.10.8 MITIGATION PROGRAM

No significant adverse impacts related to utilities and service systems would occur, and no mitigation measures would be required for the Proposed Project or Alternative 1.

[8] Final EIR 617 evaluated four scenarios at an equal level of detail. The alternative selected by the Board of Supervisors provided for an increase in the number of passengers served by the Airport to increase up to 12.5 MAP beginning on January 1, 2026 if certain conditions have been met. The water demand for the selected alternative was estimated to be an additional 1.61 acre feet annually compared to the 2013 baseline. Alternative C was the most intense alternative, which would have provided for up to 16.9 MAP, and would have required approximately an additional 3.75 acre feet per year annually. Although not selected by the Board of Supervisors, in 2014 Mesa Water District identified that there would be capacity to service this level of increased passenger service,

4.10.9 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Direct and cumulative impacts on utilities associated with the Proposed Project and Alternative 1 would be less than significant and no mitigation is required.

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4.11 WATER QUALITY

This section discusses General Aviation Improvement Program ("GAIP")-related impacts to water quality at John Wayne Airport ("JWA" or "the Airport"). The term "water quality" is used to denote issues of surface water pollution and associated regulations and practices to manage surface water quality.

The GAIP would lead to the demolition and reconstruction of existing facilities and the construction of other improvements on an approximately 110-acre portion of JWA. The site would remain largely impervious, as under existing conditions. The GAIP would not directly affect underlying groundwater supplies; it would not place structures or housing in a 100-year flood hazard area; it would not expose the Airport to flooding as a result of failure of a levee or dam; and it would not be subject to inundation by seiche, tsunami, or mudflow. Thus, these topics are not discussed in this section (refer to the Notice of Preparation ["NOP"]/Initial Study in Appendix A).

4.11.1 REGULATORY SETTING

Federal

Clean Water Act

In 1972, the Federal Water Pollution Control Act ("Clean Water Act") was amended to require National Pollutant Discharge Elimination System ("NPDES") permits for the discharge of pollutants to waters of the United States[1] from any point source.[2] Final regulations regarding storm water discharges were issued on November 16, 1990, and require that municipal separate storm sewer system ("MS4") discharges and industrial (including construction) storm water discharges to surface waters be regulated by an NPDES permit. MS4s are a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) and are owned or operated by a public body that has jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes. The MS4s are designated or used for collecting or conveying storm water only (i.e., not wastewater or combined sewage). NPDES permit requirements relevant to the Proposed Project and Alternative 1 are discussed later in this section.

Oil Pollution Act

The Spill Prevention, Control and Countermeasure ("SPCC") Rule was originally published in 1973 under the Section 311(j)(1)(C) of the Clean Water Act as amended by the Oil Pollution Act of 1990. The regulation requires applicable facilities to develop and implement SPCC Plans and establish procedures, methods, and equipment requirements to prevent oil from reaching navigable waters and adjoining shorelines, and to contain discharges of oil.

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1 Waters of the United States include all waters that have, are, or may be used in interstate or foreign commerce (including sightseeing or hunting), including all waters subject to the ebb and flow of the tide and all interstate waters, including interstate wetlands (33 *Code of Federal Regulations* 328.3).

2 Point sources are discrete water conveyances, such as pipes or man-made ditches.

Spill Prevention Control and Countermeasures Rule

40 CFR Part 112 requires that facilities subject to federal oil pollution prevention regulations develop and maintain a SPCC Plan. Federal oil pollution prevention regulations apply to facilities that have bulk oil storage or oil-filled electrical or operating equipment that exceed one or both of the following thresholds:

- aboveground storage or oil-filled equipment aggregate capacity: 1,320 gallons
- underground storage aggregate capacity: 42,000 gallons

The SPCC rule stipulates that only oil storage containers with capacities equal to or greater than 55 gallons are included in the aggregate capacity calculations. Aboveground oil containers with capacities less than 55 gallons are not counted toward a facility's aggregate capacity total, and are not subject to the requirements of 40 CFR Part 112. The SPCC rule also contains requirements for oil-filled equipment with an oil storage capacity equal to or greater than 55 gallons. The SPCC rule provides an exemption for underground storage tanks (USTs) that are subject to all of the technical requirements of 40 CFR Part 280, or a state program approved under 40 CFR Part 281. USTs that meet one of these criteria do not count toward the underground storage capacity threshold. The Airport has developed a SPCC, dated September 2016, which was prepared in compliance with 40 CFR Part 112 "Oil Pollution Prevention," outlines the requirements for both the prevention of and response to oil and oil product discharges, which in this case, is primarily jet fuel but also includes avgas and other petroleum-based fuels at the Airport.

Clean Water Act Section 303(d)

Water bodies not meeting water quality standards are deemed "impaired" and, under Clean Water Act Section 303(d), are placed on a list of impaired waters for which a total maximum daily load ("TMDL") must be developed for the impairing pollutant(s). A TMDL is an estimate of the total load of pollutants from point, non-point, and natural sources that a water body may receive without exceeding applicable water quality standards (with a "factor of safety" included). Once established, the TMDL allocates the loads (or concentrations) among current and future pollutant sources to the water body.

Receiving waters downstream of JWA include the Santa Ana Delhi Channel and the Upper and Lower Newport Bay. According to the 2014 and 2016 Clean Water Act Section 303(d) list approved by the State Water Resources Control Board ("SWRCB"), the Santa Ana Delhi Channel is no longer on the 303(d) list. The Upper and Lower Newport Bay are on the 303(d) list for various pollutants. It is noted that the SWRCB is in the process of amending the Industrial General Permit. The amendment is intended to incorporate TMDL requirements where industrial storm water was identified as a source of the receiving water impairment. The San Diego Toxics TMDL assigns Waste Load Allocations (WLAs) for cadmium, copper, lead, and zinc to industrial dischargers including those that discharge to the Santa Ana-Delhi Channel.

Table 4.11-1 below summarizes the pollutants affecting the water quality limited segments downstream of JWA, their TMDL requirement status, and potential pollutant sources, as provided on the 2014/2016 303(d) list.

TABLE 4.11-1
SUMMARY OF 303(d) LIST FOR JWA RECEIVING WATER BODIES

Water Body	Pollutant	TMDL Requirement Status*	Potential Pollutant Sources (Where Identified)
Santa Ana Delhi Channel	None	--	--
Upper Newport Bay	Chlordane (Pesticide)	5B (2013)	N/A
	Copper	5A (2007)	Marinas and Recreational Boating
	DDT (Pesticide)	5B (2013)	N/A
	Indicator Bacteria	5B (2000)	N/A
	Malathion	5A (2027)	N/A
	Nutrients	5B (1999)	N/A
	PCBs	5B (2013)	N/A
	Sedimentation/Siltation	5B (1999)	Agriculture, Channel Erosion, Construction/Land Development, Erosion/Siltation
	Toxicity	5A (2027)	N/A
Lower Newport Bay	Chlordane (Pesticide)	5B (2013)	N/A
	Copper	5A (2019)	Marinas and Recreational Boating
	DDT (Pesticide)	5B (2013)	N/A
	Indicator Bacteria	5B (2000)	N/A
	Nutrients	5B (1999)	N/A
	PCBs	5B (2013)	N/A
	Toxicity	5A (2019)	N/A

TMDL: total maximum daily load; DDT: Dichlorodiphenyltrichloroethane; PCBs: Polychlorinated Biphenyls; N/A- source is unknown.

*5A – TMDL required (expected completion date reported in 303[d] list in parentheses);
5B – pollutant being addressed by U.S. Environmental Protection Agency-approved TMDL.

Source: 2014 and 2016 Integrated Report, SWRCB 2017a and 2014 and 2016 California 303(d) List of Water Quality Limited Segments, SWRCB 2017b.

State/Regional

California Porter-Cologne Act

California's Porter-Cologne Water Quality Control Act of 1970 ("Porter-Cologne Act") protects surface water and groundwater quality and is the primary vehicle for implementing California's responsibilities under the Clean Water Act. The Porter-Cologne Act grants the SWRCB and the

Regional Water Quality Control Boards ("RWQCBs") the authority and responsibility to adopt plans and policies; to regulate discharges of waste to surface and groundwater; to regulate waste disposal sites; and to require cleanup of discharges of hazardous materials and other pollutants.

Each RWQCB must formulate and adopt a Water Quality Control Plan ("Basin Plan") for its region. The Basin Plan must conform to the policies set forth in the Porter-Cologne Act and established by the SWRCB in its State Water Policy. The Basin Plan establishes beneficial uses for surface and groundwater in the region and sets forth narrative and numeric water quality standards to protect those beneficial uses.

The RWQCBs are also authorized to enforce discharge limitations, to take actions to prevent violations of these limitations from occurring, and to conduct investigations to determine the status of the quality of any of the waters of the State. Civil and criminal penalties are also applicable to persons who violate the requirements of the Porter-Cologne Act or any SWRCB/RWQCB orders.

California Toxics Rule

The Clean Water Act requires States to adopt water quality standards for receiving water bodies and to have those standards approved by the U.S. Environmental Protection Agency ("USEPA"). Water quality standards consist of designated beneficial uses for a particular receiving water body (e.g., wildlife habitat, agricultural supply, fishing), along with the water quality criteria necessary to support those uses. Water quality criteria are prescribed concentrations, levels of constituents, or narrative statements that represent the quality of water that supports a particular use. Because the State of California was unable to develop these standards for priority toxic pollutants, the USEPA promulgated the California Toxics Rule ("CTR") in 1992 (40 *Code of Federal Regulations* ["CFR"] 131.38), which fills this gap.

