Draft Environmental Impact Report No. 617
John Wayne Airport
Settlement Agreement Amendment

SCH No. 2001111135

COUNTY OF ORANGE
John Wayne Airport
3160 Airway Avenue
Costa Mesa, California 92626
Contact: Lea Choum

May 2014

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ORANGE COUNTY

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Prepared for:

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ACRONYM LIST

A	
AB	Assembly Bill
ACC	Advanced Clean Cars
ACCRI	Aviation Climate Change Research Initiative
ACRP	Airport Cooperative Research Board
ADAP	Airport Development Aid Program
ADDs	Average Daily Departures
ADPM	Average Day Peak Month
AELUP	Airport Environs Land Use Plan
AERMOD	American Meteorological Society/USEPA Regulatory Model Improvement Committee Model
AIP	Santa Ana Heights Acoustical Insulation Program
ALUC	Airport Land Use Commission
ANCA	Airport Noise Capacity Act
ANMS	Airport Noise Monitoring System
ANSI	American National Standards Institute
APEX	Aircraft Particle Emissions Experiment
APUs	Auxiliary power units
AQMP	Air Quality Management Plan
ARCHIE	Automated Resource for Chemical Hazard Incident Evaluation
ARFF	Airport Rescue and Fire Fighting
ASIG	Aircraft Service International Group
ASNA	Aviation Safety and Noise Abatement
AST	Aboveground storage tank
ATSA	Aviation and Transportation Security Act
AWG	Airport Working Group
B	
BAU	Business As Usual
BIT	Biennial Inspection of Terminals
BMP	Best Management Practice
BSA	Biological Study Area
C	
C	Celsius
CAA	Clean Air Act
CAAFI	Commercial Aviation Alternative Fuels Initiative
CAAQS	California Ambient Air Quality Standards
CalARP	California Accidental Release Prevention
CalEEMod	California Emission Estimator Model
CalEPA	California Environmental Protection Agency
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAP	Criteria air pollutant
CARB	California Air Resources Board
CCAR	California Climate Action Registry

ccf	Hundred cubic feet
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	methane
CHP	California Highway Patrol
CLEEN	Continuous Lower Energy, Emissions, and Noise
CLUP	Coastal Land Use Plan
CMA	Congestion Management Agency
CMP	Congestion Management Plan
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNG	Clean natural gas
CNPS	California Native Plant Society
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CoGen	Cogeneration facility
COPC	Chemicals of potential concern
County	County of Orange
CRPR	California Rare Plant Rank
CTR	California Toxics Rule
CUP	Conditional Use Permit
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
D	
DAMP	Drainage Area Master Plan
dB	decibel
dBA	A-weighted decibel
DDT	Dichlorodiphenyltrichloroethane
DMV	Department of Motor Vehicles
DNL	Day Night Noise Level
DOE	Department of Energy
DOT	Department of Transportation [GHG]
DOT/FAA	Department of Transportation/Federal Aviation Administration
DTSC	California Department of Toxic Substances Control
E	
EB	Eastbound
EDMS	Emissions Dispersion and Modeling System
EDS	Explosive Detection System
EIR	Environmental Impact Report
EIR 582	2002 *Final Environmental Impact Report No. 582 for the John Wayne Airport Settlement Agreement Extension*

EIS	Environmental Impact Statement
ESA	Environmental Sensitive Area
F	
F	Fahrenheit
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FBOs	Fixed Based Operators
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FICAN	Federal Interagency Committee on Aviation Noise
FIS	Federal Inspection Services
G	
GANO	General Aviation Noise Ordinance
GHG	Greenhouse gas
GIS	Geographic Information System
GP	General Plan
GPS	Global Positioning System
GSE	Ground service equipment
GWP	Global warming potential
H	
H_2S	Hydrogen sulfide
H_2SO_3	Sulfurous acid
H_2SO_4	Sulfuric acid
HAP	Hazardous air pollutants
HC	hydrocarbons
HCM	Highway Capacity manual
HCP	Habitat Conservation Plan
HI	Hazard index
HRA	Health Risk Assessment
HTML	Hazardous Materials Transportation License
Hz	hertz
I	
I	Interstate
IBC	Irvine Business Complex
ICAO	International Civil Aviation Organization
ICE	U.S. Immigration and Customs Enforcement
ICU	Intersection capacity utilization
IFR	Instrument Flight Rule
INM	Integrated Noise Model
IPCC	Intergovernmental Panel on Climate Change
IPCC AR4	IPCC's Fourth Assessment Report
IS	Initial Study
ISO	International Organization for Standardization
ISWMP	Integrated Solid Waste Management Plan
ITAM	City of Irvine Citywide Travel Demand Model
J	
JWA	John Wayne Airport, Orange County

K

kWh/year	Kilowatt hours per year

L

lbs/day	Pounds per day
L_{dn}	Day-night average sound level
$L_{eq(h)}$	Average noise level where "h" is the number of hours
LAFCO	Local Agency Formation Commission
LCFS	Low Carbon Fuel Standard
LCP	Local Coastal Program
LEV3 Tool	LEV III database model (CARB)
LIP	Local Implementation Plan
LOS	Level of service
LTOs	Landing-takeoff cycles
LUCP	Land Use Compatibility Program

M

m	meters
MAP	Million Annual Passengers
MATES	Multiple Air Toxics Exposure Study
MBTA	Migratory Bird Treaty Act
mg/m^3	Milligrams per cubic meter
mgd	Million gallons per day
MMBTU/year	Million British thermal units per year
MMRP	Mitigation Monitoring and Reporting Plan
MND	Mitigated Negative Declaration
MOU	Memorandum of Understanding
mpg	miles per gallon
MPO	Metropolitan Planning Organization
MPP	Monitoring Program Plan
MS4	Municipal separate storm sewer system
MSW	Municipal solid waste
MT/year	Metric tons per year
$MTCO_2e$	Metric tonnes of carbon dioxide equivalent
$MTCO_2e$/year	Metric tonnes of carbon dioxide equivalent per year
MWDOC	Municipal Water District of Orange County
MWRF	Mesa Water Reliability Facility

N

N/A	Not applicable, not available, or the source is unknown
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NADP	Noise abatement departure procedures
NAT	No Action Taken
NB	Northbound
NCCP	Natural Communities Conservation Plan
NEPA	National Environmental Policy Act
NHTSA	National Highway Transportation Safety Administration
NLR	Noise Level Reduction
NMS	Noise Monitoring Station
NO	Nitric oxide

NO_2	Nitrogen dioxide
NOP	Notice of Preparation
NOx	Nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
O	
O_3	ozone
OCFA	Orange County Fire Authority
OCHCA	Orange County Environmental Health Agency
OCSD	Orange County Sanitation District
OCSD	Orange County Sherriff's Department
OCTA	Orange County Transportation Authority
OCTAM	Orange County Transportation Analysis Model
OCWD	Orange County Water District
OSHA	Occupational Safety and Health Administration
P	
P	Phase
PARCS	JWA Parking Program
PARTNER	Partnership for Air Transportation Noise and Emissions Reduction
pc/mi/ln	Passenger cars per mile per lane
PCBs	Polychlorinated Biphenyls
PFC	Passenger Facility Charge
PM2.5	Fine particulate matter with a diameter of 2.5 microns or less
PM10	Respirable particulate matter with a diameter of 10 microns or less
ppm	Parts per million
R	
RMS	Remote Monitoring System
RON	Remaining overnight
RPS	Renewable Portfolio Standards
RSIP	Residential Sound Insulation Program
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
RTP/SCS	*2012–2035 Regional Transportation Plan/Sustainable Communities Strategy* (SCAG document)
RWQCB	Regional Water Quality Control Board
S	
SACC	Santa Ana Country Club
SAHCP	Santa Ana Heights Land Use Compatibility Plan
SAHSP	Santa Ana Heights Specific Plan
SARWQCB	Santa Ana Regional Water Quality Control Board
SB	Senate Bill
SB	Southbound
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCWRP	Southern California Coastal Water Research Project
SCE	Southern California Edison
SCS	Sustainable Communities Strategy
SEL	Sound Exposure Level
SENEL	Single Event Noise Equivalent Level

SIP	Sound Insulation Program
SIP	State Implementation Plan
SO_2	Sulfur dioxide
SO_3	Sulfur trioxide
SoCAB	South Coast Air Basin
SOI	Sphere of Influence
SOx	Sulfur oxides
SPCC	Spill Prevention, Control, and Countermeasure
SPON	Stop Polluting Our Newport
sq. mi.	Square mile
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
T	
TA	Time Above
TAC	Toxic air contaminant
TCA	Transportation Corridor Agencies
TIS	Traffic Impact Analysis Study
TMDL	total maximum daily load
Tons/person/year	Tons per person per uear
TPH	Total petroleum hydrocarbons
TSA	Transportation Security Administration
TTM	Tentative Tract Map
U	
UK	United Kingdom
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
USAF	United States Air Force
USDA	U.S. Department of Agriculture
USDC	U.S. District Court
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank
UWMP	Urban Water Management Plan
V	
V/C	Volume to capacity ratio
VALE	Voluntary Airport Low Emissions Program
VFR	Visual Flight Rule
VMT	Vehicle miles traveled
VOC	Volatile organic compounds
W	
WB	Westbound
WHMP	Wildlife Hazards Management Plan
WSA	Water Supply Assessment
Symbols	
°	degrees
µg/m^3	Micrograms per cubic meter

1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

The environmental impact report ("EIR") process, as defined by the California Environmental Quality Act of 1970 ("CEQA") (*California Public Resources Code,* Sections 21000 et seq.) as amended, requires the preparation of an objective, full-disclosure document to (a) inform agency decision makers and the general public of the reasonably foreseeable significant direct and indirect environmental effects of a proposed action; (b) identify feasible mitigation measures to avoid or substantially lessen any identified significant impacts; and (c) identify and evaluate reasonable alternatives to the proposed project.

The purpose of this Executive Summary is to provide the reader with a clear and simple description of the Project[1] and its potential environmental impacts. Section 15123 of the State CEQA Guidelines requires that the summary of an EIR identify each significant impact with proposed mitigation measure(s) and alternatives that would reduce or avoid the significant impact(s); areas of controversy known to the Lead Agency, including issues raised by agencies and the public; and issues to be resolved, including the choice among alternatives and whether or how to mitigate significant effects. This summary focuses on the major areas of the Project that are anticipated to be important to decision makers.

1.2 PROJECT LOCATION

The Project would be implemented at John Wayne Airport, Orange County ("JWA" or "the Airport") in an unincorporated area of the County. Although the Airport encompasses approximately 504 acres, the aviation activities at JWA are located on approximately 400 acres. The site is south of Interstate ("I") 405, north of State Route ("SR") 73, west of MacArthur Boulevard, and east of Red Hill Avenue. The Airport property, owned by the County of Orange, includes the airfield; the terminal; maintenance buildings; surface level and parking structures; the administrative building; property leased for aviation support uses; and a portion of the Newport Beach Golf Course. The Project area is surrounded by the cities of Newport Beach, Irvine, and Costa Mesa, as well as several unincorporated County islands. Regional location and local vicinity maps are provided in Section 3.1.

1.3 PROJECT DESCRIPTION

This EIR has been prepared to address the potential environmental impacts associated with contemplated amendments to the terms and conditions of the Stipulation for Entry of Final Judgment by Certain Settling Parties that resolved the litigation entitled *County of Orange v. Air Cal.* (USDC Case No. CV 85-1542 TJH [MCx]) (Settlement Agreement 1985).[2] In conformance with

[1] When referencing the Settlement Agreement Amendment, inclusive of the Proposed Project and all the alternatives, the term "Project" is used. The Proposed Project is referencing a specific scenario being evaluated.

[2] The County of Orange, City of Newport Beach, and two citizens groups (Stop Polluting Our Newport ["SPON"] and the Airport Working Group ["AWG"]) are the signatories to the Settlement Agreement. Additional background is provided in Section 2.3.

CEQA, this EIR identifies and assesses the potential direct, indirect, and cumulative impacts of the Proposed Project.

As the proprietor of JWA and a party to the Settlement Agreement, the County of Orange is the project proponent and Lead Agency. The City of Newport Beach is a responsible agency and also would be required to take action on the amendment of the Settlement Agreement. This EIR is intended to evaluate the potential impacts that could result from the proposed amendments to the Settlement Agreement.

In accordance with the Memorandum of Understanding ("MOU") entered into by the Settlement Agreement signatories (see footnote 2, above), this EIR addresses the impacts associated with the Proposed Project and three different alternatives (known as Alternatives A, B, and C), as well as the No Project Alternative at a comparable level of detail. The Proposed Project, Alternatives A through C, and the No Project Alternative include different levels of air operations and passenger levels, the details of which are provided in Table 1-1.

In addition to the alternatives identified in the MOU, this EIR also considers one other alternative in Section 7, and provides a discussion regarding alternatives that were found infeasible and not carried forward for full evaluation. The additional alternative studied in Section 7.4.1 is referred to as the "2025 Horizon Year Alternative" and is similar to the Proposed Project, subject to the caveats that the proposed extension of the term length would be 10 years and the alternative would limit the number of million annual passengers to 11.8 (see Table 7-2 for additional information). As such, the 2025 Horizon Year Alternative includes a different operational scenario than the Proposed Project and other alternatives, and was formulated in furtherance of the County's obligation to describe a range of reasonable alternatives in the EIR under State CEQA Guidelines Section 15126.6(a).

The analysis provided for all alternatives evaluated in the EIR conforms to the requirement of State CEQA Guidelines Section 15126.6(d) that the EIR "shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with" the Proposed Project.

Neither the Proposed Project nor any of the alternatives propose physical facilities improvements.

TABLE 1-1
PRINCIPAL TERMS OF THE PROPOSED PROJECT AND ALTERNATIVES EVALUATED IN THE ENVIRONMENTAL IMPACT REPORT

Principal Restrictions	Proposed Project	Alternative A	Alternative B	Alternative C	No Project[a]
Term	Through December 31, 2030	Through December 31, 2030	Through December 31, 2030	Not Applicable	Not Applicable-Settlement Agreement Expired
Curfew	Through December 31, 2035	Through December 31, 2035	Through December 31, 2035	Through December 31, 2020	Through December 31, 2020
Annual Passenger Limit (MAP)					
Phase 1 January 1, 2016–December 31, 2020	10.8 MAP	10.8 MAP	10.8 MAP	16.9 MAP	10.8 MAP
Phase 2 January 1, 2021–December 31, 2025	11.8 MAP	11.4 MAP	13.0 MAP	16.9 MAP	10.8 MAP
Phase 3 January 1, 2026–December 31, 2030	12.2 *or* 12.5 MAP[b]	12.8 MAP	15.0 MAP	16.9 MAP	10.8 MAP
Passenger Flights (Class A ADDs for passenger service)					
Phase 1 January 1, 2016–December 31, 2020	85 Class A ADDs	107 Class A ADDs (+22)	100 Class A ADDs (+15)	228 Class A ADDs (+143)	85 Class A ADDs
Phase 2 January 1, 2021–December 31, 2025	95 Class A ADDs (+10)	120 Class A ADDs (+13)	110 Class A ADDs (+10)	228 Class A ADDs (+0)	85 Class A ADDs
Phase 3 January 1, 2026–December 31, 2030	95 Class A ADDs	135 Class A ADDs (+15)	115 Class A ADDs (+5)	228 Class A ADDs (+0)	85 Class A ADDs
Cargo Flights (Class A ADDs for all-cargo service)					
January 1, 2016–December 31, 2030	4 Class A ADDs	4 Class A ADDs	4 Class A ADDs	4 Class A ADDs	4 Class A ADDs
Passenger Loading Bridges					
January 1, 2016–December 31, 2020	20	20	20	No Limit	20
January 1, 2021–December 31, 2030	No Limit	No Limit	No Limit	No Limit	20

MAP: Million Annual Passengers; ADD: Average Daily Departures.

Table Notes:

Alternative A was delineated based on information contained in the Federal Aviation Administration's Terminal Area Forecast Detail Report dated January 2013.

Alternative B was delineated based on input from JWA's commercial air service providers.

Alternative C was delineated based on the physical capacity of JWA's airfield.

[a] The No Project Alternative assumes the maximum number of allowable operations under the current Settlement Agreement (as amended in 2003) would remain unchanged and the protection of the curfew would remain in place through 2020; however, there would be no limitation on the Board of Supervisors, to, at a subsequent time, to modify or eliminate the curfew or increase the number of ADD and MAP being served at the Airport. The analysis in this EIR assumes the curfew would stay in place for the duration of the analysis period (i.e., December 31, 2030). Subsequent CEQA documentation would be required to amend the curfew or modify the Access Plan to allow an increase in the number of flights and/or passengers.

[b] Trigger for capacity increase to 12.5 MAP: air carriers must be within 5 percent of 11.8 MAP (i.e., 11.21 MAP) in any one calendar year during the January 1, 2021 through December 31, 2025 timeframe.

Source: PROPOSED PROJECT AND ALTERNATIVES: Proposed Extension of the John Wayne Airport Settlement Agreement, Proposed Project and Alternatives A–C, JWA 2013.

1.4 PROJECT OBJECTIVES

The signatories have identified the following Project objectives:

1. To modify some existing restrictions on aircraft operations at JWA in order to provide increased air transportation opportunities to the air-traveling public using the Airport without adversely affecting aircraft safety, recognizing that aviation noise management is crucial to continued increases in JWA's capacity.

2. To reasonably protect the environmental interests and concerns of persons residing in the vicinity of JWA, including their concerns regarding "quality of life" issues arising from the operation of JWA, including but not limited to noise and traffic.

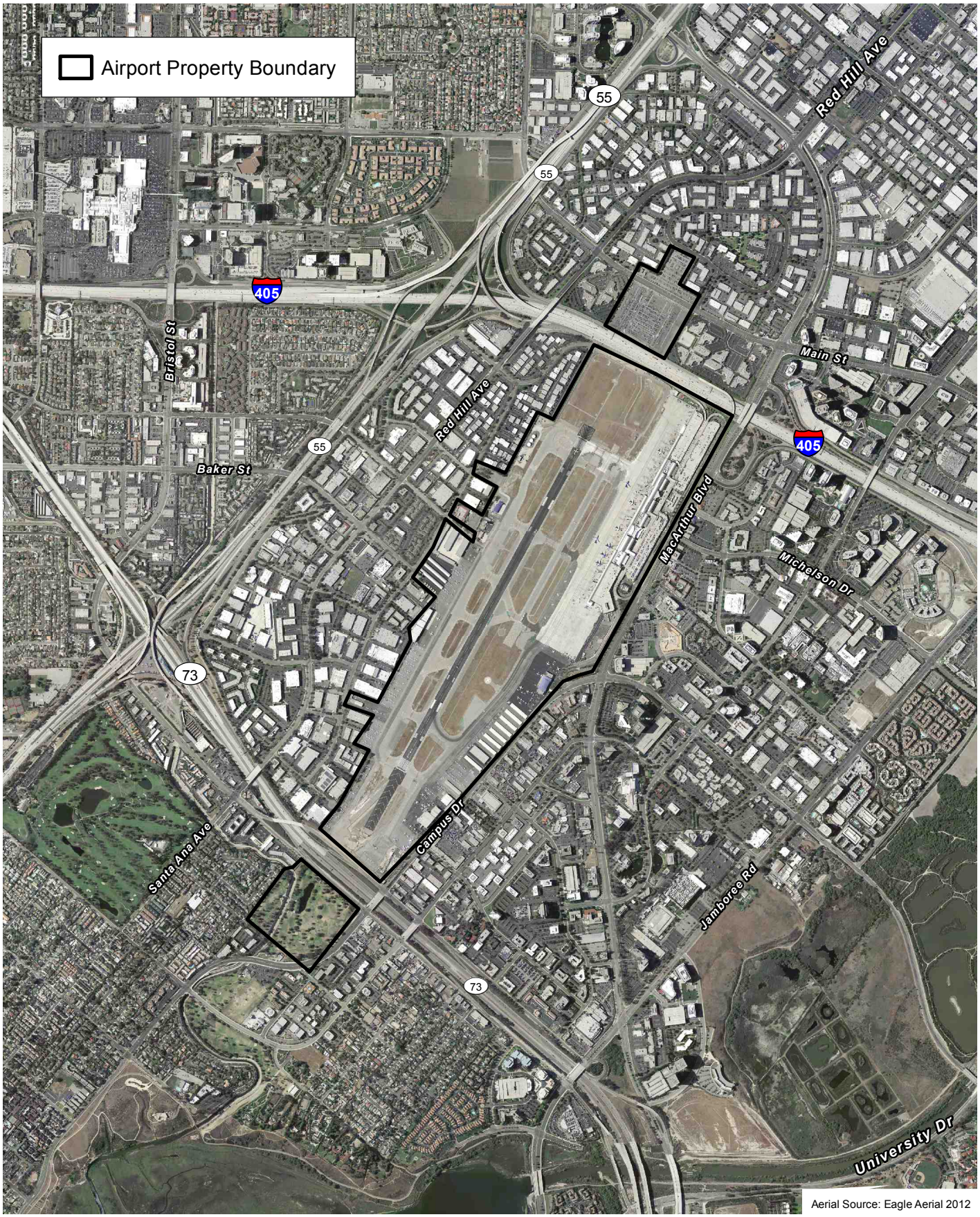
3. To preserve, protect, and continue to implement the important restrictions established by the 1985 Settlement Agreement, which were "grandfathered" under the Airport Noise and Capacity Act") of 1990 ("ANCA") and reflect and accommodate historical policy decisions of the Orange County Board of Supervisors regarding the appropriate point of balance between the competing interests of the air transportation and aviation community and local residents living in the vicinity of the Airport.

4. To provide a reasonable level of certainty to the following regarding the level of permitted aviation activity at JWA for a defined future period of time: surrounding local communities; Airport users (particularly scheduled commercial users); and the air-traveling public.

5. To consider revisions to the regulatory operational restrictions at JWA in light of the current aviation environment; the current needs of the affected communities; and industry interests represented at JWA.

1.5 PROJECT SETTING

The Project area is generally urban in character. Surrounding uses include industrial, commercial, and residential uses. The residential area is predominately south and southwest of the Airport. An extensive arterial highway and freeway system surrounds the Airport, providing access from several locations. In contrast to the surrounding urban development, the Upper Newport Bay, located approximately 3,600 feet south of the Airport, is an important natural area that provides habitat to many wildlife species. Exhibit 1-1 provides an aerial photograph of the Airport and surrounding areas. Additional detail on the project setting is provided in Section 2.4.



Aerial Source: Eagle Aerial 2012

D:\Projects\JWA\J003\MXDs\EIR\ex_Aerial.mxd

Aerial Photograph

Exhibit 1-1

John Wayne Airport Settlement Agreement Amendment

N W E S

1,500 750 0 1,500 Feet

JOHN WAYNE AIRPORT ORANGE COUNTY

1.6 EIR FOCUS AND EFFECTS FOUND NOT TO BE SIGNIFICANT

In accordance with Section 15063 of the State CEQA Guidelines, the County of Orange prepared an Initial Study/Environmental Checklist for the Proposed Project and distributed it along with the Notice of Preparation ("NOP") to responsible and interested agencies, and key interest groups. The NOP was distributed to 76 individuals or agencies for a 30-day review period beginning on October 1, 2013. In addition, notices regarding the availability of the NOP on the JWA website were sent to all the lessees at the Airport, a press release was issued, and the NOP was posted on the JWA website, as well as the County of Orange Public Works website.

A scoping meeting was held on October 17, 2013 from 6:00 to 8:00 PM at JWA in the Airport Commission Meeting Room. JWA staff provided an overview of the Project and the environmental process. A hand-out, which provided an overview of the Proposed Project and alternatives being evaluated in the EIR and a list of frequently asked questions, also was distributed. Comment cards were available for attendees to submit at the meeting or mail to JWA staff. Approximately 50 people attended the scoping meeting (28 people signed the sign-in sheet). Copies of the hand-out made available at the scoping meeting, as well as all submitted comment cards are included in Appendix A. Copies of the NOP/Initial Study, its distribution list, a transcript of the meeting, and comments received on the NOP also are included in Appendix A.

A total of 115 comment letters/cards/e-mails were received in the 30-day review period. An additional seven comment letters/cards/e-mails were received after the end of the NOP review period. Table 1-2 provides a summary matrix of the issues raised in the NOP comment letters.

TABLE 1-2
SUMMARY MATRIX OF NOTICE OF PREPARATION COMMENTS

Agency/Individual	Residency	Comment Category										
		Project Definition	Air Quality/Health Risk	Biological Resources	Greenhouse Gas Emissions	Hazardous Materials	Land Use/Planning	Noise	Public Services	Transportation	Utilities	Water Quality
State Agencies												
Caltrans, District 12										x		
Regional Agencies												
Southern California Association of Governments ("SCAG")							x			x		
South Coast Air Quality Management District ("SCAQMD")			x		x							
Transportation Corridor Agencies										x		

TABLE 1-2
SUMMARY MATRIX OF NOTICE OF PREPARATION COMMENTS

Agency/Individual	Residency	Comment Category										
		Project Definition	Air Quality/Health Risk	Biological Resources	Greenhouse Gas Emissions	Hazardous Materials	Land Use/Planning	Noise	Public Services	Transportation	Utilities	Water Quality
Local Agencies												
City of Irvine	IRV									x		
City of Laguna Beach	LB		x					x				
City of Newport Beach	NB		x	x		x	x	x		x		
Organizations												
Balboa Peninsula Point Assn			x					x				
The Boeing Company (Daniel L. McGregor)												
La Sierra University (Fabricio de Sa)				x								
SoCal Pilots Assn (Joe Finnell)						x						
Individuals[a]												
Nancy Alston (2)			x					x				
Scott Alston (2)	NB		x	x	x	x	x	x	x	x	x	x
Alberto Aviles	CM		x									
Martin Benavidas			x	x								
Alex Bonnin	LB							x				
John Bonnin	LB							x				
Winter Bonnin	LB							x				
Zack Bonnin	LB							x				
Logan Brannon	NB		x									
Taryn Brannon	NB											
Thomas L. Brannon	SB		x					x				
David M. Browne	CDM		x	x				x				
Bruce	LB	x						x				
Bernhardt Bruns	NB							x				
Burr Buman	NB		x					x				
Diana Burlingham	CM		x					x				
Diane Byers			x	x	x	x	x	x	x	x	x	x
Andre Camargo				x								
John Carlyle	NB		x			x						

TABLE 1-2
SUMMARY MATRIX OF NOTICE OF PREPARATION COMMENTS

Agency/Individual	Residency	Comment Category										
		Project Definition	Air Quality/Health Risk	Biological Resources	Greenhouse Gas Emissions	Hazardous Materials	Land Use/Planning	Noise	Public Services	Transportation	Utilities	Water Quality
Valerie Carson			x			x						
Peggy Clark	NB		x									
Tammi Cluck	NB		x					x				
Ellen Conzelman	TUS		x					x				
Carol Cuoco	NB		x	x	x	x	x	x	x	x	x	x
Dee Curry	NB	x	x					x				
Kimberly Davenport	NB		x	x		x	x					x
Seth Davenport	NB		x	x		x	x	x				x
Doreen Davis Fuhr	CM		x	x		x		x		x		x
Joel De La Cruz			x									
Cindy Dupuie	IRV		x			x				x		x
Pam Edson	NB		x			x		x				
Judy Elmore	NB		x	x			x	x				
Constance Esposito	CM		x	x	x	x	x	x	x	x	x	x
Craig Flanagan	FV		x			x						
Wendy Flotow	NB		x	x		x		x	x			x
J. Daniel Fox												
Marjaneh Goodarzy	NB		x	x	x	x	x	x	x	x	x	x
Kate Gregory			x					x				
Matt Gross	NB			x								
Jack Guiney	NB		x				x					
Karen Guiney	NB		x				x					
Kim Hapke				x		x		x				
John Harty	NB		x			x		x				
Sue Hogan	NB		x	x	x	x	x	x	x	x	x	x
Helen Hogle										x		
Dan Holtz	CDM		x	x	x	x	x	x	x	x	x	x
Donna Johnson	CM	x	x					x				
Steve Johnson	CM	x	x					x				
Taylor Johnson	CM							x				

TABLE 1-2
SUMMARY MATRIX OF NOTICE OF PREPARATION COMMENTS

Agency/Individual	Residency	Comment Category										
		Project Definition	Air Quality/Health Risk	Biological Resources	Greenhouse Gas Emissions	Hazardous Materials	Land Use/Planning	Noise	Public Services	Transportation	Utilities	Water Quality
HF Karwan		x	x					x		x		
Gale D. Kirk	NB							x				
Mark and Carol Knaeps	NB		x					x		x		
Jason Korengold	NB							x				
David and Patricia Lamb	NB		x			x		x				
Natalie Lascelles			x	x								
Samantha Leclaire								x				
Josh Lemos	NB	x	x									
Andrea Lingle	NB		x							x		
Alison & Kimo McCormick	NB	x										
Luke McDaniel	CM		x			x				x		
Vilma McDaniel	CM		x					x				
Deanna McIntire	NB		x	x	x	x	x	x	x	x	x	x
Michael Miller	CM	x	x					x				
Peter Miyao	NB	x										
Tamara Miyao	CM		x					x				
Diane Mondini			x	x	x	x	x	x	x	x	x	x
Diane Monroe	NB	x	x					x		x		
Gail Mooers	NB		x	x								
James M. Mosher	NB	x		x		x		x		x	x	
Peggy Mozley			x	x	x	x	x	x	x	x	x	x
Steve Mullins			x			x				x		
Patty Nesbit	NB		x	x	x	x	x	x	x	x	x	x
Sharon Niederhaus	NB		x					x		x		
Patricia O'Donnell	NB	x	x			x						
Kathryn Olsen			x	x	x	x	x	x	x	x	x	x
Firooz Oskooi	NB		x					x				
Jeff Parker			x	x	x	x	x	x	x	x	x	x
Darrell Pash	CM		x									
Lynn Pash	CDM		x					x				

TABLE 1-2
SUMMARY MATRIX OF NOTICE OF PREPARATION COMMENTS

Agency/Individual	Residency	Comment Category										
		Project Definition	Air Quality/Health Risk	Biological Resources	Greenhouse Gas Emissions	Hazardous Materials	Land Use/Planning	Noise	Public Services	Transportation	Utilities	Water Quality
Sharon Pence	NB	x										
Dino Perez	CM	x										
Sue Podany			x	x	x	x	x	x	x	x	x	x
Kathi Ramming	NB		x	x	x	x		x				x
Enrique Ron								x				
Don Ronaldson	NB		x	x				x				
Vicki Ronaldson(2)	NB	x	x					x		x		x
Gail Rosenstein	NB							x				
Earl Sandvigen	LB	x						x				
Mark Shu			x			x		x				
Alan Slutzky	NB		x									
Eric Slutzky	NB		x					x				x
Corrinne & Charles Spence	NB		x	x	x	x	x	x	x	x	x	x
Carey Strombotne	LB	x	x					x				
Sheryl Urdaneta			x	x	x	x	x	x	x	x	x	x
Lindsey Vaughan	NB							x				
Al Waldovines				x				x				x
James Ward	NB		x									
Portia Weiss			x	x	x	x	x	x	x	x	x	x
Remy Weiss			x	x	x	x	x	x	x	x	x	x
Richard D. Weiss	NB		x	x	x	x	x	x	x	x	x	x
Carmen Wollerman	CM		x	x				x				
Herb Wollerman	CM							x				
Karen Wight	NB							x				
Steve and Katherine Zeiser	NB		x	x	x	x	x	x	x	x	x	x
Comments Received After the Close of the Review Period												
City of Tustin	TUS											
Tomlu Baker			x	x	x	x	x	x	x	x	x	x
Marlene Chumo	NB											
John Hawkinson (2)	NB	x	x					x				x

TABLE 1-2
SUMMARY MATRIX OF NOTICE OF PREPARATION COMMENTS

Agency/Individual	Residency	Comment Category										
		Project Definition	Air Quality/Health Risk	Biological Resources	Greenhouse Gas Emissions	Hazardous Materials	Land Use/Planning	Noise	Public Services	Transportation	Utilities	Water Quality
Dave and Pat Lamb	NB	x										
Linda Rogers	NB		x	x		x	x	x		x	x	x
Sally Werlin/Dr. Larry Werlin	NB							x				

[a] Listed in alphabetical order by last name.

LEGEND
CDM - Corona Del Mar
CM - Costa Mesa
FV - Fountain Valley
IRV - Irvine
LB - Laguna Beach
NB - Newport Beach
SB - Seal Beach
TUS – Tustin

The scope of the EIR is based on the findings of the Initial Study and input received from the agencies and the public as part of the scoping process. The EIR addresses all potential significant effects identified in the Environmental Checklist. The following topical areas are addressed in Sections 4.1 through 4.10 of this EIR.

- Air Quality
- Biological Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Land Use and Planning
- Noise
- Public Services
- Transportation/Traffic
- Utilities
- Water Quality

Cumulative Impacts, Long-Term Implications of the Project (which includes growth inducing impacts) and Alternatives are addressed in Sections 5 through 7, respectively.

In addition, the EIR provides a discussion of other issues that were determined not to be significant. In accordance with Section 15128 of the State CEQA Guidelines, certain items were checked "No Impact" or "Less Than Significant Impact" in the Initial Study/Notice of Preparation (IS/NOP) and were deemed to not warrant further evaluation in the EIR. However, there were two items that were identified in the IS/NOP as not warranting further discussion, that based on

subsequent technical analysis done for the Project or comments received as part of the IS/NOP review, have been addressed in the EIR. These pertain to the transport of hazardous materials in the vicinity of a school and groundborne vibration. Though impacts would be less than significant the following two checklist questions have been included in Sections 4.4, Hazards and Hazardous Materials, and 4.6, Noise, respectively:

- Environmental Checklist question 8(c) asks if the project would emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. The Project would increase the amount of jet fuel used at the Airport due to an increase in the number of flights. The fuel is brought in by tanker trucks. Though the increased number of trucks would have an incremental increase on the potential for a spill or accident involving jet fuel, the Project would not result in increased potential exposure to the Mariner's Christian School because all fuel delivery is done at night between 10:00 PM and 6:00 AM. No further evaluation of this issue was anticipated in the EIR; however, when detailed fueling analysis was conducted, it was determined that day-time fuel delivery would be required for Alternatives B and C. This threshold, therefore, has been included in the discussion of hazardous materials in Section 4.4 of the EIR.

- Environmental Checklist question 12(b) asks if the project would expose persons to or generate excessive groundborne vibration or groundborne noise levels. A comment received on the IS/NOP asked if a jetliner would result in groundborne vibration similar to construction equipment. To provide more discussion on this issue, this threshold has been included in the discussion noise in Section 4.6 of the EIR.

The following issues were checked "No Impact" or "Less Than Significant Impact" in the Initial Study/Notice of Preparation (IS/NOP); therefore, in accordance with Section 15128 of the State CEQA Guidelines, have not received further evaluation in the EIR:

- Aesthetics: There are no designated or eligible State or local scenic highways within the vicinity of the Project site. Because the Project does not propose any physical improvements, there would be no change to the visual character or quality of the Project site, nor would the Project result in new substantially adverse light or glare.

- Agriculture and Forestry Resources: The Project would not result in any impacts to farmlands listed as "Prime", "Unique", or of "Statewide Importance" based on the 2010 Orange County Important Farmland Map prepared by the California Department of Conservation. No part of the Project site or adjacent areas is zoned forest land, timberland or timberland zoned for Timberland Production, nor would the Project result in the loss of forest land or conversion to non-forest use.

- Air Quality (odors): The Project does not propose any land uses that are identified by the SCAQMD as odor sources of concern (such as wastewater treatment plants, agricultural operations, landfills, composting, food processing plants, chemical plants, or refineries), nor would the Project be located in the vicinity of a land use of this type.

- Biological Resources (wetlands): The Project does not include any physical improvements, including construction or grading activities. Therefore, the Project would not result in a

substantial adverse effect on wetlands pursuant to Section 404 the Clean Water Act through direct removal, filling, or hydrological interruption.

- Cultural/Scientific Resources: Because of the absence of ground disturbance, construction activities, and new development associated with the Project, no direct or indirect impacts to historical, archaeological, or paleontological resources would occur, nor would the Project disturb any human remains.

- Geology and Soils: Since there would be no land use development as part of the Project, the Project would not result in any direct geology or soils impacts, nor would there be soils impacts related to septic tanks or alternative wastewater disposal systems.

- Hazards and Hazardous Materials (private airstrips; emergency evacuation plan; wildlands): There are no private airstrips in the vicinity of the Project site. The Project would not impair or interfere with implementation of the emergency evacuation plan because it would not alter any of the facilities on site or access to the Airport. The Project is located in an urbanized area and is not adjacent to wildlands.

- Hydrology: The Project does not involve any physical improvements or construction and grading activities that would have the potential to result in alterations to the drainage pattern or result in erosion or siltation. The Airport does not use groundwater, and the Project would not involve any activities that alter groundwater supplies. The Project site does not provide for substantial groundwater recharge due to the amount of impervious surfaces that exist on the site. Since the Project does not involve any physical improvements or construction, no housing or structures would be subjected to a 100-year flood hazard; exposure to flooding as a result of failure of a levee or dam; or inundation by seiche, tsunami or mudflow.

- Land Use (divide an established community): Since the Project does not involve any physical improvements or construction, it would not physically divide an established community.

- Mineral Resources: The Project site does not have significant existing and potential mineral or energy resources within its boundaries.

- Noise (temporary/periodic increase in ambient noise levels; noise from a private airstrip): The overall noise associated with the increased number of flights is being addressed in this EIR (see Section 4.6). Though the Project would increase the number of daily operations at the Airport, the type of aircraft used for the additional flights would be consistent with the fleet mix currently in operation at the Airport. Therefore, the noise characteristics of the aircraft would not be different from the single event noise levels experienced under current conditions and would not result in a substantial temporary or periodic increase in the ambient noise levels in the project vicinity. The Project also does not propose physical construction; therefore, there would not be temporary or periodic increases in ambient noise levels associated with construction activities.

  There are no private airstrips in the vicinity of the Airport.

- Population and Housing: The Project does not propose any land use development that would increase the population in the study area or within Orange County, nor would the Project be expected to have an effect on the population projections for Orange County because it would not provide infrastructure improvements that would lead to population increase. The increase in permitted service levels provided would not exceed the air travel demand associated with the Orange County population. The Project would not require the conversion of residential uses to comply with State noise requirements nor would it result in the displacement of people or housing (AECOM 2014).

- Public Services (schools, parks, other public facilities): The Project would not result in the development of any residential units and, therefore, would not result in a population increase, nor would it create an increased demand for schools, parks, or other public facilities.

- Recreation: The Project would not generate an increase in population or provide development that would result in increased usage of existing neighborhood and regional parks. There would be no physical deterioration to existing recreational facilities as a result of Project implementation.

- Traffic/Transportation (hazards due to a design feature/incompatible uses; inadequate emergency access; conflict with policies, plans, and programs): The Project does not propose any physical improvements to JWA, nor does it propose modifications to the circulation network, either on or off the site. Therefore, the Project is not anticipated to result in impacts associated with design features; emergency access would not be impeded; and there would be no conflict with policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.

- Utilities and Service Systems (storm water drainage and solid waste disposal): The Project does not propose any construction or activities that would increase the amount of storm water runoff from the Airport site. The Airport site is fully developed and storm drains have been sized to accommodate storm flows in compliance with applicable standards. Although the Project has the potential to increase the number of passengers served at the Airport, any increased solid waste generated at the Airport would be able to be accommodated with the current landfill capacity.

Though not identified in specific questions on the Environmental Checklist, Appendix F of the State CEQA Guidelines requires that EIRs discuss the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy. When assessing if the Project's increased energy demand would be substantial enough to warrant analysis in a standalone section of this EIR, several factors were considered, including the Airport's current energy practices and the expected increase in energy demand associated with the various Project scenarios.

As discussed in Section 4.3, Greenhouse Gas Emissions, in 2010, JWA completed its Central Utility Plant, which is a cogeneration plant that reduces the Airport's energy footprint and conserves energy resources. The cogeneration plant is the primary source of electricity[3] for the Airport's passenger terminal, and supplies power and chilled water to serve the terminal's air

[3] The cogeneration plant satisfies about 95 percent of the Airport's electricity needs.

conditioning system. JWA purchases approximately 5 percent of its power supply from Southern California Edison ("SCE") via a 12-kilovolt ("kV") feed line. (*Greenhouse Gas Technical Report*, ENVIRON, 2014, see Appendix E.)

Though the cogeneration plant is the largest measure taken at the Airport to conserve energy, the following additional energy-saving practices are employed at JWA:

- Utilization of diesel-powered preconditioned air units by commercial aircraft along with ground-based electrical power in place of a jet-fueled onboard Auxiliary Power Unit ("APU"). The ground-based units burn about ten times less fuel than APUs.
- Installation of electric charging stations for ground service equipment and JWA vehicles.
- Required operation of fleet vehicles, such as taxi cabs, using clean burning compressed natural gas ("CNG") or other cleaner burning fuel alternatives. JWA's taxi provider, Orange County Yellow Cab, uses 100 percent CNG vehicles.
- The use of Light Emitting Diode ("LED") lighting on the airfield reduces both maintenance and energy costs.
- Water saving measures, such as the installation of ultra-low flow fixtures and efficient landscape watering, which reduces the energy demands associated with the conveyance of water and wastewater.

Additional measures, which are designed to reduce air emissions that also have energy saving benefits are discussed in the *Greenhouse Gas Technical Report*. (See Table A-1 in Appendix A of the report, which is provided in Appendix E of this EIR.) An overall assessment of the existing JWA operations indicate that the Airport has taken substantial steps to reduce their overall energy usage.

The evaluation of increased demand for energy resources focused on the incremental increase in demand associated with the incremental increase in the number of passengers and flights at JWA. As none of the Project scenarios propose the construction of new facilities, the additional flights and passengers would be served by the existing terminal and ancillary structures.

To evaluate the Project's greenhouse gas emissions, the utility demand rate by passenger was developed. (The methodology is more fully discussed in Section 4.3.2.) Applying this rate, in Phase 3, the Proposed Project would result in an approximately 9 percent increase in demand for energy at the Airport; Alternative A would result in a 10 percent increase; and the No Project Alternative would result in a 4 percent increase in comparison to the baseline conditions. For each of these scenarios, the incremental increase in demand of electricity would not exceed the amount of power provided to JWA by its cogeneration plant and by the agreement with SCE. Therefore, they would not require additional energy from the local suppliers other than what is secured under existing agreements.