It is noted that the objectives of the Basin Plan prepared by each RWQCB under the Porter-Cologne Act and the CTR criteria do not currently apply directly to discharges of urban runoff, such as from JWA, but rather apply within the specified receiving waters. The SWRCB is in the process of amending the Industrial General Permit as stated below. The amendment is intended to incorporate TMDL requirements where industrial storm water was identified as a source of the receiving water impairment. The San Diego Toxics TMDL assigns WLAs for cadmium, copper, lead, and zinc to industrial dischargers including those that discharge to the Santa Ana-Delhi Channel. The San Diego Toxics TMDL uses the CTR equation with an average hardness of the San Diego Creek to calculate the criteria for translating each pollutant into a TMDL Numeric Action Level that will be applicable to the Airport and GAIP upon adoption of the amended Industrial General Permit.

The NPDES permit requirements applicable to the GAIP are described below.

Santa Ana Region Basin Plan

The Water Quality Control Plan for the Santa Ana River Basin ("Santa Ana Basin Plan") identifies the beneficial uses and water quality objectives for the receiving water bodies in the Santa Ana

Region.[3] The definitions of the beneficial uses applicable to these receiving water bodies are as follows:

- **Municipal and Domestic Supply (MUN)** waters are used for community, military, municipal, or individual water supply systems, including, but not limited to, drinking water supply.
- **Agricultural Supply (AGR)** waters are used for farming, horticulture, or ranching, including, but not limited to, irrigation, stock watering, and support of vegetation for range grazing.
- **Industrial Service Supply (IND)** waters are used for industrial activities that do not depend primarily on water quality, including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization.
- **Industrial Process Supply (PROC)** waters are used for industrial activities that depend primarily on water quality, including, but not limited to, process water supply and all uses of water related to product manufacture or food preparation.
- **Groundwater Recharge** (**GWR**) waters are used for natural or artificial recharge of groundwater for purposes that may include, but are not limited to, future extraction, maintaining water quality or halting saltwater intrusion into freshwater aquifers.
- **Navigation (NAV)** waters are used for shipping, travel, or other transportation by private, commercial, or military vessels.
- **Hydropower Generation** (**POW**) waters are used for hydroelectric power generation.
- **Water Contact Recreation (REC1)** waters are used for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, or use of natural hot springs.
- **Non-Contact Water Recreation (REC2)** waters are used for recreational activities involving proximity to water but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, and aesthetic enjoyment in conjunction with the above activities.
- **Commercial and Sportfishing** (**COMM**) waters are used for commercial or recreational collection of fish or other organisms, including those collected for bait. These uses may include, but are not limited to, uses involving organisms intended for human consumption.
- **Warm Freshwater Habitat (WARM)** waters support warm water ecosystems, including, but not limited to, preservation and enhancement of aquatic habitats, and vegetation, fish and wildlife, including invertebrates.

[3] A group of connected inland basins and open coastal basins between Los Angeles and San Diego that are drained by surface streams flowing generally southwestward to the Pacific Ocean.

- **Limited Warm Freshwater Habitat** (**LWRM**) waters support warm water ecosystems which are severely limited in diversity and abundance as the result of concrete-lined watercourses and low, shallow, dry weather flows which result in extreme temperature, higher or lower acidity or alkalinity (pH), and/or dissolved oxygen conditions. Naturally reproducing finfish populations are not expected to occur in LWRM waters.
- **Cold Freshwater Habitat** (**COLD**) waters support cold water ecosystems that may include, but are not limited to, preservations and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.
- **Preservation of Biological Habitats of Special Significance** (**BIOL**) waters support designated areas or habitats, including, but not limited to, established refuges, parks, sanctuaries, ecological reserves or preserves, and Areas of Special Biological Significance ("ASBS"), where the preservation and enhancement of natural resources requires special protection.
- **Wildlife Habitat** (**WILD**) waters that support wildlife habitats that may include, but are not limited to, the preservation and enhancement of vegetation and prey species used by waterfowl and other wildlife.
- **Rare, Threatened, or Endangered Species** (**RARE**) waters support the habitats necessary for the survival and successful maintenance of plant or animal species designated under state or federal law as rare, threatened or endangered.
- **Spawning, Reproduction and Development** (**SPWN**) waters support high quality aquatic habitats necessary for reproduction and early development of fish and wildlife.
- **Marine Habitat** (**MAR**) waters support marine ecosystems that include, but are not limited to, preservation and enhancement of marine habitats, vegetation (e.g., kelp), fish and shellfish and wildlife (e.g., marine mammals and shorebirds).
- **Shellfish Harvesting** (**SHEL**) waters support habitats necessary for shellfish (e.g., clams, oysters, limpets, abalone, shrimp, crab, lobster, sea urchins, and mussels) collected for human consumption, commercial, or sport purposes.
- **Estuarine Habitat** (**EST**) waters support estuarine ecosystems, which may include, but are not limited to, preservation and enhancement of estuarine habitats, vegetation, fish and shellfish, and wildlife, such as waterfowl, shorebirds, and marine mammals.

The receiving waters for runoff from the JWA, which include the Lower and Upper Newport Bay and Reach 1 of the Santa Ana Delhi Channel, and their associated beneficial uses are identified in Table 4.11-2.

TABLE 4.11-2
BENEFICIAL USES FOR JWA RECEIVING WATER BODIES

Receiving Water	Existing Beneficial Uses
Santa Ana Delhi Channel, Reach 1	Non-Contact Water Recreation Limited Warm Freshwater Habitat Wildlife Habitat Rare, Threatened, or Endangered Species
Upper Newport Bay	Water Contact Recreation Non-Contact Water Recreation Commercial and Sport Fishing Preservation of Biological Habitats of Special Significance Wildlife Habitat Rare, Threatened, or Endangered Species Spawning, Reproduction, and Development Marine Habitat Shellfish Harvesting Estuarine Habitat
Lower Newport Bay	Navigation Water Contact Recreation Non-Contact Water Recreation Commercial and Sport Fishing Wildlife Habitat Rare, Threatened, or Endangered Species Spawning, Reproduction, and Development Marine Habitat Shellfish Harvesting
Source: Santa Ana RWQCB 2016	

National Pollutant Discharge Elimination Program

As discussed above, the NPDES permit program is administered in the State of California by the RWQCBs. There are nine RWQCBs in the State of California. These boards have the mandate to develop and enforce water quality objectives and implementation plans within their regions. If discharges from industrial, municipal, and other facilities go directly to surface waters, the dischargers must obtain permits from the applicable RWQCB. An individual NPDES permit is specifically tailored to a facility. A general NPDES permit covers multiple facilities within a specific activity category such as construction activities. JWA is located within the jurisdiction of the Santa Ana RWQCB.

Construction General Permit

Pursuant to Clean Water Act ("CWA") Section 402(p), the SWRCB issued a statewide general NPDES Permit for storm water discharges from construction sites (Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ and Order No. 2012-0006-DWQ). The SWRCB's NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities is referred to as the "Construction General Permit". Under the Construction General Permit, construction sites with a disturbed area of one acre or more are

required to either obtain individual NPDES permits for storm water discharges or to be covered by the Construction General Permit.

Coverage under the Construction General Permit requires electronic filing of permit registration documents, which include a Notice of Intent ("NOI"), Storm Water Pollution Prevention Plan ("SWPPP"), and other compliance-related documents, to the SWRCB for General Permit coverage. The primary objectives of the SWPPP are (1) to help identify the sources of pollutants that could affect the quality of storm water discharges and (2) to describe and ensure the implementation of best management practices ("BMPs") to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges from the construction site. The SWPPP also outlines the monitoring and sampling program required for the construction site to verify compliance with Numeric Action Levels ("NALs") for specific discharges, as set by the Construction General Permit.

The Construction General Permit includes post-construction requirements for projects, but these standards do not apply as the GAIP is within a jurisdiction covered under a Phase 1 permit that is more protective.

Industrial General Permit

The General Permit for Storm Water Discharges Associated with Industrial Activities (SWRCB Order No. 2014-0057-DWQ and amendment) or the Industrial General Permit implements the Section 402 of the Clean Water Act associated with industrial activities in California that discharge to waters of the United States. The Permit regulates discharges associated with specific industrial activities, such as facilities subject to storm water effluent limitations guidelines; manufacturing facilities; oil and gas/mining facilities; hazardous waste treatment, storage, or disposal facilities; landfills, land application sites, and open dumps; recycling facilities; steam electric power generating facilities; transportation facilities; and sewage or wastewater treatment works. It requires the electronic submission of permit registration documents for Notice of Intent or No Exposure Certification coverage, including a SWPPP that demonstrates compliance with the requirements of the Industrial General Permit and identifies the BMPs that would be implemented when necessary by the facility to support attainment of water quality standards (e.g., such as TMDLs, effluent limitation guidelines, and NALs). It also requires a Monitoring Implementation Plan which includes sampling, visual inspection and BMP effectiveness evaluations. The Permit requires self-reporting of violations, compliance with exceedance response actions, and to adequately address and respond to RWQCB comments on compliance reports, as necessary.

The areas of the Airport leased to fixed based operators ("FBOs") and the maintenance areas (including areas used for washing and fueling operations) at JWA operate under the Industrial General Permit. The BMPs implemented at JWA pursuant to the Industrial General Permit are discussed below under Section 4.11.3, Existing Conditions.

Municipal Storm Water Permitting

The passenger terminal, runways, and parking areas of the Airport are under the jurisdiction of Orange County's MS4 Permit for the Santa Ana region (North County MS4 Permit). In 2002, the Santa Ana RWQCB issued NPDES Permit Order No. R8-2002-0010 for discharges of urban runoff from public storm drains in northern Orange County. The Permittees are the County of Orange ("County"), the Orange County Flood Control District ("OCFCD"), and the northern Orange County cities (collectively "the Co-Permittees").

A revised North County MS4 Permit was adopted on May 22, 2009 (Order No. R8-2009-0030, Amended by Order No. R8-2010-0062). The revised MS4 Permit included several provisions for new development and significant redevelopment, including a requirement to revise the Drainage Area Management Plan ("DAMP") and Model Water Quality Management Plan ("WQMP") by May 2010. The MS4 Permit was subsequently reopened and revised for the limited purpose of extending deadlines for the preparation of the WQMP and related documents (Permit Order No. R8-2010-0062). The GAIP will be a priority development project as defined where there is the addition or replacement of 5,000 square feet or more of impervious surface on a developed site. Priority projects are required to submit and implement a WQMP in accordance with the model WQMP. The WQMP includes structural treatment control BMPs. The Santa Ana RWQCB is in the process of updating the North County MS4 Permit, which began in 2014 but is yet to be finalized and adopted. The GAIP would be subject to NPDES regulations or the approved model WQMP in effect at the time of issuance of building permits for construction.

Waste Discharge Requirements

The Santa Ana RWQCB has adopted Order No. R8-2015-0004 (NPDES No. CAG998001), which includes updated general Waste Discharge Requirements ("WDRs") for discharges to surface water that pose an insignificant (de minimis) threat to water quality. This order allows specific wastewater discharges, including construction dewatering wastes, to be disposed into surface waters, subject to the regulations in the Order. Dischargers are required to apply for coverage under the Order by submitting a completed NOI prior to the start of discharge; compliance with the discharge prohibitions; groundwater testing to show the discharge would not exceed the set effluent limitations and applicable surface water limitations, including the provision of needed facilities and systems of treatment and control to meet the limitations; and implementation of a monitoring and reporting program. If the proposed discharge is not eligible for coverage under this Order, an individual NPDES permit would be needed.

County of Orange

Drainage Area Management Plan

To implement the requirements of the North County MS4 Permit, the Co-Permittees developed the 2003 DAMP to serve as the foundation of the model programs, local implementation plan, and watershed implementation plans. The DAMP provides a framework and a process for following the North County MS4 Permit requirements and incorporates watershed protection/storm water quality management principles into the Co-Permittees' General Plan process, the environmental review process, and the development permit approval process. Among others, the DAMP discusses the activities, practices, and programs being implemented by

the various municipalities for reducing pollutant discharges into the MS4s. It includes a public education program to encourage the prevention of storm water pollution at the source. The DAMP also defines requirements for construction sites and for project-specific planning, selection, and design of BMPs in new development or significant redevelopment projects. It also includes the water quality monitoring programs being implemented in the County.

Local Implementation Plan

Per the requirements in the DAMP and the North County MS4 Permit, the County of Orange and the OCFCD adopted a Local Implementation Plan ("LIP"), which is included as Appendix A of the DAMP. The LIP reflects the DAMP programs and measures and contains County policy and implementation documents for its compliance with the DAMP. Orange County last revised its LIP in September 2016. Section A-7 of the County's LIP contains the requirements for new development and significant redevelopment within the unincorporated areas of the County, based on the Orange County Model WQMP.

Model Water Quality Management Plan

In compliance with the North County MS4 Permit (Order No. R8-2009-0030, as amended), the Co-Permittees prepared and submitted a revised model WQMP, Technical Guidance Document ("TGD"), and supporting documents (collectively referred to as the "revised documents"), which were approved by the RWQCB on May 19, 2011, and became effective on August 17, 2011. The revised documents have been developed to aid the County of Orange, the OCFCD, and the Co-Permittees and developers with addressing post-construction urban runoff and storm water pollution from new development and significant redevelopment projects that qualify as Priority Projects. The revised documents include guidance for the preparation of conceptual or preliminary WQMPs to more effectively ensure that water quality protection, including low impact development ("LID") principles, is considered in the earliest phases of a project. The revised documents also incorporate the latest information on BMPs and provide additional clarification regarding their effectiveness and applicability.

The Model WQMP requires certain new development and significant redevelopment projects considered Priority Projects to develop and implement a Conceptual or Preliminary WQMP and/or a final Project WQMP that includes LID and BMPs to address post-construction urban runoff and storm water pollution. These Priority Projects include:

1. New development projects that create 10,000 square feet or more of impervious surface
2. Automotive repair shops
3. Restaurants where the land area of development is 5,000 square feet or more including parking area
4. Hillside development greater than 5,000 square feet
5. Impervious surface of 2,500 square feet or more located within, directly adjacent to (within 200 feet), or discharging directly into receiving waters within Environmentally Sensitive Areas.
6. Parking lots 5,000 square feet or more, including associated drive aisle, and potentially exposed to urban storm water runoff

7. Streets, roads, highways, and freeways
8. All significant redevelopment projects, defined as the addition or replacement of 5,000 or more square feet of impervious surface on an already developed site
9. Retail gasoline outlets

The TGD serves as a technical companion to the Model WQMP, providing guidance on how to prepare the Conceptual/Preliminary or Project WQMP.

Orange County Municipal Code

Title 2, Division 1, Articles 4 and 5 of the Orange County Municipal Code sets regulations for commercial activities and airport operations. Specifically, Section 2.1-46 addresses the washing and waxing of aircraft at the Airport, including the prevention of any water, wash water, or rinsate from discharging into the storm sewer or drainage system. Regulations for other non-storm water discharges are also provided that prohibit any non-storm water discharge, with the exception of irrigation water and water being used to fight fires, to flow into the Airport's storm drain system or inlets. Aircraft maintenance and the use, storage, distribution and disposal of hazardous materials, non-hazardous materials, and non-storm water discharges are also regulated to comply with applicable federal and State-issued storm water permits. Section 2-1-56 regulates fire hazards and fueling operations to prevent fuel overflow, and Section 2-1-57 prohibits the dropping or spilling of trash from containers on sidewalks, roads, tie-down areas, or public areas of the Airport.

Title 4, Division 13 of the Orange County Municipal Code are regulations for storm water management and urban runoff. These regulations constitute the County's Water Quality Ordinance in compliance with County MS4 Permit and prohibits non-storm water discharges into the storm drain system and reduces the discharge of pollutants. It identifies illicit connections and discharge prohibitions and requirements for new development and significant redevelopment, consistent with the County MS4 Permit, DAMP, and LIP. It also sets the permit requirements for non-storm water discharges to the storm water drainage system that are not regulated by the USEPA, SWRCB, or RWQCBs.

In addition, Title 9 of the County Code contains the water quality regulations of the OCFCD and Division 1 sets storm water management and urban runoff regulations that generally reflect the Water Quality Ordinance in Title 4, Division 13 of the Orange County Municipal Code, as they relate to illicit connections and discharge prohibitions and requirements for new development and significant redevelopment and permit requirements for non-storm water discharges. However, Article 10 of Division 1 includes regulations for fats, oil, and grease disposal and requirements for grease control devices.

4.11.2 METHODOLOGY

The effects of the GAIP on surface water quality were assessed by comparing the existing operational parameters with those of the Proposed Project and Alternative 1. This was done by first establishing the existing conditions baseline for water quality parameters currently implemented at JWA in compliance with applicable NPDES Permits, then characterizing the potential change in surface water quality (i.e., increase or decrease and types of pollutants) due to implementation of the Proposed Project and Alternative 1; this change was assessed in light of the existing water quality management program in place at JWA.

4.11.3 EXISTING CONDITIONS

The Airport is located in the Newport Bay watershed, which drains approximately 152.02 square miles of Orange County into Newport Bay and the Pacific Ocean (OC Public Works 2017). The Newport Bay watershed is part of the Santa Ana Region. Most of JWA is located on Newport Mesa, a non-marine terrace deposit of Upper Pleistocene age that marks the coastal terminus of the Tustin Plain. The northern 20 percent of JWA is in the Tustin Plain. Newport Mesa consists of slightly consolidated sand and gravel deposits with minor amounts of clay and is up to several hundred feet thick. Bedrock is not exposed at the surface within the boundaries of JWA.

Surface water runoff at JWA discharges into a storm drain conveyance system, which includes storm drain lines in MacArthur Boulevard, Campus Drive, and Bristol Street. These lines connect to the Santa Ana Delhi Channel, which discharges into Upper Newport Bay. The Upper Newport Bay conveys water into the Lower Newport Bay prior to release into the Pacific Ocean (OCFCD 2012).