Alternative B, Phase 3 would result in an increase in energy demand of 15 percent and Alternative C would increase the amount of energy demand by 20 percent compared to baseline. At the ultimate MAP, the incremental increase in demand for energy associated with the Alternatives B and C would exceed the amount of power provided to JWA by its cogeneration plant and by the agreement with SCE. Alternative B would require an additional 2.6 percent of energy to be purchased from SCE and Alternative C would require the purchase of an additional

40 percent of energy from SCE. Though both of these alternatives would exceed the amount of power currently provided to JWA by its cogeneration plant and the amount of energy secured by the existing power purchase agreement with SCE, it would not be expected to exceed energy supplies available to the region because it is still substantially less than the energy JWA purchased from SCE prior to completion of the cogeneration plant. Additionally, all the energy saving measures previous discussed, as well as the mitigation measures discussed in this EIR for Air Quality and Greenhouse Gases (Sections 4.1 and 4.3) would be applicable.

In addition, both FAA and SCAG projections indicate that forecasted passenger demand at JWA exceeds the current 10.8 MAP authorization; and, FAA projections anticipate unconstrained passenger demand at JWA reaching 12.8 MAP by 2030. (See the *Capacity Analysis Technical Report*, Section 7, provided in Appendix F [AECOM, 2014].) JWA currently serves approximately 9.2 million annual passengers. Allowing an increase in MAP would reasonably result in energy savings by providing improved air service locally. (With a 10.8 MAP restriction, the unserved demand from Orange County likely would be diverted to other airports in the region to satisfy air travel needs. This diversion of workers and residents to other facilities, such as Los Angeles International Airport and Ontario, likely would result in additional energy usage for travel on the regional roadway system.)

1.7 AREAS OF CONTROVERSY

Section 15123(b)(2) of the State CEQA Guidelines indicates that an EIR summary should identify areas of controversy known to the Lead Agency, including issues raised by agencies and the public. The following issues have been identified:

- JWA, and air travel in general, has historically been an area of controversy in Orange County. Litigation and community discourse over the noise and traffic associated with commercial air service at JWA has been an issue since the 1970s. The Settlement Agreement reduced the intensity of this controversy because it established operational parameters at the Airport that safeguarded the concerns of the community and allowed for needed improvements to be implemented without fear of litigation. This issue was reevaluated in 2003 when the Settlement Agreement was previously amended and extended.

  The consideration of amending and extending the Settlement Agreement again involves balancing competing interests—the same interests that were addressed through execution of the Settlement Agreement in the first instance. For example, there is a need to balance the overall demand for air travel in Orange County with the potential impacts on the surrounding areas. There also is a need to balance the competing desires of the general public regarding the appropriate level of air service that should be accommodated in Orange County. While some members of the public would like to see no increase in the number of regulated flights or passengers being served at JWA, others would like to see the operations at JWA increased to more fully accommodate demand for air service to and from Orange County.

  Because of the existing regulatory and physical constraints, JWA is not able to serve all the air travel demand of Orange County residents and travelers visiting Orange County. (AECOM 2014) The excess demand not being served by JWA would use other regional

airports or other modes of transportation. When travelers elect to use other airports or other modes of transportation, it shifts demand to other portions of the region's transportation system and/or those communities adjacent to the other airports.

- The analyses in this EIR assume the continuation of the existing fleet mix. Given the length of the planning timeframe for this Settlement Agreement Amendment (through 2030), it is reasonable to assume that there will be interest in introducing newer and next generation aircraft, such as the 737-900ERW, 787, 737-MAX, or comparable aircraft by other manufacturers into the fleet mix at JWA.[4] These newer aircraft may generate less noise and have fewer air emissions compared to the current fleet at JWA. In addition, since these aircraft accommodate more passengers than aircraft in the current fleet, it may be possible to serve more passengers (within the MAP cap) with fewer operations. For example, the estimated 2013 passenger level of 9.17 MAP is very close to the 2004 level of 9.27 MAP; yet, due to increased load factors and fleet mix size, operations are over 4,000 less in 2013 than in 2004.

  This Settlement Agreement Amendment is focused on extending the term of the Agreement and providing an increase in operating capacity at JWA. It does not propose any modifications to the Airport's physical facilities. Therefore, at some point in the future, should the County choose to consider the introduction of new generation aircraft to reduce aircraft noise and air quality impacts or for any other reason, subsequent CEQA documentation and Board of Supervisors approval would be required prior to implementation of any airfield improvements. In addition, since approval by the Federal Aviation Administration ("FAA") would be required for airfield modifications, documentation pursuant to the National Environmental Policy Act ("NEPA") also would be required.

- Since the City of Newport Beach is a responsible agency and will be required to take action on the Project, the significance of the noise impacts from the Project are assessed using both the County *and* City thresholds. The City of Newport Beach has established significance thresholds that are more stringent than the County of Orange significance thresholds.[5] As a result, more areas have been identified as being significantly impacted by noise.

  When the sensitive land uses are exposed to noise levels greater than 65 dB CNEL, they would potentially be eligible for sound insulation funded by the Airport or FAA. The FAA Program Guidance Letter 12-09, indicates the windows-closed interior noise level of a structure must be 45 dB or greater. The measurement of interior noise levels is an average of all habitable spaces in a particular residential unit, or educational spaces in a school. However, federal regulations prohibit the FAA or Airport from funding sound insulation programs outside of the 65 dB CNEL contour. (FAA 2012)

  Using the City of Newport Beach significance thresholds, all three phases of Alternative C would result in significant cumulative impacts (combined noise from air traffic and roadway traffic) at the homes around noise monitoring stations 4S, 5S, 6S and/or 7S due to an incremental increase in the background noise levels. These homes, however, would

4 The 737-900ERW and 787 are currently in use at other airports. The 737-MAX is still in production.

5 It should be noted that the County's thresholds of significance are consistent with those used by the FAA.

not be eligible for sound insulation because noise levels would be less than dB 65 CNEL. Therefore, these cumulative impacts would be significant and unavoidable. Using just the County of Orange significance thresholds, the significant unavoidable cumulative impacts would only occur in Phases 2 and 3 of Alternative C.

- Section 15126.6(e)(3)(A) of the State CEQA Guidelines defines the "no project" alternative for land use or regulatory plans. It states:

> When a project is the revision of an existing land use or regulatory plan, policy or ongoing operation, the "no project" alternative will be the continuation of the existing plan, policy or operation into the future. Typically this is a situation where other projects initiated under the existing plan will continue while the new plan is developed. Thus, the projected impacts of the proposed plan or alternative plans would be compared to the impacts that would occur under the existing plan.

Based on this guidance, for this EIR, the No Project Alternative assumes the continuation of the provisions in the Settlement Agreement, as most recently amended in 2003. Therefore, this alternative assumes there would be 85 regulated Class A passenger service ADDs and that the 10.8 MAP would be maintained throughout the study period.

However, although the No Project Alternative assumes operations at JWA would remain unchanged, under the No Project Alternative, there would be no limitation on the Board of Supervisors,) independent of the City of Newport Beach, SPON, and AWG, increasing the number of ADD and MAP being served at the Airport, subject to CEQA review.

With expiration of the 1985 Settlement Agreement (as amended) under the No Project Alternative, and irrespective of whether the County exercises it discretion to modify JWA's existing noise and access restrictions (e.g., curfew, Class A ADD and MAP limitations), other interested parties – such as the FAA and commercial air carriers – may argue that the restrictions violate the Airport Noise and Capacity Act of 1990 and take action against the County seeking to eliminate the restrictions. (See 49 U.S.C. Section 47254, subd. (d)(3) [restrictions are exempt from ANCA to the extent an intergovernmental agreement is in place].)

1.8 ISSUES TO BE RESOLVED

Consistent with State CEQA Guidelines Section 15123(b)(3), a key issue to be resolved is the choice among alternatives and whether or how to mitigate the significant effects. The Proposed Project and the three alternatives developed as part of the MOU between the signatories provide for a range of operational parameters at JWA, all of which would result in significant, unavoidable impacts. The No Project Alternative would also result in significant, unavoidable impacts. A factor to be considered by the County of Orange and the City of Newport Beach in connection with the selection and adoption of a Project under this EIR is the determination of the appropriate point of balance between the need for adequate air transportation services and the environmental interests and concerns of local residents.

The analysis in this EIR shows that Alternative A, Phase 3, Alternative B, Phase 3, and Alternative C (all Phases) would exceed the capacity of the on-site facilities.[6] Because the Project, as defined, does not propose any improvements to facilities at the Airport, adoption and approval of any of these alternatives would result in capacity exceedances at specified facilities. As a result, during peak times, portions of the Airport would be crowded and processing of passengers would be less efficient. For a historic perspective, prior to implementation of the 1985 Master Plan improvements, the operations at the Airport exceeded the physical capacity of the terminal.

Though there is nothing in the Settlement Agreement Amendment that would preclude the County of Orange at a subsequent time from proposing facility improvements,[7] none are reasonable foreseeable at the time and the Proposed Project and the alternatives could be accommodated with the existing facilities. However, especially with Alternative B, Phase 3 (2026 through 2030) and Alternative C, passengers would be inconvenienced because at peak periods the level of service at the Airport would decline and delays (such as security screening and customs) would likely be experienced. Additionally, coordination of operations, such as fuel delivery, aircraft Remain Over Night (RON) parking, and gate access) would become more complex. With the construction of the current terminal facilities (Terminals A, B, and C), there is limited physical space remaining at the Airport that would allow for expansion of the number of gates to accommodate the higher MAP levels envisioned in Alternative B, Phase 3 and Alternative C (all Phases) or expansion of the RON areas. As discussed in Section 4.5 and in the *Capacity Analysis Technical Report* (Appendix F), there also are limitations on the ability to expand the international terminal facilities due to design. In light of this information, the feasibility of effectively implementing Alternative C or Alternative B, Phase 3 is in question and must be considered prior to taking any action to select Alternatives B or C for adoption and approval.

1.9 OTHER AIRPORT-RELATED ISSUES NOT ASSOCIATED WITH THE SETTLEMENT AGREEMENT AMENDMENT

Though unrelated to the Project, the City of Newport Beach has requested that the FAA authorize a new departure procedure for use at JWA. The requested procedure would utilize satellite guidance to more accurately direct aircraft down the middle of the Upper Newport Bay. (Newport Beach 2013) Departure procedures are solely under the jurisdiction of the FAA and are not a component of the Settlement Agreement Amendment, as they are not within the jurisdiction of the County or the other parties to the Settlement Agreement. The FAA has indicated that the City of Newport Beach's request will be considered in mid- to late 2014 (FAA 2013). If approved, it is anticipated that implementation of Newport Beach's proposal could result in minor modifications to the noise contours provided in this EIR.

[6] The EIR (Section 4.5) identifies impacts to gate capacity for Alternative A, Phase 3; impacts to gates, international terminal capacity, fuel storage capacity, and automobile parking for Alternative B, Phase 3; and impacts to airfield capacity (for both commercial and general aviation), the spaces required for aircraft remaining overnight, capacity for loading bridges, international terminal capacity, fuel storage capacity, and automobile parking capacity for Alternative C.

[7] Additional gates cannot be added until after December 31, 2020. Any physical improvements would require subsequent CEQA documentation and potentially NEPA documentation.

1.10 REFERENCED DOCUMENTS, AND AVAILABILITY OF STUDIES AND REPORTS

Copies of this Draft EIR, the technical appendices, and cited or referenced studies or reports are available for review at the JWA Administrative Offices. The Draft EIR and technical appendices are also available online at www.ocair.com/settlementagreement. Additionally, copies of the EIR and technical appendices are available for review at the main offices of the City of Newport Beach. The appropriate addresses are located below:

John Wayne Airport
Administrative Office
3160 Airway Avenue
Costa Mesa, California 92626
Contact: Lea Choum

City of Newport Beach
Community Development Department/
Planning Division
100 Civic Center Drive
Newport Beach, California 92660
Contact: Patrick Alford

In addition, the EIR and technical appendices are available at the following libraries:

Costa Mesa/Donald Dugan
1855 Park Avenue
Costa Mesa, California 92627

Costa Mesa/Mesa Verde
2969 Mesa Verde Drive
Costa Mesa, California 92626

El Modena
380 South Hewes Street
Orange, California 92869

Irvine/Heritage Park
14361 Yale Avenue
Irvine, California 92604

Irvine/University Park
4512 Sandburg Way
Irvine, California 92612

Laguna Beach
363 Glenneyre Street
Laguna Beach, California 92651

Newport Beach
1000 Avocado Avenue
Newport Beach, California 92660

Orange
407 East Chapman Avenue
Orange, California 92866

Santa Ana
26 Civic Center Plaza
Santa Ana, California 92701

Tustin
345 East Main Street
Tustin, California 92780

1.11 SUMMARY OF SIGNIFICANT EFFECTS AND MITIGATION PROGRAM

Table 1-3 presents a summary of the potential environmental effects of the Proposed Project and its alternatives; measures to mitigate impacts to the extent feasible; and expected status of effects following implementation of the mitigation measures. The more detailed evaluation of these issues is presented in Section 4. If the text of the mitigation measure is too lengthy to include in tabular format, it is briefly summarized in the table and the mitigation measure number is noted. All mitigation measures are listed in their entirety in the appropriate portion of Section 4. Due to space constraints, abbreviations are used to indicate if a mitigation measure applies only to a particular scenario. This same abbreviation is used in the column for Level of Significance After Mitigation. The following abbreviations are used for identifying the scenarios: PP=Proposed Project; A=Alternative A; B=Alternative B; C=Alternative C; and NP=No Project.

In Table 1-3, the significance of each impact is indicated by the following abbreviations that parenthetically follow the summary description of the impact: S=significant impact; LS=impact is less than significant according to the State CEQA Guidelines; and NI=no impact. In addition, for greenhouse gas emissions, "SPEC" is used because the level of significance is speculative. The level of significance provided for the Proposed Project and all the alternatives in the Impact columns denotes the level of significance prior to mitigation. There is also an indicator in the column identified as Level of Significance After Mitigation, which makes a determination if the mitigation measures would reduce the impact to a level of less than significant. Finally, unless otherwise noted in the table, the level of significance after mitigation is for all Project phases.

TABLE 1-3
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold	Impact					Mitigation Measure	Level Of Significance After Mitigation*
	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative		
AIR QUALITY (Section 4.1)							
4.1-1: Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?	**Mass Daily Emissions – CAP** The Proposed Project operational emissions would have significant operational mass emissions impact for all phases. (S) **Ambient Air Quality Standards** The Proposed Project would have a significant impact on local ambient air quality concentrations. (S) **Local CO Hotspots** The Proposed Project would have a less than significant impact on local CO concentrations. (LS)	**Mass Daily Emissions – CAP** Alternative A operational emissions would have significant operational mass emissions impact for all phases.(S) **Ambient Air Quality Standards** Alternative A would have a significant impact on local ambient air quality concentrations. (S) **Local CO Hotspots** Alternative A would have a less than significant impact on local CO concentrations. (LS)	**Mass Daily Emissions – CAP** Alternative B operational emissions would have significant operational mass emissions impact for all phases. (S) **Ambient Air Quality Standards** Alternative B would have a significant impact on local ambient air quality concentrations. (S) **Local CO Hotspots** Alternative B would have a less than significant impact on local CO concentrations. (LS)	**Mass Daily Emissions – CAP** Alternative C operational emissions would have significant operational mass emissions impact for all phases. (S) **Ambient Air Quality Standards** Alternative C would have a significant impact on local ambient air quality concentrations. (S) **Local CO Hotspots** Alternative C would have a less than significant impact on local CO concentrations. (LS)	**Mass Daily Emissions – CAP** The No Project Alternative operational emissions would have significant operational mass emissions impact. (S) **Ambient Air Quality Standards** The No Project Alternative would have a significant impact on local ambient air quality concentrations. (S) **Local CO Hotspots** The No Project Alternative would have a less than significant impact on local CO concentrations. (LS)	**AQ/GHG-1:** Support single/reduced engine taxiing procedures. **AQ/GHG-2:** Develop Air Quality and GHG emission benchmarking databases. **AQ/GHG-3:** Evaluate the effects of future Airport-related improvement projects cognizant of air quality and GHG emissions. **AQ/GHG-4:** Develop a Climate Action Plan by 2018. **AQ/GHG-5:** Specify energy efficiency requirements and goals for equipment and appliances in contractual agreements. **AQ/GHG-6:** Install energy efficient equipment and controls for equipment being replaced. **AQ/GHG-7:** Install variable speed drives and optimize the control of air handling unit pumps for equipment being replaced. **AQ/GHG-8:** Install energy efficient elevators and escalators as the existing ones require replacement.	**Mass Daily Emissions – CAP** PP: S A: S B: S C: S NP: S **Ambient Air Quality Standards** PP: S A: S B: S C: S NP: S **Local CO Hotspots** PP: LS A: LS B: LS C: LS NP: LS

TABLE 1-3
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold	Impact					Mitigation Measure	Level Of Significance After Mitigation*
	Proposed Project	**Alternative A**	**Alternative B**	**Alternative C**	**No Project Alternative**		
4.1-2: Would the project expose sensitive receptors to substantial pollutant concentrations?	The Proposed Project would have less than significant impacts for cancer risk, cancer burden, and chronic non-cancer risk for all receptors and for acute non-cancer risk for residents and other sensitive receptors. (LS) The Proposed Project would have a significant acute non-cancer health risk impact for workers. (S)	Alternative A would have less than significant impacts for cancer risk, cancer burden, and chronic non-cancer risk for all receptors and for acute non-cancer risk for residents and other sensitive receptors. (LS) Alternative A would have a significant acute non-cancer health risk impact for workers. (S)	Alternative B would have less than significant impacts for cancer risk, cancer burden, and chronic non-cancer risk for all receptors and for acute non-cancer risk for residents and other sensitive receptors. (LS) Alternative B would have a significant acute non-cancer health risk impact for workers. (S)	Alternative C would have less than significant impacts for cancer risk and chronic non-cancer risk for all receptors. (LS) Alternative C would have significant impacts for cancer burden and for acute non-cancer health risk for all receptors. (S)	The No Project Alternative would have a less than significant impacts for cancer risk, cancer burden, chronic non-cancer risk, and for acute non-cancer risk. (LS)	**AQ/GHG-9:** Optimize the energy efficiency and control of the conveyor motors in the baggage handling system. Replace older electric conveyor drive motors by 2016. **AQ/GHG-10:** Develop an Integrated Solid Waste Management Plan by 2016. **AQ/GHG-11:** Install electric vehicle chargers in specified parking structures and lots by 2016. **AQ/GHG-12:** Support the expansion of public transit opportunities. **AQ/GHG-13:** Support employee bicycle use. **AQ/GHG-14:** Support use of alternatively fueled taxis, shuttles, and rental vehicles. **AQ/GHG-15:** Support paperless ticket technology.	**Cancer** PP: LS A: LS B: LS C: LS NP: LS **Cancer Burden** PP: LS A: LS B: LS C: S NP: LS **Chronic Non-Cancer** PP: LS A: LS B: LS C: LS NP: LS **Acute Non-Cancer** PP: S (to workers) A: S (to workers) B: S (to workers) C: S (all receptors) NP: LS (all receptors)
4.1-3: 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)?	The Proposed Project operational emissions would have a significant cumulative impact on nonattainment pollutants for all phases. (S)	Alternative A operational emissions would have a significant cumulative impact on nonattainment pollutants for all phases. (S)	Alternative B operational emissions would have a significant cumulative impact on nonattainment pollutants for all phases. (S)	Alternative C operational emissions would have a significant cumulative impact on nonattainment pollutants for all phases. (S)	The No Action Alternative operational emissions would have a significant cumulative impact on nonattainment pollutants. (S)		PP: S A: S B: S C: S NP: S
4.1-4: Would the project conflict with or obstruct implementation of the applicable Air Quality Plan?	The Proposed Project would have a significant impact relative to consistency with the 2012 Air Quality Management Plan. (S)	Alternative A would have a significant relative to impact consistency with the 2012 Air Quality Management Plan. (S)	Alternative B would have a significant relative to impact consistency with the 2012 Air Quality Management Plan. (S)	Alternative C would have a significant relative to impact consistency with the 2012 Air Quality Management Plan. (S)	The No Project Alternative would have a significant relative to impact consistency with the 2012 Air Quality Management Plan. (S)		PP: S A: S B: S C: S NP: S

TABLE 1-3
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold	Impact					Mitigation Measure	Level Of Significance After Mitigation*
	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative		
BIOLOGICAL RESOURCES (Section 4.2)							
4.2-1: Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS? **4.2-2:** Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS?	The Proposed Project would not have a substantial adverse direct effect on any candidate, sensitive, or special status species or any riparian habitat or other sensitive natural community. (LS)	Alternative A would not have a substantial adverse direct effect on any candidate, sensitive, or special status species or any riparian habitat or other sensitive natural community. (LS)	Alternative B would not a substantial adverse direct effect on any candidate, sensitive, or special status species or any riparian habitat or other sensitive natural community. (LS)	Alternative C would not have a substantial adverse direct effect on any candidate, sensitive, or special status species or any riparian habitat or other sensitive natural community. (LS)	The No Project Alternative would not have a substantial adverse direct effect on any candidate, sensitive, or special status species or any riparian habitat or other sensitive natural community. (LS)	N/A	PP: LS A: LS B: LS C: LS NP: LS
4.2-3: Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	The Proposed Project would not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established wildlife corridors. (LS) The Proposed Project would have a less than significant impact on the use of native wildlife nursery sites. (LS)	Alternative A would not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established wildlife corridors. (LS) Alternative A would have a less than significant impact on the use of native wildlife nursery sites. (LS)	Alternative B would not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established wildlife corridors. (LS) Alternative B would have a less than significant impact on the use of native wildlife nursery sites. (LS)	Alternative C would not substantially interfere with the movement of any native resident or migratory fish or with established wildlife corridors. (LS) Alternative C would result in significant adverse impacts to wildlife species, specifically to the western snowy plover, California black rail, light-footed clapper rail, American peregrine falcon, California brown pelican, coastal California gnatcatcher, Belding's savannah sparrow, least Bell's vireo, and California least tern. (S)	The No Project Alternative would not substantially interfere with the movement of any native resident or migratory fish or with established wildlife corridors. (LS) The No Project Alternative would have a less than significant impact on the use of native wildlife nursery sites. (LS)	N/A	**Wildlife Movement** PP: LS A: LS B: LS C: LS NP: LS **Nursery Sites** PP: LS A: LS B: LS C: S NP: LS
4.2-4: Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? **4.2-5:** Would the project conflict with provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or	The Proposed Project would not conflict with any local policies or ordinances protecting biological resources. (LS) Although the Proposed Project would slightly increase noise levels and increase areas subject to noise in the NCCP/HCP Reserve area, the	Alternative A would not conflict with any local policies or ordinances protecting biological resources. (LS) Although Alternative A would slightly increase noise levels and increase areas subject to noise in the NCCP/HCP Reserve area, the increase in noise levels would not be	Alternative B would not conflict with any local policies or ordinances protecting biological resources. (LS) Although Alternative B would slightly increase noise levels and increase areas subject to noise in the NCCP/HCP Reserve area, the increase in noise levels would not be substantial and	Alternative C would not conflict with any local policies or ordinances protecting biological resources. (LS) Alternative C would result in potential significant impacts to the local population of listed bird species within Upper Newport Bay, which is	The No Project Alternative would not result in any impacts related to a tree preservation policy or ordinance. (LS) The No Project Alternative would slightly increase noise levels and increase areas subject to	N/A	**Local Policies** PP: LS A: LS B: LS C: LS NP: LS **NCCP/HCP** PP: LS A: LS

TABLE 1-3
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold	Impact					Mitigation Measure	Level Of Significance After Mitigation*
	Proposed Project	**Alternative A**	**Alternative B**	**Alternative C**	**No Project Alternative**		
other approved local, regional, or state habitat conservation plan?	increase in noise levels would not be substantial and would not jeopardize existence of wildlife species and plant communities in the NCCP/HCP. As such, the Proposed Project would not conflict with the provisions of an adopted habitat conservation plan. (LS)	substantial and would not jeopardize existence of wildlife species and plant communities in the NCCP/HCP. As such, Alternative A would not conflict with the provisions of an adopted habitat conservation plan. (LS)	would not jeopardize existence of wildlife species and plant communities in the NCCP/HCP. As such, Alternative B would not conflict with the provisions of an adopted habitat conservation plan. (LS)	a component of the Central-Coastal NCCP/HCP Reserve area. Therefore, Alternative C would conflict with the provisions of an adopted habitat conservation plan. (LS)	noise in the NCCP/HCP Reserve area; the increase in noise levels would not be substantial and would not jeopardize existence of wildlife species and plant communities in the NCCP/HCP. As such, the No Project Alternative is consistent with the general plans, local plans, and the NCCP/HCP, and impacts would be less than significant. (LS)		B: LS C: S NP: LS
GREENHOUSE GAS EMISSIONS (Section 4.3)							
4.3-1: Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (comparable to State CEQA Guidelines, Section 15064.4[b][1–2])?	**Existing Conditions Analysis** The Proposed Project would result in an increase in GHG emissions as compared to the existing conditions. However, there is no scientific or regulatory consensus regarding what particular quantity of GHG emissions would result in a substantial adverse change to the physical conditions resulting in global climate change. Further, no agency with regulatory authority and expertise (such as CARB or SCAQMD) has adopted numeric GHG thresholds for airports for purposes of CEQA. Therefore, the estimated increases of GHG emissions over the existing GHG emissions are not a meaningful or reliable indicator of the Proposed Project's significance. The impact therefore is speculative on a global scale. (SPEC) **Assembly Bill 32** The GHG emissions for the Proposed Project would be 15 percent less than the corresponding NAT GHG emissions, but would be less	**Existing Conditions Analysis** Alternative A would result in an increase in GHG emissions as compared to the existing conditions. However, there is no scientific or regulatory consensus regarding what particular quantity of GHG emissions would result in a substantial adverse change to the physical conditions resulting in global climate change. Further, no agency with regulatory authority and expertise (such as CARB or SCAQMD) has adopted numeric GHG thresholds for airports for purposes of CEQA. Therefore, the estimated increases of GHG emissions over the existing GHG emissions are not a meaningful or reliable indicator of Alternative A's significance. The impact therefore is speculative on a global scale. (SPEC) **Assembly Bill 32** The GHG emissions for Alternative A would be 15 percent less than the corresponding NAT GHG	**Existing Conditions Analysis** Alternative B would result in an increase in GHG emissions as compared to the existing conditions. However, there is no scientific or regulatory consensus regarding what particular quantity of GHG emissions would result in a substantial adverse change to the physical conditions resulting in global climate change. Further, no agency with regulatory authority and expertise (such as CARB or SCAQMD) has adopted numeric GHG thresholds for airports for purposes of CEQA. Therefore, the estimated increases of GHG emissions over the existing GHG emissions are not a meaningful or reliable indicator of Alternative B's significance. The impact therefore is speculative on a global scale. (SPEC) **Assembly Bill 32** The GHG emissions for Alternative B would be 15 percent less than the corresponding NAT GHG emissions, but would be less than the 28.5 percent reduction	**Existing Conditions Analysis** Alternative C would result in an increase in GHG emissions as compared to the existing conditions. However, there is no scientific or regulatory consensus regarding what particular quantity of GHG emissions would result in a substantial adverse change to the physical conditions resulting in global climate change. Further, no agency with regulatory authority and expertise (such as CARB or SCAQMD) has adopted numeric GHG thresholds for airports for purposes of CEQA. Therefore, the estimated increases of GHG emissions over the existing GHG emissions are not a meaningful or reliable indicator of Alternative Cs significance. The impact therefore is speculative on a global scale. (SPEC) **Assembly Bill 32** The GHG emissions for Alternative C would be 14 percent less than the	**Existing Conditions Analysis** The No Project Alternative would result in an increase in GHG emissions as compared to the existing conditions. However, there is no scientific or regulatory consensus regarding what particular quantity of GHG emissions would result in a substantial adverse change to the physical conditions resulting in global climate change. Further, no agency with regulatory authority and expertise (such as CARB or SCAQMD) has adopted numeric GHG thresholds for airports for purposes of CEQA. Therefore, the estimated increases of GHG emissions over the existing GHG emissions are not a meaningful or reliable indicator of the No Project Alternative's significance. The impact therefore is speculative on a global scale. (SPEC)	See Air Quality (Section 4.1) above. The same measures apply to GHG.	**Existing Conditions** PP: SPEC A: SPEC B: SPEC C: SPEC NP: SPEC **Assembly Bill 32** PP: S A: S B: S C: S NP: S

TABLE 1-3
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold	Impact					Mitigation Measure	Level Of Significance After Mitigation*
	Proposed Project	**Alternative A**	**Alternative B**	**Alternative C**	**No Project Alternative**		
	than the 28.5 percent reduction identified by CARB in the 2008 Scoping Plan to ensure consistency with AB 32's requirement to achieve 1990 emission levels by 2020. The impact would be significant. (S)	emissions, but would be less than the 28.5 percent reduction identified by CARB in the 2008 Scoping Plan to ensure consistency with AB 32's requirement to achieve 1990 emission levels by 2020. The impact would be significant. (S)	identified by CARB in the 2008 Scoping Plan to ensure consistency with AB 32's requirement to achieve 1990 emission levels by 2020.. The impact would be significant. (S)	corresponding NAT GHG emissions, but would be less than the 28.5 percent reduction identified by CARB in the 2008 Scoping Plan to ensure consistency with AB 32's requirement to achieve 1990 emission levels by 2020. The impact would be significant.(S)	**Assembly Bill 32** The GHG emissions for the No Project Alternative would be 12 percent less than the corresponding NAT GHG emissions, but would be less than the 28.5 percent reduction required by AB 32. The impact would be significant. (S)		
4.3-2: Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases (comparable to State CEQA Guidelines, Section 15064.4[b][3])?	The Proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of greenhouse gases. There would be a less than significant impact. (LS)	Alternative A would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of greenhouse gases. There would be a less than significant impact. (LS)	Alternative B would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of greenhouse gases. There would be a less than significant impact. (LS)	Alternative C would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of greenhouse gases. There would be a less than significant impact. (LS)	The No Project Alternative would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of greenhouse gases. There would be a less than significant impact. (LS)		PP: LS A: LS B: LS C: LS NP: LS
HAZARDS AND HAZARDOUS MATERIALS (Section 4.4)							
4.4-1: Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? **4.4-2:** 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?	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. (LS)	Alternative A 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. (LS)	Alternative B 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. (LS)	Alternative C 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. (LS)	The No Project Alternative 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. (LS)	N/A	PP: LS A: LS B: LS C: LS NP: LS
4.4-3 Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or wastes within one-quarter mile of an existing or proposed school?	The Proposed Project would have a less than significant impact related to handling of hazardous materials within one-quarter mile of a school. The quantitative risk modeling of increased fueling operations determined this activity would not create a significant hazard to the public, which includes	Alternative A would have a less than significant impact related to handling of hazardous materials within one-quarter mile of a school. The quantitative risk modeling of increased fueling operations determined this activity would not create a significant hazard to the	Alternative B would have a less than significant impact related to handling of hazardous materials within one-quarter mile of a school. The quantitative risk modeling of increased fueling operations determined this activity would not create a significant hazard to the public, which includes	Alternative C would have a less than significant impact related to handling of hazardous materials within one-quarter mile of a school. The quantitative risk modeling of increased fueling operations determined this activity would not create a significant hazard to the	The No Project Alternative would have a less than significant impact related to handling of hazardous materials within one-quarter mile of a school. The quantitative risk modeling of increased fueling operations determined	N/A	PP: LS A: LS B: LS C: LS NP: LS

TABLE 1-3
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold	Impact					Mitigation Measure	Level Of Significance After Mitigation*
	Proposed Project	**Alternative A**	**Alternative B**	**Alternative C**	**No Project Alternative**		
	schools and other sensitive receptors, or the environment. (LS)	public, which includes schools and other sensitive receptors, or the environment. (LS)	schools and other sensitive receptors, or the environment. (LS)	public, which includes schools and other sensitive receptors, or the environment. (LS)	this activity would not create a significant hazard to the public, which includes schools and other sensitive receptors, or the environment. (LS)		
4.4-4: Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	The Airport site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Therefore, the Proposed Project would not create a significant hazard to the public or the environment attributable to undertaking activity on such a listed site. There would be no impact. (NI)	The Airport site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Therefore, Alternative A would not create a significant hazard to the public or the environment attributable to undertaking activity on such a listed site. There would be no impact. (NI)	The Airport site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Therefore, Alternative B would not create a significant hazard to the public or the environment attributable to undertaking activity on such a listed site. There would be no impact. (NI)	The Airport site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Therefore, Alternative C would not create a significant hazard to the public or the environment attributable to undertaking activity on such a listed site. There would be no impact. (NI)	The Airport site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Therefore, the No Project Alternative would not create a significant hazard to the public or the environment attributable to undertaking activity on such a listed site. There would be no impact. (NI)	N/A	PP: NI A: NI B: NI C: NI NP: NI
4.4-5: Would the project be located within an airport land use plan or, where such plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	While the Airport site is located within an existing airport land use plan, the Proposed Project would not result in safety hazards for people residing or working in the project area. Impacts would be less than significant. (LS)	While the Airport site is located within an existing airport land use plan, Alternative A would not result in safety hazards for people residing or working in the project area. Impacts would be less than significant. (LS)	While the Airport site is located within an existing airport land use plan, Alternative B would not result in safety hazards for people residing or working in the project area. Impacts would be less than significant. (LS)	While the Airport site is located within an existing airport land use plan, Alternative C would not result in safety hazards for people residing or working in the project area. Impacts would be less than significant. (LS)	While the Airport site is located within an existing airport land use plan, the No Project Alternative would not result in safety hazards for people residing or working in the project area. Impacts would be less than significant. (LS)	N/A	PP: LS A: LS B: LS C: LS NP: LS
LAND USE AND PLANNING (Section 4.5)							
4.5-1: 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?	**Capacity of On-Site Facilities** The Proposed Project would have less than significant impacts on the capacity of on-site facilities. (LS) **Compatibility with Surrounding Land Uses** With the Proposed Project, there would be an increase in the number of noise-sensitive uses exposed to noise levels in excess of 65 CNEL (a total of 173 residences would be in the 65 or greater CNEL contour, 77 as a result of the Proposed	**Capacity of On-Site Facilities** Alternative A, Phase 3 would result in insufficient gate capacity, which would be considered a significant impact. (S) **Compatibility with Surrounding Land Uses** With Alternative A, there would be an increase in the number of noise-sensitive uses exposed to noise levels in excess of 65 CNEL (a total of 181 residences would be in the 65 or greater CNEL	**Capacity of On-Site Facilities** With Alternative B, Phase 3, the projected operations would exceed the existing capacity of number of gates, international terminal capacity, fuel storage capacity, and automobile parking. These would be significant impacts. (S) **Compatibility with Surrounding Land Uses** With Alternative B, there would be an increase in the number of noise-sensitive uses exposed to noise levels in excess of 65	**Capacity of On-Site Facilities** With Alternative C, projected operations would exceed airfield capacity (for both commercial and general aviation); the spaces required for aircraft remaining overnight; capacity for loading bridges; international terminal capacity; fuel storage capacity; and automobile parking capacity. These	**Capacity of On-Site Facilities** With the No Project Alternative, operations would not result in significant impacts to on-site facilities. (LS) **Compatibility with Surrounding Land Uses** With the No Project Alternative there would be an increase in the number of noise-sensitive uses exposed to noise levels in excess of 65	**PP, A–C** **LU-1:** Starting with the 2015 Annual Noise Report, the County of Orange will identify parcels with noise-sensitive uses that are newly located within the 65 CNEL contour and will evaluate the parcels' eligibility for insulation. Those uses with an average interior noise levels exceeding 45 CNEL will be eligible for insulation under the SIP	**Capacity of On-Site Facilities** PP: LS A: LS-Phases 1 and 2; S Phase 3 B: LS Phase 1; S Phases 2 and 3 C: S NP: LS **Compatibility with Surrounding Land Uses** PP: S

TABLE 1-3
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold	Impact					Mitigation Measure	Level Of Significance After Mitigation*
	Proposed Project	**Alternative A**	**Alternative B**	**Alternative C**	**No Project Alternative**		
	Project in Phase 3), which would result in a land use incompatibility. This would be a significant impact because there are no feasible mitigation measures to reduce exterior noise levels to below 65 CNEL, consistent with the County of Orange standards for noise sensitive uses. There is also a potential that interior noise levels would exceed established standards for land use compatibility for noise sensitive uses (a total of 102 uninsulated residences would be in the 65 or greater CNEL contour, 44 as a result of the Proposed Project in Phase 3). With implementation of mitigation, this impact would be reduced to a less than significant level for all residences, with the exception of the residences within the area zoned for business park that are not eligible for sound insulation (a total of 75 units in Phase 3, 28 as a result of the Proposed Project). These residences would be subject to significant land use impact because interior noise levels would exceed the County standard. (S) **Policy Consistency** The Proposed Project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project with adoption of the recommended mitigation. (LS)	contour, 85 as a result of the Alternative A in Phase 3), which would result in a land use incompatibility. This would be a significant impact because there are no feasible mitigation measures to reduce exterior noise levels to below 65 CNEL, consistent with the County of Orange standards for noise sensitive uses. There is also a potential that interior noise levels would exceed established standards for land use compatibility for noise sensitive uses (a total of 104 residences uninsulated residences would be within the 65 or greater CNEL contour, 46 as a result of Alternative A in Phase 3). With implementation of mitigation, this impact would be reduced to a less than significant level for all residences, with the exception of the nine residences within the area zoned for business park that are not eligible for sound insulation (a total of 75 units in Phase 3, 28 as a result of the Alternative A). These residences would have a significant land use impact because interior noise levels would exceed the County standard. (S). **Policy Consistency** Alternative A would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction with adoption of the recommended mitigation. (LS)	CNEL (a total of 230 residences would be in the 65 or greater CNEL contour, 134 as a result of Alternative B in Phase 3), which would result in a land use incompatibility. This would be a significant impact because there are no feasible mitigation measures to reduce exterior noise levels to below 65 CNEL, consistent with the County of Orange standards for noise sensitive uses. There is also a potential that interior noise levels would exceed established standards for land use compatibility for noise sensitive uses (a total of 119 uninsulated residences would be within the 65 or greater CNEL contour, 61 as a result of Alternative B in Phase 3). With implementation of mitigation, this impact would be reduced to a less than significant level for all residences, with the exception of the residences within the area zoned for business park that are not eligible for sound insulation (a total of 76 units in Phase 3, 29 as a result of the Alternative B). These residences would be subject to a significant land use impact because interior noise levels would exceed the County standard. (S) **Policy Consistency** Alternative B would conflict with a land use policy from the City of Newport Beach. Since the City of Newport Beach is a Responsible Agency for purposes of CEQA and required to approve the Settlement Agreement extension, this was	would be significant impacts. (S) **Compatibility with Surrounding Land Uses** With Alternative C, there would be an increase in the number of noise-sensitive uses (a total of 962 residences would be in the 65 or greater CNEL contour, 865 as a result of Alternative C in Phase 2, and the Peter and Mary Muth Interpretive Center) exposed to noise levels in excess of 65 CNEL, which would result in a land use incompatibility. This would be a significant impact. There are no feasible mitigation measures to reduce exterior noise levels to below 65 CNEL, consistent with the County of Orange standards for noise sensitive uses. There is also a potential that interior noise levels would exceed established standards for land use compatibility for noise sensitive uses (a total of 537 uninsulated residences within the 65 or greater CNEL contour, 479 as a result of Alternative C in Phase 2; 2 schools; an educational facility; and 6 places of worship). With implementation of mitigation, this impact would be reduced to a less than significant level for all residences, with the exception of the residences within the area zoned for business park that are not eligible for the sound insulation. (a total of 76 units	CNEL (a total of 128 units would be in the 65 or greater CNEL contour, 32 as a result of the No Project Alternative), which would result in a land use incompatibility. This would be a significant impact. There are no feasible mitigation measures to reduce exterior noise levels to below 65 CNEL, consistent with the County of Orange standards for noise sensitive uses. There is also a potential that interior noise levels would exceed established standards for land use compatibility for noise sensitive uses (a total of 79 units uninsulated units within the 65 or greater CNEL contour, 21 as a result of the No Project Alternative). With implementation of mitigation, this impact would be reduced to a less than significant level for all units, with the exception of the 17 residential units within the area zoned for business park that are not eligible for the sound insulation plan. These units would have a significant land use impact because interior noise levels would exceed the County standard use impact because interior noise levels would exceed the County standard. (S)	described in Mitigation Measure N-3. **PP, A–B** **LU-2:** Prior to authorizing the allowed Phase 3 increases for the Proposed Project and Alternative A and Phases 2 and 3 for Alternative B, the 2025 Annual Noise Report shall be evaluated by JWA to determine if increased operations would result in a change in the annual 65 CNEL contour as compared to their location relative to the 65 CNEL contour in the 2013 annual contours. If the increase would result in a greater than a 1 CNEL change at NMS 1S or 2S, the allowed increases in MAP and/or ADD shall be restricted to ensure the increase would be less than 1 CNEL difference at these locations. This shall be done annually to ensure the increase in CNEL as compared to the 2013 annual contours, do not exceed the City of Newport Beach threshold provided for in General Plan Policy N 1.8.	A: S B: S C: S NP: S **Policy Consistency** PP: LS A: LS B: LS Phases 1 and 2; S Phase 3 C: S NP: S

TABLE 1-3
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold	Impact					Mitigation Measure	Level Of Significance After Mitigation*
	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative		
			found to be a significant impact and no mitigation is feasible. (S)	in Phase 3, 29 as a result of Alternative C). These residences would have a significant land use impact because interior noise levels would exceed the County standard. (S) **Policy Consistency** Alternative C would conflict with the City of Newport Beach General Plan. Since the City of Newport Beach is a Responsible Agency for purposes of CEQA and required to approve the Settlement Agreement Amendment, this was found to be a significant impact and no mitigation is feasible. Alternative C would also extend the 65 CNEL contour into areas designed for mixed-use development in the Airport Area of the City of Newport Beach. The City of Newport Beach General Plan Noise Element noise/land use compatibility matrix (Table N2) lists land uses within the 65 CNEL contour as "normally incompatible;" and provides that new construction or development, including residential and mixed land uses, should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design and approval of the project. Increasing the area considered unsuitable for residential development	**Policy Consistency** The No Project Alternative would conflict with the City of Newport Beach General Plan. Since the City of Newport Beach is required to approve the Settlement Agreement Amendment, this was found to be a significant impact and no mitigation is feasible. (S).		