Activities and uses at JWA include aircraft storage, aircraft fueling services, air charter services, aircraft rental, aircraft maintenance, flying lessons, sale of aircraft and aviation-related supplies, ground transportation, and catering, which may be generating pollutants that could enter local storm drain lines and contribute to water quality impairments at downstream water bodies. The Orange County DAMP lists various commercial and industrial activities and associated potential pollutants. Those relevant to the Airport are identified in Table 4.11-3.

TABLE 4.11-3
POTENTIAL POLLUTANTS

Activity	Sediments	Nutrients	Metals	Organics & Toxicants	Floatable Materials	Oxygen Demanding Substances	Oil & Grease	Bacteria	Pesticides
Automobile mechanical repair, maintenance, fueling, or cleaning	X	X	X	X		X	X		
Airplane mechanical repair, maintenance, fueling, or cleaning	X	X	X	X		X	X		
Equipment repair, maintenance, fueling, or cleaning	X	X	X	X		X	X		
Automobile (or other vehicle) parking lots and storage facilities			X		X		X		
Retail or wholesale fueling			X	X	X		X		
Eating or drinking establishments		X		X	X	X	X	X	X

Notes:
1. Vehicles used at the general aviation facilities of JWA are not maintained or painted at the JWA.
2. In accordance with their lease agreements with JWA and the JWA Airport Rules and Regulations, the FBOs are allowed to do minor paint touchup (e.g., using small spray cans) but are not allowed to paint an entire plane or large parts of an airplane.

Source: from Table 9-5 of 2007 DAMP, OC Public Works 2007

Surface Water Quality Management

As discussed above, FBO and maintenance areas of the Airport operate under the NPDES Industrial General Permit; and other areas operate under the MS4 Permit. However, runway flows are commingled with flows from industrial operation areas; thus, most of the Airport is covered under the Industrial General Permit. As part of the Industrial General Permit requirements, JWA has prepared and implements a SWPPP and a Monitoring Implementation Plan ("MIP"), which was submitted to the SWRCB for coverage under the Industrial General Permit. The SWPPP is designed to identify potential sources of pollutants that may add to storm water quality degradation at downstream facilities. It also identifies work practices and management procedures that are implemented to minimize pollutants from entering the storm water.

As part of the SWPPP and other regulatory programs such as the Business Emergency Response Plan and SPCC requirements (when applicable), all Airport fuelers and FBOs are required to prepare and implement spill and emergency notification and response plans and procedures.

These procedures include Mandatory Fueler Safety Training, which includes fuel spill notification and clean-up procedures. Likewise, aircraft maintenance and hazardous materials handling procedures are implemented at JWA to reduce the possibility of oil, coolant, and solvents from entering the storm drain system. All washing of aircraft or ground service equipment ("GSE") must be conducted at approved wash racks or be conducted as approved in the SWPPP using "dry wash" methods to reduce pollutants from being mobilized and entering the storm drain system during wet weather events or wash water from discharging during dry weather.

In furtherance of the Airport's SWPPP, JWA's storm drain system includes four oil-water separators generally located at each corner of the Airport. These four oil/water separators are Petro Pack equipped and have alarm systems, automatic storm water samplers, and flow meters. These oil/water separators have 25,000- to 50,000-gallon capacities and serve large areas of the Airport. The commercial fuel farm and hydrant fuel systems have additional structural controls to prevent direct discharges into the storm drain system. Storm water from the commercial fuel farm is contained by a large containment berm. After visual inspection, storm water is directed to an 8,000-gallon oil/water separator with a Petro Pack to treat the storm water. The hydrant fuel system includes double-walled underground piping with leak detection and containment vaults that ultimately directs spills to a 6,000-gallon UST holding tank. An additional oil/water separator would be installed in conjunction with the Wickland Pipeline project that would treat storm water discharged from the secondary containment system associated with this additional pipeline tank farm. Additionally, clarifiers are located at the wash racks, which direct flow to the sanitary sewer. Exhibit 4.11-1 depicts the locations of the oil/water separators on the Airport.

For the past 18 years, JWA has complied with the Industrial General Permit by implementing the SWPPP and submitting various reports required to the Santa Ana RWQCB or to the SWRCB's Storm Water Multiple Application and Report Tracking System ("SMARTS"), as required. The reports include annual reports, Ad Hoc sampling reports, and exceedance response actions. These reports provide supporting documentation that the Airport is in compliance with the Industrial General Permit. During the past two reporting years (2015-2016 and 2016-2017), two analytes exceeded the NALs, and a Level 1 Exceedance Response Action ("ERA") Evaluation and Report and Level 2 ERA Action Plan were prepared in accordance with the requirements of the Industrial General Permit. As documented in the ERA reports submitted in SMARTS, the exceedances were likely attributed to non-industrial sources such as vehicle and airplane traffic. Amec Foster Wheeler was of the opinion that the exceedances were not from maintenance activities (Amec 2016 and 2017). During the 2017-2018 reporting year, additional grab samples are being collected to confirm that maintenance operations are not the source for the two analytes with exceedances. A Level 2 ERA Technical Report is being prepared as well to document these findings.

JWA is responsible for maintaining the parking areas (lots and structures), commercial aprons, and runways at the Airport, and the FBOs are responsible for maintaining the areas within their leaseholds consistent with the provisions in their leases. As discussed above, some areas of the Airport are under the jurisdiction of Orange County's MS4 Permit. In accordance with MS4 Permit requirements, maintenance contractors are currently required to implement BMP procedures to reduce runoff and pollution into the storm drain system. Parking lots and sidewalks at JWA are no longer allowed to be washed off into the storm drains. Dirt, trash, leaves, grass-cuttings, and other types of debris are required to be swept up and properly disposed of

off-site. A self-contained scrubbing machine is also used to clean oil and grease from the parking lots. Wash water from this machine is disposed of into the industrial sewer system. JWA also cleans the commercial apron, removes rubber from the runways three to four time per year, and uses a sweeper four days each week within the roadways and commercial apron to remove particulates from paved surfaces (Amec 2016). While the FBOs are responsible for the maintenance of their leaseholds, the FBO areas are included in the monthly SWPPP inspections and periodic inspections of the airside portion[4] of JWA. The use of pesticides, herbicides, fertilizers, industrial cleaning products, and other hazardous materials are also tightly regulated and monitored through the requirements imposed by the MS4 Permit and Industrial General Permit.

JWA is a member of a County Task force, which prepares and submits an Annual Report to the Santa Ana RWQCB. This report is an assessment of the Municipal Activities Program's effectiveness. JWA submits data on BMPs implemented and BMP effectiveness and monitoring; documentation of training on the use of hazardous materials, pesticides, herbicides, and fertilizers; documentation on the quantity of fertilizers, herbicides, and fertilizers applied; and the status of required application permits.

Regional Water Quality

The pollutants identified in the 303(d)-listed water bodies summarized in Table 4.11-1 above can be grouped into the following categories: pesticides, metals, pathogens, nutrients and other organics, and sediment. These are typical pollutants generated in urban areas with dense land development and a wide variety of land uses. The primary source of pollutants in these water bodies is via surface runoff, both from point (i.e., an outlet) and non-point sources.

In addition, airborne pollution can fall to the ground in precipitation, in dust, or simply due to gravity. This type of pollution is called "atmospheric deposition" or "air deposition." Pollution deposited from the air can reach water bodies in two ways: (1) it can be deposited directly onto the surface of the water (direct deposition) or (2) it may be deposited onto land and be carried to water bodies through runoff (indirect deposition) (USEPA 2013). Airborne pollutants can travel anywhere from a few yards to few thousand miles before being deposited on land or water (USEPA 2001). For example, it is now known that dust from China often reaches the west coast of the United States (UCLA 2006).

Human, or anthropogenic, sources of airborne pollutants include the combustion of fossil fuels for power generation and transportation, the release of chemical by-products from industrial and agricultural processes, and the incineration of waste. Natural processes that can release substantial amounts of pollutants into the air include volcanoes and forest fires (USEPA 2013). Some pollutants in the atmosphere occur naturally, including nitrogen, sulfur, mercury, lead, cadmium, copper, and zinc. These pollutants also have anthropogenic sources, which can exceed emissions from natural sources. The pollutants that are often identified as having significant atmospheric contributions in water bodies are sulfur compounds, nitrogen compounds, mercury compounds, other heavy metals, and a handful of anthropogenic pesticides and industrial by-products, including pesticides and herbicides (USEPA 2001).