TABLE 1-3
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold	Impact					Mitigation Measure	Level Of Significance After Mitigation*
	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative		
				presents a conflict with the City's General Plan Land Use Element policies that call for a mix of housing types and buildings that integrate housing with ground-level convenience retail uses and would be developed at a sufficient scale to achieve a "complete" neighborhood. (S)			
NOISE (Section 4.6)							
4.6-1: Would the project generate aircraft noise that would cause any one of the following noise increases? • 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. • An increase of 5.0 CNEL or more at a sensitive receptor where the existing exposure is between 45 and 60 CNEL. • A noise increase at a sensitive receptor in the City of Newport Beach exceeding the values in Newport Beach General Plan Policy N1.8 (see Table 4.6-3).	The Proposed Project would have a less than significant impact for all phases for noise increases determined by FAA and Orange County standards. (LS) In accordance with Newport Beach Standards, Phase 3 of the Proposed Project would result in a significant noise impact at NMS 2S in the City of Newport Beach.(S)	Alternative A would have a less than significant impact for all phases for noise increases determined by FAA and Orange County standards. (LS) In accordance with Newport Beach Standards, Phase 3 of the Alternative A would result in a significant noise impact at NMS 1S and 2S in the City of Newport Beach. (S)	Alternative B would have a less than significant impact for Phases 1 and 2 for noise increases determined by FAA and Orange County standards. (LS) In accordance with Newport Beach Standards, Phase 2 would result in a significant noise impacts at NMS 1S and 2S for Phase 2. In Phase 3 of Alternative B would result in significant noise impact at NMS 1S and 2S by FAA, Orange County, and Newport Beach standards. In addition, NMS 3S would have a significant impact as determined by Newport Beach standards. (S)	Phase 1 of Alternative C would result in significant noise impacts at NMS 1S, 2S, and 3S as determined by FAA, Orange County, and Newport Beach standards. In addition, with Phase 1 there would be a significant impact NMS 6S in accordance with the Newport Beach standards. Phases 2 and 3 of Alternative C would result in significant noise impacts at NMS 1S, 2S, 3S, 4S, 5S, 6S, and 7S as determined by FAA, Orange County, and Newport Beach standards. Phases 2 and 3 of Alternative C would also result in significant noise impact resulting from the introduction of nighttime aircraft noise. (S)	The No Project Alternative would have a less than significant noise impact relative to the FAA, Orange County, and Newport Beach noise increase standards (LS).	**N-1:** Starting with the 2015 Annual Noise Report, the annual noise levels at NMS 1S, 2S, and 3S will be compared by JWA to the 2013 annual noise levels. If the noise levels have increased by 1.5 dB or more at any of these NMS, all noise sensitive uses represented by that NMS that have not been previously insulated will be eligible for evaluation for participation in the SIP as described in Mitigation Measure N-3. **N-2:** Starting with the 2015 Annual Noise Report, if the noise levels have increased by 1.0 dB or more at specified locations, all noise sensitive uses in that area exposed to noise levels of 65 CNEL or greater that were not previously insulated under the 1985 RSIP will be eligible for participation in the SIP (see N-3). Those uses with interior noise levels exceeding an average of 45 CNEL will be eligible	**FAA and County Standard** PP: LS A: LS B: LS Phases 1 and 2; S Phase 3 C: S NP: LS **City of Newport Beach Standard** PP: LS Phases 1 and 2; S Phase 3 A: LS Phases 1 and 2; S Phase 3 B: LS Phase 1; S Phases 2 and 3 C: S NP: LS
4.6-2: Would the project generate aircraft noise that would increase noise levels at exterior use areas of residences or schools to noise levels of 65 CNEL or above or interior areas of residences or schools to noise levels of 45 CNEL or above?	The Proposed Project would have a significant exterior noise impact on 31 residences in Phase 1, 62 residences in Phase 2, and 77 residences in Phase 3. The Proposed Project would have a potentially significant interior noise impact on 21 residences in Phase 1, 39 residences in Phase 2, and 43 residences and one place of worship in Phase 3. (S)	Alternative A would have a significant exterior noise impact on 22 residences in Phase 1, 48 residences in Phase 2, and 85 residences in Phase 3. Alternative A would have a potentially significant interior noise impact on 15 residences in Phase 1, 32 residences in Phase 2, and 46 residences and one place of worship in Phase 3. (S)	Alternative B would have a significant exterior noise impact on 25 residences in Phase 1, 90 residences in Phase 2, and 135 residences in Phase 3. Alternative B would have a potentially significant interior noise impact on 17 residences in Phase 1, 47 residences and one place of worship in Phase 2, and 62 residences and one place of worship in Phase 3. (S)	Alternative C would have a significant exterior noise impact on 255 residences in Phase 1, 866 residences in Phase 2, and 865 residences in Phase 3. Alternative C would have a potentially significant interior noise impact on 87 uninsulated residences, 3 schools/educational facilities, and 2 places of worship in Phase 1; 479	The No Project Alternative would have a significant exterior noise impact on 31 additional residences and a potentially significant interior noise impact on 21 residences. (S)		PP: S A: S B: S C: S NP: S

TABLE 1-3
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold	Impact					Mitigation Measure	Level Of Significance After Mitigation*
	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative		
				uninsulated residences, 3 schools/educational facilities, and 5 places of worship in Phase 2; and 478 uninsulated residences, 3 schools/educational facilities, and 5 places of worship in Phase 3. Additionally, Alternative C would have and potentially significant interior noise impact to 4 insulated residences in Phase 1 and 33 insulated residences in Phases 2 and 3. (S)		for insulation under the SIP (see N-3). **N3: Part 1, Evaluation:** When Mitigation Measures LU-1, N-1, or N-2 determines that a noise sensitive use is significantly impacted based on measured noise levels and the relevant significance thresholds, that use will be evaluated by JWA for eligibility for sound insulation. **Part 2, Sound Insulation Program:** Schools or residences that have interior noise levels satisfying the FAA criteria described in Chapter 812 of Order 5100.38C Airport Improvement Program Handbook shall be provided sound insulation.	
4.6-3: Would the project generate traffic noise that would cause any one of the following noise increases? • 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. • An increase of 5.0 CNEL or more at a sensitive receptor where the existing exposure is between 45 and 60 CNEL. • A noise increase of any magnitude at a sensitive receptor in the City of Newport Beach if the noise level is 75 CNEL or greater.	The Proposed Project would have less than significant traffic noise impacts. (LS)	Alternative A would have less than significant traffic noise impacts. (LS)	Alternative B would have less than significant traffic noise impacts. (LS)	Alternative C would have less than significant traffic noise impacts. (LS)	The No Project Alternative would have less than significant traffic noise impacts. (LS)	N/A	PP: LS A: LS B: LS C: LS NP: LS

TABLE 1-3
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold	Impact: Proposed Project	Impact: Alternative A	Impact: Alternative B	Impact: Alternative C	Impact: No Project Alternative	Mitigation Measure	Level Of Significance After Mitigation*
• A noise increase at a sensitive receptor in the City of Newport Beach of 1.0 dB or greater where the noise level is less than 75 CNEL, which is the most restrictive noise increase threshold applied by the City of Newport Beach (see Table 4.6-3).							
4.6-4 Expose persons to or generate excessive groundborne vibration or groundborne noise levels.	The Proposed Project would have a less than significant impact associated with groundborne vibration and noise. (LS)	Alternative A would have a less than significant impact associated with groundborne vibration and noise. (LS)	Alternative B would have a less than significant impact associated with groundborne vibration and noise. (LS)	Alternative C would have a less than significant impact associated with groundborne vibration and noise. (LS)	The No Project Alternative would have a less than significant impact associated with groundborne vibration and noise. (LS)	N/A	PP: LS A: LS B: LS C: LS NP: LS
PUBLIC SERVICES (Section 4.7)							
4.7-1: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: i. Fire protection? ii. Police protection?	**Fire Protection** The Proposed Project would result in less than significant impacts to fire protection services because the existing fire facilities would be able to accommodate the increase in demand for fire protection services (LS). **Police/Security Protection** The Proposed Project would result in less than significant impacts to police protection services because it would not interfere with the sheriff/ security response times and because existing facilities can accommodate the increased number of flights and passengers (LS).	**Fire Protection** Alternative A would result in less than significant impacts to fire protection services because the existing fire facilities would be able to accommodate the increase in demand for fire protection services (LS). **Police/Security Protection** Alternative A would result in less than significant impacts to police protection services because it would not interfere with the sheriff/ security response times and existing facilities can accommodate the increased number of flights and passengers (LS).	**Fire Protection** Alternative B would result in less than significant impacts to fire protection services because the existing fire facilities would be able to accommodate the increase in demand for fire protection services (LS). **Police/Security Protection** Alternative B would result in less than significant impacts to police protection services because it would not interfere with the sheriff/ security response times and because existing facilities can accommodate the increased number of flights and passengers (LS).	**Fire Protection** Alternative C would result in less than significant impacts to fire protection services because the existing fire facilities would be able to accommodate the increase in demand for fire protection services (LS). **Police/Security Protection** Alternative C would result in less than significant impacts to police protection services because it would not interfere with the sheriff/ security response times and because existing facilities can accommodate the increased number of flights and passengers (LS).	**Fire Protection** The No Project Alternative would result in less than significant impacts to fire protection services because the existing fire facilities would be able to accommodate the increase in demand for fire protection services (LS). **Police/Security Protection** The No Project Alternative would result in less than significant impacts to police protection services because it would not interfere with the sheriff/ security response times and because existing facilities can accommodate the increased number of flights and passengers (LS).	**Fire Protection** N/A **Police/ Security Protection** N/A	**Fire Protection** PP: LS A: LS B: LS C: LS NP: LS **Police/ Security Protection** PP: LS A: LS B: LS C: LS NP: LS

TABLE 1-3
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold	Impact					Mitigation Measure	Level Of Significance After Mitigation*
	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative		
TRANSPORTATION/TRAFFIC (Section 4.8)							
4.8-1: In the City of Irvine outside of the Irvine Business Complex ("IBC"), would the addition of Project-generated trips increase the ICU at a study intersection by 0.01 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F?	The addition of Proposed Project-generated trips would not increase the ICU by 0.01 or more of capacity, causing intersections in the City of Irvine outside of the Irvine Business Complex ("IBC") to change from an acceptable LOS D to LOS E or LOS F. (LS)	The addition of the Alternative A-generated trips would not increase the ICU by 0.01 or more of capacity, causing intersections in the City of Irvine outside of the Irvine Business Complex ("IBC") to change from an acceptable LOS D to LOS E or LOS F. (LS)	The addition of the Alternative B-generated trips would not increase the ICU by 0.01 or more of capacity, causing intersections in the City of Irvine outside of the Irvine Business Complex ("IBC") to change from an acceptable LOS D to LOS E or LOS F. (LS)	The addition of the Alternative C-generated trips would not increase the ICU by 0.01 or more of capacity, causing intersections in the City of Irvine outside of the Irvine Business Complex ("IBC") to change from an acceptable LOS D to LOS E or LOS F. (LS)	The addition of the No Project Alternative generated trips would not increase the ICU by 0.01 or more of capacity, causing intersections in the City of Irvine outside of the Irvine Business Complex ("IBC") to change from an acceptable LOS D to LOS E or LOS F. (LS)	N/A	PP: LS A: LS B: LS C: LS NP: LS
4.8-2: In the City of Irvine inside the IBC, would the addition of Project-generated trips increase the ICU at a study intersection by 0.01 or more of capacity, causing the intersection to change from an acceptable LOS E to LOS F?	The addition of Project-generated trips associated with the Proposed Project, Phase 3 would increases the ICU at a study intersection within the IBC by 0.01 or more of capacity, causing the intersection to change from an acceptable LOS E to LOS F. (S)	The addition of Project-generated trips associated with the Alternative A, Phase 3 would increases the ICU at a study intersection within the IBC by 0.01 or more of capacity, causing the intersection to change from an acceptable LOS E to LOS F. (S)	The addition of Project-generated trips associated with the Alternative B, Phase 3 would increases the ICU at two study intersection within the IBC by 0.01 or more of capacity, causing the intersection to change from an acceptable LOS E to LOS F. (S)	The addition of Project-generated trips associated with the Alternative C, Phase 3 would increases the ICU at two study intersection within the IBC by 0.01 or more of capacity, causing the intersection to change from an acceptable LOS E to LOS F. (S)	The addition of Project-generated trips associated with the No Project Alternative would not increases the ICU at a study intersection within the IBC by 0.01 or more of capacity, causing the intersection to change from an acceptable LOS E to LOS F. (LS)	**Alternatives PP, A–C** T-1: The County shall coordinate with the City of Irvine to fully fund converting the traffic signal at the intersection of MacArthur Boulevard/ Michelson Drive so it is fully operational prior to serving 12.5 MAP. T-5: Prior to JWA serving 12.5 MAP, the County shall coordinate with the City of Irvine to fully fund the cost of adding a northbound right-turn lane at the intersection of Von Karman Avenue and Alton Parkway.	PP: LS (Phases 1 and 2); S (Phase 3)* A: LS (Phases 1 and 2); S (Phase 3)* B: LS (Phases 1 and 2); S (Phase 3)* C: S* NP: LS * The mitigation measures would reduce the impact to LS; however, implementation is outside the jurisdiction and control of the County of Orange.
4.8-3: In the City of Irvine outside of the IBC, would the addition of Project-generated trips increase the ICU by 0.02 more at a study intersection operating at LOS E or F under baseline conditions?	The Proposed Project-generated trips would also not increases the ICU by 0.02 or more at a study intersection in the City of Irvine outside of the IBC operating at LOS E or F under baseline conditions. (LS)	The Alternative A-generated trips would also not increases the ICU by 0.02 or more at a study intersection in the City of Irvine outside of the IBC operating at LOS E or F under baseline conditions. (LS)	The Alternative B-generated trips would also not increases the ICU by 0.02 or more at a study intersection in the City of Irvine outside of the IBC operating at LOS E or F under baseline conditions. (LS)	The Alternative C-generated trips would also not increases the ICU by 0.02 or more at a study intersection in the City of Irvine outside of the IBC operating at LOS E or F under baseline conditions. (LS)	The No Project Alternative generated trips would also not increases the ICU by 0.02 or more at a study intersection in the City of Irvine outside of the IBC operating at LOS E or F under baseline conditions. (LS)	N/A	PP: LS A: LS B: LS C: LS NP: LS

TABLE 1-3
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold	Impact					Mitigation Measure	Level Of Significance After Mitigation*
	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative		
4.8-4: In the City of Irvine inside the IBC, would the addition of Project-generated trips increase the ICU by 0.02 more at a study intersection operating at LOS E or F under baseline conditions?	The Proposed Project-generated trips would not increase the ICU by 0.02 or more at a study intersection in the City of Irvine inside the IBC operating at LOS E or F under baseline conditions. (LS)	The Alternative A-generated trips would not increase the ICU by 0.02 or more at a study intersection in the City of Irvine inside the IBC operating at LOS E or F under baseline conditions. (LS)	The Alternative B-generated trips would not increase the ICU by 0.02 or more at a study intersection in the City of Irvine inside the IBC operating at LOS E or F under baseline conditions. (LS)	The Alternative C-generated trips would not increase the ICU by 0.02 or more at a study intersection in the City of Irvine inside the IBC operating at LOS E or F under baseline conditions. (LS)	The No Project Alternative generated trips would not increase the ICU by 0.02 or more at a study intersection in the City of Irvine inside the IBC operating at LOS E or F under baseline conditions. (LS)	N/A	PP: LS A: LS B: LS C: LS NP: LS
4.8-5: In the City of Newport Beach outside of the JWA Area shared with the City of Irvine, would the addition of Project-generated trips cause the LOS at a study intersection to change from LOS D to LOS E or F?	There are no locations in the City of Newport Beach outside of the JWA Area shared with the City of Irvine where the addition of Proposed Project-generated trips would cause the LOS at a study intersection to change from LOS D to LOS E or F. (LS)	There are no locations in the City of Newport Beach outside of the JWA Area shared with the City of Irvine where the addition of Alternative A-generated trips would cause the LOS at a study intersection to change from LOS D to LOS E or F. (LS)	There are no locations in the City of Newport Beach outside of the JWA Area shared with the City of Irvine where the addition of Alternative B-generated trips would cause the LOS at a study intersection to change from LOS D to LOS E or F. (LS)	There are no locations in the City of Newport Beach outside of the JWA Area shared with the City of Irvine where the addition of Alternative C-generated trips would cause the LOS at a study intersection to change from LOS D to LOS E or F. (LS)	There are no locations in the City of Newport Beach outside of the JWA Area shared with the City of Irvine where the addition of the No Project Alternative generated trips would cause the LOS at a study intersection to change from LOS D to LOS E or F. (LS)	**Alternatives B and C Only** T-2: Prior to JWA serving 15.0 MAP, the County shall coordinate with the City of Newport Beach to fully fund the cost of adding a fully functional second northbound left-turn lane at the intersection of Campus Drive / Airport Way.	PP: LS A: LS B: LS (Phases 1 and 2); S (Phase 3)* C: S* NP: LS * The mitigation measure would reduce the impact to LS; however, implementation is outside the jurisdiction and control of the County of Orange.
4.8-6: In the City of Newport Beach inside the JWA Area shared with the City of Irvine, would the addition of Project-generated trips cause the LOS at a study intersection to change from an acceptable LOS E to LOS F?	There are no locations in the City of Newport Beach inside the JWA Area shared with the City of Irvine where the addition of Proposed Project-generated trips would cause the LOS at a study intersection to change from an acceptable LOS E to LOS F. (LS)	There are no locations in the City of Newport Beach inside the JWA Area shared with the City of Irvine where the addition of Alternative A-generated trips would cause the LOS at a study intersection to change from an acceptable LOS E to LOS F. (LS)	There are no locations in the City of Newport Beach inside the JWA Area shared with the City of Irvine where the addition of Alternative B-generated trips would cause the LOS at a study intersection to change from an acceptable LOS E to LOS F. (LS)	There are no locations in the City of Newport Beach inside the JWA Area shared with the City of Irvine where the addition of Alternative C-generated trips would cause the LOS at a study intersection to change from an acceptable LOS E to LOS F. (LS)	There are no locations in the City of Newport Beach inside the JWA Area shared with the City of Irvine where the addition of the No Project Alternative generated trips would cause the LOS at a study intersection to change from an acceptable LOS E to LOS F. (LS)	N/A	PP: LS A: LS B: LS C: LS NP: LS
4.8-7: In the City of Newport Beach outside of the JWA Area shared with the City of Irvine, would the addition of Project-generated trips increase the ICU by 0.010 or more at a study intersection operating at LOS E or F under baseline conditions?	The addition of Project-generated trips associated with the Proposed Project would result in the ICU of a study intersection in the City of Newport Beach, outside of the JWA Area shared with the City of Irvine, to increase by 0.010 or more at a location where the intersection is projected to	The addition of Project-generated trips associated with Alternative A would result in the ICU of a study intersection in the City of Newport Beach, outside of the JWA Area shared with the City of Irvine, to increase by 0.010 or more at a location where the intersection is projected to	The addition of Project-generated trips associated with Alternative B would result in the ICU of a study intersection in the City of Newport Beach, outside of the JWA Area shared with the City of Irvine, to increase by 0.010 or more at a location where the intersection is projected to operate at LOS E	The addition of Project-generated trips associated with Alternative C would result in the ICU of a study intersection in the City of Newport Beach, outside of the JWA Area shared with the City of Irvine, to increase by 0.010 or more at a location where the intersection is	The addition of Project-generated trips associated with the Project Alternative would result in the ICU of a study intersection in the City of Newport Beach, outside of the JWA Area shared with the City of Irvine, to increase by 0.010 or more	**Alternatives PP, A–C** T-3**:** Prior to serving 10.8 MAP, the County shall coordinate with the City of Newport Beach to fully fund the cost of adding a fully functional third southbound right-turn lane at the Campus Drive	PP: LS A: LS B: LS C: LS NP: LS

TABLE 1-3
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold	Impact					Mitigation Measure	Level Of Significance After Mitigation*
	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative		
	operate at LOS E or F under baseline conditions. (S)	operate at LOS E or F under baseline conditions. (S)	or F under baseline conditions. (S)	projected to operate at LOS E or F under baseline conditions. (S)	at a location where the intersection is projected to operate at LOS E or F under baseline conditions. (S)	and Bristol Street North intersection.	
4.8-8: In the City of Newport Beach inside of the JWA Area shared with the City of Irvine, would the addition of Project-generated trips increase the ICU by 0.010 or more at a study intersection operating at LOS F under baseline conditions?	There are no locations in the City of Newport Beach inside of the JWA Area shared with the City of Irvine where the addition of Proposed Project-generated trips would increase the ICU by 0.010 or more at a study intersection operating at LOS F under baseline conditions. (LS)	There are no locations in the City of Newport Beach inside of the JWA Area shared with the City of Irvine where the addition of Alternative A-generated trips would increase the ICU by 0.010 or more at a study intersection operating at LOS F under baseline conditions. (LS)	There are no locations in the City of Newport Beach inside of the JWA Area shared with the City of Irvine where the addition of Alternative B-generated trips would increase the ICU by 0.010 or more at a study intersection operating at LOS F under baseline conditions. (LS)	There are no locations in the City of Newport Beach inside of the JWA Area shared with the City of Irvine where the addition of Alternative C-generated trips would increase the ICU by 0.010 or more at a study intersection operating at LOS F under baseline conditions. (LS)	There are no locations in the City of Newport Beach inside of the JWA Area shared with the City of Irvine where the addition of the No Project Alternative generated trips would increase the ICU by 0.010 or more at a study intersection operating at LOS F under baseline conditions. (LS)		PP: LS A: LS B: LS C: LS NP: LS
4.8-9: Would the addition of Project-generated trips cause the LOS at a study intersection within the City of Costa Mesa to change from LOS D to LOS E or F?	The additional trips generated by the Proposed Project (all phases) would not cause the LOS at any study intersections in the City of Costa Mesa to change from LOS D to LOS E or F. The impacts would be less than significant pursuant to this threshold (LS).	The additional trips generated by Alternative A (all phases) would not cause the LOS at any study intersections in the City of Costa Mesa to change from LOS D to LOS E or F. The impacts would be less than significant pursuant to this threshold (LS).	The additional trips generated by Alternative B (all phases) would not cause the LOS at any study intersections in the City of Costa Mesa to change from LOS D to LOS E or F. The impacts would be less than significant pursuant to this threshold (LS).	The additional trips generated by Alternative C, Phase 3 would cause the LOS at a study intersection in the City of Costa Mesa to change from LOS D to LOS E. This would be a significant impact pursuant to this threshold (LS).	The additional trips generated by the No Project Alternative (all phases) would not cause the LOS at any study intersections in the City of Costa Mesa to change from LOS D to LOS E or F. The impacts would be less than significant pursuant to this threshold (LS).	**Alternative C Only** T-4: Prior to serving 16.9 MAP, the County shall coordinate with the City of Costa Mesa to fully fund the cost of adding a fully operational traffic signal at the Santa Ana Avenue and Del Mar Avenue intersection.	PP: LS A: LS B: LS C: LS (Phases 1 and 2); S (Phase 3)* NP: LS * The mitigation measures would reduce the impact to LS; however, implementation is outside the jurisdiction and control of the County of Orange.
4.8-10: Would the addition of Project-generated trips cause the LOS at a study intersection within Caltrans to degrade from LOS A, B, C, or D to LOS E or F (as measured by the application of the HCM methodologies)?	The addition of Proposed Project-generated trips would not cause the LOS at study intersections within Caltrans jurisdiction to degrade from LOS A, B, C, or D to LOS E or F. (LS)	The addition of Alternative A-generated trips would not cause the LOS at study intersections within Caltrans jurisdiction to degrade from LOS A, B, C, or D to LOS E or F. (LS)	The addition of Alternative B-generated trips would not cause the LOS at study intersections within Caltrans jurisdiction to degrade from LOS A, B, C, or D to LOS E or F. (LS)	For all phases, the addition of Alternative C-generated trips would not cause the LOS at study intersections within Caltrans jurisdiction to degrade from LOS A, B, C, or D to LOS E or F. (LS)	For all phases, the addition of the No Project Alternative-generated trips would not cause the LOS at study intersections within Caltrans jurisdiction to degrade from LOS A, B, C, or D to LOS E or F. (LS)		PP: LS A: LS B: LS C: LS NP: LS

TABLE 1-3
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold	Impact					Mitigation Measure	Level Of Significance After Mitigation*
	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative		
4.8-11: Would the addition of Project-generated trips cause a 2 second or greater increase in delay at a study intersection within Caltrans (as measured by the application of HCM methodologies), where the intersection operates at LOS E or LOS F prior to the addition of Project traffic?	The addition of Proposed Project-generated trips would not cause a two second or greater increase in delay at a study intersection within Caltrans jurisdiction where the intersection operates at LOS E or LOS F prior to the addition of Proposed Project traffic. (LS)	The addition of Alternative A-generated trips would not cause a two second or greater increase in delay at a study intersection within Caltrans jurisdiction where the intersection operates at LOS E or LOS F prior to the addition of Alternative A traffic. (LS)	The addition of Alternative B-generated trips would not cause a two second or greater increase in delay at a study intersection within Caltrans jurisdiction, where the intersection operates at LOS E or LOS F prior to the addition of Alternative B traffic. (LS)	The addition of Alternative C-generated trips would not cause a two second or greater increase in delay at a study intersection within Caltrans jurisdiction, where the intersection operates at LOS E or LOS F prior to the addition of Alternative C traffic. (LS)	The addition of No Project Alternative-generated trips would not cause a two second or greater increase in delay at a study intersection within Caltrans jurisdiction where the intersection operates at LOS E or LOS F prior to the addition of No Project Alternative traffic. (LS)		PP: LS A: LS B: LS C: LS NP: LS
4.8-12: Would the addition of Project-generated trips increase the traffic on a freeway mainline, freeway ramp, or merge/diverge section by 2 percent or more, and causes the LOS to degrade from LOS A, B, C, or D to LOS E or F?	The addition of Proposed Project-generated trips would not increase the traffic volume on a freeway mainline, freeway ramp, or merge/diverge section by 2 percent or more, and cause the LOS to degrade from LOS A, B, C, or D to LOS E or F. (LS)	The addition of Alternative A-generated trips would not increase the traffic volume on a freeway mainline, freeway ramp, or merge/diverge section by 2 percent or more and cause the LOS to degrade from LOS A, B, C, or D to LOS E or F. (LS)	The addition of Alternative B-generated trips would not increase the traffic volume on a freeway mainline, freeway ramp, or merge/diverge section by 2 percent or more, and causes the LOS to degrade from LOS A, B, C, or D to LOS E or F. (LS)	Traffic generated by all phases of Alternative C would increase the traffic volume by more than 2 percent on a Caltrans freeway facility and contribute to the LOS being reduced from LOS D to LOS F. (S)	The addition of No Project Alternative-generated trips would not increase the traffic volume on a freeway mainline, freeway ramp, or merge/diverge section by 2 percent or more and cause the LOS to degrade from LOS A, B, C, or D to LOS E or F. (LS)		PP: LS A: LS B: LS C: S NP: LS
4.8-13: Would the addition of Project-generated trips increase the traffic on a freeway mainline, freeway ramp, or merge/diverge section by 2 percent or more on a facility operating at LOS E or F prior to the addition of Project traffic?	Traffic generated by the Proposed Project, Phases 2 and 3 would increase traffic volume by more than 2 percent on a Caltrans freeway facility operating at LOS E or F prior to the addition of Proposed Project traffic. This would be a significant cumulative impact. (S)	Traffic generated by Alternative A, Phase 3 would increase the traffic volume by more than 2 percent on a Caltrans freeway facility operating at LOS E or F prior to the addition of Alternative A traffic. This would be a significant cumulative impact. (S)	Traffic generated by Alternative B, Phases 2 and 3 would increase the traffic volume by more than 2 percent on a Caltrans freeway facility operating at LOS E or F prior to the addition of Alternative B traffic. This would be a significant cumulative impact. (S)	All phases of Alternative C would increase the traffic volume by more than 2 percent on a Caltrans freeway facility operating at LOS E or F prior to the addition of Alternative C traffic. This would be a significant cumulative impact. (S)	None of the phases of the No Project Alternative increase the traffic volume by more than 2 percent on a Caltrans facility operating at LOS E or F prior to the addition of No Project Alternative traffic. (LS)		PP: LS (Phase 1); S (Phases 2 and 3) A: LS (Phases 1 and 2); S (Phase 3) B: LS (Phase 1); S (Phases 2 and 3) C: S NP: LS
4.8-14: Would the addition of Project-generated trips cause the LOS at a study intersection in the Orange County Transportation Authority Congestion Management Program to change from an acceptable LOS E to LOS F?	Proposed Project-generated trips would not cause the LOS at a study intersection under the jurisdiction of OCTA CMP to change from an acceptable LOS E to LOS F. (LS)	Alternative A-generated trips would not cause the LOS at a study intersection under the jurisdiction of OCTA CMP to change from an acceptable LOS E to LOS F. (LS)	Alternative B-generated trips would not cause the LOS at a study intersection under the jurisdiction of OCTA CMP to change from an acceptable LOS E to LOS F. (LS)	Alternative C-generated trips would not cause the LOS at a study intersection under the jurisdiction of OCTA CMP to change from an acceptable LOS E to LOS F.	The No Project Alternative-generated trips would not cause the LOS at a study intersection under the jurisdiction of OCTA CMP to change from an acceptable LOS E to LOS F. (LS)		PP: LS A: LS B: LS C: LS NP: LS

TABLE 1-3
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold	Impact					Mitigation Measure	Level Of Significance After Mitigation*
	Proposed Project	**Alternative A**	**Alternative B**	**Alternative C**	**No Project Alternative**		
4.8-15: Would the addition of Project-generated trips increase the ICU by 0.10 or more at a study intersection in the Orange County Transportation Authority Congestion Management Program operating at LOS F under baseline conditions?	Proposed Project-generated trips would not increase the ICU by 0.10 or more at a CMP study intersection operating at LOS F under baseline conditions. (LS)	Alternative A-generated trips would not increase the ICU by 0.10 or more at a CMP study intersection operating at LOS F under baseline conditions. (LS)	Alternative B-generated trips would not increase the ICU by 0.10 or more at a CMP study intersection operating at LOS F under baseline conditions. (LS)	Alternative C-generated trips would not increase the ICU by 0.10 or more at a CMP study intersection operating at LOS F under baseline conditions. (LS)	The No Project Alternative-generated trips would not increase the ICU by 0.10 or more at a CMP study intersection operating at LOS F under baseline conditions. (LS)		PP: LS A: LS B: LS C: LS NP: LS
4.8-16: Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?	The Proposed Project would increase the number of flights at JWA; however, it would not change the air traffic patterns or a change in location. Therefore, the potential for a substantial increase in safety risks is less than significant (LS).	Alternatives A would increase the number of flights at JWA; however, it would not change the air traffic patterns or a change in location. Therefore, the potential for a substantial increase in safety risks is less than significant (LS).	Alternatives B would increase the number of flights at JWA; however, it would not change the air traffic patterns or a change in location. Therefore, the potential for a substantial increase in safety risks is less than significant (LS).	Alternatives C would increase the number of flights at JWA; however, it would not change the air traffic patterns or a change in location. Therefore, the potential for a substantial increase in safety risks is less than significant (LS).	The No Project Alternative would increase the number of flights at JWA; however, it would not change the air traffic patterns or a change in location. Therefore, the potential for a substantial increase in safety risks is less than significant. (LS).		PP: LS A: LS B: LS C: LS NP: LS
UTILITIES AND SERVICE SYSTEMS (Section 4.9)							
4.9-1: Would the project exceed the wastewater treatment requirements of the applicable Regional Water Quality Control Board ("RWQCB").	The Proposed Project would not exceed the wastewater treatment requirements of the Santa Ana RWQCB. (LS)	Alternative A would not exceed the wastewater treatment requirements of the Santa Ana RWQCB. . (LS)	Alternative B would not exceed the wastewater treatment requirements of the Santa Ana RWQCB. (LS)	Alternative C would not exceed the wastewater treatment requirements of the Santa Ana RWQCB. (LS)	The No Project Alternative would not exceed the wastewater treatment requirements of the Santa Ana RWQCB. (NI)	N/A	PP: LS A: LS B: LS C: LS NP: NI
4.9-2: 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.	The Proposed Project would not require the construction of new water or wastewater treatment facilities or the expansion of existing facilities (LS).	Alternative A would not require the construction of new water or wastewater treatment facilities or the expansion of existing facilities (LS).	Alternative B would not require the construction of new water or wastewater treatment facilities or the expansion of existing facilities (LS).	Alternative C would not require the construction of new water or wastewater treatment facilities or the expansion of existing facilities (LS).	The No Project Alternative would not require the construction of new water or wastewater treatment facilities or the expansion of existing facilities (LS).	N/A	PP: LS A: LS B: LS C: LS NP: LS
4.9-3: Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or new or expanded entitlements would be needed.	The Proposed Project would result in less than significant impacts related to water supplies or the need for new or expanded water treatment facilities. (LS).	Alternative A would result in less than significant impacts related to water supplies or the need for new or expanded water treatment facilities. (LS).	Alternative B would result in less than significant impacts related to water supplies or the need for new or expanded water treatment facilities. (LS).	Alternative C would result in less than significant impacts related to water supplies or the need for new or expanded water treatment facilities. (LS).	The No Project Alternative would result in less than significant impacts related to sufficient water supplies or the need for new or expanded water treatment facilities. (LS).	N/A	PP: LS A: LS B: LS C: LS NP: LS

TABLE 1-3
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE

Threshold	Impact					Mitigation Measure	Level Of Significance After Mitigation*
	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative		
4.9-4: 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.	The Proposed Project would not exceed the wastewater flow allocations assumed by OCSD for the Airport. (LS)	Alternative A would not exceed the wastewater flow allocations assumed by OCSD for the Airport. (LS)	Alternative B Phase 3 would exceed the wastewater flow allocations assumed by OCSD for the Airport. (S)	Alternative C would exceed the wastewater flow allocations assumed by OCSD for the Airport. (S)	The No Project Alternative would not exceed the wastewater flow allocations assumed by OCSD for the Airport. (NI)	**Alternatives B–C** U-1:The County shall coordinate with the OCSD to determine and fund improvements required prior to allocating flights that would result in wastewater discharge in excess of that which corresponds to 12.96 MAP until improvements are completed or the OCSD confirms capacity is available.	PP: LS A: LS B: LS (Phases 2 and 3); S (Phase 3)* C: S * NP: NI * The mitigation measure would reduce the impact to LS; however, implementation is outside the jurisdiction and control of the County of Orange
WATER QUALITY (Section 4.10)							
4.10-1: Would the project violate any water quality standards or waste discharge requirements?* **4.10-2:** 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? **4.10-3:** Would the project otherwise substantially degrade water quality?	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 (LS).	Alternative A 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 (LS).	Alternative B 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 (LS).	Alternative C 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 (LS).	The No Project Alternative 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 (LS).	N/A	PP: LS A: LS B: LS C: LS NP: LS

* PP: Proposed Project; A: Alternative A; B: Alternative B; C: Alternative C; NP: No Project Alternative; LS: Less than Significant Impact; S: Significant Impact; NI: No Impact; IND: Indeterminable.

N/A: Not applicable/no mitigation measures; CDFW: California Department of Fish and Wildlife; USFWS: U.S. Fish and Wildlife Service; NCCP/HCP: Natural Communities Conservation Plan/Habitat Conservation Plan; GHG: greenhouse gas; CNEL: Community Noise Equivalent Level; FAA: Federal Aviation Administration; NMS: Noise Monitoring Station; RWQCB: Regional Water Quality Control Board; SIP=Sound Insulation Program.

1.12 REFERENCES

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2.0 INTRODUCTION, PROJECT HISTORY, AND SETTING

2.1 PURPOSE OF THIS ENVIRONMENTAL IMPACT REPORT

The California Environmental Quality Act ("CEQA") (*California Public Resources Code* ["PRC"] §21002.1) states that the purpose of an environmental impact report ("EIR") is to identify the significant effects of a project on the environment, and to indicate the manner in which those significant impacts can be mitigated or avoided. A detailed description of the proposed John Wayne Airport ("JWA" or "the Airport") Settlement Agreement Amendment ("Project") is provided in Section 3.0, Project Description, of this Draft EIR.

The Project requires approval of certain discretionary actions by the County of Orange ("County"). Therefore, in accordance with PRC Section 21080, the Project is subject to environmental review under CEQA. For purposes of complying with CEQA, the County of Orange is the Lead Agency for the Project.

In accordance with Section 15121(a) of the State CEQA Guidelines, this EIR is an informational document that will inform public agency decision makers and the general public of (1) the significant environmental effects of the Project; (2) possible ways to minimize the significant effects; and (3) reasonable alternatives to the Project. Thus, the EIR is an important document that is ultimately used by decision makers when considering whether or not to approve, deny, or modify the Project.

This EIR has been prepared in accordance with CEQA (PRC §21000 et seq.) and the State CEQA Guidelines (Title 14, *California Code of Regulations* ["CCR"] Section 15000 et seq.). Section 15151 of the State CEQA Guidelines defines the standards of adequacy for an EIR:

> An EIR should be prepared with a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.

This Draft EIR is intended to serve as a Project EIR under CEQA. Section 15161 of the State CEQA Guidelines states that a Project EIR should focus primarily on changes in the environment that would result from development of a project. A Project EIR must examine all phases of a project, including planning, construction, and operation. This Project EIR is intended to provide the environmental information necessary for the County to make a final decision on the requested entitlements for this Project. This EIR is also intended to support discretionary reviews and decisions by other agencies.

2.2 ENVIRONMENTAL REVIEW PROCESS

In accordance with Section 15063(a) of the State CEQA Guidelines, the County prepared an Initial Study for the Project and determined that the Project may have a significant effect on the environment; as such, an EIR is required for the Project.

In compliance with Section 15082 of the State CEQA Guidelines, the County oversaw preparation of the Notice of Preparation ("NOP") of the Draft EIR for the Project, which was distributed on October 1, 2013, to the State Clearinghouse and other public agencies for the required 30-day review and comment period. Additionally, a Scoping Meeting was held on October 17, 2013, at the JWA Airport Commission Meeting Room to facilitate agency and public review and comment on the Project. The NOP, comments received on the NOP by the County, and Scoping Meeting transcript and comments are provided in Appendix A of this Draft EIR.

Based on the NOP and related Initial Study Environmental Checklist, as well as the comments received by the County on those documents, this Draft EIR analyzes the following environmental topics:

- Air Quality
- Biological Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Land Use and Planning
- Noise
- Public Services
- Transportation/Traffic
- Utilities and Service Systems (water and wastewater services)
- Water Quality

This Draft EIR was prepared under the direction and supervision of the County of Orange/JWA, and will be circulated for a 45-day public review and comment period, as mandated by the State CEQA Guidelines (14 CCR Section 15105). During the public review period, there will be two public meetings. The first meeting will be held on May 28, 2014 at Hewes Middle School in the City of Tustin and the second meeting will be held on May 29, 2014 at the JWA Administrative Offices, in the Airport Commission hearing room. Both of these meetings will provide the public an opportunity to provide input on the EIR and to ask questions about the Project.[1] Any time during the public review period, written comments concerning the adequacy of the document can be submitted by interested public agencies and members of the public to:

John Wayne Airport
Attn: Lea Choum
3160 Airway Avenue
Costa Mesa, California 92626
or via email to DEIR617@ocair.com

[1] Hewes Middle School is located at 13232 Hewes Avenue in Tustin. The JWA Administrative Offices are located at 3160 Airway Avenue in Costa Mesa. The meeting logistics will be provided on the John Wayne Airport website, www.ocair.com.

After the public review comment period, written responses to all written comments and oral testimony pertaining to environmental issues will be prepared as part of the Final EIR. As required by CEQA, responses to comments submitted by responsible public agencies will be distributed to those agencies for review at least ten days prior to consideration of the Final EIR by the Orange County Planning Commission, which will make a recommendation on the adequacy of the EIR to the Orange County Board of Supervisors. A public hearing will be held before the Orange County Planning Commission to consider the Project and the adequacy of the Final EIR, at which time public testimony will be received. A public meeting before the Orange County Airport Commission regarding the Project will also be held. The Airport Commission will also make a recommendation on the Project to the Board of Supervisors.

The Orange County Board of Supervisors is the decision-making body for the Project. The Board of Supervisors will consider whether to certify the EIR and to adopt findings relative to the Project's environmental effects. It will then take action to recommend outright approval, conditional approval, or denial of the Project. The County's approval of the Project would be contingent upon the City Council of Newport Beach and the governing boards of Stop Polluting Our Newport ("SPON") and Airport Working Group ("AWG") approving and executing the agreed upon amendment to the Settlement Agreement. The City of Newport Beach is a responsible agency and the Newport Beach City Council will use the Final EIR as the CEQA compliance document for its decision on the amendment of the Settlement Agreement.

Assuming all of the signatories (as defined in Section 2.3.1, below) approve the Project and execute the amendment to the Settlement Agreement, the amendment would be submitted to the U.S. District Court, Central District of California, with request to approve the same. In addition, although Federal Aviation Administration ("FAA") approval of the Settlement Agreement or its amendments is not required, the County will coordinate with the FAA regarding the Proposed Project's standing under the Airport Noise and Capacity Act of 1990 ("ANCA"), as well as the Airport's grant assurances and other federal laws. The FAA will not provide approvals, but rather provide advice and opinion regarding the application of established statutory and regulatory laws to the Proposed Project. No FAA approvals or federal funding are required to implement the Proposed Project.

2.3 PROJECT HISTORY

JWA is owned and operated by the County of Orange and is currently the only commercial service airport in Orange County. In 1963, the Orange County Board of Supervisors adopted the first master plan for the development of JWA. Major recommendations of this plan were the reorientation of the runway to reduce flights over the Costa Mesa area, and the addition of a shorter runway for smaller aircraft. The implementation of these recommendations resulted in the runway configuration that exists today. In addition to the runway modifications, the old administration/control tower was demolished and replaced with a new FAA tower located at the west end of the airfield. The revamped Airport opened its runways to traffic in 1965, serving more than 45,000 passengers annually. In 1967, a new terminal building was constructed that could handle 400,000 annual passengers. By 1968, the new terminal building was handling nearly 750,000 annual passengers, almost double its design capacity.

In 1985, over 3.2 million passengers were served at JWA. In response to the need for additional airline service in the County, the Orange County Board of Supervisors approved a Master Plan

for facility improvements (February 1985), an airline access plan, and an associated Land Use Compatibility Plan.

In April 1985, the County, acting as the proprietor and operator of JWA, adopted the Master Plan ("the 1985 Master Plan") for further development of physical facilities at the Airport and an increase in previously imposed limits on certain aircraft operations. In connection with the consideration and adoption of the 1985 Master Plan, the County prepared, circulated, and certified County EIR 508. The 1985 Master Plan allowed for the construction of new terminal facilities (the Thomas F. Riley Terminal which opened in 1990).

2.3.1 SETTLEMENT AGREEMENT BACKGROUND

Following adoption of the 1985 Master Plan and the certification of EIR 508, litigation related to the Master Plan and EIR 508 was initiated by the County in the United States District Court for the Central District of California, and by the City of Newport Beach and two citizens groups (Stop Polluting Our Newport ["SPON"] and the Airport Working Group ["AWG"]) in Orange County Superior Court. In addition, in April 1985, there was then pending in the California Court of Appeals for the Fourth District an appeal by the County from an earlier trial court ruling made under CEQA in respect to an earlier Master Plan for JWA adopted by the County in 1981, and its related EIR ("EIR 232").

In the summer of 1985, the County of Orange, the City of Newport Beach, SPON, and AWG (i.e., "the signatories") reached a comprehensive agreement settling all pending actions and claims related to the 1985 Master Plan and EIR 508, as well as the pending appeal on the 1981 Master Plan/EIR 232 litigation. The agreement is commonly referred to as the "settlement agreement". This agreement was memorialized in a series of stipulations signed and filed in each corresponding court (i.e., courts where those actions were then pending). The principal stipulation memorializing the substantive terms of the parties' settlement agreement was filed in the federal court action initiated by the County for the 1985 Master Plan and EIR 508. The stipulation was accepted and confirmed by an order of the District Court after a hearing in December 1985. The original term of the settlement stipulation required that it remain in effect through December 31, 2005.

Subsequent to the 1985 approval of the Settlement Agreement, ANCA went into effect, which limits an airport operator's right to impose new restrictions on aircraft operations without obtaining federal approval. Because of the 1985 Settlement Agreement, JWA's noise and access restrictions are "grandfathered" under ANCA. As discussed further below, in 2003, the County of Orange and the signatories agreed to extend the Settlement Agreement for an additional 10 years (through December 31, 2015) in order to maintain the restrictions' ANCA exemption status. And, recognizing that the expiration of the Settlement Agreement in 2015 (absent further amendment) may eliminate the restrictions' "grandfathered" status under ANCA, and thereby potentially result in the County's inability to retain the current restrictions on operations, the County of Orange and the signatories presently are evaluating the proposed Settlement Agreement Amendment.

The following sections provide an overview of the principal terms of the Settlement Agreement and discussion of ANCA.

PRINCIPAL TERMS OF THE ORIGINAL SETTLEMENT AGREEMENT

The 1985 Settlement Agreement required certain modifications to various mitigation measures originally adopted by the County at the time it certified EIR 508. The principal terms of the 1985 Settlement Agreement related to restrictions and limitations on aircraft operations and commercial passenger facilities, as summarized below:

1. During Phase I, the County will not permit or allocate to commercial air carriers more than 39 annual Average Daily Departures ("ADDs") by Class A[2] aircraft, and 55 ADDs by Class A and Class AA aircraft. During Phase II, the County will not permit or allocate to commercial air carriers more than 39 annual ADDs by Class A aircraft, and 73 ADDs by Class A and Class AA aircraft.

2. The County will not permit operations by any aircraft that generate single event noise levels at specified monitoring station locations greater than the noise levels specified in the Agreement and its subsequent amendments (essentially, the Class A aircraft noise limitations).

3. In any "Plan Year" (April 1–March 31),[3] the County will not permit more than 4.75 and 8.4 million annual passengers ("MAP") to be served by scheduled commercial operators at JWA during Phase I and Phase II, respectively.[4]

4. The Agreement includes various square footage limitations pertaining to the commercial passenger terminal, including total terminal size (337,900 square feet), leasable interior floor space (271,000 square feet) and departure lounge holding areas (37,000 square feet).

5. The Agreement limits the number and type of buildings at JWA that may be used by commercial or commuter air carriers for passenger or baggage handling operations.

6. The Agreement limits the size and configuration of the passenger terminal departure lounge holding areas.

7. The Agreement permits a maximum of 14 loading bridges, of which no more than nine may be sized for aircraft as large as the Boeing 767. The remaining five loading bridges were to be designed for aircraft no larger than the Boeing 757. Each bridge is limited to serving one flight at a time.

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2 At the time the Settlement Agreement was entered into, the ADDs at JWA were divided into three "classes" based on the noise characteristics of the aircraft on departure. The Class A flights are the noisiest. The next quietest class of ADDs is designated as Class AA. The quietest class is Class E.

The Class E flights do not have a maximum number of flights allowed because they are below the regulatory noise levels established in EIR 508 (86.0 decibels ["dB"] on the Single Event Noise Equivalent Level ["SENEL"]). However, the number of passengers on Class E flights does count toward the maximum million annual passengers ("MAP") allowed by the Settlement Agreement.

3 In 2012, the Plan Year definition was amended to correspond to the calendar year (i.e., January through December).

4 When counting the MAP, each passenger arriving or departing on a commercial air carrier is counted as separate passenger. Therefore, an individual taking a round trip from JWA would count as two passenger trips in calculation of the MAP.

8. The Agreement limits public parking spaces to a maximum of 8,400 spaces, not including spaces contained in the existing runway 19R North Clear Zone (i.e., "Main Street lot"). Parking structures may not be more than four levels in height.

9. The then-existing curfew regulations and hours and the related single event noise level limitations contained in the County's General Aviation Noise Ordinance ("GANO") (County Ordinance 3505) must remain in effect.

10. The County must maintain in effect an ordinance that meets the basic policy objectives outlined in the GANO, as it existed at the time of the agreement.

The principal terms of the 1985 Settlement Agreement contemplated that the enumerated restrictions and limitations would be in place at JWA through December 31, 2005.

2.3.2 MINOR MODIFICATIONS TO THE SETTLEMENT AGREEMENT

Since 1985, the signatories have executed various stipulations making minor modifications to the 1985 Settlement Agreement. One group of these subsequent stipulations occurred in 1995, which allowed the County to allocate two additional Class A ADDs to commercial air cargo carriers. This increased the total number of commercial Class A ADDs allowed under the settlement stipulation. Another group of subsequent stipulations occurred in 1997; these amendments modified maximum permitted single event noise limits at various noise monitoring station locations to recognize and accommodate changes in the location of specific monitoring stations when new noise monitoring equipment was installed. These modifications were merely technical in nature and did not change the Airport's allowed noise characteristics.

2.3.3 2003 SETTLEMENT AGREEMENT AMENDMENT

On December 5, 2000, the Orange County Board of Supervisors, by a unanimous vote, directed the County Executive Officer or his designee to work with the City of Newport Beach to study the potential of extending certain restrictions at JWA beyond December 31, 2005. On May 22, 2001, the Board approved a Memorandum of Understanding ("MOU") between the County and the City for preparation of an EIR for these purposes. This EIR was designated as EIR 582, and was circulated for public review and comment pursuant to and consistent with the requirements of CEQA and the State CEQA Guidelines.

On June 25, 2002, the Board certified Final EIR 582 as adequate and complete and found that it contained all information required by CEQA, the State CEQA Guidelines, and the County Local CEQA Procedures Manual. In addition, the Board adopted statutorily required Findings of Fact, a Mitigation Monitoring and Reporting Plan ("MMRP"), and a Statement of Overriding Considerations consistent with the requirements of CEQA and the State CEQA Guidelines. At the same time, the Board authorized execution of an Amended Stipulation which had already gained approval from the other signatories.

Consistent with Board direction, JWA continued to engage in active discussions with incumbent and potential new entrant air carriers, the City, SPON, and AWG. In connection with discussions between the County and the airlines serving (or interested in serving) JWA, the airlines

requested certain capacity opportunities beyond those authorized by the Board action on June 25, 2002. Those were addressed in an Addendum to Final EIR 582, which the County prepared. The signatories approved modifications to the Settlement Agreement on December 10, 2002. The resulting "Settlement Agreement Amendment" and a related Addendum to Final EIR 582 ("Addendum 582-1") were accepted and approved by the Board. The modified Settlement Agreement was accepted by the signatories in early 2003; the United States District Court accepted the 2003 Amended Stipulation and modified the judgment to conform to the terms contained in the 2003 Settlement Agreement Amendment.

PRINCIPAL TERMS OF THE 2003 SETTLEMENT AGREEMENT AMENDMENT

The modifications to the 2003 Amended Stipulation continued the essential terms and conditions of the 1985 Settlement Agreement regarding the County's development and operation of JWA, with certain capacity-enhancing modifications, including those listed below.

1. Defining all regulated passenger flights as Class A flights and eliminating the Class AA aircraft definition/distinction. The definition/distinction for Class E aircraft remained unchanged.

2. Increasing the number of regulated flights allocated to passenger commercial carriers at JWA from 73 ADDs to 85 ADDs. The increased number of flights was permitted to start on January 1, 2003, with the limitation extending through December 31, 2015.

3. Increasing the MAP level served at JWA from 8.4 MAP to 10.3 MAP, from January 1, 2003, through December 31, 2010, and increasing the MAP level from 10.3 MAP to 10.8 MAP, beginning on January 1, 2011, through December 31, 2015.

4. Continuing to allow the permitted number of operations by "Exempt Aircraft" (i.e., Class E Aircraft) to be unlimited, except that the combined number of passengers served by Commuter Aircraft, Class E Aircraft, and Class A Aircraft in regularly scheduled commercial service will not exceed 10.3 MAP from January 1, 2003, through December 31, 2010, and 10.8 MAP from January 1, 2011, through December 31, 2015.

5. Increasing the number of cargo flights from 2 Class A ADD to a total of 4 Class A ADD cargo flights, for a combined total of 89 Class A ADDs (commercial and cargo flights), from January 1, 2003, through December 31, 2015.

6. Providing the passenger commercial carriers with the opportunity to use up to two of the Class A ADD cargo flights if there is no demand for these cargo flights by cargo air carriers.

7. Increasing the permitted number of commercial passenger loading bridges at JWA from 14 loading bridges to 20 loading bridges through December 31, 2015, and providing up to 2 hardstand positions[5] for aircraft arriving at the Airport.

As identified above, the 2003 Settlement Agreement Amendment allowed an increase in the number of regulated Class A flights; the number of passengers served at JWA to increase from 8.4 MAP to 10.8 MAP; and facility improvements. Though JWA does not currently serve the

[5] Hardstanding refers to when an aircraft is parked on the tarmac and passengers ingress and egress the aircraft from the tarmac rather than using a jetway.

allowed 10.8 MAP and not all the Class A ADD are being utilized, the impacts associated with all aspects of the 2003 Settlement Agreement Amendment were fully addressed and appropriate mitigation measures adopted as part of Final EIR 582. The facility improvements allowed under the 2003 Settlement Agreement Amendment, which included Terminal C, were largely completed in 2011.

Though the nature of the Project is similar to the 2003 Settlement Agreement Amendment, it is a distinct project pursuant to CEQA and, therefore, this standalone project-level EIR has been prepared. That being said, applicable information from Final EIR 582 has been incorporated by reference into Section 4.2, Biological Resources and Section 4.4, Hazards and Hazardous Materials of this EIR. The parameters of the incorporation by reference are provided in those sections.

2.3.4 AIRPORT LAND USE COMPATIBILITY PROGRAM

On February 23, 1972, the County adopted Resolution No. 72-204, which designated JWA to have a "noise problem," as that term is defined in Section 5020 of the California Noise Standards (21 CCR Sections 5000 et seq.). If an airport has been designated by the county to have a "noise problem," there can be no incompatible uses inside the noise contour line with a Community Noise Equivalent Level ("CNEL") value of 65 dB, unless the airport proprietor has applied for or received a variance pursuant to the California Noise Standards. A variance is essentially an administrative procedure that is included in the California Noise Standards to allow an airport proprietor to develop and implement programs to reduce the "noise impact area" around the airport. JWA has been granted five variances from Caltrans, Aeronautics Division, as follows: November 1974, December 1976, March 1979, July 1982, and June 1987. The County currently has a pending variance application with Caltrans consistent with the requirements of the California Noise Standards.

In 1984, to address the noise problem, the County of Orange prepared the Land Use Compatibility Program ("LUCP") for areas south of the Airport where existing residential uses experienced higher noise levels than those normally considered compatible with residential land uses. The study area included portions of what was then unincorporated Santa Ana Heights and certain neighborhoods within the City of Newport Beach. The purpose of the LUCP was to: (1) establish a program to achieve land use compatibility between projected noise levels at JWA and land uses in all affected areas; (2) develop a long-range plan for the unincorporated Santa Ana Heights area; and (3) ensure conformance with CCR Title 21, the Orange County General Plan, and Airport Land Use Commission policies.

In February 1985, the Board of Supervisors concurrently adopted the JWA Master Plan and the Santa Ana Heights LUCP. As a result of the analysis provided in the LUCP, the *Santa Ana Heights Specific Plan* ("SAHSP") was developed and approved by the Board of Supervisors in 1986. (The City of Newport Beach incorporated the SAHSP into their municipal code so that it would be applicable at the time of annexation for these County islands.) The SAHSP identified incompatible residential uses based upon the projected 65 dB CNEL for year 2005, as shown in Final EIR

508/Environmental Impact Statement ("EIS").[6] In order to implement the approved plan, a Land Use Element amendment was adopted that reclassified certain residential areas to employment and commercial uses. Properties fronting on South Bristol Street were redesignated as commercial or employment, while properties along Birch and Acacia Streets were redesignated to employment (i.e., business park) uses.

The SAHSP provided the land use regulations for implementing the LUCP specific to the approximately 450-acre area of the then unincorporated Santa Ana Heights community.[7] Objectives of the SAHSP included: (1) encouraging an upgrade of all residential neighborhoods; (2) ensuring that business park and residential uses and their impacts are adequately buffered from each other; (3) enhancing equestrian opportunities and the overall aesthetic character of the community; and (4) ensuring adequate provision of public facilities as development occurs. In order to meet State airport noise requirements in residential areas, the Orange County Board of Supervisors approved two noise compatibility programs: purchase assurance and acoustical insulation. In areas where residential uses were planned to be eliminated, the Board adopted amendments to the General Plan Land Use Element providing for land use conversion to business park uses. These non-conforming residential uses were not eligible for insulation. Since the adoption of the SAHSP, the residential uses within the Business Park zone have been reduced from approximately 12.5 acres in 1990 to approximately six acres in 2013. There are 76 uninsulated dwelling units remaining in this area.

The County completed the acoustical insulation program in the then-unincorporated Santa Ana Heights and the Anniversary Tract neighborhood in the City of Newport Beach for those residences that were willing to participate in the program. In conjunction with the installation of the acoustical insulation, avigation easements were granted to the County. The acoustical insulation program, together with the conversion of other residential uses to business park uses, are part of the noise reduction program implemented by JWA to reduce the noise impact area around the Airport.

2.4 AIRPORT NOISE AND CAPACITY ACT OF 1990

As mentioned above, subsequent to the 1985 Settlement Agreement, the U.S. Congress enacted the Airport Noise and Capacity Act of 1990 ("ANCA;" 49 U.S.C. §47521 et seq.). In the legislative findings, the U.S. Congress explained that "aviation noise management is crucial to the continued increase in airport capacity" because "community noise concerns have led to uncoordinated and inconsistent restrictions on aviation that could impede the national air transportation system." (49 U.S.C. §47521(1)-(2).) Therefore, the U.S. Congress emphasized that a "noise policy must be carried out at the national level." (49 U.S.C. §47521(3).)

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. That being said, a limited set of exemptions to the requirements of ANCA were provided upon ANCA's enactment. Here, ANCA's

[6] The 1985 environmental document was prepared as a joint EIR/EIS. The EIR is prepared pursuant to CEQA. An EIS is prepared pursuant to the National Environmental Policy Act ("NEPA") and was the required environmental compliance document for all federal approvals. Federal approvals are required when modifications to the airfield are proposed and actions that involved federal funding. For the current Project, no federal actions that require NEPA compliance are anticipated.

[7] Subsequent to the approval of the LUCP and the *Santa Ana Heights Specific Plan,* the area south of the Airport was annexed into the City of Newport Beach. The area east of Irvine Avenue was annexed in January 2002, and the area west of Irvine Avenue was annexed in January 2008 (Newport Beach 2010).

limitations do not apply to JWA's curfew, ADD and MAP limitations, etc. 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).) ANCA also provides that a "subsequent amendment" to the 1985 Settlement Agreement is not subject to ANCA provided that amendment "does not reduce or limit aircraft operations or affect aircraft safety." (49 U.S.C. §47524(d)(4).) Accordingly, this EIR refers to the 1985 Settlement Agreement (and subsequent amendments thereto) as being "grandfathered" under ANCA and free from the restrictions that ANCA otherwise would impose. In the event that the Settlement Agreement expires, other interested entities – including, but not limited to, the FAA and commercial air carriers – could initiate legal action challenging the maintenance of any noise and access restriction at JWA on the basis that such restrictions violate ANCA.

2.5 ENVIRONMENTAL SETTING

The Airport is an unincorporated County island surrounded by the cities of Newport Beach, Costa Mesa, and Irvine. An extensive arterial highway and freeway system surrounds the Airport, providing access from several locations. Freeway access to the Airport is provided via Interstate ("I") 405, State Route ("SR") 55, and SR-73. Arterial access to the terminal area is from MacArthur Boulevard and Campus Drive. Arterial access to the uses on the west side of the Airport is from Red Hill Avenue.

JWA serves both domestic and international destinations, with flights to Canada and Mexico. Total passengers through JWA peaked in 2007, when nearly 10.0 MAP used the Airport. Since 2007, passenger levels tapered to 8.6 MAP in 2011. Based on the 2012 Airport Facilities Comparison Survey, JWA served 8,857,944 passengers in 2012. This represents a three percent increase in passengers compared to 2011 (Hirsh Associates 2013). In 2013, JWA served 9.2 million passengers.[8] The Airport also serves commercial air cargo demands (i.e., Fed Ex and UPS). Air cargo tonnage at JWA was over 17,000 tons in 2013.

Facilities at the Airport include two runways: a 5,701-foot main runway and a 2,887-foot general aviation runway. The existing taxiway system is comprised of three parallel and a number of exit taxiways, which facilitate the movement of aircraft while on the ground at JWA. There is a "remain overnight" ("RON") parking apron located primarily south of the passenger terminal with some RON positions also located at the north end of the terminal building. The south apron area also serves all-cargo aircraft and cargo staging during daytime operating hours. The combined north and south RON facilities encompass approximately 56,000 square yards and 13 narrow-body parking positions. However, the north RON area is shared with the north commuter terminal. As a result, if three commuter aircraft are parked at the commuter terminal only one narrow-body RON space is available for a total of eleven spaces. Aircraft can also be parked at each of the 20 gates with passenger loading bridges.

The terminal building is one contiguous building encompassing 730,505 square feet and providing 20 passenger loading bridges. Several improvements and expansions have occurred

[8] The NOP identified that JWA currently served approximately 8.9 MAP. This estimate used data for the first six months of 2013 and projected the expected number of passengers to be served for the entire year. This estimate was updated to approximately 9.17 MAP as part of the *Aviation Forecasts Technical Report* (Appendix B) prepared for this Project. The updated projection used actual passenger data through August as the basis for projecting passenger levels through the end of 2013. The 9.17 MAP was used as the basis for the technical studies in this EIR since they were initiated prior to the end of 2013.

over time, with the most recent one being "Terminal C," completed November 2011, which added 282,000 square feet and 6 gates. The terminal includes security screening checkpoints, federal inspection services for international flights, baggage claim area, and ticket counters along with a variety of concessions, retail space for rental car companies and other ground transportation options. Commuter holdroom areas are located at the north and south end of the concourses, at Gates 1A, 1B, and 1C and Gates 22A, 22B, and 22C, respectively. These facilities are sized to accommodate three CRJ-700 (70-seat) aircraft each. Access to the commuter aircraft is from the tarmac and not via a passenger loading bridge.

In addition to scheduled commercial operations and activities, the Airport is home to general aviation. JWA is one of only two airports in the County which accommodate general aviation. JWA is served by two full service and two partial service fixed base operators and was home to 419 general aviation aircraft in 2013. The total general aviation based aircraft were relatively constant from 2003 through 2007. There was a decline in the number of aircraft in 2008, followed in 2009 with an increase which represented the peak number of based general aviation aircraft experienced over the last 10 years: 604. There has been a steady decline since 2009.

As shown on Exhibit 2-1, Existing On-Site Uses, other key facilities on the Airport include:

- Parking structures on the east side of the Airport that can accommodate 6,597 automobiles, in addition to 1,959 long-term parking spaces in the Main Street lot;
- An air traffic control tower on the west side of the Airport;
- An electrical co-generation facility located on the east side of the Airport;
- The Airport Rescue and Fire Fighting ("ARFF") facility (Station No. 33), operated by the Orange County Fire Authority ("OCFA"), located on the west side of the airfield adjacent to the air traffic control tower near Paularino Avenue.[9]
- An aviation fuel farm is located on the west side consisting of three aboveground tanks connected by an underground line to the hydrant system serving the air carrier gate positions on the terminal ramp.
- A general aviation fuel farm with underground tanks located on the southeast corner of the field. (The fuel farms are discussed in more detail in Section 4.5, Land Use.)
- An Airport maintenance facility located at the corner of Campus Drive and Bristol Street North. In addition, a new maintenance facility has been constructed on the west side of the Airport.
- The primary Airport administration offices located off the airfield at the corner of Paularino Avenue and Airway Avenue.

[9] A second fire station (Station No. 28), located one mile away in the City of Irvine on Gillette Avenue, northeast of the Airport, provides initial emergency medical response, rapid water rescue, and primary structural fire protection.



Aerial Source: Eagle Aerial 2012

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Existing On-Site Uses

Exhibit 2-1

John Wayne Airport Settlement Agreement Amendment

N W E S

0.25 0.125 0 0.25

Miles

JOHN WAYNE AIRPORT ORANGE COUNTY

In addition to the terminal and airfield area, the County of Orange/JWA owns property south of the Airport, which serves as a clear zone and has been developed as a golf course. Long-term and employee parking is located north of I-405.

The area surrounding the Airport is generally urban in character. Surrounding uses include industrial, commercial, and residential uses. The residential area is predominately south and southwest of the Airport. In addition, open space is located south of the Airport. The Upper Newport Bay is an important natural area that provides habitat to many wildlife species.

As part of its ongoing efforts to operate JWA in a manner sensitive to the residents who live under the approach and departure corridors, the County of Orange has developed one of the most stringent access and noise abatement programs in the country. To obtain data on the noise characteristics of Airport operations, the County has established a sophisticated Airport Noise Monitoring System ("ANMS"), which monitors aircraft noise levels and obtains accurate data regarding aircraft flight tracks and fleet mix. The noise levels of all commercial aircraft operations and many general aviation operations are recorded at 10 permanent noise monitoring stations ("NMS") around the Airport as part of the ANMS. The locations of the NMS are shown on Exhibit 4.6-9, provided in Section 4.6, Noise. That exhibit also shows the boundaries of the local jurisdictions. Three of the NMS are located in Santa Ana Heights (1S, 2S, and 3S), which has been annexed by the City of Newport Beach, four are located in the City of Newport Beach (4S, 5S, 6S, and 7S), one in Irvine (8N), one in Santa Ana (9N), and one in Tustin (10N).

The data from the ANMS is combined with data from other sources to permit unusually precise noise modeling. Radar trackings and noise levels measured at the NMS has produced very accurate depictions of flight tracks. Further, both CNEL and SENEL are monitored and calculated each day and for each aircraft. It is the noise level of the aircraft at the various NMS that determines if the flight is considered a regulated Class A flight or a Class E flight. For a flight to be considered a Class E flight, the noise readings at each of the NMS must be at or below 86.0 dB SENEL. There are aircraft that can operate as either a Class A (noisier flight) or a Class E flight dependent on the weight of the aircraft at takeoff. This is influenced by the number of passengers and amount of fuel on the flight.

The JWA Access and Noise Office is primarily responsible for monitoring compliance with and enforcing regulations regarding aircraft noise and operational restrictions. Two regulatory documents govern noise and operational capacity at JWA: (a) the Phase 2 Commercial Airline Access Plan and Regulation ("Access Plan"); and (b) the GANO. The Access Plan regulates commercial passenger and cargo carrier operations at JWA by placing limits on the hours of operation, maximum number of regulated average daily departures and annual passengers, and noise levels. The GANO details restrictions for general aviation (privately owned aircraft) operations. General aviation operations are permitted 24 hours a day subject to compliance with the daytime noise limits and the more restrictive nighttime noise limits. The Airport's maximum permitted noise levels for each NMS for commercial aircraft (Class A and Class E) and for general aviation (daytime and nighttime) are shown in Table 2-1 below.

TABLE 2-1
MAXIMUM PERMITTED NOISE LEVELS AT
JWA NOISE MONITORING STATIONS

Noise Monitoring Station	Commercial Aircraft		General Aviation	
	Class A	Class E	Daytime	Nighttime
NMS 1S	101.8 dB SENEL	93.5 dB SENEL	101.8 dB SENEL	86.8 dB SENEL
NMS 2S	101.1 dB SENEL	93.0 dB SENEL	101.1 dB SENEL	86.9 dB SENEL
NMS 3S	100.7 dB SENEL	89.7 dB SENEL	100.7 dB SENEL	86.0 dB SENEL
NMS 4S	94.1 dB SENEL	86.0 dB SENEL	NET	86.0 dB SENEL
NMS 5S	94.6 dB SENEL	86.6 dB SENEL	NET	86.0 dB SENEL
NMS 6S	96.1 dB SENEL	86.6 dB SENEL	NET	86.0 dB SENEL
NMS 7S	93.0 dB SENEL	86.0 dB SENEL	NET	86.0 dB SENEL
NMS 8N	NET	NET	NET	86.0 dB SENEL
NMS 9N	NET	NET	NET	86.0 dB SENEL
NMS 10N	NET	NET	NET	86.0 dB SENEL

Note: NET = no established threshold
Source: Freed 2014.

To monitor and enforce the noise and operational restrictions, the staff utilizes a state-of the-art noise monitoring system to track each and every one of the approximate 248,000 commercial and general aviation operations that occur each year at JWA. Aircraft noise is measured twenty-four hours a day, seven days a week by seven NMS located along the departure corridor and three on the arrival corridor. The NMS transmit noise events to the Access and Noise office, enabling the staff to have real-time data on these aircraft operations used for measurement and reporting of aircraft operation compliance with the regulations.

The Access and Noise staff also answers approximately 2,500 calls a year regarding aircraft operations, noise complaints and questions, and requests for information. Calls to the office during business hours are answered directly by the staff. Calls received after hours with a request for a return call are researched and called back, usually by the next business day. All noise complaints are entered into the noise database and the statistics are reported by community in the JWA Noise Program Quarterly Report, and made available to the public on the Airport's web site at http://www.ocair.com/reportspublications/AccessNoise/default.aspx.

2.6 REGULATORY SETTING

The regulation of airports and aircraft is subject to a wide range of federal, State, and local statutes and regulations.

The federal government exercises authority over much of the field, including a complete preemption of the regulation of aircraft in flight undertaken for noise control or noise reduction purposes. In brief, all regulatory authority over procedures used in the operation of aircraft in flight and the control and use of the navigable airspace of the United States is exclusively federal. In addition, the federal government has regulatory authority related to aircraft and aircraft engine emissions.

The State of California is presently limited in its regulation of aircraft noise to the application and enforcement of the California Noise Standards (which are a regulatory structure adopted by the California Department of Transportation ("Caltrans") under the authority of provisions of the *California Public Utilities Code* and which appear in Title 14 of the *California Code of Regulations*). The State also utilizes the provisions of the *California Public Utilities Code* to establish county-wide Airport Land Use Commissions ("ALUCs") to set standards for primarily off-airport development in locations sensitive to aircraft-related noise. These regulations are discussed in more detail in the noise effects section of this EIR (Section 4.6, Noise). Generally, the State's authority is preempted in this area and is limited to land use compatibility regulations with respect to airports and, at airports such as JWA, the State regulations cannot impose requirements regarding operational frequency of aircraft or regulations limiting the number, type, or time-of-day when aircraft operations occur. There is no aspect of the Project that is directly affected by existing State regulations.

The County, as the local governmental entity that owns and operates JWA, does have a recognized residual regulatory authority (despite the federal regulation of the field) for safety impacts and for purposes of limiting its own liability for noise. Historically, this regulatory authority has been constrained by various provisions of federal law. As discussed above, the County has exercised this limited ("proprietor") authority over JWA since at least 1969 in an effort to strike an appropriate balance between the need for the Orange County community to receive air transportation services and the environmental effects of such activity in the areas surrounding JWA.

Since the adoption of ANCA, the exercise of this proprietor regulatory authority in the otherwise federally preempted field has been constrained to a substantial extent by federal law, at least with respect to proprietor restrictions first adopted after 1990. However, since JWA had adopted limitations on the number of commercial airline operations, maximum single event noise levels applicable to both commercial and general aviation operations, and noise restrictions applicable to nighttime operations ("curfew") prior to the passage of the ANCA, these restrictions were "grandfathered" under the terms of that statute and its implementing regulations. As part of this Project, the County of Orange will coordinate with the FAA regarding the Proposed Project's standing under ANCA, as well as the Airport's grant assurances and other federal laws.

In adopting the 1985 Master Plan and as mitigation under EIR 508, the County adopted, modified, or left intact various operational restrictions for JWA, including limits on operations during certain nighttime hours; maximum permitted single-event noise levels at defined noise monitoring station locations; limitations on the number of ADDs by commercial airplane operators; and various other restrictions. These restrictions were and have been implemented by the County, among other means, by resolutions of the Board of Supervisors; amendments to County ordinances; and the adoption of both a "Phase 1 Commercial Airline Access Plan and Regulation" (1985–1990) and a "Phase 2 Commercial Airline Access Plan and Regulation" (1990–present). The Project for which this EIR has been prepared involves the consideration of possible modifications to the 1985 Settlement Agreement, as amended, including the extension of its present term. Implementation of any such modifications could involve corresponding modifications to the Access Plan and to relevant County ordinances.

2.7 ORGANIZATION OF THE DRAFT EIR

This Draft EIR is organized into nine sections, with each containing its own references section. A list of the Draft EIR sections and a brief description of their contents is provided below to assist the reader in locating information.

- **Section 1.0, Executive Summary:** This section provides summaries of the Project Description, alternatives to the Proposed Project, environmental impacts, and mitigation measures.
- **Section 2.0, Project History and Setting:** This section briefly discusses the purpose of the EIR; describes the environmental review process; provides an overview of the Project history; and gives an overview of the EIR's organization.
- **Section 3.0, Project Description:** This section provides a detailed description of the Project characteristics and a statement of the Project Objectives.
- **Section 4.0, Existing Conditions, Impact Analysis, and Mitigation Program:** This section contains subsections 4.1, Air Quality, through 4.10, Water Quality. Within this section, the Proposed Project and alternatives are discussed. Additionally, for each alternative, the impacts associated with each of the timeframes for Project implementation are discussed. Each subsection includes discussions on the following topics: regulatory setting; existing conditions; thresholds of significance; impact analysis; mitigation program (if any); level of significance after mitigation; and references.
- **Section 5.0, Cumulative Impacts:** This section provides the cumulative analysis. For each topical area addressed in the EIR, there is an assessment of the potential for a cumulative impact.
- **Section 6.0, Long-Term Implications:** This section contains a summary discussion of any significant unavoidable impacts; potential growth-inducing impacts; and any significant irreversible environmental changes that would be caused by the Project.
- **Section 7.0, Alternatives:** Section 15126.6 of the State CEQA Guidelines requires that an EIR evaluate a range of reasonable alternatives. For this EIR, the Proposed Project and alternatives that were developed by the County of Orange, the City of Newport Beach, AWG, and SPON as part of the MOU for the second extension to the Settlement Agreement have been evaluated in Section 4.0. This Section considers one other alternative (the 2025 Horizon Year Alternative) that was developed to mitigate or avoid the significant effects the Project may have on the environment. This alternative proposes the same ADDs and MAP levels ultimately provided by Phase 2 of the Proposed Project, and would only extend the Settlement Agreement through December 31, 2025. In addition, this Section provides a discussion regarding alternatives that were rejected from further consideration due to their infeasibility, as well as identifies the environmentally superior alternative.
- **Section 8.0, Persons and Organizations Consulted:** This section lists the persons and organizations that were contacted to obtain data on the preparation of the Draft EIR.
- **Section 9.0, Preparers:** This section lists the persons that directly contributed to preparation of the Draft EIR.

Sections 1.0 through 9.0 are presented in Volume I of this Draft EIR. Appendices A through G are presented in Volume II.

2.8 REFERENCES

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3.0 PROJECT DESCRIPTION

3.1 PROJECT LOCATION

The Project would be implemented at John Wayne Airport, Orange County ("JWA" or "the Airport") in an unincorporated area of Orange County. Although the Airport encompasses approximately 504 acres, the aviation activities at JWA are located on approximately 400 acres. The site is south of Interstate ("I") 405, north of State Route ("SR") 73, west of MacArthur Boulevard, and east of Red Hill Avenue. The Airport property, owned by the County of Orange, includes the airfield; the terminal; maintenance buildings; surface level and parking structures; the administrative building; property leased for aviation support uses; and a portion of the Newport Beach Golf Course. The Project area is surrounded by the cities of Newport Beach, Irvine, and Costa Mesa, as well as several unincorporated County islands. The regional location and local vicinity are provided on Exhibits 3-1 and 3-2, respectively.

3.2 PURPOSE OF THE PROJECT

As discussed in Section 2.3, Project History, the JWA Settlement Agreement and its amendments have played an important role in providing air service at JWA. Having the Settlement Agreement in place since 1985 has quieted the litigation and community discourse over the noise and traffic associated with commercial air service at JWA, which has been an issue since the 1970s. The Settlement Agreement establishes the operational parameters at the Airport that have safeguarded community concerns while allowing needed improvements and capacity increases to be implemented.

The Settlement Agreement is set to expire on December 31, 2015. Therefore, in order to ensure that the types of noise and access restrictions established by the 1985 Settlement Agreement remain grandfathered under the Airport Noise and Capacity Act of 1990 ("ANCA;" see 49 U.S.C. Section 47524(d)(3)-(4)), the Proposed Project contemplates an amendment to that 1985 Settlement Agreement (as amended) that does not further "reduce or limit aircraft operations or affect aircraft safety." (49 U.S.C. Section 47524(d)(4).) Consistent with the long-term implementation of the 1985 Settlement Agreement (as amended), the proposed extension of the Settlement Agreement would allow the community, the airlines, and the County to have a clear understanding of the noise and access restrictions that would govern the Airport's operations, and the resulting environmental effects into a defined future period of time.

In order to preserve the Settlement Agreement's existing "grandfathered" status from the limitations and requirements of ANCA, subsequent amendments to the Settlement Agreement have not reduced or limited aircraft operations or affect aircraft safety.



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Regional Location

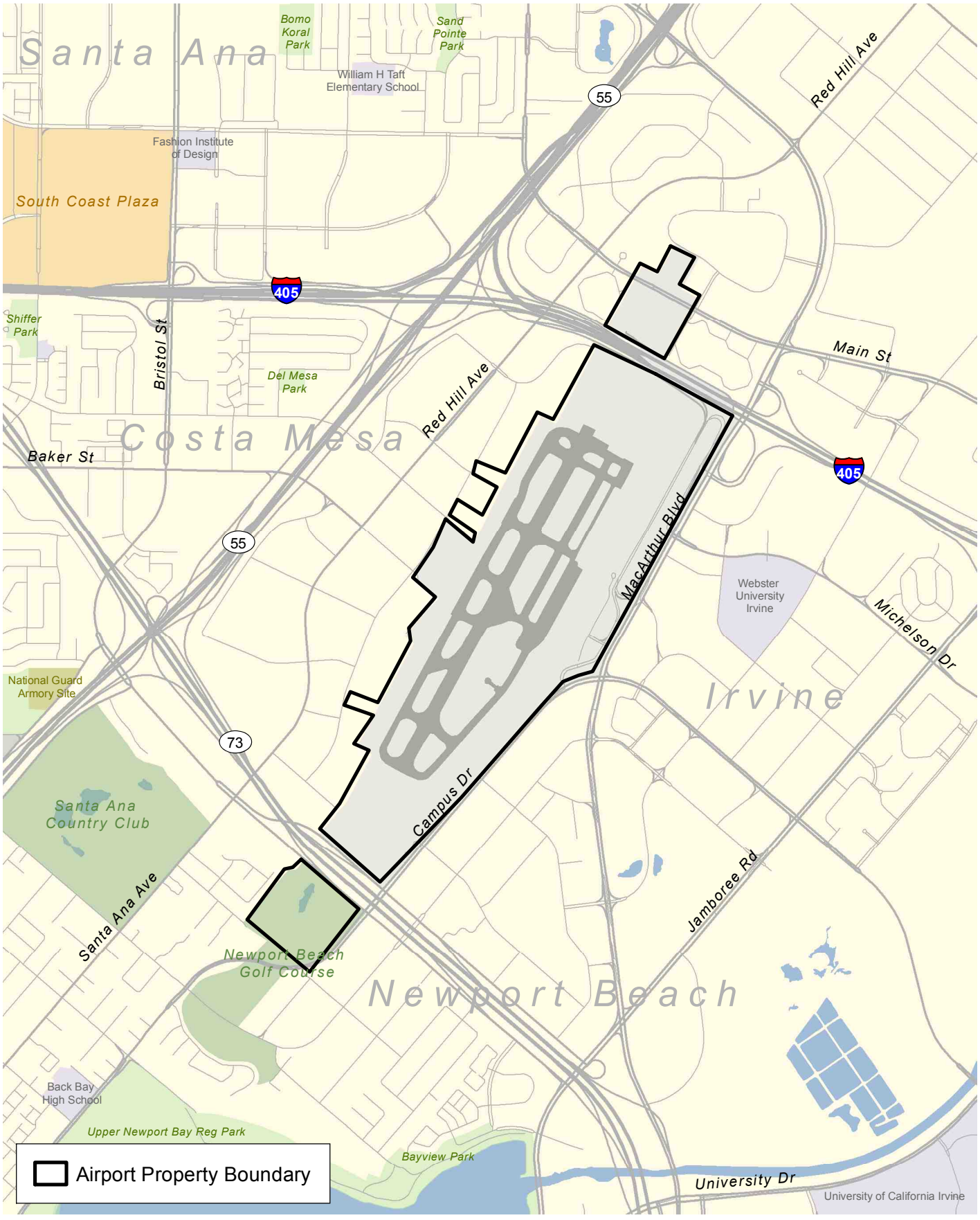
Exhibit 3-1

John Wayne Airport Settlement Agreement Amendment

N W E S

5 2.5 0 5 Miles

JOHN WAYNE AIRPORT ORANGE COUNTY



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Local Vicinity

Exhibit 3-2

John Wayne Airport Settlement Agreement Amendment

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JOHN WAYNE AIRPORT
ORANGE COUNTY

3.3 PROJECT OBJECTIVES

Recognizing the role the Settlement Agreement has played in providing a balance between aviation activities and community impacts associated with the operations, as part of the Memorandum of Understanding ("MOU") (further discussed below), the signatories have identified the following Project objectives:

1. To modify some existing restrictions on aircraft operations at JWA in order to provide increased air transportation opportunities to the air-traveling public using the Airport without adversely affecting aircraft safety, recognizing that aviation noise management is crucial to continued increases in JWA's capacity.

2. To reasonably protect the environmental interests and concerns of persons residing in the vicinity of the JWA, including their concerns regarding "quality of life" issues arising from the operation of JWA, including but not limited to noise and traffic.

3. To preserve, protect, and continue to implement the important restrictions established by the 1985 Settlement Agreement, which were "grandfathered" under ANCA and reflect and accommodate historical policy decisions of the Orange County Board of Supervisors regarding the appropriate point of balance between the competing interests of the air transportation and aviation community and local residents living in the vicinity of the Airport.

4. To provide a reasonable level of certainty to the following regarding the level of permitted aviation activity at JWA for a defined future period of time: surrounding local communities; Airport users (particularly scheduled commercial users); and the air-traveling public.

5. To consider revisions to the regulatory operational restrictions at JWA in light of the current aviation environment; the current needs of the affected communities; and industry interests represented at JWA.

3.4 LEAD AND RESPONSIBLE AGENCIES FOR THE PROJECT

As owner and operator of JWA, the County of Orange is the Lead Agency for the Project. The State California Environmental Quality Act ("CEQA") Guidelines, Section 15367, defines Lead Agency as follows:

> "Lead Agency" means the public agency which has the principal responsibility for carrying out or approving a project. The Lead Agency will decide whether an EIR or Negative Declaration will be required for the project and will cause the document to be prepared.

As a signatory to the Settlement Agreement, the City of Newport Beach is a Responsible Agency. The CEQA Guidelines, Section 15381, defines Responsible Agency as follows:

> "Responsible Agency" means 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.