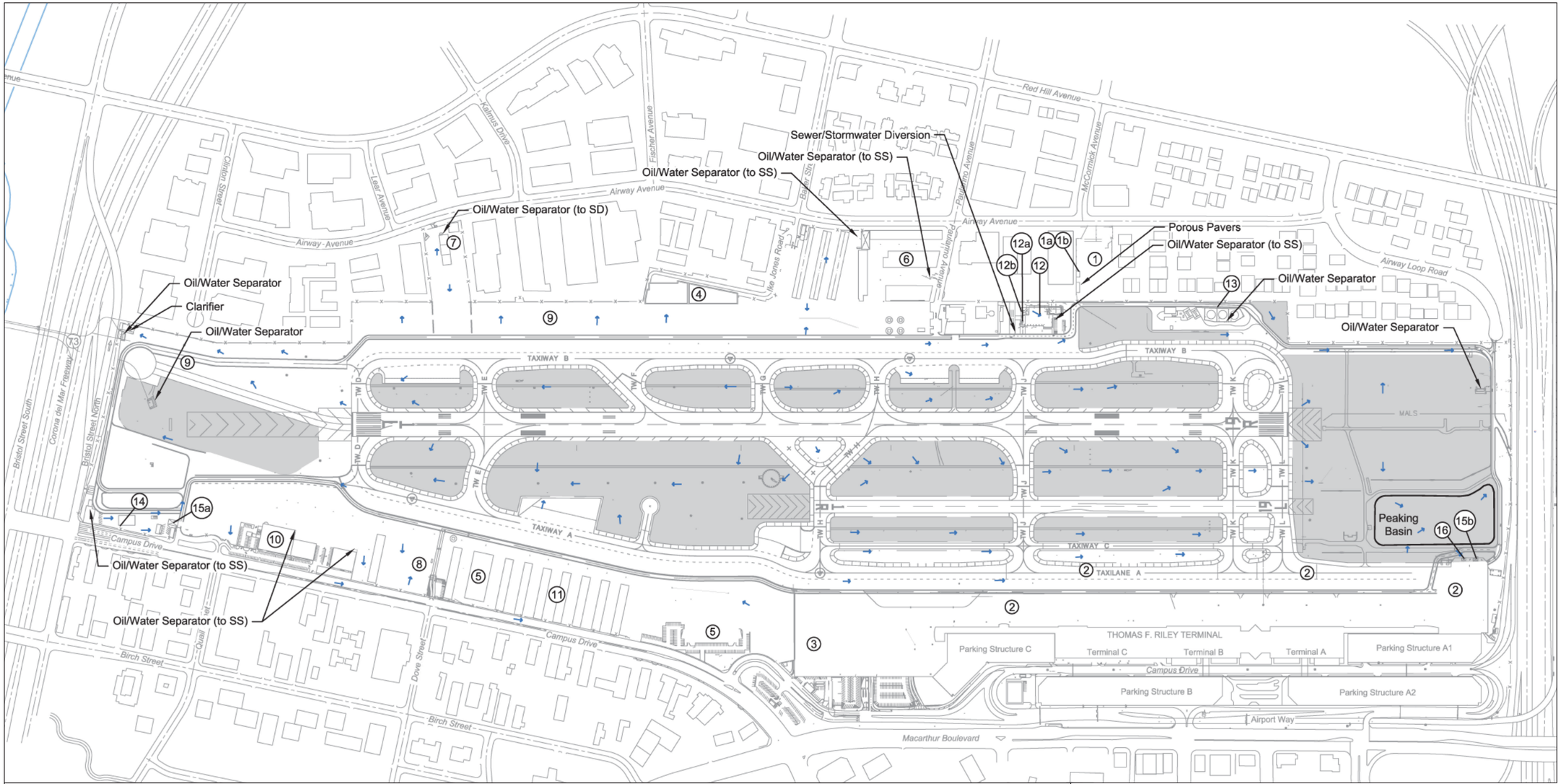
[4] The portion of the airport facility where aircraft movements take place; airline operations areas; and areas that directly serve the aircraft (taxiway, runway, maintenance, and fueling areas).

The University of California, Los Angeles (UCLA) Institute of the Environment and Sustainability, as part of its 2006 Southern California Environmental Report Card, addressed atmospheric deposition of pollutants in Southern California. Specifically, "This article, using the findings of studies conducted over the last ten years at UCLA, in collaboration with the Southern California Coastal Water Research Project (SCCWRP), summarizes the current state of understanding of atmospheric deposition as a contributor to water quality problems." As reported in this article, scientists from UCLA and elsewhere have used air quality computer models to determine the transport and fate of metals in the Los Angeles region. The models indicate about a fourth to a third of the material emitted into the atmosphere is deposited within the [Los Angeles] region and the rest is carried away by the wind (UCLA 2006).

The pattern of dust and metal concentrations in the atmosphere and the associated deposition on land is relatively uniform spatially in the Los Angeles urban region, although deposition near major sources, such as freeways, is higher than the regional background rate within about 100 meters of the road. In the urban areas, daytime concentration and deposition of metals is greater than nighttime because of the influence of traffic on deposition and resuspension of dust from roads by moving vehicles and from other paved and unpaved surfaces by wind, which is the most significant source of metals to water bodies (UCLA 2006). Although the UCLA report describes local conditions within the Los Angeles region, given the similarity in urban development, the conclusions can be extrapolated to the Orange County region. In summary, some portion of the pollutants identified in the receiving waters of JWA – Santa Ana Delhi Channel and Upper and Lower Newport Bay – are likely derived from atmospheric deposition. In addition to these and other inland water bodies in the region, it is noted that the Pacific Ocean is also a receptor for atmospheric pollutants.

The Transportation Research Board relatedly sponsored a study that summarized a series of government-sponsored aircraft emission tests to better understand the gaseous and particulate emissions from aircraft engines. The study cites analysis prepared at several airports that are near and adjacent to communities, including studies in the vicinity of Los Angeles International Airport, Rhode Island's T.F. Green Airport, Boston Logan International Airport, Charlotte/Douglas International Airport, John Wayne Airport, Seattle-Tacoma International Airport, Fort Lauderdale Hollywood International Airport, and Chicago O'Hare International Airport. None of these studies have shown a definitive link between the airports and the deposited material. Rather, these studies commonly find the deposits are typical of the material found throughout urban areas that come from diesel trucks; construction activity; and wind-blown dust, pollen, and mold. The Aircraft Particle Emissions eXperiment ("APEX") tests, which were reviewed as part of the study, were the first studies that clearly indicated that particulate matter from aircraft is composed of fine or ultrafine particles which are too small to settle gravitationally or to be deposited on stationary surfaces and, thus, remain suspended in the atmosphere. The studies prior to APEX[5] are not conclusive since they used different

[5] The first APEX study was conducted in April 2004 to collect a set of gaseous and particulate emissions data from a DC-8 aircraft with CFM-56-2C1 engines owned by the National Aeronautics and Space Administration ("NASA"). This test was followed by the Delta Atlanta Hartsfield Study in September 2004 where two MD-88 aircraft with JT8D engines, two B757 aircraft with PW2037 engines, and two B767 aircraft with CF6-80 engines were examined. A third test in August 2005 examined emissions from two B737-700 aircraft with CFM56-7B22 engines and two 737-300 aircraft with CFM56-3B1 engines; and a fourth test, conducted in October-November 2005, evaluated emissions from a Learjet25 aircraft with CJ610 engines, an A300-600 aircraft with PW4158 engines, two B757 aircraft with RB211-535E4B Phase 5 engines, an ERJ aircraft with AE3007-A1E engines, an ERJ aircraft with AE3007-A1P engines, and a B737-300 aircraft with CFM56-3B engines (TRB 2008).



Explanation

- Surface drainage and storm drain flow direction
- Pervious areas
- (10) Area/Map designation (see Legend)

Legend

1 Maintenance Building (MB)
1a MB Hazardous Materials and Waste Accumulation Area
1b MB Wash Rack
2 Commercial Apron
3 Cargo Apron
4 Martin Aviation Westside Facilities
5 ACI Jet (East) Hangar
6 ACI Jet (West)
7 Jay's Aircraft Maintenance
8 County Tie-Down area (Eastside)
9 County Tie-Down Area (Westside)
10 Atlantic Aviation
11 Executive Aircraft Hangers
12 Fire Station #33
12a Fire Station #33 Foam Tank
12b Fire Station #33 Wash Rack
13 SNA Fuel Facility
14 General Aviation Fuel Farm
15a General Aviation Biffy Dump
15b Commerical Biffy Dump
16 GSE Wash Rack

Notes:

1. Areas of industrial activities include shipping, receiving, fueling, maintenance, material handling and processing, waste disposal, dust particulate, cleaning and material reuse are listed above.
2. No significant spills or leaks have occurred within the last five years.

Source: JWA 2017

Oil/Water Separator Locations on the Airport

Exhibit 4.11-1

John Wayne Airport General Aviation Improvement Program

0 300 600 Feet

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methodologies and many only sampled dry deposition and did not collect material deposited through rainfall, which is a primary mechanism for scrubbing suspended particles from the atmosphere (TRB 2008).

The City of Newport Beach performed a study entitled "Air Quality in Newport Beach, California: Field Measurements of Ambient Particles and Associated Trace Elements and Hydrocarbons" (Boyle 2010). The study measured airborne concentrations of particulate pollutants and characterized the chemical composition of these particles, at different locations in the City of Newport Beach. Data was collected at six locations (including one at the JWA runway and two near the Airport) over approximately five sampling dates. The study concludes that the data "indicate that ambient PM2.5 [concentration] at the locations sampled is well within federal air quality standards." While runway-associated emissions may be measurable at significant distances from JWA, more data is needed to determine if these emissions are aircraft-related. The study also indicates that it was "designed as a preliminary assessment of the feasibility of using field air sampling to detect differences in the amounts and chemical composition of PM2.5 in relation to various sources. These objectives were met" (Boyle 2010, pages 4-5). While the study suggests larger-scale sampling may be useful, no further conclusions were presented.