The Lead Agency is responsible for the adequacy of its environmental documents and has broader authority to disapprove a project than does a Responsible Agency. However, as discussed in Section 2.2, Environmental Review Process, the County's approval of the Project would be contingent upon the City Council of Newport Beach and the governing boards of Stop Polluting Our Newport ("SPON") and Airport Working Group ("AWG") approving and executing the agreed upon amendment to the Settlement Agreement. The Newport Beach City Council will use the Final EIR as the CEQA compliance document for its decision.

As discussed later in this document, roadway improvements are recommended as mitigation for the Project. Implementation of these measures would require approval of other agencies (surrounding local jurisdictions and Caltrans); however, for this Project (the Settlement Agreement Amendment), these other agencies are not considered Responsible Agencies because they will not be taking action on the Settlement Agreement Amendment. These agencies will likely be Lead or Responsible Agencies for subsequent CEQA documents for implementation of any off-site improvements.

3.5 PROJECT DESCRIPTION

In an effort to balance the environmental, political, social, and economic demands and concerns regarding operations at JWA, operations at the Airport are subject to a number of operational regulations and restrictions that are contained in the Settlement Agreement. These restrictions include various limitations on the number of commercial airline operations; maximum single event noise levels applicable to both commercial and general aviation operations; and noise restrictions applicable to nighttime operations ("curfew"). These local proprietor restrictions were adopted prior to the passage of the ANCA and are expressly "grandfathered" from the limitations and requirements of ANCA under the terms of that statute and its implementing regulations. (49 U.S.C. Section 47524(d)(3)-(4).) Specifically, the legislation permitted the continued implementation of intergovernmental agreements that included airport noise or access restrictions in effect on November 5, 1990. (*Ibid*.)

As discussed above, the County of Orange, the City of Newport Beach, and two community groups (i.e., the AWG and SPON) entered into a Settlement Agreement that included limitations of the operations and facilities at JWA. The Project includes the possible modification of certain substantive provisions and an extension of the term of the Settlement Agreement for JWA.

Since early 2012, the County of Orange, the City of Newport Beach, AWG, and SPON have been discussing a second extension to the Settlement Agreement. The parties entered into an MOU that defines the "Proposed Project" and project alternatives to be analyzed pursuant to CEQA and provides general procedures and protocols that would be followed regarding the preparation of the Environmental Impact Report ("EIR"); however, it clearly states that the acceptance of the MOU is not intended as an approval of the Project. The County retains its "full discretion to adopt an alternative, impose mitigation measures, or disapprove the Project altogether once the requisite CEQA review is complete" (JWA 2013). The Orange County Board of Supervisors authorized execution of the MOU on April 16, 2013. The City of Newport Beach, AWG, and SPON all signed the MOU in April 2013.

In accordance with the MOU, this EIR addresses the impacts associated with the Proposed Project and three different alternatives (known as Alternatives A, B, and C), as well as the No Project Alternative, at a comparable level of detail. The alternatives vary in the details of various modifications to the substantive terms of the Settlement Agreement and in the extension of the curfew at JWA. The potential substantive modifications under these alternatives include possible modifications to the permitted number of "regulated" (presently, "Class A") Average Daily Departures ("ADDs"); and, modification of the existing limitations on the number of million annual passengers ("MAP"), among others.

Neither the Proposed Project nor the alternatives propose physical improvements to the JWA facilities. However, the Proposed Project and the alternatives, other than the No Project Alternative, would permit an increase in the number of loading bridges, though the timing of when this would be permitted varies. Since neither the Project nor any of the alternatives propose to construct additional loading bridges, the impacts are not evaluated in this EIR. (Note the impacts would vary depending on the number of additional loading bridges proposed.) Subsequent CEQA documentation would be required prior to any physical improvements, such as additional loading bridges.

Though no new facilities are proposed as part of the Project, the EIR does include an evaluation of the ability of the existing facilities to serve the various operational scenarios in Section 4.5, Land Use. That analysis finds that the level of service in certain areas of the Airport would decline under some operational scenarios; however, this does not mean that additional facilities would be required. Rather, passengers would experience an inconvenience associated with crowded facilities, such as longer lines.

A summary of the principal differences between the Proposed Project and MOU-identified alternatives is reflected in Table 3-1. A more detailed discussion of the Proposed Project and each of the alternatives is provided later in this section. Section 3.6 provides an explanation of the environmental baseline and approach to the evaluation of the phases for each scenario. The details on the assumptions for operations and passengers are also provided in Section 3.7, Assumptions. As evaluated in Sections 4.1 through 4.10 of this EIR, the Proposed Project and all of the alternatives would result in incremental increases in ancillary Airport operations, such as fuel delivery, to support the additional flights and passengers.

CEQA requires that an EIR identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), even if the alternative would impede, to some degree, the attainment of the project objectives. Therefore, in addition to the alternatives identified in the MOU, this EIR also considers one other alternative ("2025 Horizon Year Alternative") in Section 7, Alternatives, and provides a discussion on alternatives that were not carried forward for full evaluation. The "2025 Horizon Year Alternative" is similar to the Proposed Project, subject to the caveats that the proposed extension of the term length would be 10 years and the alternative would limit the number of million annual passengers to 11.8 (see Table 7-2 for additional information). This alternative has been developed to meet the requirements of CEQA.

TABLE 3-1
PRINCIPAL TERMS OF THE PROPOSED PROJECT AND ALTERNATIVES EVALUATED IN THE ENVIRONMENTAL IMPACT REPORT

Principal Restrictions	Proposed Project	Alternative A	Alternative B	Alternative C	No Project[a]
Term	Through December 31, 2030	Through December 31, 2030	Through December 31, 2030	Not Applicable	Not Applicable-- Settlement Agreement Expired
Curfew	Through December 31, 2035	Through December 31, 2035	Through December 31, 2035	Through December 31, 2020	Through December 31, 2020
Annual Passenger Limit (MAP)					
Phase 1 January 1, 2016– December 31, 2020	10.8 MAP	10.8 MAP	10.8 MAP	16.9 MAP	10.8 MAP
Phase 2 January 1, 2021– December 31, 2025	11.8 MAP	11.4 MAP	13.0 MAP	16.9 MAP	10.8 MAP
Phase 3 January 1, 2026– December 31, 2030	12.2 *or* 12.5 MAP[b]	12.8 MAP	15.0 MAP	16.9 MAP	10.8 MAP
Passenger Flights (Class A ADDs for passenger service)					
Phase 1 January 1, 2016– December 31, 2020	85 Class A ADDs	107 Class A ADDs (+22)	100 Class A ADDs (+15)	228 Class A ADDs (+143)	85 Class A ADDs
Phase 2 January 1, 2021– December 31, 2025	95 Class A ADDs (+10)	120 Class A ADDs (+13)	110 Class A ADDs (+10)	228 Class A ADDs (+0)	85 Class A ADDs
Phase 3 January 1, 2026– December 31, 2030	95 Class A ADDs	135 Class A ADDs (+15)	115 Class A ADDs (+5)	228 Class A ADDs (+0)	85 Class A ADDs
Cargo Flights (Class A ADDs for all-cargo service)					
January 1, 2016 – December 31, 2030	4 Class A ADDs	4 Class A ADDs	4 Class A ADDs	4 Class A ADDs	4 Class A ADDs
Passenger Loading Bridges					
January 1, 2016 – December 31, 2020	20	20	20	No Limit	20
January 1, 2021 – December 31, 2030	No Limit	No Limit	No Limit	No Limit	20

MAP: Million Annual Passengers; ADD: Average Daily Departures

Table Notes:

Alternative A was delineated based on information contained in the Federal Aviation Administration's Terminal Area Forecast Detail Report dated January 2013.

Alternative B was delineated based on input from JWA's commercial air service providers.

Alternative C was delineated based on the physical capacity of JWA's airfield.

[a] The No Project Alternative assumes the maximum number of allowable operations under the current Settlement Agreement (as amended in 2003) would remain unchanged and the protection of the curfew would remain in place through 2020; however, there would be no limitation on the Board of Supervisors to, at a subsequent time, modify or eliminate the curfew or increase the number of ADD and MAP being served at the Airport. The analysis in this EIR assumes the curfew would stay in place for the duration of the analysis period (i.e., December 31, 2030). Subsequent CEQA documentation would be required to amend the curfew or modify the Access Plan to allow an increase in the number of flights and/or passengers.

[b] Trigger for capacity increase to 12.5 MAP: air carriers must be within 5 percent of 11.8 MAP (i.e., 11.21 MAP) in any one calendar year during the January 1, 2021 through December 31, 2025 timeframe.

Source: PROPOSED PROJECT AND ALTERNATIVES: Proposed Extension of the John Wayne Airport Settlement Agreement, Proposed Project and Alternatives A–C, JWA 2013.

3.5.1 PROPOSED PROJECT

The Proposed Project would extend the term of the Settlement Agreement through December 31, 2030, and would require that there be no change to the curfew until December 31, 2035. The curfew, which has been in effect since 1969 and has been adopted by the Board of Supervisors as County Ordinance No. 3505, prohibits regularly scheduled commercial operations and general aviation operations that exceed the defined 86 decibel ("dB") Single Event Noise Equivalent Levels ("SENEL") at specified noise monitoring station locations from taking off between 10:00 PM and 7:00 AM (8:00 AM on Sundays) and landing between 11:00 PM and 7:00 AM (8:00 AM on Sundays). These local proprietor restrictions were adopted prior to the passage of the ANCA and were expressly "grandfathered" under the terms of that statute and its implementing regulations. This Proposed Project would gradually increase the number of regulated Class A commercial passenger flights and the number of passengers departing and arriving annually. Currently, the Airport serves 80 Class A ADDs and 9.2 MAP.[1] The existing Settlement Agreement restrictions allow for 85 Class A ADDs and 10.8 MAP. The Proposed Project 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. This is an increase of up to 10 ADDs and 1.0 million additional passengers annually compared to what is currently allowed under the Settlement Agreement.

On January 1, 2026, the number passengers using the Airport, though not the number of flights, would again be able to increase. The amount of the increase would depend upon the actual service levels in the preceding five years. If the number of passengers served in any one calendar year, between January 1, 2021 through December 31, 2025, is within 5 percent of 11.8 MAP (i.e., 11.21 MAP), then the annual passenger level will be permitted to increase to 12.5 MAP through December 31, 2030. If passenger levels do not reach 11.21 MAP in any one calendar year between January 1, 2021 through December 31, 2025, passenger levels will only be able to increase to 12.2 MAP through December 31, 2030. Regardless of the MAP level permitted, there would be no increase in regulated Class A passenger service ADDs. The analysis in the EIR assumes the 12.5 MAP and 95 ADDs in the 2026 through 2030 timeframe because this represents the maximum environmental impact.

JWA currently has 20 passenger loading bridges that allow the passengers to enplane and deplane directly from the terminal building. It should be noted that loading bridges are not equivalent to gates, which are defined as the number of access points from the terminal to the aircraft. For example, there are times when flights "hardstand" and the passengers enplane and deplane directly from the tarmac using portable stairs. When the aircraft is accessed in this fashion, the aircraft occupies a gate but does not utilize a loading bridge. Currently, the commuter flights use gates located at the ends of the terminal building.

[1] The Notice of Preparation ("NOP") identified that JWA currently served approximately 8.9 MAP. This estimate was developed using data for the first six months of 2013 and projecting the expected number of passengers to be served for the entire year. This estimate was then updated to 9.17 MAP as part of the *Aviation Forecasts Technical Report* (Appendix B) prepared for this project. The updated projection used actual passenger data through August as the basis for projecting passenger levels through the end of 2013. The 9.17 MAP was used throughout the EIR as the forecasted baseline data. The actual 2013 counts were 9.2 MAP.

With the Proposed Project, no additional passenger loading bridges would be allowed through December 31, 2020, at which time the restriction on the number of passenger loading bridges would be lifted. However, the Project is not proposing the construction of any additional gates or other new facilities. Should additional gates or modifications to any Airport facilities be proposed at a subsequent time, separate environmental documentation pursuant to CEQA would be required prior to expansion of Airport facilities (e.g., terminal expansion, additional parking structures, new passenger loading gates). Additionally, if the new facilities were to require modification to the airfield, Federal Aviation Administration ("FAA") and National Environmental Policy Act ("NEPA") approval would also be required.

The Proposed Project would not modify the number of ADDs allocated to air cargo service, which would remain at four ADDs through the term of the Settlement Agreement Amendment.

3.5.2 ALTERNATIVE A

Alternative A was developed based on information contained in the FAA's Terminal Area Forecast Detail Report dated January 2013.[2] Alternative A is the same as the Proposed Project with regards to expiration of the terms of the Settlement Agreement (December 31, 2030) and restrictions on modifications to the curfew (December 31, 2035). This Alternative would also maintain the restriction on the number of passenger loading bridges until December 31, 2020, at which point the limitation would be removed. Alternative A would also not modify the number of ADDs allocated to air cargo operations. Also, like the Proposed Project, separate environmental documentation pursuant to CEQA would be required prior to implementation of any expansion of Airport facilities.

Alternative A is different than the Proposed Project with regards to the number of regulated Class A passenger service ADDs and MAP served at the Airport. Alternative A would maintain the 10.8 MAP through December 31, 2020. However, effective January 1, 2016, the number of regulated Class A passenger service ADDs would be allowed to increase to 107 ADD (an increase of 22 ADD over what is currently allowed under the Settlement Agreement). The number of regulated ADDs and MAP would then be allowed to increase on January 1, 2021, to 120 regulated Class A passenger service ADDs (an increase of 13 ADD over the 2020 levels and 35 ADD compared to what is currently allowed under the Settlement Agreement). The permitted MAP levels would be allowed to increase to 11.4 MAP, which is 0.6 million additional passengers annually compared to what is currently allowed under the Settlement Agreement.

A final increase in MAP and regulated Class A passenger service ADDs would be permitted to occur after January 1, 2026. Through the end of the Settlement Agreement term (December 31, 2030), a total of 135 regulated Class A passenger service ADDs would be permitted and a total of 12.8 MAP would be allowed.

[2] The Terminal Area Forecast is developed by the FAA's Office of Aviation Policy and Plans. These forecasts are used by the FAA to develop its programs and budget plans.

3.5.3 ALTERNATIVE B

Alternative B was developed based on input from JWA's commercial air service providers. As with Alternative A and the Proposed Project, Alternative B proposes to extend the term of the Settlement Agreement until December 31, 2030, and restrictions on modifications to the curfew would apply until December 31, 2035. This Alternative would also maintain the restriction on the number of passenger loading bridges until December 31, 2020, at which point the limitation would be removed. Alternative B would also not modify the number of ADD allocated to air cargo operations. Prior to the implementation of any expansion of Airport facilities, separate environmental documentation pursuant to CEQA would be required.

Alternative B is different with regards to the number of regulated Class A passenger service ADDs and MAP served at the Airport. Alternative B would also maintain the 10.8 MAP through December 31, 2020. However, effective January 1, 2016, the number of regulated Class A passenger service ADDs would be allowed to increase to 100 ADD (an increase of 15 ADD over what is currently allowed under the Settlement Agreement). The number of regulated ADDs and MAP would then be allowed to increase on January 1, 2021, to 110 regulated Class A passenger service ADDs (an increase of 10 ADD over the 2020 levels and 25 ADD compared to what is currently allowed under the Settlement Agreement). The permitted MAP levels would be allowed to increase to 13.0 MAP, which is a 2.2 MAP annual increase compared to what is currently allowed under the Settlement Agreement. A final increase in MAP and regulated Class A passenger service ADDs would be permitted to occur after January 1, 2026. Through the end of the term of the Settlement Agreement (December 31, 2030), a total of 115 regulated Class A passenger service ADDs would be permitted and a total of 15.0 MAP would be allowed.

3.5.4 ALTERNATIVE C

Alternative C reflects the physical capacity of the JWA airfield. Alternative C would not carry forward the restrictions on the number of regulated Class A passenger service ADDs and MAP served at the Airport. Rather, the passenger and flight levels would be dictated by airfield capacity. Under this alternative, as of January 1, 2016, there also would be no restrictions on the number of passenger loading bridges.

Alternative C does propose to maintain the current curfew until December 31, 2020, at which point the County could modify the General Aviation Noise Ordinance ("GANO", Ordinance 3505). This Alternative does not propose the modification of the GANO at this time. However, to ensure that the full impacts associated with Alternative C are addressed in this EIR assumptions have been made on flight activity with the modification of the GANO. Based on other airports that operate without a curfew and have similar operations and geographic conditions as JWA (i.e., a regional airport near a large hub airport and without major cargo operations), assumptions were made on the flight distributions. It was determined that, without the curfew, a reasonable assumption would be 75 percent day operations (7:00 AM to 7:00 PM), 14 percent evening operations (7:00 PM to 10:00 PM), and 11 percent night operations (10:00 PM to 7:00 AM). The bulk of the night operations would be between the hours of 6:00 AM and 7:00 AM due to the congestion during the 7:00 AM peak hour. There would be some operations after 10:00 PM as well, but most likely concentrated between 10:00 PM and 11:00 PM. This is discussed further in the *John Wayne Airport Environmental Impact Report Aviation Forecasts Technical Report* and the *John Wayne Airport Environmental Impact Report Noise Analysis Technical Report*, Appendices B and C, respectively. Should the County desire to modify the GANO after December 31, 2020, it

would be considered a project pursuant to CEQA, and separate environmental documentation would be required to address the potential impacts associated with that action.

With Alternative C, the increase in flights and passenger levels would be permitted starting on January 1, 2016, and would remain the same throughout the entire study period (through 2030). Based on the current airfield capacity, this alternative would allow 228 regulated Class A passenger service ADDs, an increase of 143 regulated Class A passenger service ADDs over what is currently allowed under the Settlement Agreement. It is expected that this flight level would serve approximately 16.9 MAP, which is 6.1 MAP more than what is currently permitted under the Settlement Agreement. The differences in impacts associated with Phase 1 (2016-2020), and Phases 2 (2021-2025) and 3 (2026-2030) are attributable to the loss of the curfew after December 31, 2020.

3.5.5 NO PROJECT ALTERNATIVE

CEQA requires that the definition of the No Project Alternative include the existing conditions, as well as what would be reasonably expected to occur in the foreseeable future if the project was not approved. Specifically, Section 15126.6(e)(3)(A) of the State CEQA Guidelines addresses the definition of the No Project Alternative for land use or regulatory plans. It states:

> When a project is the revision of an existing land use or regulatory plan, policy or ongoing operation, the "no project" alternative will be the continuation of the existing plan, policy or operation into the future. Typically this is a situation where other projects initiated under the existing plan will continue while the new plan is developed. Thus, the projected impacts of the proposed plan or alternative plans would be compared to the impacts that would occur under the existing plan.

Based on this guidance, this EIR assumes that no action would be taken by the County under the No Project Alternative, and the Settlement Agreement would be allowed to expire on December 31, 2015. The No Project Alternative also assumes the continuation of the provisions in the Settlement Agreement, as currently amended. Specifically, this alternative assumes there would be 85 regulated Class A passenger service ADDs and 10.8 MAP throughout the study period (i.e., beginning on January 1, 2016 and extending through December 31, 2030). This represents an increase of approximately 1.6 MAP and 5 noise-regulated ADD over 2013 activities.[3] With the No Project Alternative, there would be no change to the curfew; the number of ADD provided for air cargo operations; or the number of passenger loading bridges at the terminal.[4]

[3] The No Project Alternative assumes an increase of approximately 1.6 MAP over the actual passenger 2013 counts of 9.2 MAP. However, the technical studies for this EIR projected 9.17 MAP in 2013 based on passenger data through August. Therefore, the analysis of the No Project Alternative would result in a 1.63 MAP increase compared to the 2013 baseline assumed in the EIR.

[4] It should be noted that this level of passenger and air cargo service is greater than current operations but is permitted under the Settlement Agreement (as amended in 2003).

Under the No Project Alternative, although the assumption is made that operations at JWA would remain unchanged, upon expiration of the Settlement Agreement, the normal legislative discretion of the Board, as the owner and operator of JWA, to consider possible expansion of facilities or operations at JWA would, once again, be unconstrained by any judicial order. Therefore, the Board would be able to consider increasing the permitted levels of commercial operations. The Board would also be able to consider elimination of other restrictions on JWA operations including, but not limited to, the preexisting nighttime flight restrictions (curfew) independent of the City of Newport Beach, SPON, and AWG. But none of those things would happen automatically without further express action of the Board. Any of those actions would be "projects" within the meaning of CEQA and would require CEQA (and perhaps NEPA) compliance before they could be approved and implemented.

With expiration of the 1985 Settlement Agreement (as amended) under the No Project Alternative, and irrespective of whether the County exercises it discretion to modify JWA's existing noise and access restrictions (e.g., curfew and Class A ADD limitations), other interested parties – such as the FAA and commercial air carriers – may argue that the restrictions violate ANCA and take action against the County seeking to eliminate the restrictions. (See 49 U.S.C. Section 47254(d)(3) [restrictions are exempt from ANCA to the extent an intergovernmental agreement is in place].)

3.6 ENVIRONMENTAL BASELINE AND EVALUATION OF INTERIM AND HORIZON YEARS

3.6.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT BASELINE

For purposes of this EIR, the County has measured the Project's potential environmental impacts against the required CEQA baseline, which is the "existing condition" at the time the Notice of Preparation ("NOP") for this EIR was prepared. The NOP was circulated in October 2013. As previously indicated, the NOP identified that JWA currently served approximately 8.9 MAP. This estimate was developed using actual passenger data for the first six months of 2013 and projecting the expected number of passengers to be served for the entire year. This estimate was then updated to 9.17 MAP as part of the *Aviation Forecasts Technical Report* (Appendix B) prepared for this project. The updated projection used actual passenger data through August as the basis for projecting passenger levels through the end of 2013. The 9.17 MAP level was used throughout the EIR to establish the existing conditions baseline. The actual 2013 passenger counts were slightly higher at 9.2 MAP.

3.6.2 PHASES

The Proposed Project and Alternatives A through C have three distinct phases. Each phase has corresponding Principal Restrictions, such as the term of the amendment, curfew, annual passenger (i.e., MAP) limit and maximum number of Class A ADDs for passenger and cargo service, along with the number of passenger loading bridges permitted (see Table 3-1). Unique phases are referenced throughout the EIR by the phase number noted in Table 3-1. For example, when referencing Proposed Project Phase 2, reference is being made to the January 1, 2021 to December 31, 2025 time frame of the Proposed Project.

In all cases, it is assumed that the Principal Restriction maximum limits for each phase, defined in Table 3-1 are reached in the first year of the phase.[5] By assuming the maximum limit is reach in the first year, the EIR addresses the maximum environmental impact for each phase. For the No Project Alternative, it is assumed that the maximum limits are reached at the beginning of Phase 1 (January 1, 2016) and remain constant throughout the 2030 horizon year.

To ensure the EIR evaluates the full range of impacts, an impact analysis has been conducted for each of the interim phases when flight or passenger levels are proposed to change (i.e., 2016, 2021, and 2026 through 2030), unless otherwise noted in the Section 4 topical sections. There are certain topics, such as the policy analysis in Section 4.2, Biological Resources, where the phasing would not discernibly change the impacts; therefore, the analysis is not presented by phase.

The analysis of the Project's environmental effects on each phase provided in Section 4 of this EIR is organized by specific impact category (e.g., noise, air quality). In each category, the EIR provides an analysis measuring the Proposed Project and alternatives against the "existing conditions" baseline. The analysis of each alternative in Section 4 of this EIR is done at a comparable level of detail.

3.7 AVIATION ANALYSES ASSUMPTIONS

With the exception of the No Project Alternative, all the scenarios considered in this EIR assume an increase in the number of permitted Class A ADDs and maximum number of passengers served at JWA as compared to the existing Settlement Agreement parameters. To conduct the analysis for this EIR, assumptions needed to be made regarding the fleet mix (types of aircraft) that would be used for the additional flights; the distribution of the increased flights throughout the day; and the load factors (the number of passengers compared to the number of seats on the aircraft). This information is discussed in more detail in Appendix B, *Aviation Forecasts Technical Report*. The forecasts utilized in the EIR are based on:

- An analysis of historical trends in aviation activity at the Airport.
- Parameters such as passenger load factors and average aircraft seating capacity.

[5] To ensure the maximum environmental impact scenario was evaluated for Phase 3 of the Proposed Project, the maximum MAP level of 12.5 has been evaluated throughout the EIR. Should the required trigger not be achieved (i.e., air carriers must be within 5 percent of 11.8 MAP, which is 11.21 MAP, in any one year during the January 1, 2021 through December 31, 2025 time frame), the lower MAP level of 12.2 MAP would apply, which would have less impacts.

- The assumption that the maximum number of commuter passengers (500,000) is used first in all scenarios, with the exception of Alternative C (all Phases).[6]
- The assumption that all of the allowed Class A ADDs will be used in each scenario.

Rather than distribute the allocated flights and passenger levels evenly throughout the year, the analyses developed forecasts for the Average Day Peak Month ("ADPM") for each phase of the Proposed Project and alternatives. This is an established and accepted forecast protocol and allows the EIR to evaluate a reasonable, but maximum environmental impact scenario. Based on historic trends, August is typically the peak month for JWA passengers. (*Aviation Forecasts Technical Report*, Table 3-3, AECOM 2014a, provided in Appendix B.)

3.7.1 PASSENGER PROJECTIONS

Over the past 10 years, peak month passengers have ranged from 9.2 to 9.9 percent of the annual total and have averaged 9.4 percent of annual passengers. Due to the markets served by the Airport and the historical data, it is anticipated that this will be similar in future years. Therefore, 9.4 percent of annual passengers have been assumed in the ADPM analyses for the Proposed Project and each of the alternatives. Hourly demands for the ADPM were developed by reviewing historical hourly demands during the peak month and the assumed aircraft fleet mix and load factors. To determine average day passengers, the peak month total passengers were divided by 31 (as there are 31 days in August).

Table 3-2 presents ADPM passenger data for the Proposed Project, Alternatives A, B and C, and the No Project Alternative during each of the three phases. The 2013 data is provided for comparison.

[6] The Phase 2 Commercial Airline Access Plan and Regulation, which allocates Regular ADDs and Seat Capacity for Commercial Air Carriers, reserves a capacity of 500,000 annual passengers of the total MAP limitation for priority distribution to Qualified Commuter Carriers. Any unused capacity by Commuter Carriers may be allocated as supplemental capacity under the provisions of the Access Plan. A commuter air carrier is any entity which operates regularly scheduled air service into and out of JWA for the purpose of carrying passengers, freight, cargo, or for any other commercial purpose; that using Class E aircraft regularly configured with not more than 70 passenger seats; and a gross takeoff weights of not more than 90,000 pounds.

TABLE 3-2
FORECAST OF AVERAGE DAY PEAK MONTH PASSENGERS

Airport Activity	Baseline (2013)	Forecast				
		Proposed Project	Alternative A	Alternative B	Alternative C	No Project
Phase 1						
Million Annual Passengers	9.17	10.8	10.8	10.8	16.9	10.8
Peak Month Passengers	850,988	1,015,000	1,015,000	1,015,000	1,589,000	1,015,000
Percent Annual Passengers in the Peak Month	9.3%	9.4%	9.4%	9.4%	9.4%	9.4%
Average Day Peak Month Passengers	27,451	32,742	32,742	32,742	51,258	32,742
Phase 2						
Million Annual Passengers	9.17	11.8	11.4	13.0	16.9	10.8
Peak Month Passengers	850,988	1,109,000	1,072,000	1,222,000	1,589,000	1,015,000
Percent Annual Passengers in the Peak Month	9.3%	9.4%	9.4%	9.4%	9.4%	9.4%
Average Day Peak Month Passengers	27,451	35,774	34,581	39,419	51,258	32,742
Phase 3						
Million Annual Passengers	9.17	12.5	12.8	15.0	16.9	10.8
Peak Month Passengers	850,988	1,175,000	1,203,000	1,410,000	1,589,000	1,015,000
Percent Annual Passengers in the Peak Month	9.3%	9.4%	9.4%	9.4%	9.4%	9.4%
Average Day Peak Month Passengers	27,451	37,903	38,806	45,484	51,258	32,742

* The Notice of Preparation ("NOP") identified that JWA currently served approximately 8.9 MAP. This estimate used actual passenger data for the first six months of 2013 and projected the expected number of passengers to be served for the entire year. This estimate was updated to approximately 9.17 MAP as part of the *Aviation Forecasts Technical Report* (Appendix B) prepared for this project. The updated projection used actual passenger data through August as the basis for projecting passenger levels through the end of 2013. The actual 2013 passenger counts were 9.2 MAP.

Source: *Aviation Forecasts Technical Report*, Table 3-5, AECOM 2014a.

International service at JWA began in 2010 and currently four destinations in Canada and Mexico are being served. It is anticipated that there will be a continued demand for service to these markets, with a potential for increases through additional destinations or increases in daily flights to current destinations. As international flights at JWA represent an emerging market, it is expected that international passenger traffic will continue to grow rapidly in Phase 1, begin to slow in Phase 2 and stabilize in Phase 3. Projected international passengers are found in Table 3-3.

TABLE 3-3
FORECAST OF INTERNATIONAL PASSENGERS

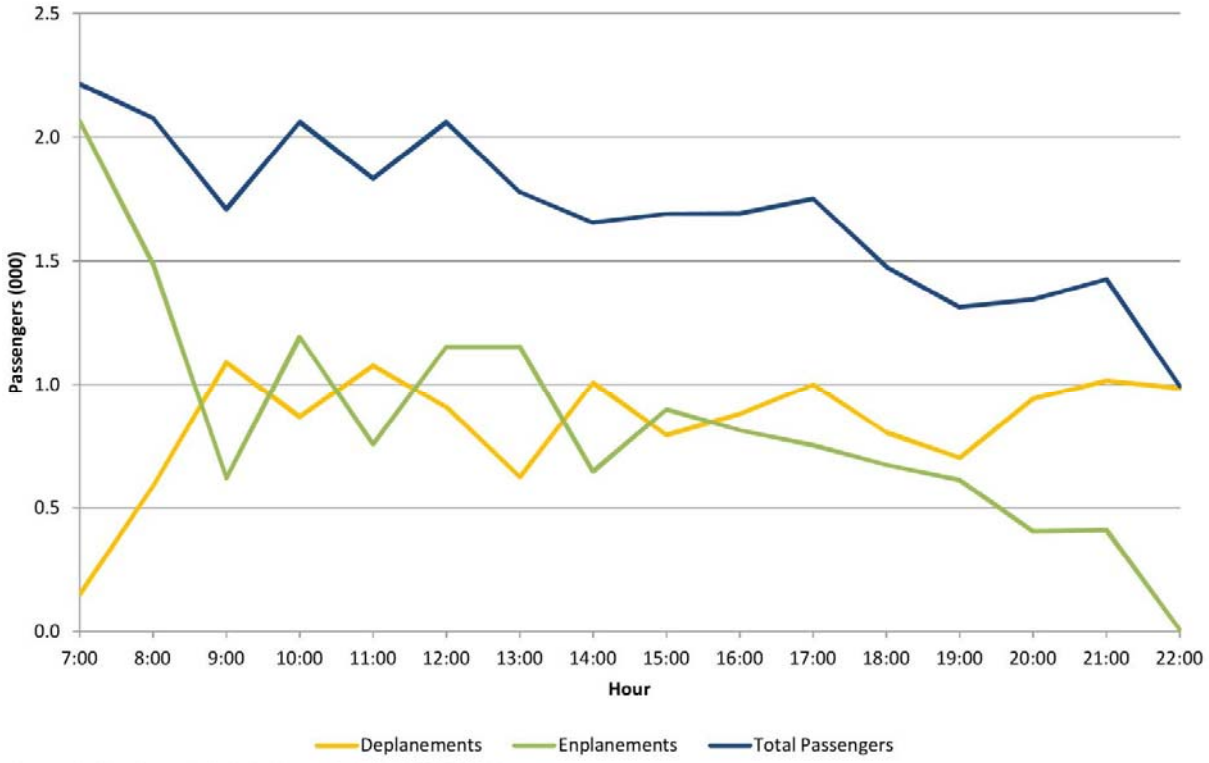
	Baseline (2013)	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
Phase 1						
MAP	9.17	10.8	10.8	10.8	16.9	10.8
International	412,000	756,000	756,000	756,000	1,183,000	756,000
Domestic	8,756,000	10,044,000	10,044,000	10,044,000	15,717,000	10,044,000
Phase 2						
MAP	9.17	11.8	11.4	13	16.9	10.8
International	412,000	1,062,000	1,026,000	1,170,000	1,521,000	756,000
Domestic	8,756,000	10,738,000	10,374,000	11,830,000	15,379,000	10,044,000
Phase 3						
MAP	9.17	12.5	12.8	15	16.9	10.8
International	412,000	1,250,000	1,280,000	1,500,000	1,690,000	756,000
Domestic	8,756,000	11,250,000	11,520,000	13,500,000	15,210,000	10,044,000

Source: *Aviation Forecasts Technical Report*, Tables 3-2 and 3-7, AECOM 2014a.

HOURLY DISTRIBUTION OF PASSENGERS

Hourly enplaning (departing) and deplaning (arriving) passengers were identified for the 2013 peak month (August). As shown in Exhibit 3-3, passenger enplanements peak in the morning in the 7:00 AM hour at approximately 2,100 enplanements. There are smaller peaks in the 10:00 AM hour and the noon hour. After 1:00 PM, enplanements generally decrease at the Airport. Deplanements peak in the 9:00 AM, 11:00 AM, and 10:00 PM hours, but are largely consistent from about 9:00 AM through the 10:00 PM hour. Hourly passenger volumes are related to operations; the 7:00 AM hour experiences the largest number of operations and thus the highest number of passengers. The 10:00 PM hour experiences the lowest number of passengers.

EXHIBIT 3-3
ADPM HOURLY PASSENGER ENPLANEMENTS
AND DEPLANEMENTS, AUGUST 2013 BASELINE



Source: *Aviation Forecasts Technical Report*, Table 6-3, AECOM 2014a

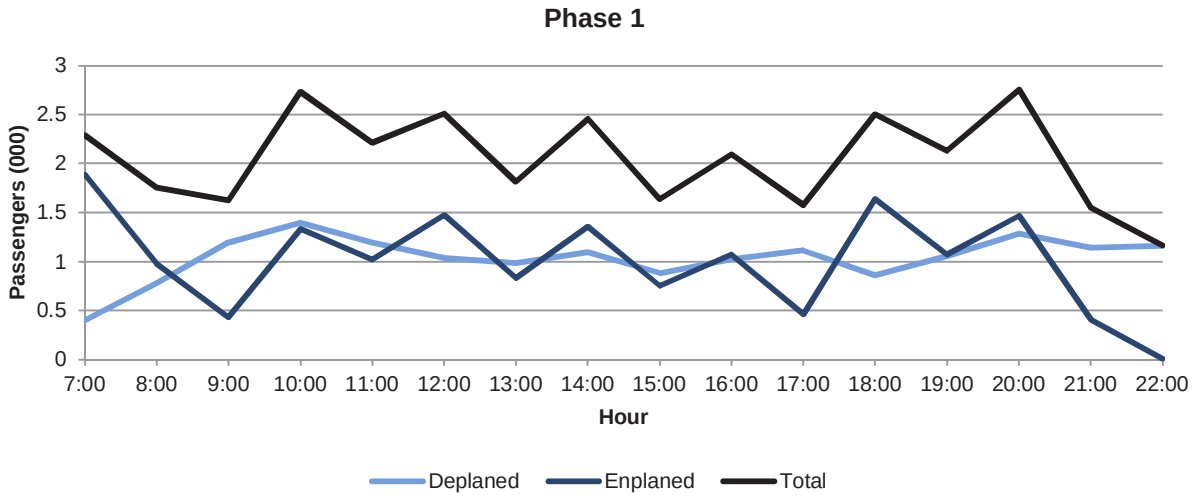
These peaking characteristics have been consistent at JWA for more than ten years and are expected to continue throughout the Proposed Project's horizon year (through December 31, 2030). However, the Proposed Project and Alternatives A and B reflect increased commuter operations than have been seen in recent years.[7] Commuter flights tend to peak mid-morning and late evening. Due to the number of ADDs included in Alternative C, no commuter operations or passengers are assumed. Peak hour information is tabulated in Table 3-4. Hourly passengers for the ADPM are illustrated for the Proposed Project and each alternative in Exhibit 3-4 through Exhibit 3-8.

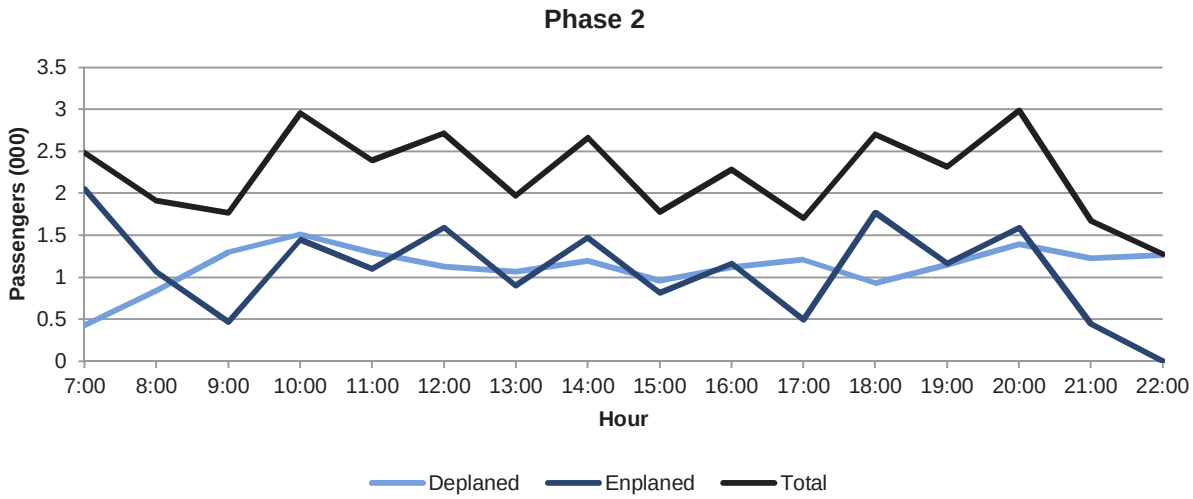
[7] The Access Plan reserves an allocation of 500,000 annual passengers for commuter flights. If the demand for commuter flights is less than this amount, the passenger allocation is redistributed to the commercial airlines.

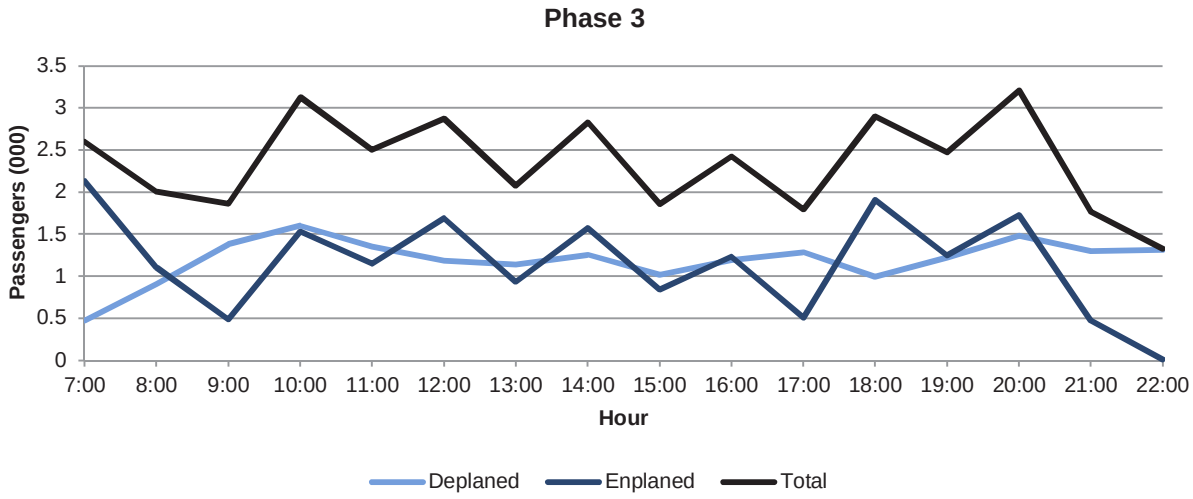
TABLE 3-4
PEAK HOUR ENPLANED, DEPLANED, AND TOTAL PASSENGERS FOR THE PROPOSED PROJECT, ALTERNATIVES A, B, AND C, AND NO PROJECT ALTERNATIVE

Phase	Baseline (2013)	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
Phase 1						
Peak Hour for Arriving Passengers (Deplaning)						
Number of Passengers	1,100	1,400	1,400	1,400	2,200	1,400
Peak Hour(s)	9:00 and 11:00 AM	10:00 AM	10:00 AM	10:00 AM	10:00 PM	10:00 AM
Peak Hour for Departing Passengers (Enplaning)						
Number of Passengers	2,100	1,900	2,000	2,000	3,600	1,900
Peak Hour(s)	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM
Total Peak Hour Passengers (Deplaning and Enplaning)						
Number of Passengers	2,200	2,800	2,700	2,700	4,100	2,800
Peak Hour(s)	7:00 AM	8:00 PM	10:00 AM	10:00 AM and 8:00 PM	7:00 AM	8:00 PM
Phase 2						
Peak Hour for Arriving Passengers (Deplaning)						
Number of Passengers	1,100	1,500	1,500	1,700	2,100	1,400
Peak Hour(s)	9:00 and 11:00 AM	10:00 AM	10:00 AM	10:00 AM	10:00 and 11:00 AM	10:00 AM
Peak Hour for Departing Passengers (Enplaning)						
Number of Passengers	2,100	2,000	2,200	2,300	3,100	1,900
Peak Hour(s)	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM
Total Peak Hour Passengers (Deplaning and Enplaning)						
Number of Passengers	2,200	3,000	2,900	3,300	4,000	2,800
Peak Hour(s)	7:00 AM	10:00 AM and 8:00 PM	10:00 AM	8:00 PM	10:00 AM	8:00 PM
Phase 3						
Peak Hour for Arriving Passengers (Deplaning)						
Number of Passengers	1,100	1,600	1,600	1,900	2,100	1,400
Peak Hour(s)	9:00 and 11:00 AM	10:00 AM	10:00 AM	10:00 AM	10:00 and 11:00 AM	10:00 AM
Peak Hour for Departing Passengers (Enplaning)						
Number of Passengers	2,100	2,100	2,500	2,600	3,100	1,900
Peak Hour(s)	7:00 AM	7:00	7:00	7:00	7:00	7:00
Total Peak Hour Passengers (Deplaning and Enplaning)						
Number of Passengers	2,200	3,200	3,200	3,800	4,000	2,800
Peak Hour(s)	7:00 AM	8:00 PM	10:00 AM	8:00 PM	10:00 AM	8:00 PM

Source: *Aviation Forecasts Technical Report*, Table 3-6, AECOM 2014a.







Source: Aviation Forecasts Technical Report, AECOM 2014a

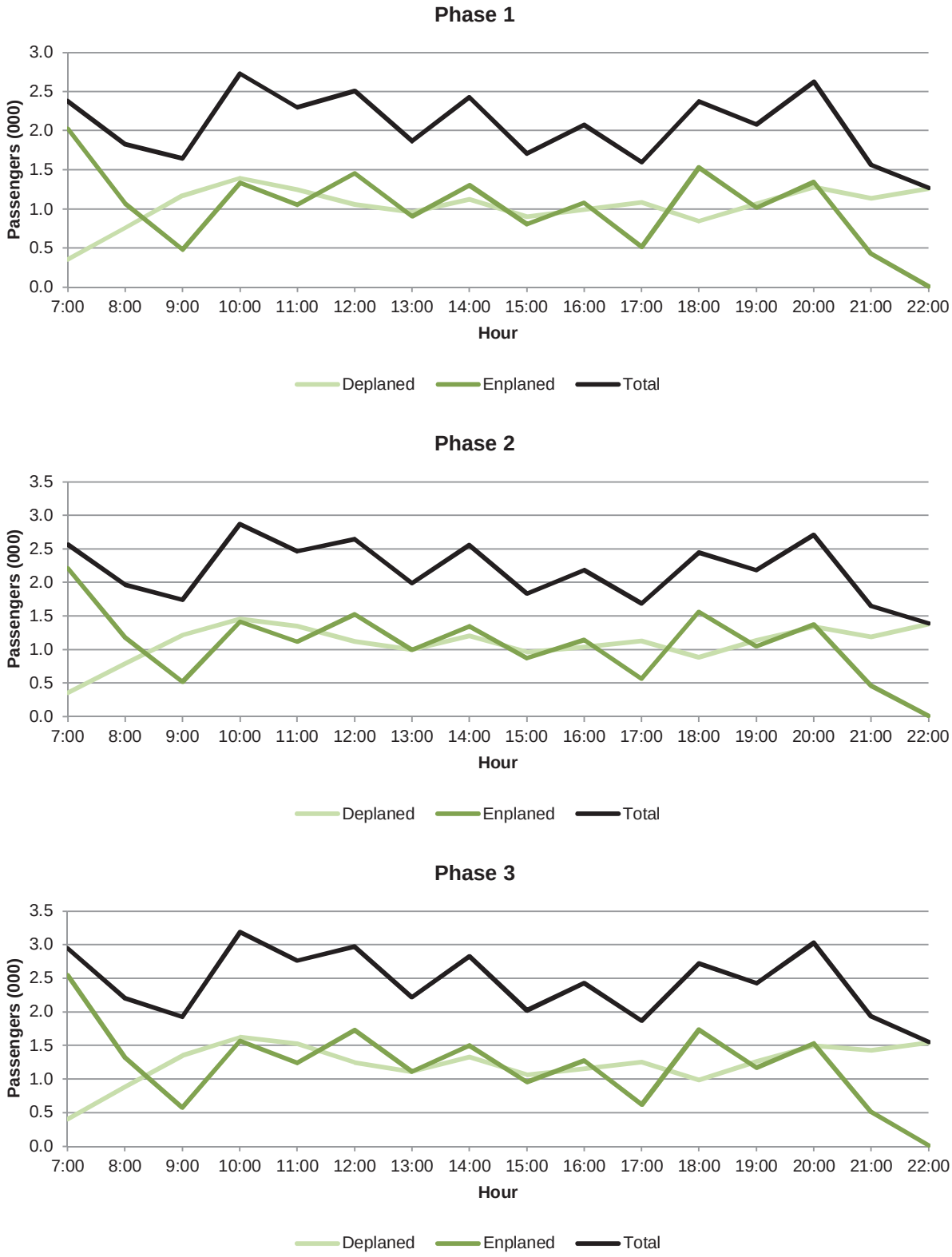
Average Daily Peak Month Hourly Passengers – Proposed Project

Exhibit 3-4

John Wayne Airport Settlement Agreement Amendment

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Source: *Aviation Forecasts Technical Report*, AECOM 2014a

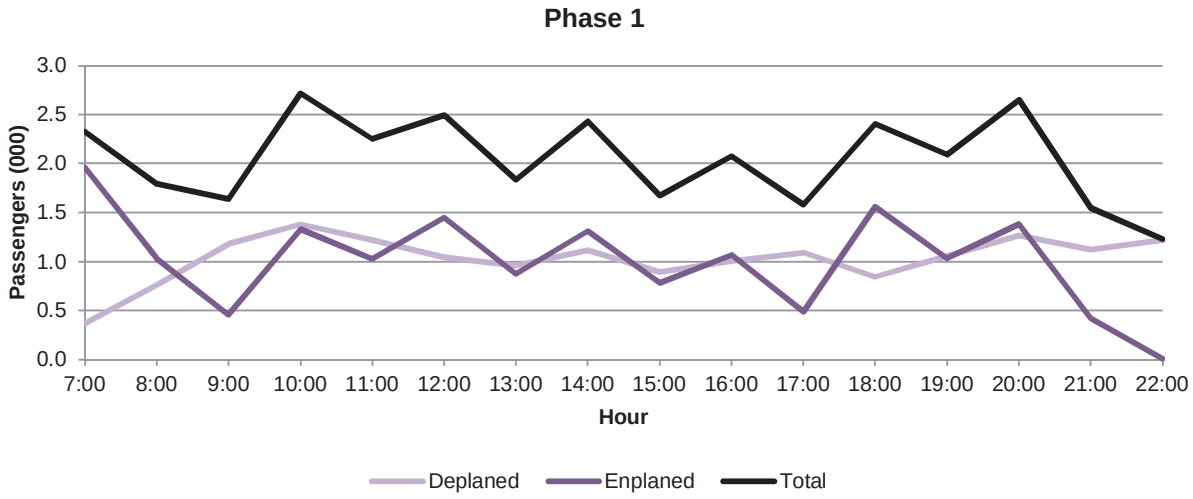
Average Daily Peak Month Hourly Passengers – Alternative A

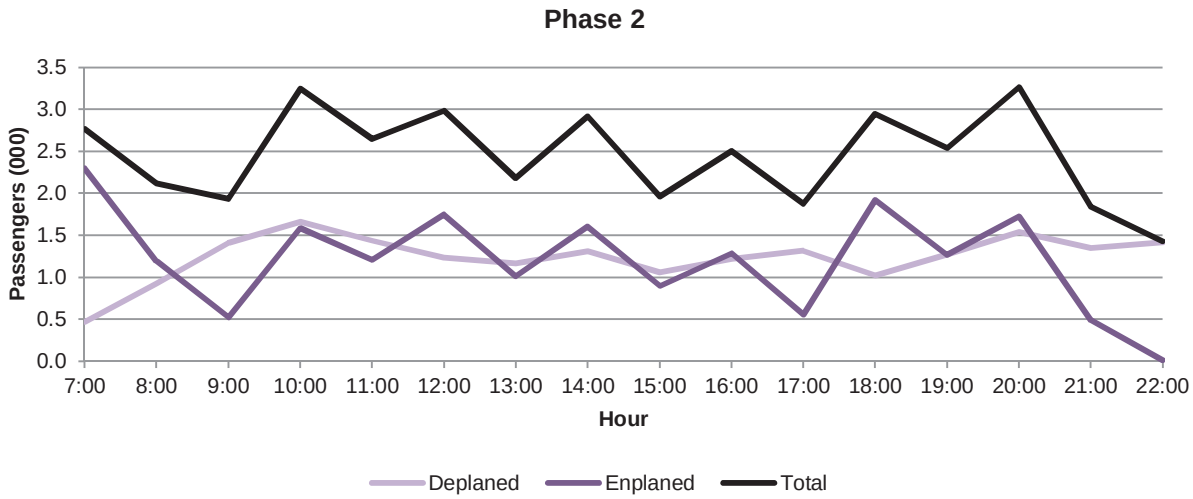
Exhibit 3-5

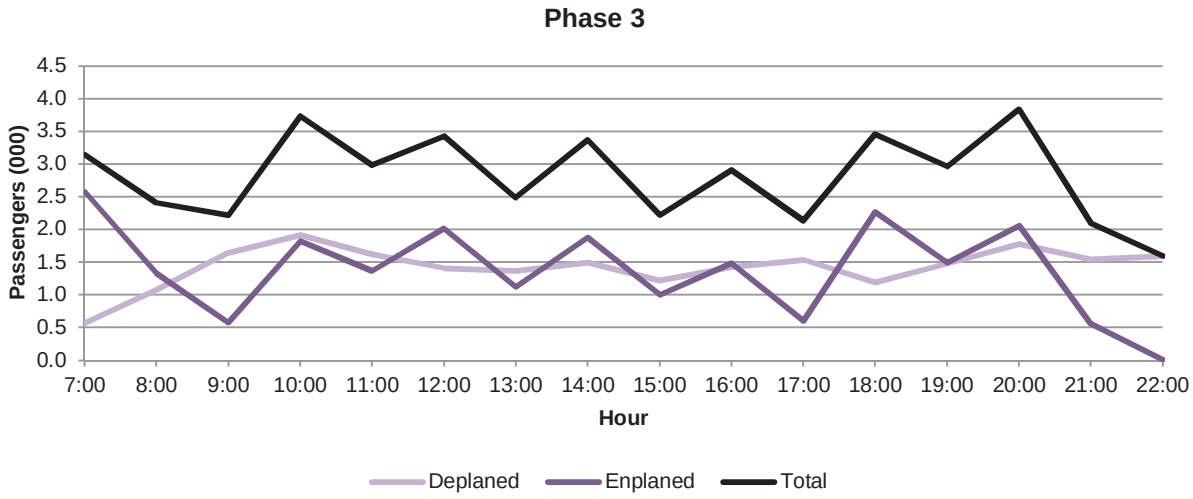
John Wayne Airport Settlement Agreement Amendment

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Source: *Aviation Forecasts Technical Report*, AECOM 2014a

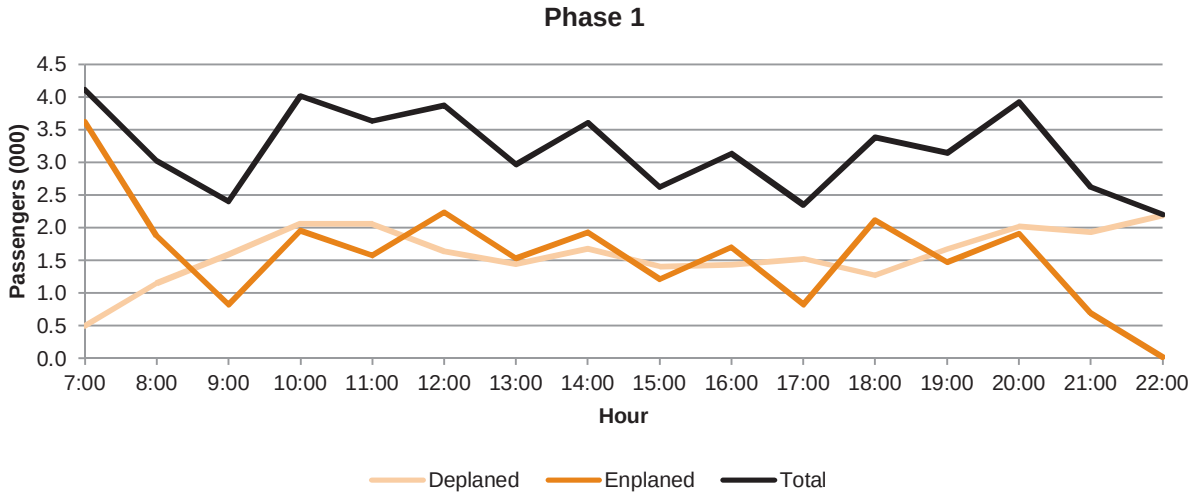
Average Daily Peak Month Hourly Passengers – Alternative B

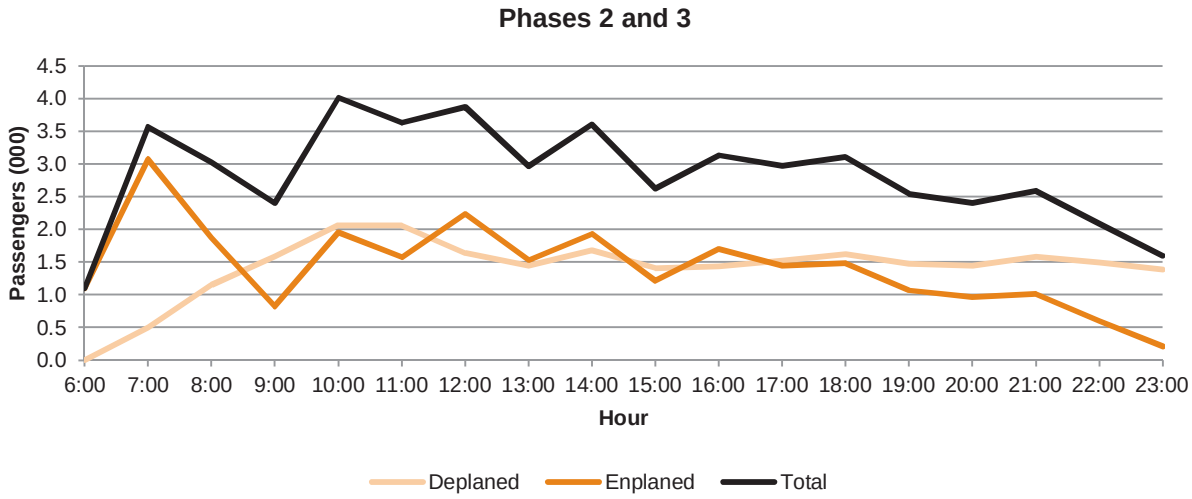
Exhibit 3-6

John Wayne Airport Settlement Agreement Amendment

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Source: *Aviation Forecasts Technical Report*, AECOM 2014a

Average Daily Peak Month Hourly Passengers – Alternative C

Exhibit 3-7

John Wayne Airport Settlement Agreement Amendment

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Source: *Aviation Forecasts Technical Report*, AECOM 2014a

Average Daily Peak Month Hourly Passengers – No Project Alternative

Exhibit 3-8

John Wayne Airport Settlement Agreement Amendment

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3.7.2 OPERATION ASSUMPTIONS

Aircraft operations are categorized by the FAA as air carrier (passenger and all-cargo operations), commuter and air taxi, general aviation, and military. Air carrier operations have fluctuated within a 10,000 operation range (approximately) since 2003, with the low experienced in 2011 (82,425 operations) and the high experienced in 2007 (92,601 operations). It should be noted that estimated 2013 passenger levels of 9.17 MAP[8] is very close to the 2004 level of 9.27 MAP; yet, due to increased load factors and fleet mix size, operations are over 4,000 flights less in 2013 than in 2004.

Commuter operations have significantly declined at the Airport, with most operations noted as commuter and air taxi being air taxi operations. General aviation operations have also experienced a significant decline since 2003. Military operations have increased in recent years, but represent less than 0.3 percent of all operations. (*Aviation Forecasts Technical Report*, Table 4-1, AECOM 2014a, provided in Appendix B.)

LOAD FACTOR

The load factor is based on a ratio of the number of passengers to the seats available on the plane (i.e., how full the flights are). Based on an analysis of the operations at JWA over the past five years (2008 to 2013), a trend was identified in which airlines started to "right size" equipment to routes, sometimes varying equipment for the same route during the week depending upon demand levels, which results in higher load factors. As such, load factors at JWA are at the highest they have been over the last decade.

Load factors applied to the forecasts are based on 2013 data, which are reflected in Table 3-5. These load factors take into account different load factors by airline and aircraft type. Load factors, with the exception of Alternative C, are assumed to remain constant. For Alternative C, load factors are assumed to decrease as airlines fill all available Class A ADDs. More detailed information is provided in Appendix B.

[8] This estimated 2013 passenger level used in the technical studies is 9.17 MAP. This projection was developed using actual passenger data through August as the basis for projecting passenger levels through the end of 2013. The actual 2013 counts were 9.2 MAP.

TABLE 3-5
LOAD FACTORS BY AIRCRAFT, 2013

Aircraft	Load Factor
Class A	
A318	93.7%
A319	86.2%
A320	80.8%
A321	80.1%
B737-300	72.6%
B737-400	89.0%
B737-700	78.7%
B737-800	86.3%
B757	85.7%
CRJ900	66.4%
Class E	
B737-700	72.6%
B737-800	72.6%
CL60	87.2%
CRJ2	87.2%
CRJ700	87.2%
CRJ900	84.7%
E120	87.2%
Source: *Aviation Forecasts Technical Report*, Table 4-2, AECOM 2014a.	

COMMERCIAL PASSENGER OPERATIONS FORECAST

Table 3-1 identifies the total number of Class A ADDs permitted for the Proposed Project and the alternatives. However, in addition to the regulated Class A ADDs, Class E (exempt) flights would also be flown. To accommodate the proposed MAP levels, each phase of the Proposed Project, three alternatives, and No Project Alternative assume the maximum number of Class A ADDs is used first. Once all Class A flights are utilized, passengers are then allocated to commuter flights, up to a maximum of 500,000 commuter passengers. The remaining passengers are then assigned to air carrier flights in Class E ADDs. Table 3-6 provides a simplified comparison of the total number of commercial passenger flights (Class A and Class E) for the Proposed Project and alternatives.

TABLE 3-6
COMMERCIAL PASSENGER OPERATIONS FORECAST SUMMARY
FOR THE PROPOSED PROJECT AND ALTERNATIVES BY PHASE

	Proposed Project			Alternative A			Alternative B			Alternative C			No Project
	1	2	3	1	2	3	1	2	3	1	2	3	
MAP	10.8	11.8	12.5	10.8	11.4	12.8	10.8	13	15	16.9	16.9	16.9	10.8
Average Daily Departures													
Class A	85.0	95.0	95.0	107.0	120.0	135.0	100.0	110.0	115.0	228.0	228.0	228.0	85.0
Class E	60.8	63.0	72.8	34.9	28.1	30.0	43.2	62.2	84.2	0.0	0.0	0.0	60.8
Total	145.8	158.0	167.8	141.9	148.1	165.0	143.2	172.2	199.2	228.0	228.0	228.0	145.8

Source: *Noise Analysis Technical Report*, Table 19, Landrum and Brown 2014.

The forecasted mix of commercial aircraft departures assumes the same aircraft types operating at the Airport today will continue to operate at the Airport.[9] The fleet mix was adjusted to utilize Class A ADDs in the Proposed Project and the four alternatives first, with the remaining operations being Class E aircraft. This results in a slight change in fleet mix for each phase of the Proposed Project and alternatives. Fleet mix assumptions are presented in Table 3-7 through Table 3-9.

[9] Given the Proposed Project's term length (through 2030), it is likely that there will be some fleet turnover at the Airport through the commercial airlines' purchase and utilization of newer, next generation aircraft. These newer aircraft likely would generate less noise and air pollutants as compared to the current fleet at JWA (AECOM 2014b). However, the timing of changes to the fleet mix cannot be known at this time and CEQA does not allow speculation. In order to be conservative, the environmental analysis presented in this EIR assumes the Project would maintain the Airport's existing fleet mix, thereby likely presenting a maximum environmental impact assessment of noise, air quality, and greenhouse gas impacts. (*Capacity Analysis Technical Report*, in the section titled: Aircraft in Development that Will Replace Aircraft Currently Operating at John Wayne Airport, AECOM 2014b, Appendix F,)

The next generation of aircraft at the Airport may not require any modifications to the existing facilities and could be incorporated into the fleet mix once the commercial airlines demonstrate that these aircraft meet the requirements of a Class A aircraft, as defined in the Phase 2 Access Plan. However, it also is possible that some newer aircraft would require facilities modifications. At this point in time, it is not known what, if any, facilities modifications would need to be undertaken as no specific aircraft have been identified for introduction at the Airport. Any changes to the facilities needed for the Airport to service the next generation of aircraft would require subsequent CEQA documentation subject to County evaluation.

TABLE 3-7
MIX OF COMMERCIAL AIRCRAFT IN THE AVERAGE DAY PEAK MONTH
ADPM BY AIRCRAFT TYPE, PHASE 1 (JANUARY 1, 2016)

Type of Service and Aircraft Type	Typical Number of Seats	Proposed Project		Alternative A		Alternative B		Alternative C		No Project	
		ADPM Dep.	%	ADPM Dep.	%	ADPM Dep.	%	ADPM Dep.	%	ADPM Dep.	%
Air Carrier Passenger Service											
A318	120	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
A319	127	15	11.3%	19	14.7%	18	13.8%	43	18.8%	15	11.3%
A320	142	11	8.3%	13	10.1%	12	9.2%	30	13.1%	11	8.3%
A321	187	1	0.8%	1	0.8%	1	0.8%	3	1.3%	1	0.8%
B737-300	137	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
B737-400	144	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
B737-700	137	78	58.6%	65	50.4%	69	53.1%	94	41.0%	78	58.6%
B737-800	153	17	12.8%	21	16.3%	20	15.4%	44	19.2%	17	12.8%
B757	183	5	3.8%	6	4.7%	5	3.8%	13	5.7%	5	3.8%
CRJ900	80	6	4.5%	4	3.1%	5	3.8%	2	0.9%	6	4.5%
Subtotal		133	100.0%	129	100.0%	130	100.0%	229	100.0%	133	100.0%
Average Aircraft Size (Seats)		138		139		139		142		138	
Commuter Passenger Service											
CRJ700	66	12	100.0%	12	100.0%	12	100.0%	0	N/A	12	100.0%
Subtotal		12	100.0%	12	100.0%	12	100.0%	0	N/A	12	100.0%
Average Aircraft Size (Seats)		66		66		66		N/A		66	
A300	N/A	2	55.2%	2	55.2%	2	55.2%	2	55.2%	2	55.2%
A310	N/A	0	0.3%	0	0.3%	0	0.3%	0	0.3%	0	0.3%
B757	N/A	2	44.5%	2	44.5%	2	44.5%	2	44.5%	2	44.5%
Subtotal		4		4		4		4		4	
Total Commercial Departures		**149**		**145**		**146**		**233**		**149**	

ADPM= Average Daily Peak Month; Dep.=Departure
Source: *Aviation Forecasts Technical Report*, Table 4-7, AECOM 2014a.

TABLE 3-8
MIX OF COMMERCIAL AIRCRAFT IN THE AVERAGE DAY PEAK MONTH ADPM BY AIRCRAFT TYPE, PHASE 2 (JANUARY 1, 2021)

Type of Service and Aircraft Type	Typical Number of Seats	Proposed Project		Alternative A		Alternative B		Alternative C		No Project	
		ADPM Dep.	%	ADPM Dep.	%	ADPM Dep.	%	ADPM Dep.	%	ADPM Dep.	%
Air Carrier Passenger Service											
A318	120	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
A319	127	17	11.7%	23	17.0%	20	12.6%	43	18.8%	15	11.3%
A320	142	12	8.3%	15	11.1%	14	8.8%	30	13.1%	11	8.3%
A321	187	1	0.7%	1	0.7%	1	0.6%	3	1.3%	1	0.8%
B737-300	137	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
B737-400	144	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
B737-700	137	84	57.9%	63	46.7%	90	56.6%	94	41.0%	78	58.6%
B737-800	153	19	13.1%	24	17.8%	21	13.2%	44	19.2%	17	12.8%
B757	183	5	3.4%	6	4.4%	6	3.8%	13	5.7%	5	3.8%
CRJ900	80	7	4.8%	3	2.2%	7	4.4%	2	0.9%	6	4.5%
Subtotal		145	100.0%	135	100.0%	159	100.0%	229	100.0%	133	100.0%
Average Aircraft Size (Seats)		138		140		138		142		138	
Commuter Passenger Service											
CRJ700	66	12	100.0%	12	100.0%	12	100.0%	0	N/A	12	100.0%
Subtotal		12	100.0%	12	100.0%	12	100.0%	0	N/A	12	100.0%
Average Aircraft Size (Seats)		66		66		66		N/A		66	
A300	N/A	2	55.2%	2	55.2%	2	55.2%	2	55.2%	2	55.2%
A310	N/A	0	0.3%	0	0.3%	0	0.3%	0	0.3%	0	0.3%
B757	N/A	2	44.5%	2	44.5%	2	44.5%	2	44.5%	2	44.5%
Subtotal		4		4		4		4		4	
Total Commercial Departures		**161**		**151**		**175**		**233**		**149**	

ADPM= Average Daily Peak Month; Dep.=Departure

Source: *Aviation Forecasts Technical Report*, Table 4-8, AECOM 2014a.

TABLE 3-9
MIX OF COMMERCIAL AIRCRAFT IN THE AVERAGE DAY PEAK MONTH
ADPM BY AIRCRAFT TYPE, PHASE 3 (JANUARY 1, 2026)

Type of Service and Aircraft Type	Typical Number of Seats	Proposed Project		Alternative A		Alternative B		Alternative C		No Project	
		ADPM Dep.	%	ADPM Dep.	%	ADPM Dep.	%	ADPM Dep.	%	ADPM Dep.	%
Air Carrier Passenger Service											
A318	120	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
A319	127	17	11.0%	25	16.4%	22	11.8%	43	18.8%	15	11.3%
A320	142	12	7.7%	17	11.2%	15	8.0%	30	13.1%	11	8.3%
A321	187	1	0.6%	2	1.3%	1	0.5%	3	1.3%	1	0.8%
B737-300	137	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
B737-400	144	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
B737-700	137	93	60.0%	71	46.7%	111	59.4%	94	41.0%	78	58.6%
B737-800	153	19	12.3%	26	17.1%	22	11.8%	44	19.2%	17	12.8%
B757	183	5	3.2%	7	4.6%	6	3.2%	13	5.7%	5	3.8%
CRJ900	80	8	5.2%	4	2.6%	10	5.3%	2	0.9%	6	4.5%
Subtotal		155	100.0%	152	100.0%	187	100.0%	229	100.0%	133	100.0%
Average Aircraft Size (Seats)		137		140		137		142		138	
Commuter Passenger Service											
CRJ700	66	12	100.0%	12	100.0%	12	100.0%	0	N/A	12	100.0%
Subtotal		12	100.0%	12	100.0%	12	100.0%	0	N/A	12	100.0%
Average Aircraft Size (Seats)		66		66		66		N/A		66	
A300	N/A	2	55.2%	2	55.2%	2	55.2%	2	55.2%	2	55.2%
A310	N/A	0	0.3%	0	0.3%	0	0.3%	0	0.3%	0	0.3%
B757	N/A	2	44.5%	2	44.5%	2	44.5%	2	44.5%	2	44.5%
Subtotal		4		4		4		4		4	
Total Commercial Departures		**171**		**168**		**203**		**233**		**149**	

ADPM= Average Daily Peak Month; Dep.=Departure

Source: *Aviation Forecasts Technical Report*, Table 4-9, AECOM 2014a.

When the air carrier and commuter average aircraft sizes are multiplied by the corresponding average load factors, the result is the average numbers of passengers carried per operation. The forecasts of annual air carrier and commuter operations are derived by dividing passenger levels for each phase of the Proposed Project and four alternatives by these average numbers of passengers carried. Load factors are presented in Table 3-5.

The number of commercial passenger operations in the passenger ADPM is forecasted using a similar approach as the number of passengers in the peak month. As previously discussed, August historically is the peak passenger month for JWA, with commercial operations in that month constituting approximately 8.7 percent of the Airport's annual operations, on average.[10] Therefore, in order to calculate the commercial passenger aircraft operations forecast associated with ADPM passengers, annual operations are multiplied by 8.7 percent. This amount is then divided by 31 (the total number of days in August) to determine ADPM operations. Table 3-10 presents the commercial passenger aircraft operations associated with ADPM passengers for the Proposed Project, Alternatives A through C, and the No Project Alternative.

Forecasts of hourly operations of commercial aircraft for the Proposed Project and each alternative based on the assumptions and analysis presented above are graphically shown in Exhibit 3-9 through Exhibit 3-13.

TABLE 3-10
COMMERCIAL PASSENGER AIRCRAFT OPERATIONS[a]
FORECAST ASSOCIATED WITH THE
AVERAGE DAY PEAK MONTH PASSENGERS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Phase 1					
Air Carrier	266	258	260	458	266
Commuter	24	24	24	0	24
Total	**290**	**282**	**284**	**458**	**290**
Phase 2					
Air Carrier	290	270	318	458	266
Commuter	24	24	24	0	24
Total	**314**	**294**	**342**	**458**	**290**
Phase 3					
Air Carrier	310	304	374	458	266
Commuter	24	24	24	0	24
Total	**334**	**328**	**398**	**458**	**290**

[a] An operation is defined as either a takeoff or landing, each counting as one operation. There is not a direct correlation between ADDs and operations as ADDs are only the departure or takeoff operation.

Source: *Aviation Forecasts Technical Report*, Table 4-6, AECOM 2014a.

COMMERCIAL CARGO OPERATIONS

The Proposed Project and alternatives maintain the four daily cargo ADDs, or a total of eight daily operations (four departures and four arrivals) currently provided for in the Settlement Agreement. This is 2,920 annual cargo operations. The maximum number of cargo operations is assumed for the Proposed Project, Alternatives A through C, as well as the No Project Alternative.

[10] As discussed above, on average and over the past 10 years, 9.4 percent of the annual passengers at JWA fly during peak month (August). And, 8.7 percent of the commercial flights occur during the peak month. The difference in percentages is due to higher load factors and an increased number of flights in August.

Currently, less than half of the allocated air cargo flights are being flown. However, to ensure the maximum environmental impact (the maximum number of flights) is evaluated in this EIR, the four air cargo ADD allowed under the Settlement Agreement have been included in all the assumptions. By including them, all the technical analyses (e.g., air quality, noise, and traffic) have incorporated the impacts associated with the maximum number of flights.

There are no dedicated cargo facilities available at JWA. Cargo aircraft use the south Remaining Overnight ("RON") apron for cargo loading operations. To avoid conflict with passenger operations, cargo flights occur in the middle of the afternoon. Cargo arrivals generally occur in the 4:00 PM hour and depart a few hours later at 7:00 PM. This is expected to continue for the Proposed Project, Alternatives A and B, and the No Project Alternative. Alternative C, Phase 1 also will retain this schedule. However, in Phases 2 and 3 of Alternative C, the curfew is removed. Therefore, it is assumed that cargo operations would then move to night time hours, when cargo operations are typically conducted. (*Aviation Forecasts Technical Report*, Section 4, AECOM, 2014a, provided in Appendix B.)

GENERAL AVIATION ASSUMPTIONS

General aviation is all flying that is not for commercial service or the military. Overall general aviation activity at JWA has declined during the past ten years due in part to economic changes within the general aviation industry and decline of active pilots in the area (AECOM 2014a). Although activity by small general aviation aircraft at the Airport has decreased, growth in business aircraft activity remains strong.

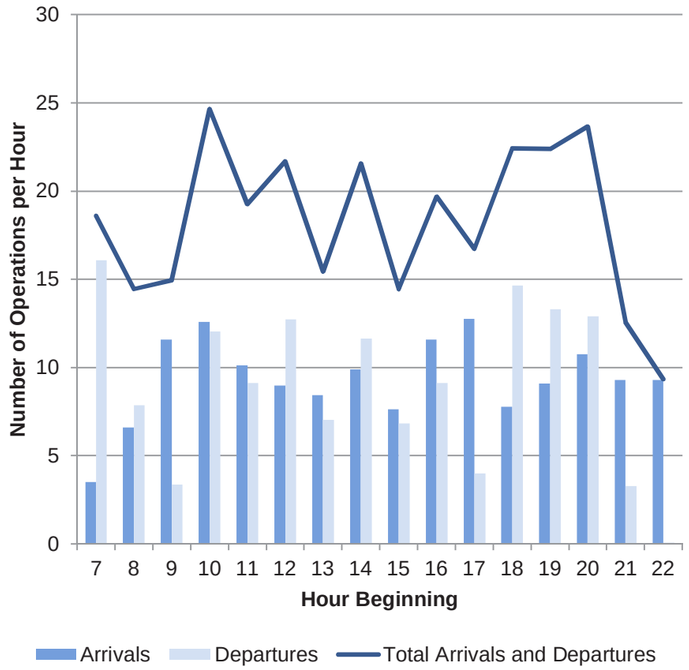
The mix of aircraft based at the Airport in 2013 was approximately 81.1 percent single engine piston aircraft, 7.4 percent multi-engine piston aircraft, 2.4 percent turboprop aircraft, 6.4 percent jet aircraft, and 2.6 percent helicopters (see Table 3-11).

TABLE 3-11
GENERAL AVIATION BASED AIRCRAFT BY TYPE, 2013

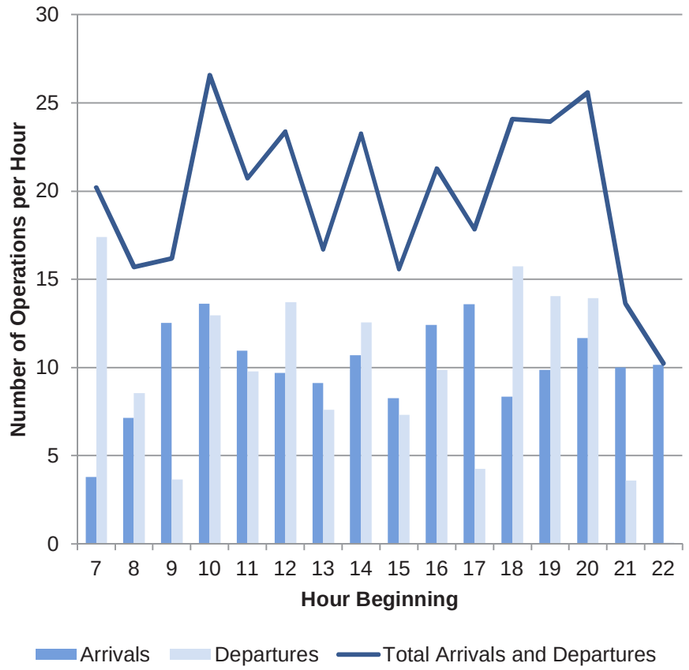
Location	Single-Engine	Multi-Engine	Turbo-prop	Jet	Helicopter	Total
County Tie-downs	253	17	5	0	0	275
Atlantic Aviation	0	0	0	8	2	10
Executive Hangars, LLC	74	11	1	1	2	89
Signature Flight Support (East)	10	3	2	0	0	15
Signature Flight Support (West)	3	0	0	12	7	22
South Coast Associates	0	0	2	6	0	8
Total Airport	**340**	**31**	**10**	**27**	**11**	**419**
Percent	81.1%	7.4%	2.4%	6.4%	2.6%	100.0%

Source: *Aviation Forecasts Technical Report*, Table 6-2, AECOM 2014a.

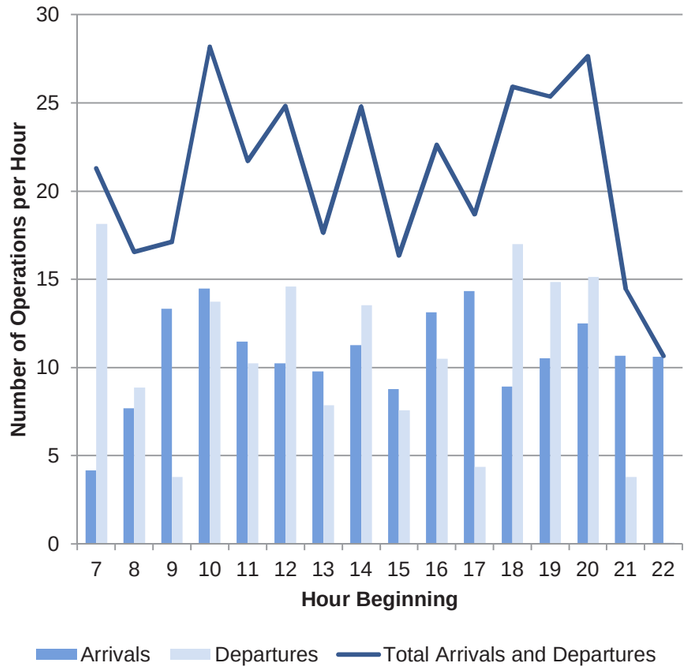
Phase 1



Phase 2



Phase 3



Source: *Aviation Forecasts Technical Report*, AECOM 2014a

Forecast of Hourly Commercial Operations – Proposed Project

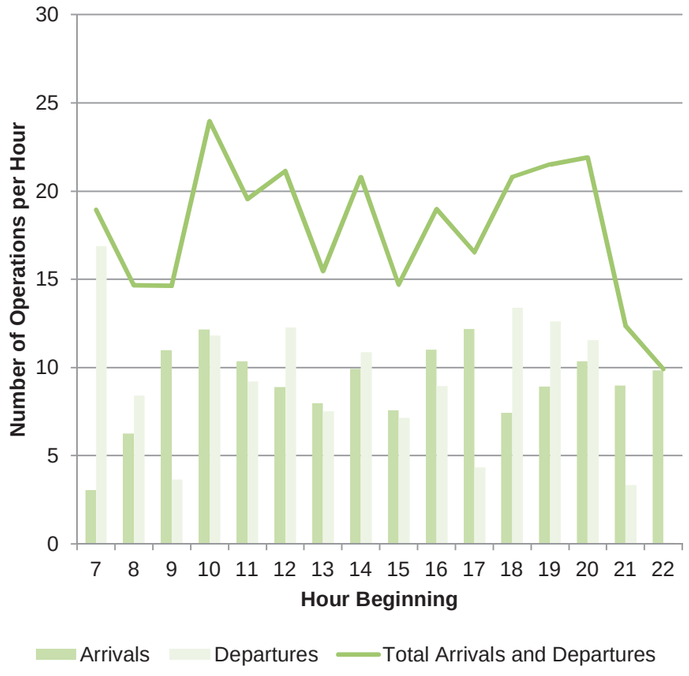
Exhibit 3-9

John Wayne Airport Settlement Agreement Amendment

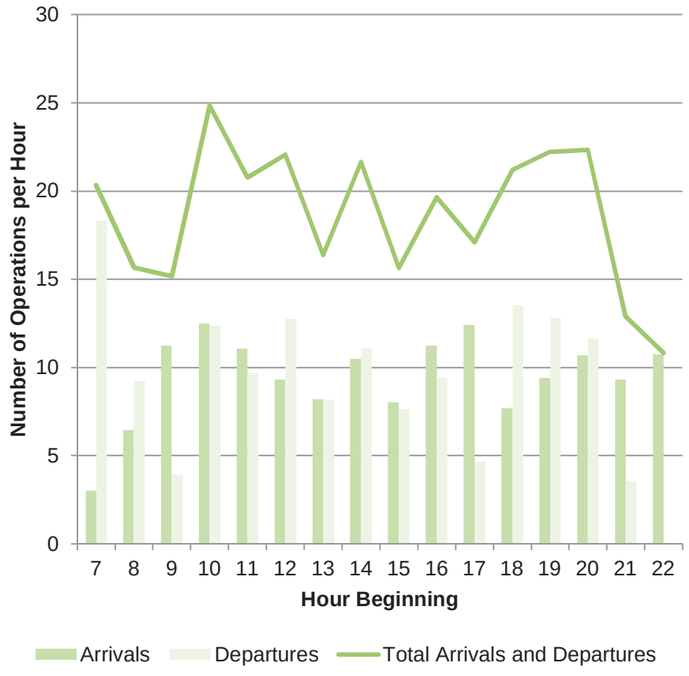
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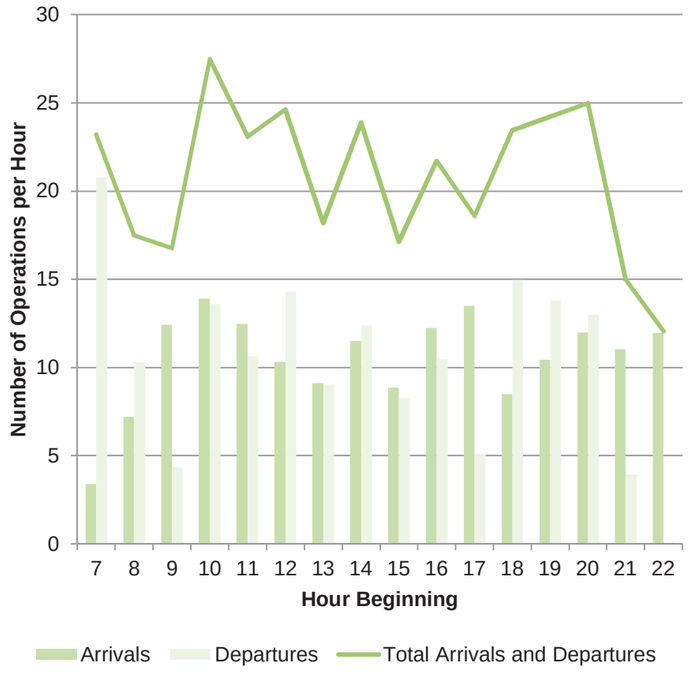
Phase 1