Operation of JWA involves activities known to generate atmospheric pollutants – mainly combustion of fossil fuels and resuspension of dust on both runways and roadways from airplane and vehicle traffic (see Section 4.2, Air Quality, for a detailed discussion of air emissions associated with the GAIP). Accordingly, with rainfall and wind, the operations on the Airport would reasonably contribute an incremental amount of several of the pollutant types through atmospheric deposition that may add to pollutant loads identified in the 303(d)-listed waterways.[6]

As noted above in Tables 4.11-1 and 4.11-3, pollutants of concern for the waterways on the 303(d) list include pollutants generally associated with emissions from aviation activities. Sediments, nutrients, metals, organics and toxicants, floatable materials, oxygen-demanding substances, oil and grease, bacteria, and pesticides are generally associated with activities at JWA; and the Upper and Lower Newport Bay are impacted by those pollutants.

Building materials such as fencing and roofing and commercial activities such as vehicle and aircraft traffic at the Airport may also be sources of particulates such as metals. JWA has an extensive list of BMPs as described in the SWPPP to remove particulates from the paved surfaces at the Airport (Amec 2018). Also, these same pollutants are generated along every major freeway in Southern California and at other airports of various sizes throughout the South Coast Air Basin, including, but not limited to, the Long Beach Airport, Fullerton Municipal Airport, Ontario International Airport, Chino Airport, Los Angeles International Airport, Bob Hope Airport (Hollywood-Burbank), and Van Nuys Airport.

[6] To provide context, however, aviation emissions represent 0.5 to 2.5 percent of the total air basin emissions, depending on the pollutant evaluated. This includes all airports within the South Coast Air Basin. Only a small portion of the atmospheric depositions would add to pollutant loads in water. BMPs such as runway cleaning reduce the resuspension of metals and dust during airplane landings and takeoffs.

4.11.4 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist and Appendix G of the State CEQA Guidelines, the GAIP would result in a significant water quality impact if it would:

Threshold 4.11-1 Violate any water quality standards or waste discharge requirements

Threshold 4.11-2 Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff

Threshold 4.11-3 Otherwise substantially degrade water quality

4.11.5 REGULATORY REQUIREMENTS AND STANDARD CONDITIONS OF APPROVAL

Implementation of the GAIP assumes compliance with existing regulations and the County's Standard Conditions of Approval related to the protection of surface water quality, as discussed under Section 4.11.1, Regulatory Setting, above. The Standard Conditions of Approval have been taken verbatim from the County's listing. However, not all components of each Standard Condition of Approval would be applicable to the GAIP. In addition, a number of the regulatory requirements and Standard Conditions of Approval included in Section 4.5.5 (see Hazards and Hazardous Materials) would serve to avoid or minimize potential water quality impacts. These include the regulatory requirements ("RR") and Standard Conditions of Approval ("SC") listed below:

RR WQ-1 If groundwater is encountered during ground disturbance activities at JWA, the contractor shall provide evidence to the County that it has applied for coverage under Order No. R8-2015-0004 for the disposal of acceptable construction dewatering discharges to the local storm drainage system, through the submission of a copy of the completed Notice of Intent for the project and Santa Ana Regional Water Quality Control Board's ("RWQCB's") Discharge Authorization Letter. The contractor shall comply with the discharge prohibitions; conduct groundwater testing to show the discharge would not exceed the set effluent limitations and applicable surface water limitations, including the provision of needed facilities and systems of treatment and control to meet the limitations; and implement a monitoring and reporting program.

If the proposed discharge is not eligible for coverage under this Order, an individual National Pollutant Discharge Elimination System ("NPDES") permit shall be obtained. The contractor shall provide a copy of the NPDES permit to the Orange County Building and Safety Division and implement the conditions of approval during construction dewatering activities.

SC WQ-1 Prior to the issuance of any grading or building permits, the applicant shall submit for review and approval by the Manager, Building and Safety, a Water Quality Management Plan ("WQMP") specifically identifying Best Management Practices ("BMPs") that will be used on site to control predictable pollutant runoff. The

applicant shall utilize the Orange County Drainage Area Management Plan ("DAMP"), Model WQMP, and Technical Guidance Manual for reference, and the County's WQMP template for submittal. This WQMP shall include the following:

- Detailed site and project description
- Potential storm water pollutants
- Post-development drainage characteristics
- Low Impact Development ("LID") BMP selection and analysis
- Hydromodification Control BMP selection and analysis
- Structural and Non-Structural source control BMPs
- Site design and drainage plan (BMP Exhibit)
- Geographic Information Systems ("GIS") coordinates for all LID and Treatment Control BMPs
- Operation and Maintenance ("O&M") Plan that (1) describes the long-term operation and maintenance requirements for BMPs identified in the BMP Exhibit; (2) identifies the entity that will be responsible for long-term operation and maintenance of the referenced BMPs; and (3) describes the mechanism for funding the long-term operation and maintenance of the referenced BMPs

The BMP Exhibit from the approved WQMP shall be included as a sheet in all plan sets submitted for plan check, and all BMPs shall be depicted on these plans. Grading and building plans must be consistent with the approved BMP exhibit. (County Standard Condition WQ01)

SC WQ-2 Prior to the issuance of a certificate of use and occupancy, the applicant shall demonstrate compliance with the County's NPDES Implementation Program in a manner meeting the satisfaction of the Manager, Orange County ("OC") Inspection, including:

- Demonstrate that all structural Best Management Practices ("BMPs") described in the BMP Exhibit from the project's approved WQMP have been implemented, constructed, and installed in conformance with approved plans and specifications
- Demonstrate that the applicant has complied with all non-structural BMPs described in the project's WQMP
- Submit for review and approval an Operations and Maintenance ("O&M") Plan for all structural BMPs (the O&M Plan shall become an attachment to the WQMP)
- Demonstrate that copies of the project's approved WQMP (with attached O&M Plan) are available for each of the initial occupants

- Agree to pay for a Special Investigation from the County of Orange for a date twelve (12) months after the issuance of a Certificate of Use and Occupancy for the project to verify compliance with the approved WQMP and O&M Plan
- Demonstrate that the applicant has RECORDED one of the following:

    1. The covenants, conditions, and restrictions ("CC&Rs") (that must include the approved WQMP and O&M Plan) for the project's Home Owner's Association
    2. A water quality implementation agreement that has the approved WQMP and O&M Plan attached
    3. The final approved Water Quality Management Plan ("WQMP") and Operations and Maintenance ("O&M") Plan

(County Standard of Approval WQ02)

SC WQ-3 Prior to the issuance of any grading or building permits, the applicant shall demonstrate compliance with California's General Permit for Stormwater Discharges Associated with Construction Activity by providing a copy of the Notice of Intent (NOI) submitted to the State Water Resources Control Board and a copy of the subsequent notification of the issuance of a Waste Discharge Identification (WDID) Number or other proof of filing in a manner meeting the satisfaction of the Manager, Permit Intake. Projects subject to this requirement shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). A copy of the current SWPPP shall be kept at the project site and be available for County review on request. (County Standard of Approval WQ04)

SC WQ-4 Prior to the issuance of any grading or building permit, the applicant shall submit an Erosion and Sediment Control Plan (ESCP) in a manner meeting approval of the Manager, Permit Intake, to demonstrate compliance with the County's NPDES Implementation Program and state water quality regulations for grading and construction activities. The ESCP shall identify how all construction materials, wastes, grading or demolition debris and stockpiles of soil, aggregates, soil amendments, and other on-site materials shall be properly covered, stored, and secured to prevent transport into local drainages or coastal waters by wind, rain, tracking, tidal erosion, or dispersion. The ESCP shall also describe how the applicant will ensure that all BMPs will be maintained during construction of any future public rights-of-way. The ESCP shall be updated as needed to address the changing circumstances of the project site. A copy of the current ESCP shall be kept at the project site and be available for County review on request. (County Standard of Approval WQ05)

SC WQ-5 Prior to the issuance of building permits for any tank or pipeline, the uses of said tank or pipeline shall be identified, and the applicant shall submit a Chemical Management Plan in addition to a WQMP with all appropriate measures for chemical management (including, but not limited to, storage, emergency response, employee training, spill contingencies, and disposal) in a manner

meeting the satisfaction of the Manager, Permit Intake, in consultation with the Orange County Fire Authority, the Orange County Health Care Agency and wastewater agencies, as appropriate, to ensure implementation of each agency's respective requirements. A copy of the approved "Chemical Management Plans" shall be furnished to the Manager, OC Inspection, prior to the issuance of any Certificates of Use and Occupancy. (County Standard of Approval WQ06)

SC WQ-6 For industrial facilities subject to California's General Permit for Stormwater Discharges Associated with Industrial Activity as defined by Standard Industrial Classification ("SIC") Code.