Phase 2



Phase 3



Source: *Aviation Forecasts Technical Report*, AECOM 2014a

Forecast of Hourly Commercial Operations – Alternative A

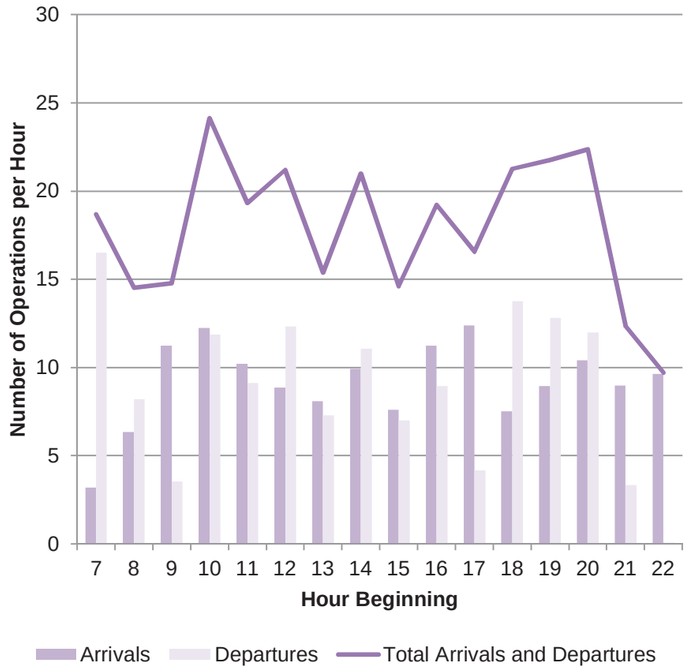
Exhibit 3-10

John Wayne Airport Settlement Agreement Amendment

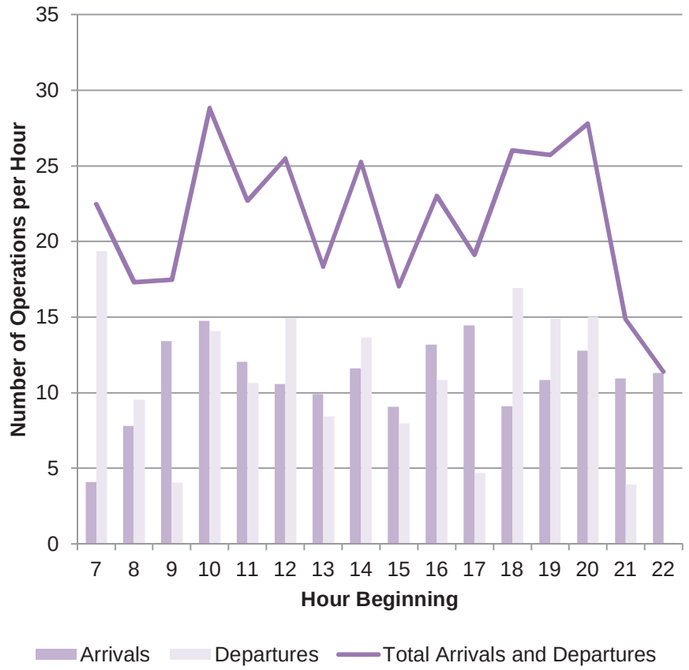
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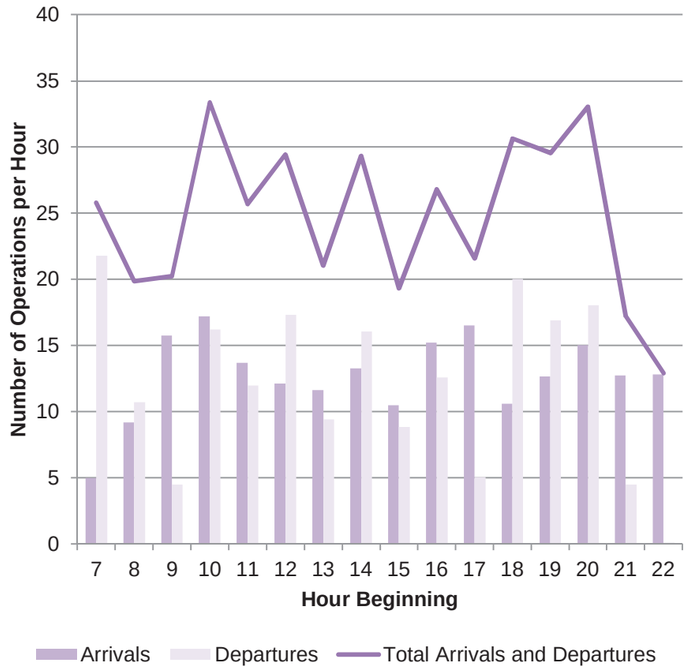
Phase 1



Phase 2



Phase 3



Source: *Aviation Forecasts Technical Report*, AECOM 2014a

Forecast of Hourly Commercial Operations – Alternative B

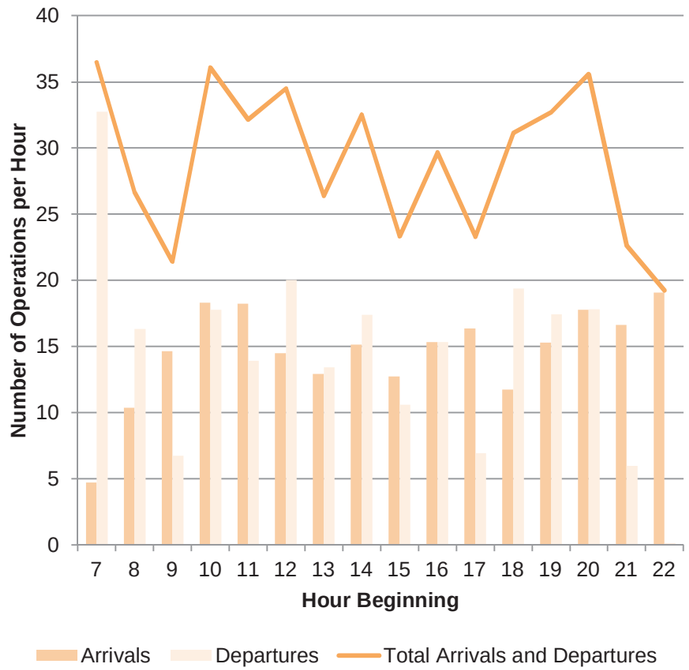
Exhibit 3-11

John Wayne Airport Settlement Agreement Amendment

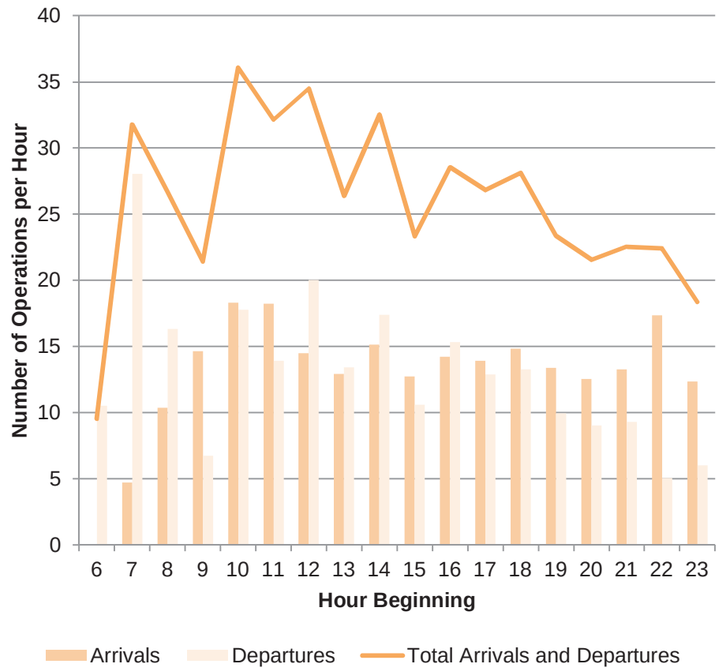
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Phase 1



Phases 2 and 3



Source: *Aviation Forecasts Technical Report*, AECOM 2014a

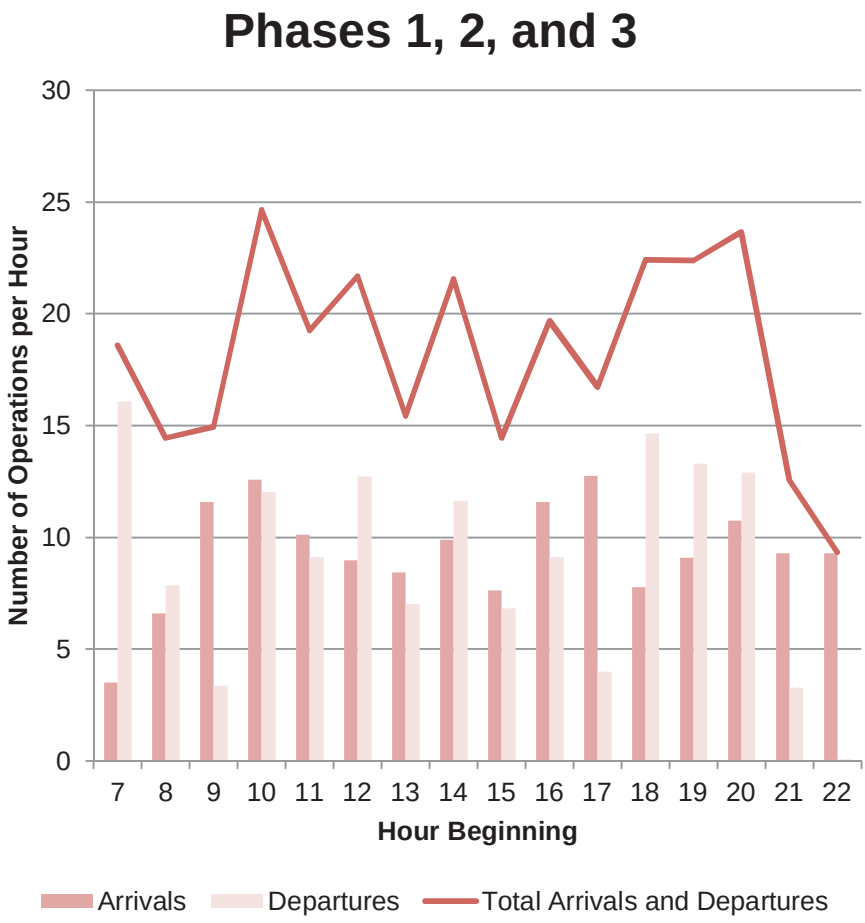
Forecast of Hourly Commercial Operations – Alternative C

Exhibit 3-12

John Wayne Airport Settlement Agreement Amendment

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Source: *Aviation Forecasts Technical Report*, AECOM 2014a

Forecast of Hourly Commercial Operations – No Project Alternative

Exhibit 3-13

John Wayne Airport Settlement Agreement Amendment

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Since general aviation demand is not a function of MAP levels or Class A ADDs, but is a separate segment of aviation demand, one general aviation forecast was developed that is applicable to the Proposed Project, three alternatives, and No Project Alternative.

Historical trends at the Airport have shown a consistent decline in piston engine aircraft since 1980 at the Airport. Multi-engine aircraft experienced a sharp decline in the early 1990s and have continued to decrease, though at a slower rate. Turbine powered aircraft have been on a general positive increase at the Airport. With the exception of helicopters, forecasts used a regression analysis of trends since 1980, adjusted to 2013 actual numbers. Helicopters are assumed to remain constant at present levels (11). Forecasts are presented in Table 3-12. (*Aviation Forecasts Technical Report*, Table 6-2, AECOM, 2014a, provided in Appendix B.)

TABLE 3-12
BASED AIRCRAFT FORECASTS

Year	Single-Engine	Multi-Engine	Turbine	Helicopter	Total
2013	340	31	37	11	419
Phase 1 (2016-2020)	317	27	38	11	393
Phase 2 (2021-2025)	283	21	40	11	367
Phase 3 (2026-2030)	252	17	42	11	322
Source: *Aviation Forecasts Technical Report*, Table 6-3, AECOM 2014a.					

In 2013, peak month general aviation operations were 15,974, about 9.8 percent of the annual total. Over the last ten years, the peak month has averaged 9.6 percent of the total annual operations, which is used in the future year forecasts. Based on hourly general aviation operations profiles from August 2011 and information from the JWA Airport Traffic Control Tower personnel, general aviation operations in the peak hour are about 9.9 percent of the total for the ADPM. During the peak hour, 69.5 percent of the general aviation operations are local operations.[11] Applying these percentages to the 2013 ADPM indicates there were approximately 51 general aviation operations in the peak hour of the ADPM.

3.8 ALTERNATIVES EVALUATION

Section 15126.6(a) of the State CEQA Guidelines provides guidance on the scope of alternatives to a proposed project that must be evaluated. It states:

> An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a

[11] General aviation operations are categorized as either local or itinerant. A local operation, as defined by the FAA, is one that is performed by aircraft that: (1) operate in the local traffic pattern or within sight of the airport (including touch-and-go operations), (2) are known to be departing for or arriving from flights in local practice areas located within a 20-mile radius of the airport, or (3) execute simulated instrument approaches or low passes at the airport. Itinerant operations are all operations other than local and generally include flights to and from other airports.

> reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.

As indicated above, in accordance with the MOU entered into by the Settlement Agreement signatories, this EIR addresses the impacts associated with the Proposed Project, Alternatives A through C, and the No Project Alternative at a comparable level of detail. In addition to the alternatives identified in the MOU, this EIR also discusses an alternative with a 2025 horizon year in Section 7. That analysis includes a different operational scenario than those identified by the Settlement Agreement signatories in the MOU and was formulated in furtherance of the County's obligation to describe a range of reasonable alternatives in the EIR under State CEQA Guidelines Section 15126.6(a). The referenced section of the State CEQA Guidelines requires that an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment [Public Resources Code §21002.1], even if the alternative would impede, to some degree, the attainment of the project objectives. The additional alternative, identified as the "2025 Horizon Year Alternative," would maintain limitations on the operations and facilities at JWA. This alternative proposes the same ADDs and MAP levels ultimately provided by Phase 2 of the Proposed Project, and would only extend the Settlement Agreement through December 31, 2025. This would allow the continuation of the Settlement Agreement, but would not commit to the higher flight and passenger levels provided in Phase 3 of the Proposed Project, thereby minimizing the potential environmental impacts. Section 7 also includes a discussion of alternatives that were not carried forward for further evaluation.

The analysis provided for all alternatives evaluated in the EIR conforms with the requirement of State CEQA Guidelines Section 15126.6(d) that the EIR "shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with" the Proposed Project.

3.9 INTENDED USES OF THE ENVIRONMENTAL IMPACT REPORT

This EIR has been prepared to address the potential impacts associated with the extension and modification of the Settlement Agreement. This document is intended to support the following actions:

- Approval by the Orange County Board of Supervisors of an extension and modification of the existing agreement with the other Settlement Agreement signatories on the operations and facilities at JWA.
- Approval by the City of Newport Beach of an extension and modification of the existing agreement with the other Settlement Agreement signatories on the operations and facilities at John Wayne Airport.

In addition, SPON and AWG will be required to approve the modifications of the Settlement Agreement provisions, and the federal court will need to review and approve any stipulation reflecting any approved amendments filed by the signatories. The FAA does not need to approve the Settlement Agreement. However, the County will coordinate with the FAA regarding the

proposed Project's standing under the ANCA, as well as the Airport's grant assurances and other federal laws.

3.10 REFERENCES

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4.0 EXISTING CONDITIONS, IMPACT ANALYSIS, AND MITIGATION PROGRAM

In accordance with Sections 15125 and 15126(a) to (c) of the State CEQA Guidelines, this Section of the EIR analyzes those environmental topics where the Project could result in "potentially significant impacts," as identified in the Initial Study included in Appendix A. The County identified the following specific topics as requiring detailed EIR analysis:

- Air Quality
- Biological Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Land Use and Planning
- Noise
- Public Services
- Utilities and Service Systems (water and wastewater services)
- Transportation/Traffic
- Water Quality

Each topical section includes the following information: description of applicable regulations; information on the existing setting; identification of methods used for the analysis presented in the section; identification of thresholds of significance; analysis of potential project effects and identification of significant impacts; identification of a mitigation program, if required, to reduce the impacts; and level of significance after mitigation.

As discussed in Section 1.6 and the Initial Study (Appendix A), it has been determined that the following environmental resource areas would not result in potentially significant impacts and do not need any further analysis in the EIR: aesthetics, agriculture and forestry resources, cultural/scientific resources, geology and soils, hydrology, mineral resources, population and housing, recreation, and utilities and services (solid waste disposal).

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 of Orange has not formally adopted thresholds of significance. The thresholds used in this EIR have been derived from several sources, including the General Plans for the adjacent jurisdictions, the CEQA Checklist contained in Appendix G of the State CEQA Guidelines, and adopted thresholds from other agencies (such as the South Coast Air Quality Management District and Caltrans).

To ensure the EIR evaluates the full range impacts, an impact analysis has been conducted for each of the interim phases when flight or passenger levels are proposed to change (i.e., 2016, 2021, and 2026), unless otherwise noted in the topical section. A mitigation program has been developed to minimize the potential impacts to the maximum extent feasible. The text identifies if the mitigation measures apply to the scenarios evaluated, or just to the Proposed Project or one of the alternatives. Given the Project would not be fully implemented until 2026, and potentially later, some impacts are not projected to occur for many years. In these cases, the

mitigation measures also identify specific performance criteria relating to the timing of the application of the mitigation measures.

4.0.1 REFERENCES

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4.1 AIR QUALITY

This section discusses Project-related impacts to regional and local air quality in the vicinity of John Wayne Airport ("JWA" or "the Airport"). The air quality analysis in this section is based on the *John Wayne Airport Settlement Agreement Amendment Air Quality Technical Report* (*"Air Quality Technical Report"*) prepared by Environ International Corporation and included in this EIR as Appendix D (Environ 2014). The Technical Report includes acronyms and large data tables that are not repeated in this section. Impacts from greenhouse gas ("GHG") emissions are addressed in Section 4.3 of this EIR.

The Project does not propose any physical construction or change to the nature of the Airport ground operations. Therefore, the Project would not generate air pollutant emissions associated with construction activities.

4.1.1 BACKGROUND INFORMATION

AIR POLLUTANTS

Criteria Pollutants

Air quality is defined by ambient air concentrations of seven "criteria air pollutants" ("CAPs"), 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 CAPs by using ambient standards based on criteria regarding the health and/or environmental effects of each pollutant. These pollutants include nitrogen dioxide ("NO_2"); ozone ("O_3"); particulate matter, including both particles equal to or smaller than 10 microns in size ("PM10") and particles equal to or smaller than 2.5 microns ("PM2.5"); carbon monoxide ("CO"); sulfur dioxide ("SO_2"); and lead. Particulate matter size refers to the aerodynamic diameter of the particle. A description of each CAP, 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 is converted to NO_2 in the atmosphere.

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.

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.

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 analysis of lead is limited to projects that emit significant quantities of the pollutant (i.e., lead smelters) and are not applied to 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 CAPs previously discussed in that ambient air quality standards have not been established for them. Rather, TAC impacts are described by 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. Appendix D to this EIR and this section also use the term "chemicals of potential concern" ("COPC") for TACs.

4.1.2 REGULATORY SETTING

FEDERAL AND STATE 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. Primary standards **s**et 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, 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.

The State of California Air Resources Board ("CARB") also has established additional standards, known as the California Ambient Air Quality Standards ("CAAQS"), which are generally more restrictive than the NAAQS.

The NAAQS and CAAQS applicable to this Project are shown in Table 4.1-1.

TABLE 4.1-1
CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Period	California Standard	Federal Standard
O_3	1 hour	0.09 ppm (180 µg/m^3)	–
	8 hour	0.070 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)
PM10	24 hour	50 µg/m^3	150 µg/m^3
	Annual Arithmetic Mean	20 µg/m^3	–
PM2.5	24 hour	–	35 µg/m^3
	Annual	12 µg/m^3 15 µg/m^3 [c]	12.0 µg/m^3
CO	1 hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
	8 hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
NO_2	1 hour[a]	0.18 ppm (339 µg/m^3)	0.100 ppm (188 µg/m^3)
	Annual	0.030 ppm (57 µg/m^3)	0.053 ppm 100 µg/m^3)
Lead	30-day average	1.5 µg/m^3	–
	Rolling 3-month average	–	0.15 µg/m^3
SO_2	1 hour[b]	0.25 ppm (655 µg/m^3)	0.075 ppm (196 µg/m^3)
	3 hour[c]	–	0.5 ppm (1300 µg/m^3)
	24 hour	0.04 ppm (105 µg/m^3)	–
H_2S	1 hour	0.03 ppm (42 µg/m^3)	–
Vinyl Chloride	24 hour	0.01 ppm (26 µg/m^3)	–
Sulfates	24 hour	25 µg/m^3	–
Visibility-Reducing Particles	8 hour	Extinction coefficient of 0.23 per km (visibility of 10 miles or more due to particles when relative humidity is less than 70%)	–

O_3: ozone; ppm: parts per million; µg/m^3 - micrograms per cubic meter; 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; CO: carbon monoxide; mg/m^3: milligrams per cubic meter; NO_2: nitrogen dioxide; SO_2: sulfur dioxide; H_2S: hydrogen sulfide.

[a] To attain the federal 1-hour NO_2 standard, the 3-year average of the 98th percentile of the daily maximum.

[b] To attain the federal 1-hour SO_2 standard, the 3-year average of the 99th percentile of the daily maximum.

[c] This is a secondary standard. All other Federal standards shown are primary standards. However, the primary standards for O_3, PM10, 24-hour PM2.5, Annual NO_2, and Lead are also identified as secondary standards.

Source: *Air Quality Technical Report,* Table 2.2-1, Environ 2014, USEPA 2014.

Specific geographic areas are classified as either "attainment" or "nonattainment" areas for each pollutant based upon the comparison of measured data with the NAAQS and CAAQS. 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" for purposes of NAAQS compliance 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 developed to meet federal requirements are included in an overall program referred to as the State Implementation Plan ("SIP"). The SIP process is described in Appendix D (see Section 2.2-1). Orange County's attainment status and the South Coast Air Basin ("SoCAB") SIP status are described in Sections 4.1.4 and 4.1.2 below, respectively.

FEDERAL

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.

Clean Air Act Conformity Rules

The 1990 amendments to Section 176 of the CAA required the USEPA to promulgate rules to ensure that federal actions conform to the appropriate SIP. The USEPA subsequently issued: (1) the Transportation Conformity Rule, which is a set of criteria and procedures for determining SIP conformity for transportation plans, programs and projects funded or approved under the *United States Code* or the Federal Transit Act; and (2) the General Conformity Rule, which requires any federal agency responsible for an action in a nonattainment area to determine that the action is either exempt from the General Conformity Rule's requirements or positively determine that the action conforms to the applicable SIP. Application of the General Conformity Rule is triggered by a "federal action," which is defined to include "any activity engaged in by a department, agency, or instrumentality of the Federal government, or any activity that a department, agency or instrumentality of the Federal government supports in any way, provides financial assistance for, licenses, permits, or approves…"

The Project is not subject to the Transportation Conformity Rule, because it is not a transportation project as defined in the Rule. The Project also is not subject to the General Conformity Rule because no federal approvals or federal funding are required to implement the

project. Additional discussion may be found in the *Air Quality Technical Study*, provided in Appendix D (see Section 2.2.4).

STATE

Mobile Source Reductions

Assembly Bill ("AB") 1493 ("the Pavley Standard" or "AB 1493") required CARB to adopt regulations by January 1, 2005, to reduce GHG emissions from non-commercial passenger vehicles and light-duty trucks of model year 2009 through 2016. While AB 1493 focuses on the reduction of GHG emissions, this regulation contributes to the reduction of some CAPs.

CARB's approach to passenger vehicles (cars and light trucks), under AB 1493, combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of standards. This approach also includes efforts to support and accelerate the numbers of plug-in hybrids and zero-emission vehicles in California. These standards will apply to all passenger and light-duty trucks used by customers, employees of, and deliveries to the Project site.

Advanced Clean Cars

In January 2012, CARB approved the Advanced Clean Cars ("ACC") program, a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles. By 2025, when the rules will be fully implemented, the new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions.

REGIONAL

South Coast Air Quality Management District and Southern California Association of Governments

The South Coast Air Quality Management District ("SCAQMD") was created by the 1977 Lewis-Presley Act, which merged four county air pollution control bodies (i.e., Los Angeles, Orange, and Riverside Counties, and the non-desert portion of San Bernardino County) into one regional district for the SoCAB. In SoCAB, the SCAQMD is the agency responsible for protecting public health and welfare through the administration of federal and State air quality laws, regulations, and policies. Included in the SCAQMD's tasks are the monitoring of air pollution; the preparation of the Air Quality Management Plan ("AQMP") for the SoCAB; and the promulgation of rules and regulations. The AQMP includes strategies and tactics to be used to attain the NAAQS and CAAQS standards in SoCAB, whereas the rules and regulations include procedures and requirements to control the emission of pollutants and to prevent adverse impacts. The SCAQMD has established CEQA significance thresholds as discussed in Section 4.1.5.

Within the Project area, the Southern California Association of Governments ("SCAG") is the federally designated Metropolitan Planning Organization and the State-designated transportation planning agency for six counties: Riverside, San Bernardino, Los Angeles, Ventura, Imperial, and Orange.

The SCAQMD and SCAG are jointly responsible for formulating and implementing the AQMP for the SoCAB. SCAG's Regional Mobility Plan and Growth Management Plan form the basis for the land use and transportation control portion of the AQMP.

State Implementation Plan Status

The AQMP and SIP processes generally occur concurrently: The SIP is required under the CAA to provide the framework for non-attainment areas to come into attainment, and the AQMP is prepared by the SCAQMD, in part, to satisfy the requirement for a SIP. The AQMP traditionally evaluates all nonattainment and maintenance criteria pollutants; portions of the AQMP represent the required SIP elements, which are then transmitted to the CARB for review and approval before being transmitted to the USEPA for inclusion in the overall California SIP.

The SoCAB, including Orange County, is currently designated as nonattainment for the federal and State O_3 standards; the State PM10 standards; the federal and State PM2.5 standards; and the State NO_2 standards.[1] The current status of the SIPs for these non-attainment pollutants are shown below:

- The 2007 AQMP provides attainment demonstrations for the annual PM2.5 standard by April 5, 2015, and the 8-hour O_3 standard by December 31, 2023. In 2009 and 2011, respectively, at the request of the USEPA, CARB provided clarifying revisions to the annual PM2.5 and 8-hour O_3 SIP amendments. In 2011, the USEPA approved the control strategy, emission reduction commitment, and attainment demonstration for the annual PM2.5 standard by April 5, 2015. In 2012, the USEPA approved the control strategy, emission reduction commitment, and attainment demonstration for the annual 8-hour O_3 standard by June 15, 2024.

- The 2012 AQMP provides attainment demonstrations for the 24-hour PM2.5 standard by 2019 and the 1-hour O_3 standard by 2023. In addition, it provides supplemental information for the approved 8-hour O_3 SIP. On January 25, 2013, CARB approved the 2012 AQMP, which was subsequently submitted to the USEPA. To date, the 2012 AQMP has not been formally approved by the USEPA. However, the 2012 AQMP is still considered by the SCAQMD as the current and approved AQMP.

4.1.3 METHODOLOGY

The basic steps conducted in performing this air quality analysis are as follows: (1) develop emissions inventories for existing conditions (2013) and future conditions (2016 through 2020, 2021 through 2025, and 2026 through 2030); (2) perform air dispersion modeling for pollutant concentrations; and (3) assess the Project's impact relative to the SCAQMD's numeric thresholds and the criteria of the State CEQA Guidelines, Appendix G.

EMISSIONS AND DISPERSION MODELS

Emissions Dispersion and Modeling System

The Emissions Dispersion and Modeling System ("EDMS") 5.1.4 was used to quantify CAP and TAC emissions from aircraft and CAP emissions from auxiliary power units ("APUs") and ground support equipment ("GSE"). The EDMS is a combined emissions and dispersion model for assessing air quality at civilian airports and military air bases. The model was developed by the Federal Aviation Administration ("FAA") in cooperation with the United States Air Force. The

[1] The Los Angeles County portion of the SoCAB is designated nonattainment for lead; the remainder of the SoCAB is designated attainment.

model is used to produce an inventory of emissions generated by sources on and around the airport or air base, and to calculate pollutant concentrations in these environments.

The EDMS calculates CAP and TAC emissions for several types of airport sources, based on aircraft engine performance, times in mode, and landing-takeoff cycles ("LTOs") by engine type for each inventory. The EDMS incorporates both USEPA-approved emissions inventory methodologies and dispersion models to ensure that analyses performed with the application conform to USEPA guidelines. Appendix B of Appendix D contains the EDMS input files for the Project and all alternatives.

California Emission Estimator Model™

The California Emissions Estimator Model ("CalEEMod™") Version 2013.2.2 was used to quantify the CAP emissions from vehicle traffic. CalEEMod calculates CAP emissions for projects located in California and was developed under the auspices of the SCAQMD upon receiving input from other California air districts.

CalEEMod utilizes widely accepted models for emissions estimates combined with appropriate default data that can be used if site-specific information is not available. For example, CalEEMod incorporates the USEPA-developed emission factors; CARB's on-road and off-road equipment emission models such as EMFAC and OFFROAD; and studies commissioned by California agencies, such as the California Energy Commission ("CEC") and the California Department of Resources Recycling and Recovery ("CalRecycle"). (EMFAC is an emissions factor model used to calculate emissions rates from on-road vehicles (e.g., passenger vehicles, haul trucks). OFFROAD is an emissions factor model used to calculate emission rates from off-road mobile sources (e.g., construction equipment, agricultural equipment).

As for the CalEEMod default values and existing regulation methodologies, the program is set to be customized for use in each specific local air district region. The air quality analysis presented in this EIR used default factors for Orange County, unless otherwise noted in the methodology descriptions below. The CalEEMod output files are provided for reference in Appendix C of Appendix D.

AERMOD

The American Meteorological Society/USEPA Regulatory Model Improvement Committee Model ("AERMOD") Version 12345 was used to model the air dispersion of pollutants from the Project site and from off-site ambient air concentrations in order to evaluate compliance with the NAAQS and CAAQS. This model, which has been approved for use by USEPA, CARB, and SCAQMD, incorporates multiple variables in its algorithms including:

- Meteorological data representative of surface and upper air conditions;
- Local terrain data to account for elevation changes;
- Physical specification of emission sources including information such as:
    - Location;
    - Release height; and
    - Source dimensions.

Dispersion model averaging times are specified based on the averaging times of ambient air quality standards and the air quality significance thresholds established by the appropriate regulatory agencies. Averaging times include 1-hour, 24-hour, and annual for the various pollutants. Dispersion modeling was performed using the maximum daily emissions and the complete five-year meteorological data set to evaluate short-term impacts, thereby ensuring that all likely meteorological conditions are considered. This approach is conservative, since it assumes that maximum daily emissions could occur on any day, even though there is a low probability that worst-case meteorological conditions would occur at exactly the same time as when the maximum emissions would occur.

Source Characterization

Two different types of emission sources are used in the air dispersion model: area sources and point sources. Sources that can be reasonably represented as emitting pollutants at a uniform rate over a two-dimensional surface (e.g., dust from a roadway) are modeled as area sources. The area sources modeled included Class A and E aircraft LTOs, APUs at taxiways, and on-site terminal traffic. Sources that emit pollutants from smokestacks are modeled as point sources. The cogeneration facility ("CoGen") stacks were modeled as a point source.

Appendix D (see Figure 2) shows the locations of the on-site terminal traffic roadways, runways, taxiways, and CoGen stacks that were included in the air dispersion model. The surrounding buildings near the CoGen stacks are also shown so that the building downwash effects would be appropriately represented.

Modeling details relative to source configuration, temporal factors, and emission rates are described in Appendix D (see Section 3.2.1.1).

Meteorology

The SCAQMD provides AERMOD model-ready meteorological data sets for use in air quality and risk impact analyses in the SoCAB. SCAQMD's Costa Mesa meteorological data set was selected based on that station's geographic proximity to the Project site. The SCAQMD meteorological data set for January 1, 2007 to December 31, 2011 (the most recent data set available) was used for the analysis. The data set included ambient temperature, wind speed, wind direction, atmospheric stability, and mixing height parameters. Calm wind conditions were included in the modeling analysis consistent with guidance provided by SCAQMD. Appendix D (see Figure 3) depicts the wind rose for the Costa Mesa station.

Receptors

The following receptors are included in the AERMOD model:

- Fence line receptors 25 meters ("m") apart;
- Fine grid 25 m x 25 m located up to 200 m from the fence line;
- Coarse grid 100 m x 100 m in the area from 200 m to 1,000 m from the fence line; and
- Sensitive receptors are gridded receptors in residential areas, as well as discrete receptors, including long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, child care centers, and athletic facilities, within 1,000 m of the project boundary.

The locations of all sensitive receptors are illustrated on Exhibit 4.1-1. Criteria pollutant impacts were evaluated at receptors where a person can be situated for an hour or longer at a time. Additional details relative to modeled receptors are described in Appendix D (see Sections 3.2.1.4 and 3.3.1).

Background Concentrations

In order to determine if the concentrations of CO and NO_2 (attainment pollutants) would be below the ambient air quality standards, the maximum concentrations for NO_2 and CO from 2008-2012 at the Anaheim and Costa Mesa monitoring stations were determined from the data in Tables 4.1-2 and 4.1-3. These concentrations were then added to the maximum modeled concentrations for these pollutants to determine the combined modeled and background concentrations. The other pollutants evaluated (i.e., PM_{10}, $PM_{2.5}$) have incremental thresholds and thus the results are not added to background concentrations.

HEALTH RISK ASSESSMENT

The Health Risk Assessment ("HRA") 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 ("CalEPA") Department of Toxic Substances Control. Simplifying assumptions were also obtained from the SCAQMD risk assessment guidelines.

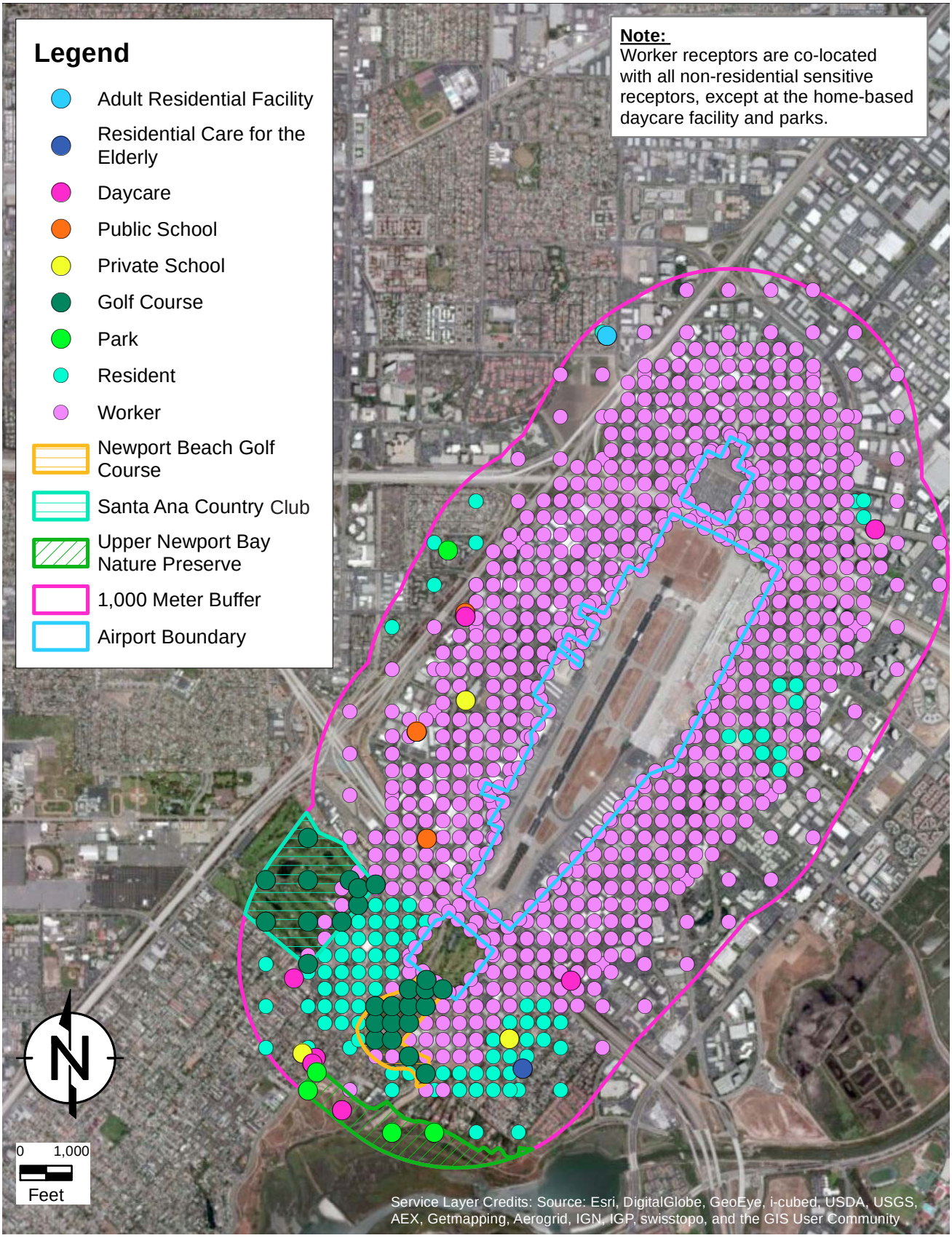
Health Effects Categories

Compounds were evaluated for their potential health effects in two categories, carcinogenic and non-carcinogenic. Many compounds produce non-carcinogenic effects at sufficiently high doses, but only some compounds are associated with carcinogenic effects. Most regulatory agencies consider carcinogens to pose a risk of cancer at all exposure levels (i.e., a "no-threshold" assumption); that is, any increase in dose is assumed to be associated with an increase in the probability of developing cancer. In contrast, non-carcinogens generally are thought to produce adverse health effects only when some minimum exposure level is reached (i.e., a threshold). TAC modeled concentrations were used to calculate cancer risk, chronic hazard index ("HI"), and acute HI at each relevant receptor.

Cancer Risk Receptor Exposure

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. 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, this analysis assumes that residents are experiencing outdoor concentrations for the entire exposure period. The 24 hours per day, 350 days per year for a 70-year period exposure is also assumed for non-residential sensitive receptors, such as daycare centers, schools, hospitals, and other care facilities.

For occupational receptors, SCAQMD guidance suggests that the exposure be based on 8 hours per day, 5 days per week, 245 working days per year, and a 40-year working lifetime. This is a conservative assumption, since most people do not remain at the same job for 40 years. The SCAQMD also suggests specific daily breathing rates and exposure value factors for estimating cancer risks.



Source: *Air Quality Technical Report*, Environ 2014

Air Dispersion Modeled Receptor Locations

Exhibit 4.1-1

John Wayne Airport Settlement Agreement Amendment

(4-09-2014 JAZ) R:\Projects\JWA\J003\Graphics\EIR\Ex4.1-1_AirdispersionModeledReceptorLocations.pdf

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Incremental cancer risks are compared to the risk significance threshold of greater than or equal to ten in a million (1×10^{-5}) pursuant to the SCAQMD CEQA Significance Thresholds, which is also consistent with the California Air Toxics "Hotspots" Assessment and Information Act (AB2588). The cancer burden is estimated by identifying the area where the incremental cancer risk is greater than or equal to one in a million. The population in this area is estimated based on a population density of 7,000 persons per square kilometer, which was assumed based on SCAQMD's risk assessment guidance.

Chronic and Acute Hazard Index

The potential for non-carcinogenic (chronic/acute) health effects is evaluated by calculating the total HI for the Project emissions. This HI represents the sum of the hazard quotients (HQs) developed for each individual chemical. The chronic HI and acute HI, which represent the exposure to multiple contaminants, are compared to a hazard threshold of greater than or equal to one (1.0) pursuant to the SCAQMD CEQA Significance Thresholds. An HI greater than or equal to one indicates that exposure to contaminants from the Project may cause adverse health effects in exposed populations. It is important to note, however, that the level of concern associated with exposure to non-carcinogenic compounds does not increase linearly as the HI exceeds one. Typically, compound-specific HQs are summed to calculate pathway-specific HI values. Thus, the result is a conservative representation of the maximum HI.

Uncertainty Characterization

In any risk evaluation, a number of assumptions are made in order to estimate human exposure and to calculate potential risks. These assumptions may, however, introduce uncertainty in risk calculations. Regulatory guidance requires that conservative assumptions be used to provide an upper-bound estimate of the risk and to avoid underestimating the potential exposures and associated health risks.

Conservative assumptions are made in this assessment as noted in the *Air Quality Technical Report*, provided in Appendix D. Thus, estimated excess cancer risks are upper-bound estimates and the actual incidence of cancer is likely to be lower.

Additional model details relative to toxicity factors, identification of COPCs, exposure assessment, and risk characterization are included in Appendix D (see Section 3.2).

PROJECT SOURCES OF AIR POLLUTANTS

Aircraft

Aircraft operational emissions are based on Project-specific projections of aircraft landings and takeoffs, and were modeled using the EDMS. The aircraft data included 44 potential aircraft types, as summarized in Appendix D (see Table 3.1-2), with varied aircraft classifications and engine types.

Note that the analysis conservatively assumes the continuation of the existing fleet mix for the entire Project term. Given the length of this planning timeframe (i.e., through 2030), it is reasonable to assume that there will be some fleet turnover and interest in introducing newer and next generation aircraft, which are anticipated to be more fuel efficient and produce less emissions. That being said, because of the uncertainty regarding the specifics of the emission benefits attributable to the next generation of aircraft and because of the uncertainty regarding

the timing of the introduction of those aircraft into the commercial market, the maximum environmental impact assumption of no improvement in the fleet's emission characteristics has been made.

Additional inputs to the EDMS model included:

- LTO estimates for commercial aviation and general aviation aircraft, including cargo aircraft (see Appendix D, Table 3.1-3);
- The EDMS default times-in-mode for approach, takeoff and climb out, which vary by aircraft (see Appendix D, Table 3.1-4); and
- Taxi time, including landing roll time, based on data estimated for JWA (see Appendix D, Table 3.1-5).

Emission factors for each aircraft type are the EDMS defaults.

Auxiliary Power Units

The EDMS was used to calculate emissions from APUs utilizing EDMS default APU assignments (engine type/horsepower) by aircraft class. JWA-specific taxi time data, however, was used for APU run time for each LTO. APUs were assumed to not operate while airplanes are at the gate, since the aircraft are plugged in for electricity and preconditioned air.