Prior to grading or building permit close-out and/or the issuance of a certificate of use and occupancy, the applicant shall demonstrate that compliance with the permit has been obtained by providing a copy of the Notice of Intent ("NOI") submitted to the State Water Resources Control Board and a copy of the notification of the issuance of a Waste Discharge Identification ("WDID") Number or other proof of filing to the satisfaction of the Manager, OC Inspection.[7] (County Standard of Approval WQ07)

4.11.6 IMPACT ANALYSIS

Thresholds 4.11-1 through 4.11-3

- ***Would the Project violate any water quality standards or waste discharge requirements?***
- ***Would the Project create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?***
- ***Would the Project otherwise substantially degrade water quality?***

Proposed Project

Short-Term Construction Impacts

Demolition and construction activities associated with implementation of the Proposed Project would generate pollutants that may enter storm water runoff. These activities may lead to sediments, building materials and wastes, and other on-site materials entering the storm water drainage system and downstream water bodies. Storm water runoff from the site could contain pollutants (e.g., loose soils and sediments from grading and excavation activities) and petroleum-related pollutants due to spills or leaks from heavy equipment and machinery. Common pollutants that may be generated by demolition and construction activities include loose soils and organic materials; solid or liquid chemical spills; concrete and related cutting or curing residues; wastes from building materials, paints, stains, sealants, solvents, detergents, glues,

[7] Alternatively, the facility may provide documentation to be added to the Airport's existing SWPPP and demonstrate the BMPs implemented by the facility meet the requirements of the Industrial General Permit.

acids, lime, plaster, and cleaning agents; and heavy metals from equipment. Construction site runoff would-flow into adjacent catch basins and storm drainage lines and would contribute to pollutants in the storm water, if not treated.

As stated in SC WQ-3, construction contractors would be required to obtain coverage under the NPDES Construction General Permit for sites of one acre or more. This permit requires the discharger to prepare and implement a SWPPP, which must include erosion-control and sediment-control BMPs, wind and water tracking controls, hazardous material management practices, and other site-management BMPs that would meet or exceed measures required by the determined risk level of the Construction General Permit. Contractors on sites less than one acre would still need to prepare a SWPPP that would also prevent and/or minimize pollutants on storm water runoff. The primary objective of the SWPPP is to ensure that the responsible party properly constructs, implements, and maintains BMPs to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges from the construction site. In compliance with the County's NPDES Implementation Program, an Erosion and Sediment Control Plan ("ESCP") would also have to be prepared to reduce soil erosion and sedimentation during demolition and construction activities (SC WQ-4).

Encountering groundwater during construction is highly unlikely because depth to groundwater is approximately 30 to 32 feet below land surface ("bls") (Amec 2016). Construction activities are generally expected to be less than 10 feet bls; however, footings could be as deep as 25 feet bls. Should excavation and trenching activities encounter groundwater, such that dewatering activities are required, compliance with the dewatering regulations (Order No. R8-2015-0004) of the Santa Ana RWQCB (RR WQ-1) would be required. This would prevent the discharge of pollutants into the on-site and off-site storm drainage system, including the Santa Ana Delhi Channel and the Upper and Lower Newport Bay.

A construction SWPPP would be prepared as part of the Proposed Project's Construction General Permit coverage (SC WQ-3). Implementation of these regulatory requirements and Standard Conditions of Approval would avoid potential significant water quality impacts.

Compliance with RR WQ-1, SC WQ-1 through SC WQ-4, and SC WQ-6 would ensure that demolition and construction activities for the GAIP do not violate water quality standards or substantially degrade water quality. Short-term construction impacts on water quality would be less than significant, and no mitigation is required.

Long-Term Operational Impacts

The GAIP site is largely paved and would remain paved with the Proposed Project. Although no substantial increase in the extent of impervious surfaces would occur and no substantial change in the volume of runoff would be generated at the Airport, additional structural treatment controls would be required. As a Priority Redevelopment Project (due to redevelopment or replacement of 5,000 square feet or more of impervious surface), a Conceptual or Preliminary WQMP and a final Project WQMP that includes LID and BMPs to address post-construction urban runoff and storm water pollution would be required to address potential long-term operational impacts. These requirements include meeting the Design Capture Volume ("DCV") using infiltration, harvest and reuse, evapotranspiration, bio-retention, or would require an in-lieu program. The significant redevelopment project requirements to be implemented are specified further in the Model WQMP and Technical Guidance Document ("TGD").

The GAIP area, which is covered under the Industrial General Permit, requires BMPs and/or structural treatment controls to meet Best Available Technology Economically Achievable ("BAT") and Best Conventional Pollutant Control Technology ("BCT"). New structural treatment controls used shall have data to demonstrate reductions of copper and zinc to meet future TMDL NAL requirements. Examples of acceptable structural treatment controls or alternative BMPs include:

- Installation of Underground Vault BMPs such as BioClean Water Polisher; Contech Jellyfish Filter®; Contech StormFilter®; Jensen Stormwater System Hydrosystem Filter; Oldcastle Precast PerkFilter™; or StormwateRx Aquip™;
- Installation of Drain Inlet Inserts within the project area such as CleanWay MetalZorb®; Gullywasher Metal Compliant Catch Basin Inserts; or UltraTech HydroKleen with Heavy Metal Filter; and/or
- BMPs to prevent exposure to storm water and meet the No Exposure Certification ("NEC") requirements listed in Industrial General Permit's Appendix 2.

Each individual project under the GAIP would have an approved WQMP (SC WQ-1 and SC WQ-2) obtained prior to issuance of building permits. The approved WQMP would describe the new structural treatment control BMPs and/or source control BMPs that would comply with both the Model WQMP and Industrial General Permit (SC WQ-6).

As discussed above, various storm water pollutants are generated by general aviation activities at the Airport. Fuel-related pollutants are constituents of concern from the existing runoff at the Airport[8], and BMPs for these petrochemical pollutants are in place. These BMPs include large oil-water separators located throughout the airfield that treat runoff from the aircraft parking aprons and maintenance areas. Sediment/sludge from the oil-water separators are taken off site for recycling and disposal, as appropriate during cleaning activities. The FBOs also have clarifiers at the wash racks that convey wastewater to the sanitary sewer system.

Normal Airport maintenance requires frequent sweeping of airfield pavement to prevent possible aircraft engine damage due to foreign objects; this has the added benefit of removing contaminants attached to surficial debris (i.e., dust and sediment that accumulates on paving between storm events). In the parking lots, a self-contained scrubbing machine is used to clean oil and grease from the parking lots, and accumulated wash water is disposed of into the industrial sewer system. As indicated above, JWA also cleans the commercial apron, removes rubber from the runways three to four times per year, and uses a sweeper four days each week to remove particulates from paved surfaces (Amec 2016). The FBO leasehold areas are maintained by the FBOs, but the FBOs maintain at least the minimum BMPs in the Airport's SWPPP and are included in the monthly SWPPP inspections within the airside operational areas and periodic inspections for the landside operations. These inspections are conducted by the Airport.

With the Proposed Project, existing facilities would be replaced with new facilities serving comparable functions. Therefore, the new facilities and associated activities would result in generally the same storm water pollutants at the site. Because of the priority redevelopment program, the new facilities would have to implement additional structural BMPs and storm

[8] This would be associated with both general aviation and commercial carrier activities.

water management practices to comply with the applicable permits under which the Airport operates and in accordance with the WQMPs that would be prepared and implemented for individual projects under the GAIP (SC WQ-1 and SC WQ-2). Therefore, the extensive list of BMPs already implemented with the additional BMPs required for the Proposed Project will result in improved water quality. Therefore, the potential for the Proposed Project to violate water quality standards, exceed waste discharge requirements, or substantially degrade water quality is less than significant.

The Proposed Project does identify a new self-service fueling station as one of the improvements that would also be provided; however, the amount of fuel being dispensed at the Airport would not be substantially different than existing conditions because the number of based aircraft and general aviation activities would be less than the current conditions. As noted in Section 3, the self-serve fueling facility would include secondary containment systems (i.e., a containment wall or dual-wall storage tanks), which would protect against introduction of petroleum products into the storm drain system in the unlikely event of a failure of the fuel tank. Specifically, the self-serve station would be designed to meet the NEC requirements listed in IGP Appendix 2, where feasible. The requirements include:

- tanks shall be physically separated from the maintenance operations;
- piping, pumps, and other equipment shall remain inside the containment and avoid the potential for coming in contact with storm water; and
- the tanks shall have a secondary containment system to prevent runoff in the event of a structural failure or leaking transfer pipe.

The self-serve station would be required to have the appropriate controls to treat storm water by meeting the County's significant re-development post-construction BMP requirements. Implementation of these regulatory requirements and Standard Conditions of Approval would avoid potential significant water quality impacts. Thus, the introduction of the self-service fueling station would reduce the potential for spills throughout the general aviation tie-down areas. In compliance with SC WQ-5, the Proposed Project would need to prepare or update the Business Emergency Plan and SPCC plan for the Airport for chemical storage, emergency response, employee training, spill contingencies, and disposal associated with the tanks and pipelines at JWA. Additionally, pursuant to regulatory requirements (including Section 25288 of the *California Health & Safety Code* and Title 23, Chapter 16, of the *California Code of Regulations*, as enforced by the Orange County Health Care Agency ["OCHCA"] Environmental Health Services, and South Coast Air Quality Management District ["SCAQMD"] Rule 461), the fuel tank would require daily and monthly inspections, yearly compliance inspections, and tri-annual certified inspections.

With the projected decrease in the number of general aviation aircraft that can be accommodated at the Airport under the Proposed Project (242 fewer aircraft parking spaces than existing capacity and 128 fewer spaces than currently used) and the related decrease in general aviation aircraft operations (24,900 fewer annual operations than existing), the pollutant load entering storm water associated with general aviation activities would be expected to incrementally decrease from existing conditions.

As discussed under Existing Conditions, the fine or ultrafine particles associated with aircraft emissions remain suspended in the atmosphere because they are too small to settle

gravitationally or to be deposited on stationary surfaces. However, with rainfall these particles would be scrubbed from the air and deposited on land and in water. The decrease in general aviation operations associated with the Proposed Project would result in an incremental decrease in the amount of suspended particles associated with general aviation activities. Therefore, a decrease in the atmospheric pollutant deposition in the receiving waters downstream of JWA could reasonably occur.[9]

The decrease in general aviation operations under the Proposed Project would also result in a decrease in the contribution from general aviation activities at JWA to storm water pollutant loads at downstream water bodies. As described above, the FBOs would have structural treatment control BMPs installed as well. Thus, the Proposed Project would not result in the violation of water quality standards, would not contribute substantial additional sources of polluted runoff, and would not otherwise substantially degrade water quality. The Proposed Project would result in a less than significant impact, and no mitigation is required.

Impact Conclusion: *General aviation activities at JWA generate pollutants that may enter the storm water. JWA has an extensive list of BMPs to address runoff leaving the Airport to comply with all water quality standards. The Proposed Project would require additional BMPs under the priority redevelopment program improving storm water quality before discharging from the Airport. The Proposed Project would also reduce the number of based aircraft and the number of general aviation operations. Therefore, an incremental decrease in the amount of pollutants is anticipated. The Proposed Project would not violate water quality standards or waste discharge requirements, create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality. Impacts would be less than significant under Thresholds 4.11-1 through 4.11-3.*

Alternative 1

Short-Term Construction Impacts

As with the Proposed Project, Alternative 1 would result in demolition and construction activities that would generate pollutants that may enter storm water runoff. Alternative 1 proposes a different mix and configuration of facilities than the Proposed Project; however, the overall nature of the improvements and subsequent operations utilizing those facilities would be similar. The same short-term construction impacts related to water quality for Alternative 1 would be less than significant. Compliance with RR WQ-1, SC WQ-3, and SC WQ-4 would be required for all construction activities, which include preparation and implementation of a SWPPP and compliance with the dewatering regulations of the Santa Ana RWQCB, if applicable, to prevent and/or minimize pollutants in the storm water. Short-term construction impacts on water quality would be less than significant, and no mitigation is required.

[9] Not all emissions from general aviation operations would be deposited locally because the airstream disperses pollutants and the settling into waterways would predominately occur only when it rains (TRB 2008). Therefore, quantification of the Proposed Project's incremental decrease to downstream receiving waters is not possible.

Long-Term Operational Impacts

As with the Proposed Project, general aviation activities at JWA would continue under Alternative 1. The replacement of the existing facilities with new facilities would generally result in the same storm water pollutants at the site. Additionally, Alternative 1 would not substantially increase the extent of impervious surfaces, and no change in the volume of runoff would be generated at the Airport. As with the Proposed Project, Alternative 1 would be considered a Priority Project and a WQMP would be required resulting in additional structural treatment controls addressing post-construction long term impacts. As discussed for the Proposed Project, water quality BMPs are in place and new BMPs would be required to treat runoff prior to its entering the storm drain system and entering receiving waters downstream of the Airport. This minimizes the pollutants from leaving the Airport. Therefore, it is anticipated that continued implementation of NPDES-related BMPs and new BMPs required by the priority redevelopment program would accommodate the petrochemical pollutants within the existing runoff flows. SWPPP implementation and operation and maintenance of the BMPs would address the effectiveness of water quality BMPs regardless of the intensity of general aviation operations. The proposed facilities under Alternative 1 would have to implement better structural BMPs and storm water management practices as are currently in place at the Airport. Compliance with SC WQ-1 and SC WQ-2, related to preparation and implementation of a WQMP; SC WQ-5 for preparation of a Chemical Management Plan; and the requirements of the Industrial General Permit (SC WQ-6) would prevent or minimize pollutants in the storm water.

With the projected decrease in the number of general aviation aircraft that can be accommodated at the Airport with Alternative 1 (240 fewer aircraft parking spaces than existing capacity and 126 fewer spaces than currently used) and the related decrease in general aviation aircraft operations (24,200 fewer operations than existing), the pollutant load entering storm water associated with general aviation activities would be expected to incrementally decrease from existing conditions.

The decrease in general aviation operations associated with Alternative 1 would result in a decrease in the amount of suspended particles associated with general aviation activities. Therefore, a decrease in the atmospheric pollutant deposition in the receiving waters downstream of JWA could reasonably occur.

Alternative 1 would not violate water quality standards, would not contribute substantial additional sources of polluted runoff, and would not otherwise substantially degrade water quality. Alternative 1 would result in a less than significant impact, and no mitigation is required.

***Impact Conclusion*:** *General aviation activities at JWA generate pollutants that may enter the storm water. JWA has an extensive list of BMPs to address runoff leaving the Airport to comply with all water quality standards. Alternative 1 would require additional BMPs under the priority redevelopment program improving storm water quality before discharging from the Airport. Alternative 1 would reduce the number of based aircraft and the number of general aviation operations. Therefore, an incremental decrease in the amount of pollutants is anticipated. Alternative 1 would not violate water quality standards or waste discharge requirements, create or contribute runoff water which would exceed the capacity of existing or planned storm*

water drainage systems or provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality. Impacts would be less than significant under Thresholds 4.11-1 through 4.11-3.

4.11.7 CUMULATIVE IMPACTS

Cumulative water quality impacts are considered within the Newport Bay watershed, where the Airport is located.

The Paularino Gate Relocation project is currently under construction and is expected to be completed shortly. The Wickland Pipeline project is also currently under construction on the west side of the Airport and would be completed prior to the construction of the first GAIP project. Rehabilitation of the southern portion of Taxiway "B" (west side of the airfield) is underway and expected to be completed in 2018. These JWA projects would have the potential to generate potential storm water pollutants during construction; however, they are expected to be completed prior to the construction of the first project under the GAIP. These projects would also implement construction BMPs to reduce pollutants in the runoff and meet the requirements of the JWA-approved SWPPP.[10] Since these JWA projects would likely be constructed prior to the construction of the first GAIP project, no cumulative construction water quality impacts would occur. These projects would also not have long-term impacts on water quality due to the types of improvements. The Wickland project will likely result in improved water quality due to less vehicle traffic within the airfield. No change in the runoff quality is anticipated from the relocated gate, improved roadway, and rehabilitated taxiway. Thus, the Paularino Gate Relocation project and the Taxiway "B" rehabilitation project would not contribute to cumulative water quality impacts related to construction-related storm water pollutants. The JWA Settlement Agreement Amendment would increase the number of commercial carrier operations but does not involve demolition or construction activities at the Airport. Thus, the JWA Settlement Agreement Amendment would not contribute construction-related storm water pollutants of the Proposed Project.

Construction of other projects outside the Airport but within the Newport Bay watershed, together with the proposed GAIP projects, would have the potential to result in cumulative impacts on water quality. However, implementation of BMPs listed in individual SWPPPs, which are required for coverage under the NPDES Construction General Permit would reduce storm water pollutants during demolition and construction activities to less than significant levels. This condition would apply to all significant construction projects in the watershed.

For cumulative long-term operational impacts, the existing BMPs and other practices that are implemented at the Airport, as discussed above, would continue to be implemented as part of the MS4 Permit regulations and the Industrial General Permit for the Airport and in compliance with pertinent County Code regulations. As discussed above, the BMPs are designed to reduce pollutants and treat runoff from the industrial areas identified within the Airport. The Wickland Pipeline project is incorporating additional design measures, such as installation of an oil/water separator and a containment system to protect against releases of petrochemicals into the runoff. The GAIP would have similar requirements, as outlined in the regulatory requirements and the Standard Conditions of Approval that are applicable to implementation of the proposed

[10] The contract for the Taxiway B rehabilitation includes preparation and implementation of a SWPPP.

improvements. The existing facilities and the required design requirements would reduce pollutants in the storm water that may be generated by general and commercial aviation activities at JWA. Thus, cumulative impacts related to the violation of water quality standards would be less than significant.

In accordance with the MS4 Permit for the County, other new development and major redevelopment projects in the Newport Bay watershed that are provided for in the regional growth projections would have to prepare and implement WQMPs to provide permanent BMPs to reduce pollutants that may be generated during long-term occupancy or operation of these projects. The regional growth projections identify employment uses but do not specify actual users. Should, as part of the regional growth, other industrial uses be proposed, industrial dischargers would also have to obtain coverage under the Industrial General Permit and comply with the applicable requirements to protect water quality. Cumulative adverse impacts related to water quality would be less than significant, and no mitigation is required.

4.11.8 MITIGATION PROGRAM

With compliance with existing regulations and standard conditions of approval (which include implementation of additional BMPs required for significant redevelopment projects and additional BMPs listed for self-fueling activities), no significant GAIP-related (Proposed Project and Alternative 1) water quality impacts would result from the implementation of the Proposed Project or Alternative 1. Therefore, no additional water quality mitigation measures have been identified.

4.11.9 LEVEL OF SIGNIFICANCE AFTER MITIGATION

With compliance with existing regulations and standard conditions of approval (RR WQ-1 and SC WQ-1 through SC WQ-6), no mitigation measures were necessary. These regulations and conditions, as well continued implementation of the adopted water quality programs, such as the SPCC and compliance with the MS4 Permit requirements, would reduce potential GAIP-specific (Proposed Project and Alternative 1) and cumulative impacts to less than significant.

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