Ground Support Equipment

GSE includes air conditioners, air starts, aircraft tractors, baggage tractors, belt loaders, cabin service trucks, cargo loaders, catering trucks, forklifts, fuel trucks, hydrant trucks, lavatory trucks, service trucks, and water service equipment. CAP emissions were estimated based on the EDMS defaults for each aircraft class (see Appendix D, Table 3.1-9 for the default aircraft GSE assignments). The EDMS defaults include fuel type, operating time, horsepower, and load factor. However, the analysis utilized information on actual, existing GSE fuel types, in order to estimate emission reductions from electrification for specific GSE types. The analysis incorporates the Airport's commitment to increase the percentage of electrified GSE from baseline conditions by 15 percent for Phase 1, by 35 percent for Phase 2, and 50 percent for Phase 3; this commitment is set forth in mitigation measure AQ/GHG-7(i).

Mobile Sources

The emissions inventory includes three types of mobile sources: vehicles in the JWA parking lots and structures; passenger-related terminal and off-site traffic; and JWA-owned vehicles and equipment.

This analysis conservatively does not quantify emissions reductions from the Pavley Standard or the Advanced Clean Cars program, which are expected to reduce the emissions estimated from mobile sources.[2]

[2] CalEEMod includes the Pavley Standard for GHG emissions, but not criteria pollutant emissions.

Parking Lots

Emissions for parking lot activity were calculated in accordance with the methodology outlined in the EDMS. The related inputs included idling time, distance traveled (based on parking lot size), and total number of vehicles entering and exiting per hour of day. Idling and speed assumptions are specific to JWA, and parking lot volumes for existing traffic were provided in the Project traffic analysis (see Appendix G). Parking lot activity for each phase was estimated by scaling the ratio of the Million Annual Passengers ("MAP") for each Phase to the Baseline MAP. It was assumed that the Parking Structure C2 extension would be completed by the beginning of Phase 1 of the Project. Emission factors are from EMFAC 2011. Appendix D includes parking lot vehicle counts by phase (see Table 3.1-11) and emission factors for the parking lot vehicles (Table 3.1-12).

Terminal Traffic

CAP emissions from terminal traffic, including off-site traffic, were calculated from trip generation rates and average trip lengths provided in the Project's traffic impact analysis (see Appendix G). CalEEMod emission factors for each phase year (2016, 2021, and 2026) were used to estimate Project CAP emissions. Appendix D provides an overview summary of the CalEEMod inputs and trip generation attributes (see Table 3.1-14).

John Wayne Airport Vehicles and Equipment

Vehicles associated with the Airport's day-to-day operations include landside and airside vehicles owned and operated by the Airport and by third parties (e.g., on-site maintenance trucks, shuttle services, employee and passenger transportation, taxis, and off-road equipment not included in GSE above). The estimated emissions are based on site-specific data, including a list of equipment/vehicles, horsepower or model year, annual mileage/operating hours, fuel type, and fuel consumption totals.

John Wayne Airport-Owned Vehicles

CAP emissions from JWA owned and operated on-road vehicles were calculated by utilizing vehicle model year and annual mileage information specific to JWA. Appendix D presents the CAP emission factors for this source type on a vehicle-by-vehicle basis, based on EMFAC2011 emission factors (see Table 3.1-16a).

John Wayne Airport-Owned Airside Equipment

CAP emissions from JWA owned and operated (non-GSE) off-road equipment were calculated by utilizing equipment-specific horsepower and activity data (hours) specific to JWA. Appendix D presents the CAP emission calculations for this source type on a vehicle-by-vehicle basis, based on OFFROAD2011 emission factors (see Table 3.1-17a).

Stationary Sources

CAP emissions from JWA stationary source equipment were estimated for two categories. The first category includes sources such as heaters/boilers, emergency engines, steam washers, surface cleaners, cooling towers, and gasoline and diesel dispensing tanks. The stationary source estimates are based on site-specific emission estimates for the Baseline and are scaled based on

Class A Average Daily Departures ("ADDs") for each Phase of the Proposed Project and alternatives.

The second category of stationary sources is the CoGen, which is a primary source of electricity at the Airport terminal. The CoGen is fueled by natural gas, and thus it generates direct CAP emissions. CoGen usage from the Baseline condition was used to estimate the Project's CoGen emissions. The CoGen-related emissions were assumed to increase in proportion to the increase in MAP due to an estimated increase in electricity demand. The increased demand in electricity was based on the derivation of the electricity required in the Baseline condition per MAP, which was estimated due to the differences in electrical demand between the day and nighttime (when there are no passengers).

Appendix D identifies the CoGen's operating parameters that are relevant to this analysis, including electricity demand by time of day (Table 3.1-19). Based on this information, the electricity generation for the CoGen was estimated for each Phase of the Proposed Project and alternatives, as shown in Appendix D (see Table 3.1-20).

4.1.4 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 Pacific Ocean forms the southwestern border and high mountains surround the rest of the SoCAB. 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 maintains ambient air quality monitoring stations throughout the SoCAB. The Costa Mesa Monitoring Station is the station closest to the Project site, approximately 3 miles west of JWA. The Costa Mesa Monitoring Station monitors CO, NO_2, O_3, and SO_2 levels; particulate concentrations are not monitored at this station. PM10 and PM2.5 concentrations are monitored at the Anaheim Monitoring Station, approximately 11 miles north of JWA. Tables 4.1-2 and 4.1-3 list the most recent five years of published data at the Costa Mesa and Anaheim Monitoring Stations.

TABLE 4.1-2
AIR QUALITY DATA FOR COSTA MESA MONITORING STATION

Pollutant	2008	2009	2010	2011	2012
O_3					
Maximum Concentration 1-hr period, ppm	0.094	0.087	**0.097**	0.093	0.090
Maximum Concentration 8-hr period, ppm	**0.079**	**0.072**	**0.076**	**0.077**	**0.076**
Annual 4th Highest Daily maximum over 3 years	0.073	0.065	0.060	0.063	0.059
Number of Exceedances, California Standard Concentration 1-hr period	0	0	1	0	0
Number of Exceedances, California Standard Concentration 8-hr period	6	3	2	1	1
Number of Exceedances, National Standard Concentration 8-hr period	3	0	1	1	1
CO					
Maximum Concentration 1-hr period, ppm	3	3	2	3	2
Maximum Concentration 8-hr period, ppm	2.0	2.2	2.1	2.2	1.7
Number of Exceedances, California Standard Concentration 1-hr period	0	0	0	0	0
Number of Exceedances, California Standard Concentration 8-hr period	0	0	0	0	0
Number of Exceedances, National Standard Concentration 1-hr period	0	0	0	0	0
Number of Exceedances, National Standard Concentration 8-hr period	0	0	0	0	0
NO_2					
Maximum Concentration 1-hr period, ppm	0.081	0.065	0.070	0.061	0.074
98th Percentile Daily Maximum Concentration 1-hr period, ppm	0.064	0.057	0.056	0.053	0.051
AAM, ppm	0.013	0.013	0.011	0.010	0.010
Number of Exceedances, California Standard Concentration 1-hr period	0	0	0	0	0
Number of Exceedances, California Standard AAM	0	0	0	0	0
Number of Exceedances, National Standard Concentration 1-hr period	0	0	0	0	0
Number of Exceedances, National Standard AAM	0	0	0	0	0
SO_2					
Maximum Concentration 1-hr period, ppm	0.009	0.009	0.010	0.008	0.006
Maximum Concentration 24-hr period, ppm	0.003	0.003	0.002	0.001	0.001
AAM, ppm	0.001	0.004	N/A	N/A	N/A
Number of Exceedances, California Standard Concentration 1-hr period	0	0	0	0	0
Number of Exceedances, California Standard Concentration 24-hr period	0	0	0	0	0
Number of Exceedances, National Standard Concentration 1-hr period	0	0	0	0	0

TABLE 4.1-2
AIR QUALITY DATA FOR COSTA MESA MONITORING STATION

Pollutant	2008	2009	2010	2011	2012
Number of Exceedances, National Standard Concentration 24-hr period	0	0	0	0	0
Number of Exceedances, National Standard AAM	0	0	0	0	0

O_3: ozone; hr: hour; ppm: parts per million; CO: carbon monoxide; NO_2: nitrogen dioxide; AAM: Annual Arithmetic Mean; SO_2: sulfur dioxide; N/A: insufficient data available.

Bold values are data that exceed the standards.

Source: *Air Quality Technical Report,* Table 2.1-1, Environ 2014.

TABLE 4.1-3
AIR QUALITY DATA FOR ANAHEIM MONITORING STATION

Pollutant	2008	2009	2010	2011	2012
O_3					
Maximum Concentration 1-hr period, ppm	**0.105**	0.093	**0.104**	0.088	0.079
Maximum California Concentration 8-hr period, ppm	**0.086**	**0.077**	**0.088**	**0.072**	0.067
Annual 4th Highest Daily maximum over 3 years, ppm	0.076	0.068	0.060	0.064	0.065
Number of Exceedances, California Standard Concentration 1-hr period	2	0	1	0	0
Number of Exceedances, California Standard Concentration 8-hr period	10	2	1	1	0
Number of Exceedances, National Standard Concentration 8-hr period	4	1	1	0	0
CO					
Maximum Concentration 1-hr period, ppm	4	3	3	3	3
Maximum Concentration 8-hr period, ppm	3.4	2.7	2.0	2.1	2.3
Number of Exceedances, California Standard Concentration 1-hr period	0	0	0	0	0
Number of Exceedances, California Standard Concentration 8-hr period	0	0	0	0	0
Number of Exceedances, National Standard Concentration 1-hr period	0	0	0	0	0
Number of Exceedances, National Standard Concentration 8-hr period	0	0	0	0	0
NO_2					
Maximum Concentration 1-hr period, ppm	0.093	0.068	0.073	0.074	0.067
98th Percentile Daily Maximum Concentration 1-hr period, ppm	0.073	0.062	0.061	0.061	0.054
AAM, ppm	0.020	0.018	0.018	0.017	0.015
Number of Exceedances, California Standard Concentration 1-hr period	0	0	0	0	0
Number of Exceedances, California Standard AAM	0	0	0	0	0

TABLE 4.1-3
AIR QUALITY DATA FOR ANAHEIM MONITORING STATION

Pollutant	2008	2009	2010	2011	2012
Number of Exceedances, National Standard Concentration 1-hr period	0	0	0	0	0
Number of Exceedances, National Standard AAM	0	0	0	0	0
PM10					
Maximum Concentration 24-hr period, µg/m^3	**61**	**63**	43	**53**	48
AAM, µg/m^3	**28.6**	**30.9**	**22.4**	**24.8**	**22.4**
Number of Exceedances, California Standard 24-hr period	3	1	0	2	0
Number of Exceedances, California Standard AAM	1	1	1	1	1
Number of Exceedances, National Standard Concentration 24-hr period	0	0	0	0	0
PM2.5					
Maximum Concentration 24-hr period, µg/m^3	31.0	32.0	25.0	28.0	25.0
AAM, µg/m^3	**13.7**	11.8	10.2	11.0	10.8
Number of Exceedances, National Standard Concentration 24-hr period	0	0	0	0	0
Number of Exceedances, National Standard AAM	0	0	0	0	0
Number of Exceedances, California Standard AAM	1	0	0	0	0

O_3: ozone; hr: hour; ppm: parts per million; CO: carbon monoxide; NO_2: nitrogen dioxide; AAM: Annual Arithmetic Mean; PM10: respirable particulate matter with a diameter of 10 microns or less; µg/m^3: micrograms per cubic meter; PM2.5: fine particulate matter with a diameter of 2.5 microns or less.

Bold values are data that exceed the standards.

Source: *Air Quality Technical Report,* Table 2.1-2, Environ 2014.

As shown in Tables 4.1-2 and 4.1-3:

- CO, NO_2, and SO_2 levels were below the State and federal standards at the Costa Mesa monitoring station; CO and NO_2 levels were below the State and federal standards at the Anaheim monitoring station.

- O_3 levels exceeded the State one-hour standard in 2008 (Anaheim only) and 2010 (Costa Mesa and Anaheim); O_3 levels exceeded the State eight-hour standard in all of the past five years for both air monitoring stations, except for 2012 at the Anaheim Monitoring Station; O_3 levels exceeded the federal eight-hour standard four of the last five years at the Costa Mesa Monitoring Station and three of the last five years at the Anaheim Monitoring Station.

- The 4th highest O_3 levels, which are the concentrations used when determining attainment of the eight-hour standard, were below the federal standard at both air monitoring stations.

- PM10 levels at the Anaheim Monitoring Station exceeded the State 24-hour standard in all years except 2010 and 2012. In addition, PM10 levels at the Anaheim Monitoring Station exceeded the State annual mean standard in all years from 2008–2012.

- PM2.5 levels at the Anaheim Monitoring Station exceeded the State annual standard in 2008. From 2008 to 2012, there were no exceedances of the federal 24-hour or annual standard at the Anaheim Monitoring Station.

ATTAINMENT STATUS

As described in Section 4.1.2, specific geographic areas are classified as either "attainment" or "nonattainment" areas for each pollutant based upon the comparison of measured data with the NAAQS and CAAQS. Table 4.1-4, National and California Ambient Air Quality Standard Attainment Status, summarizes the attainment status of Orange County for the pollutants regulated by the NAAQS and CAAQS. As seen in Table 4.1-4, Orange County is currently in attainment (or unclassified or maintenance) for the federal 24-hour PM10 standard; the federal and State CO standards; the federal NO_2 standards; the federal and State lead standards; the federal and State SO_2 standards; and the State hydrogen sulfide, vinyl chloride, sulfates, and visibility-reducing particles standards. However, as also shown in Table 4.1-4, Orange County is currently designated as a nonattainment area for the federal and State O_3 standards ("extreme" 1-hour standard); the State PM10 standards; the federal and State PM2.5 standards; and the State NO_2 standards.

TABLE 4.1-4
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARD ATTAINMENT STATUS

Pollutant	Averaging Period	Orange County Attainment Status	
		California Standard	Federal Standard
O_3	1 hour	Extreme Non-Attainment	–
	8 hour	Non-Attainment	Extreme Non-Attainment
PM10	24 hour	Non-Attainment	Attainment (Maintenance)
	Annual	Non-Attainment	–
PM2.5	24 hour	–	Non-Attainment
	Annual	Non-Attainment	Non-Attainment
CO	1 hour	Attainment	Attainment (Maintenance)
	8 hour	Attainment	Attainment (Maintenance)
NO_2	1 hour	Non-Attainment	Maintenance
	Annual	Non-Attainment	Maintenance
Lead	30 day average	Attainment	–
	Rolling 3-month average	–	Attainment

TABLE 4.1-4
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARD ATTAINMENT STATUS

Pollutant	Averaging Period	Orange County Attainment Status	
		California Standard	Federal Standard
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: 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; CO: carbon monoxide; NO_2: nitrogen dioxide; SO_2: sulfur dioxide; H_2S: hydrogen sulfide; –: no standard.

Source: *Air Quality Technical Report,* Table 2.2-2, Environ 2014.

BASELINE CRITERIA AREA POLLUTANT EMISSIONS

The Baseline/existing condition CAP emissions at the Airport were calculated, as described in Section 4.1.3 and as shown in Table 4.1.5.

TABLE 4.1-5
BASELINE CRITERIA POLLUTANT EMISSIONS

Source	Emissions (lbs/day)					
	VOC	NOx	CO	SOx	PM10	PM2.5
Aircraft	634.0	2,091	19,286	241.3	75.2	75.2
GSE	33.9	140.2	825.7	2.7	4.9	4.7
APUs	3.0	55.3	47.5	7.5	5.9	5.9
Airside	2.5	3.1	16.5	0.6	0.2	0.2
Traffic	229.6	678.3	3,059	6.3	467.4	132.4
Parking Lots	130.5	19.9	144.4	0.08	0.7	0.5
Stationary Sources	17.0	10.2	74.0	0.6	10.2	10.2
Total	**1,050**	**2,998**	**23,453**	**259.0**	**564.5**	**229.0**

lbs/day: pound/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; GSE: ground support equipment; APUs: auxiliary power units.

Source: *Air Quality Technical Report,* Table 5.1-1, Environ 2014.

As shown in Table 4.1-5, aircraft operating at JWA currently are the primary source of the maximum daily emissions of VOCs, NOx, CO and SOx, whereas traffic associated with the Airport is the primary source of the maximum daily emissions of PM10 and PM2.5.

HEALTH RISK WITHIN THE AIR BASIN

The SCAQMD has conducted several phases of the Multiple Air Toxics Exposure Study ("MATES") to characterize health risks potentially posed by TACs in the SoCAB. The first such study ("MATES-I") was conducted in 1987. During 1998–1999, MATES-II was conducted as part of the Environmental Justice Initiatives adopted by SCAQMD's Governing Board in October 1997. MATES-II was a landmark urban air toxics monitoring and evaluation study that included a comprehensive monitoring program; compilation of an updated TAC emissions inventory; and urban and local scale air quality modeling to characterize SoCAB risk.

During 2004–2006, SCAQMD conducted the MATES-III study. In September 2008, the SCAQMD released a final MATES-III report, which estimated that the basin-wide cancer risk was about 1,200 in a million, with TACs from mobile sources accounting for 94 percent of this risk on average.

The SCAQMD also conducted air quality modeling to calculate TAC concentrations and thus risk throughout the SoCAB for 2005. Interactive maps showing model-calculated cancer risks are available on SCAQMD's website. The SCAQMD calculated that TAC cancer risk in the Basin is 1,200 in a million, and ranges from 510 to 1,233 in a million within ½ mile of the Project site. Generally, SCAQMD found that the primary source of risk was due to diesel PM, and that higher risks were found along transportation corridors and freeways.

BASELINE CHEMICALS OF POTENTIAL CONCERN EMISSIONS

The Baseline/existing condition emissions of 94 COPC from commercial aviation, general aviation, GSE, and APUs were calculated as described in Section 4.1.3. The results are tabulated in Appendix D (see Table 5.1-2).

PARTICULATE AIR MONITORING IN NEWPORT BEACH

The City of Newport Beach performed a study entitled "Field Measurements of Ambient Particles and Associated Trace Elements and Hydrocarbons". (Boyle 2010). The study indicates that the purpose was to "measure airborne concentrations of particulate pollutants, and to characterize the chemical composition of these particles, at different locations in the City of Newport Beach, California." Data was collected at six locations over approximately five sampling dates (five of the six sites had samples taken on three different days, and one site had one sample taken). The study concludes that the data "indicate that ambient PM2.5 [concentration] at the locations sampled in the City of Newport Beach is well within federal air quality standards". (Section I, Research Summary). 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." While the study suggests larger-scale sampling may be useful, no further conclusions were presented regarding this issue.

EXISTING EMISSIONS REDUCTION STRATEGIES

The Airport Cooperative Research Program's ("ACRP") Report 56, *Handbook for Considering Practical Greenhouse Gas Emission Reduction Strategies for Airports* is a handbook and decision support tool that assists airport operators in identifying, evaluating, prioritizing, and implementing practical, low-cost strategies to reduce and manage greenhouse gas (GHG) emissions. However, many of the GHG emission reduction measures also provide reductions of CAPs and TACs. The ACRP report identifies strategies in 12 categories. Many of these strategies are currently implemented at JWA, as shown in Table 4.1-6.

TABLE 4.1-6
EMISSION REDUCTION STRATEGIES CURRENTLY IMPLEMENTED AT JWA

Strategy Number	Strategy Name	Implementation Status
AF-01	Provide Infrastructure for Pre-Conditioned Air (PCA) and Ground Power	All regular gates (Gates 2-21) at JWA are currently equipped with PCA and ground power.
AF-02	Minimize the Use of Auxiliary Power Units (APUs)	All of the regular gates (Gates 2-21) at JWA are equipped with PCA and ground power, which minimizes the use of APUs. In addition, the commercial airlines at JWA push back the aircraft from the gates, further reducing APU usage.
AF-03	Design Airside Layout to Reduce Aircraft Delay and Surface Vehicle Congestion	The Airport's airside layout minimizes aircraft delay by providing for efficient access between the single commercial carrier runway and the terminal complex.
AF-04	Design Runways, Taxiways, Ramps & Terminals to Reduce Aircraft Taxiing Distances	In light of the airside layout design, the Airport's average total taxi time is 15.38 minutes for commercial aircraft, and 9.55 minutes for general aviation aircraft.
AF-06	Install or Expand Hydrant Fueling System	JWA has installed hydrant fueling at all regular gates (Gates 2-21). The regional/commuter flight aircraft that operate out of Gates 1A, B & C and 22A, B, & C are fueled via fuel tanker trucks because it is infeasible to fuel them by hydrant as they are too small and spaced too closely together.
AF-08	Create Partnerships with Intercity Rail Services to Optimize Passenger and Cargo Movement	Public transportation from the Tustin train station to JWA already is available for passenger movement. The provision of additional rail service for cargo movement is not needed because JWA has a limited number of authorized cargo flights (4 ADDs).
AF-15	Support Alternative Passenger Boarding Procedures	The current boarding procedures utilized by the commercial airlines already use the most efficient methods.
AF-16	Support Push Back Tugs to Transport Planes to Taxiways, Runway Ends, and/or Take-off Areas	The commercial airlines currently implement these practices as part of their routine departure procedures.

TABLE 4.1-6
EMISSION REDUCTION STRATEGIES CURRENTLY IMPLEMENTED AT JWA

Strategy Number	Strategy Name	Implementation Status
BP-11	Support the Use of Customer Self-Service Equipment in Terminal Design	The Airport's terminal complex contains self-service kiosks at the ticket counters for all airlines, with the exception of the ticket counters for airlines providing international service (AirTran Airways and Interjet) because the passports need to be verified at the counter.
CS-02	Add Mineral Carbonation Systems to Exhaust Streams	JWA has a state-of-the-art cogeneration power plant, which uses catalysts to reduce exhaust CO to low levels (below 32 parts per million at 15% O_2). Plant operation began in 2010.
EM-04	Enter into a Green Power Purchasing Agreement	The Airport has entered into an agreement with The Gas Company to use natural gas to produce electricity. Southern California Edison's back-up power also uses up to 30% renewables. Relatedly, the State of California has adopted a 33% renewable portfolio standard for its energy supply that must be achieved b 2020.
EM-07	Evaluate Fuel Mix	The Airport utilizes more natural gas, and less diesel and gasoline, where feasible.
EM-09	Improve Insulation of Building Envelope	JWA previously installed window tinting, cool roofs, and other forms of energy efficiency-enhancing insulation.
EM-13	Install a Cool Roof	A new cool roof was installed as part of Terminal C.
EM-17	Install LED Runway and Taxiway Lighting	JWA utilizes LED lighting on the airfield that meets all applicable FAA safety standards.
EM-18	Implement a Lighting System Energy Conservation Program	The terminal complex has transitioned to LED lighting; the design of the terminal complex also optimizes the use of natural lighting through the inclusion of vaulted ceilings, skylights and windows.
EM-19	Install a Building Automation System (BAS)	JWA installed a BAS more than ten years ago.
EM-22	Integrate Thermal Storage into Heating and Cooling Systems	JWA's cogeneration power plant makes efficient use of waste heat for heating and cooling.
EM-23	Evaluate and Upgrade the Central Plant and Distribution System Equipment	JWA built an on-site cogeneration plant in 2010.
EM-25	Install Evaporative Cooling Systems	JWA installed evaporative cooling systems as part of the cogeneration power plant built in 2010.
EM-26	Install Energy Efficient Chillers	JWA's cogeneration power plant includes energy efficient chillers.

TABLE 4.1-6
EMISSION REDUCTION STRATEGIES CURRENTLY IMPLEMENTED AT JWA

Strategy Number	Strategy Name	Implementation Status
EM-28	Install a Heat Recovery System	JWA's cogeneration power plant includes a heat recovery system.
EM-30	Reduce Transmission Losses in Electrical Wires	JWA previously upgraded the electrical system to reduce transmission losses.
EM-33	Construct a Cogeneration or Trigeneration Energy System	JWA built an on-site cogeneration power plant in 2010.
EM-37	Incorporate the Use of Natural Ventilation and Economizer Control	The Airport has incorporated the use of natural ventilation and economizer control in the entire terminal complex.
GT-07	Implement "On-foot" Payment for Parking	The Airport installed "on-foot" parking payment stations in Parking Structure C; further, there is no added benefit to installing such stations in the other parking structures because the current parking system is already equipped with card swiping abilities and has reduced vehicle idling times.
GT-17	Support Alternatively Fueled Taxis	In compliance with SCAQMD Rule 1194, JWA requires that fleet vehicles, such as taxi cabs and parking shuttles, operate on clean burning compressed natural gas (CNG) or other cleaner burning fuel alternatives. The Airport's taxi provider, Orange County Yellow Cab, utilizes 100% CNG vehicles.
OM-03	Use a Computerized Maintenance Management System (CMMS)	JWA has used a CMMS since 1996.
RF-01	Replace Refrigerants with Compounds that are Natural or have Lower Global Warming Potential (GWP).	JWA has replaced refrigerants with the lowest available global warming potential (GWP) compounds. The largest quantity of refrigerants in use at JWA is at the cogeneration power plant, which utilizes lithium bromide – a refrigerant with zero GWP.
RF-02	Incorporate Intelligent Fault Diagnosis for HVAC Refrigerant Systems	JWA currently utilizes this diagnosis tool.

Notes: Strategy numbers indicate ACRP Report categories. AF: Airfield design and operations; BP: Business planning; CS: Construction; EM: Energy management; GT: Ground transportation; OM: Operations and maintenance; RF: Refrigerants

As utilized in this Table, a "regular gate" is a gate that utilizes a loading bridge and provides power and preconditioned air to aircraft. Gates 2 through 21 are regular gates. Gates 1A, B & C and 22A, B & C can only accommodate smaller regional/commuter jets, which are too small to have loading bridges and hydrant fueling. (For perspective, six regional/commuter jets fit in the space occupied by two aircraft at Gates 2-21.)

Source: *Air Quality Technical Report,* Appendix A, Table A-1, Environ 2014.

4.1.5 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:

Threshold 4.1-1 Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Threshold 4.1-2 Expose sensitive receptors to substantial pollutant concentrations.

Threshold 4.1-3 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 4.1-4 Conflict with or obstruct implementation of the applicable air quality plan.

The SCAQMD has established significance thresholds to assess the impacts of project-related operational emissions on regional and local ambient air quality as shown in Table 4.1-7.

TABLE 4.1-7
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT AIR QUALITY SIGNIFICANCE THRESHOLDS

Mass Daily Thresholds	
Pollutant	**Operation**
NOx	55 lbs/day
VOC	55 lbs/day
PM10	150 lbs/day
PM2.5	55 lbs/day
SOx	150 lbs/day
CO	550 lbs/day
Lead[a]	3 lbs/day
Toxic Air Contaminants	
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic and Acute Hazard Index ≥ 1.0 (project increment)
Ambient Air Quality Standards for Criteria Pollutants	
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	 2.5 µg/m^3 (operation) 1.0 µg/m^3
PM2.5 24-hour average	 2.5 µg/m^3 (operation)
SO_2 1-hour average 24-hour average	 0.25 ppm (State) and 0.075 ppm (federal – 99th percentile) 0.04 ppm (State)

TABLE 4.1-7
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT AIR QUALITY SIGNIFICANCE THRESHOLDS

Mass Daily Thresholds	
Pollutant	**Operation**
Sulfate[b] 24-hour average	 25 µg/m³ (State)
CO 1-hour average 8-hour 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)
Lead[a] 30-day average Rolling 3-month average Quarterly average	 1.5 µg/m³ (State) 0.15 µg/m³ (federal) 1.5 µg/m³ (federal)
lbs/day: pounds per day; NOx: nitrogen oxides; VOC: volatile organic compound; 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; SOx: sulfur oxides; CO: carbon monoxide; TAC: toxic air contaminant; SCAQMD: South Coast Air Quality Management District; NO_2: nitrogen dioxide; ppm: parts per million; µg/m3: micrograms per cubic meter; SO_2: sulfur dioxide.	
[a] Note that general aviation aircraft operations are expected to decrease in the future (*Aviation Forecast Technical Report*, AECOM, 2015, provided in Appendix B). Since lead emissions are predominately attributable to general aviation aircraft, lead emissions are also expected to decrease. Therefore, the analysis does not quantitatively evaluate the lead NAAQS and CAAQS.	
[b] The Project also is not expected to have meaningful sulfate emissions, which primarily are formed from sulfur dioxide emissions from power plants and industrial facilities. These emissions generally are considered a secondary particulate matter that forms in the atmosphere from gases. Therefore, the analysis also does not quantitatively evaluate the sulfate CAAQS.	
Source: *Air Quality Technical Report,* Table 4-1, Environ 2014.	

4.1.6 IMPACT ANALYSIS

THRESHOLD EVALUATION

Threshold 4.1-1 Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Mass Daily Emissions – Criteria Air Pollutants

Operational mass emissions of VOCs, NOx, CO, SOx, PM10, and PM2.5 were estimated using the methodologies described in Section 4.1.3. In addition to the Proposed Project analysis, Alternatives A, B, and C and the No Project Alternative were analyzed. The analysis of the Proposed Project and Alternatives evaluates emission levels during three phases (Phase 1: 2016–2020, Phase 2: 2021–2025, Phase 3: 2026–2030).

Where not otherwise specified, emissions for the alternatives were based on the same data and same models as those used for the Proposed Project analysis. For aircraft, EDMS was used to calculate emissions based on alternative-specific aircraft estimates. Since the basis for other sources of emissions was similar to the Proposed Project, the MAP for each alternative was used to estimate emissions for the stationary sources, utilities, and parking. The ADD for each alternative was used to estimate emissions for GSE and JWA vehicles and equipment sources. The trip generation data was used to estimate emissions from traffic.

As shown in the following analysis, the primary sources of the operational emissions are traffic-related mobile sources and aircraft. The emissions from traffic-related mobile sources are expected to gradually decline in the future as cars become more fuel efficient due to existing regulations (i.e., Pavley Standard and the Advanced Clean Cars program). However, the criteria pollutant emissions reductions due to these regulations are not incorporated in the emissions model; therefore, the vehicle emissions forecasts are conservatively high. Similarly, the emissions from aircraft are expected to gradually decline in the future as aircraft engines become more efficient and as aircraft fuel becomes cleaner.

As discussed in Section 3.7, Analyses Assumptions, and shown in Table 3-12, Based Aircraft Forecasts, single-engine and multi-engine general aviation operations area forecasted to steadily decline from the existing conditions through Phase 3. The primary pollutants from these piston engine aircraft are CO, PM10, and PM2.5. Due to the anticipated reduction in general aviation operations, emissions of these pollutants will decline over the period of analysis. .

The quantitative reductions in GSE emissions attributable to the increased electrification of GSE equipment are shown below. The analysis incorporates the Airport's commitment to increase the percentage of electrified GSE from baseline conditions by 15 percent for Phase 1, by 35 percent for Phase 2, and 50 percent for Phase 3;

The results of the calculations for the individual sources may be found in the *Air Quality Technical Report* located in Appendix D (see Table 3.1-6 for Aircraft; Table 3.1-8 for APUs; Table 3.1-10 for GSE; Table 3.1-13 for parking lots; Table 3.1-15 for terminal traffic; Table 3.1-16b for JWA-owned vehicles; Table 3.1-17b for JWA-owned airside equipment; and Tables 3.1-18 and 3.1-21 for stationary sources).

Proposed Project

The calculated daily CAP emissions for the Proposed Project operations are summarized in Table 4.1-8. The values are incremental changes relative to the Baseline conditions.

TABLE 4.1-8
PROPOSED PROJECT CRITERIA POLLUTANT EMISSIONS

Source	Project Emissions (lbs/day)																	
	VOC			NOx			CO			SOx			PM10			PM2.5		
	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
Aircraft	15.8	40.9	57.1	408.1	619.4	763.0	-2,492	-3,854	-5,141	40.6	60.5	75.2	-1.6	-2.1	-3.3	-1.6	-2.1	-3.3
GSE	-11.8	-21.0	-25.7	-49.2	-99.0	-121.8	-365.2	-644.9	-721.2	-0.6	-1.2	-1.6	-1.2	-2.9	-3.9	-1.2	-2.8	-3.7
APUs	0.4	0.7	1.0	7.3	13.1	17.0	4.1	8.1	11.6	1.0	1.8	2.4	0.8	1.4	1.9	0.8	1.4	1.9
Airside	0.2	0.5	0.5	0.2	0.6	0.6	1.0	3.1	3.1	0.03	0.1	0.1	0.01	0.03	0.03	0.01	0.03	0.03
Traffic	31.7	38.4	42.1	93.4	100.5	100.5	420.5	488.5	522.2	1.1	1.8	2.3	82.7	132.6	168.0	22.9	36.5	46.3
Parking Lots	-0.5	6.5	34.2	-1.5	-3.5	-2.4	-16.0	-31.2	-24.7	0.01	0.03	0.07	-0.03	0.1	0.4	-0.05	0.03	0.2
Stationary Sources	0.9	1.4	1.8	0.6	1.2	1.3	3.7	6.1	7.7	0.03	0.05	0.06	0.5	0.9	1.1	0.5	0.9	1.1
Total	37	**68**	**111**	**459**	**632**	**758**	-2,444	-4,025	-5,343	42	63	78	81	130	**164**	21	34	43
SCAQMD Maximum Significance Threshold	55	55	55	55	55	55	550	550	550	150	150	150	150	150	150	55	55	55
Significant?	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	No	No	**Yes**	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; GSE: ground support equipment; APUs: auxiliary power units; SCAQMD: South Coast Air Quality Management District.

Bold indicates exceedance of the SCAQMD threshold.

Note: Negative emissions indicate a decrease from the Baseline condition. These decreases are primarily due to reduction in general aviation, increase in electrified GSE, and improved vehicle emission standards.

Source: *Air Quality Technical Report;* Tables 5.2-1, 5.2-3, 5.2-5; Environ 2014.

Phase 1

CAP emissions from implementation of Phase 1 of the Proposed Project would exceed the SCAQMD mass daily significance NOx threshold.

Phase 2

CAP emissions from implementation of Phase 2 of the Proposed Project would exceed the SCAQMD mass daily significance VOC and NOx thresholds.

Phase 3

CAP emissions from implementation of Phase 3 of the Proposed Project would exceed the SCAQMD mass daily significance VOC, NOx, and PM10 thresholds.

Impact Conclusion: *The Proposed Project's operational emissions would have significant operational mass emissions impacts for all phases.*

Alternative A

The calculated daily CAP emissions for Alternative A operations are summarized in Table 4.1-9. The values are incremental changes relative to the Baseline conditions.

TABLE 4.1-9
ALTERNATIVE A CRITERIA POLLUTANT EMISSIONS

Source	Alternative A Emissions (lbs/day)																	
	VOC			NOx			CO			SOx			PM10			PM2.5		
	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
Aircraft	17.4	30.3	69.3	426.7	561.5	856.3	-2,531.5	-3,969.7	-5,160.3	38.0	48.9	77.1	-1.4	-3.0	-2.1	-1.4	-3.0	-2.1
GSE	-12.5	-21.7	-24.1	-52.3	-101.7	-117.9	-378.3	-651.4	-717.1	-0.7	-1.3	-1.6	-1.4	-3.0	-3.7	-1.3	-2.9	-3.6
APUs	0.3	0.4	0.8	8.2	12.1	20.3	2.6	4.8	10.0	0.9	1.4	2.4	0.7	1.0	1.8	0.7	1.0	1.8
Airside	0.8	1.2	1.7	1.1	1.6	2.2	5.6	8.2	11.3	0.2	0.3	0.4	0.1	0.1	0.1	0.1	0.1	0.1
Traffic	31.4	32.2	45.5	92.5	84.4	108.7	416.3	410.3	564.5	1.1	1.5	2.5	81.8	111.4	181.6	22.7	30.7	50.1
Parking Lots	-0.5	1.9	38.1	-1.5	-4.0	-2.0	-16.0	-35.0	-21.9	0.0	0.0	0.1	0.0	0.1	0.4	0.0	0.0	0.2
Stationary Sources	1.0	1.4	2.2	1.5	2.3	3.2	4.1	5.6	9.0	0.0	0.0	0.1	0.8	1.1	1.7	0.8	1.1	1.7
Total	**38**	**46**	**134**	**476**	**556**	**871**	-2,497	-4,227	-5,304	40	51	81	80	108	**180**	21	27	48
SCAQMD Maximum Significance Threshold	55	55	55	55	55	55	550	550	550	150	150	150	150	150	150	55	55	55
Significant?	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	No	No	**Yes**	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; GSE: ground support equipment; APUs: auxiliary power units; SCAQMD: South Coast Air Quality Management District.

Note: Negative emissions indicate a decrease from the Baseline condition. These decreases are primarily due to reduction in general aviation, increase in electrified GSE, and improved vehicle emission standards.

Source: *Air Quality Technical Report,* Table 5.2-7a, Environ 2014.

Phase 1

CAP emissions from implementation of Phase 1 of Alternative A would exceed the SCAQMD mass daily significance NOx threshold.

Phase 2

CAP emissions from implementation of Phase 2 of Alternative A would exceed the SCAQMD mass daily significance NOx threshold.

Phase 3

CAP emissions from implementation of Phase 3 of Alternative A would exceed the SCAQMD mass daily significance VOC, NOx, and PM10 thresholds.

Impact Conclusion: *Alternative A's operational emissions would have significant operational mass emissions impacts for all phases.*

Alternative B

The calculated daily CAP emissions for Alternative B operations are summarized in Table 4.1-10. The values are incremental changes relative to the Baseline conditions.

TABLE 4.1-10
ALTERNATIVE B CRITERIA POLLUTANT EMISSIONS

Source	Alternative B Emissions (lbs/day)																	
	VOC			NOx			CO			SOx			PM10			PM2.5		
	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
Aircraft	16.8	79.2	136.0	420.8	869.5	1,274.4	-2,518.9	-3,670.0	-4,737.2	38.9	85.1	127.6	-1.5	1.5	4.1	-1.5	1.5	4.1
GSE	-12.3	-20.2	-24.8	-51.3	-96.4	-119.7	-374.1	-639.5	-718.5	-0.6	-1.2	-1.6	-1.3	-2.8	-3.8	-1.3	-2.7	-3.6
APUs	0.3	1.0	1.7	7.9	20.2	31.2	3.1	11.8	20.0	0.9	2.7	4.3	0.7	2.1	3.4	0.7	2.1	3.4
Airside	0.6	0.9	1.1	0.8	1.2	1.4	4.1	6.2	7.2	0.1	-0.6	0.2	0.0	0.1	0.1	0.0	0.1	0.1
Traffic[1]	31.5	55.7	73.5	92.7	145.7	175.6	417.2	708.4	912.2	1.1	2.7	4.1	82.0	192.3	293.5	22.7	53.0	81.0
Parking Lots	-0.5	20.5	67.1	-1.5	-1.8	1.0	-16.0	-19.7	-0.8	0.0	0.0	0.1	0.0	0.2	0.6	0.0	0.1	0.4
Stationary Sources	0.9	2.1	3.1	1.2	2.1	2.7	4.0	9.0	13.3	0.0	0.1	0.1	0.7	1.4	2.0	0.7	1.4	2.0
Total	37	**139**	**258**	**470**	**940**	**1,367**	-2,481	-3,594	-4,504	40	89	135	81	**195**	**300**	21	**55**	**87**
SCAQMD Maximum Significance Threshold	55	55	55	55	55	55	550	550	550	150	150	150	150	150	150	55	55	55
Significant?	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	No	**Yes**	**Yes**	No	**Yes**	**Yes**

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; GSE: ground support equipment; APUs: auxiliary power units; SCAQMD: South Coast Air Quality Management District.

Note: Negative emissions indicate a decrease from the Baseline condition. These decreases are primarily due to reduction in general aviation, increase in electrified GSE, and improved vehicle emission standards.

Source: *Air Quality Technical Report,* Table 5.2-8a, Environ 2014.

Phase 1

CAP emissions from implementation of Phase 1 of Alternative B would exceed the SCAQMD mass daily significance NOx threshold.

Phase 2

CAP emissions from implementation of Phase 2 of Alternative B would exceed the SCAQMD mass daily significance VOC, NOx, PM10, and PM2.5 thresholds.

Phase 3

CAP emissions from implementation of Phase 3 of Alternative B would exceed the SCAQMD mass daily significance VOC, NOx, PM10, and PM2.5 thresholds.

Impact Conclusion: *Alternative B's operational emissions would have significant operational mass emissions impacts for all phases.*

Alternative C

The calculated daily CAP emissions for Alternative C operations are summarized in Table 4.1-11. The values are incremental changes relative to the Baseline conditions.

TABLE 4.1-11
ALTERNATIVE C CRITERIA POLLUTANT EMISSIONS

Source	Alternative C Emissions (lbs/day)																	
	VOC			NOx			CO			SOx			PM10			PM2.5		
	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
Aircraft	282.8	276.2	270.7	2,117.9	2,123.0	2,128.1	-1,347.7	-2,868.2	-4,278.5	197.4	196.6	195.9	22.8	19.4	16.2	22.8	19.4	16.2
GSE	-4.7	-20.2	-20.6	-12.0	-96.4	-109.1	-247.5	-639.5	-708.3	0.0	-1.2	-1.5	0.2	-2.8	-3.3	0.2	-2.7	-3.2
APUs	2.5	2.5	2.5	58.7	58.8	58.1	27.6	28.4	28.7	7.2	7.2	7.1	5.4	5.4	5.4	5.4	5.4	5.4
Airside	4.6	4.6	4.6	5.8	5.8	5.8	30.5	30.5	30.5	1.0	-0.6	1.0	0.3	0.3	0.3	0.3	0.3	0.3
Traffic[1]	150.0	112.9	97.8	441.5	295.5	233.5	1,987.7	1,436.2	1,212.9	5.3	5.4	5.4	390.7	389.9	390.3	108.2	107.4	107.6
Parking Lots	73.0	65.8	92.1	8.8	3.6	3.7	56.6	17.7	17.4	0.1	0.1	0.1	0.3	0.4	0.8	0.2	0.2	1.1
Stationary Sources	3.7	3.7	3.7	7.8	7.8	7.8	6.1	15.1	15.1	0.1	0.1	0.1	3.4	3.4	3.4	3.4	3.4	3.4
Total	**512**	**445**	**451**	**2,629**	**2,398**	**2,328**	513	-1,980	-3,682	**211**	**208**	**208**	**423**	**416**	**413**	**140**	**133**	**131**
SCAQMD Maximum Significance Threshold	55	55	55	55	55	55	550	550	550	150	150	150	150	150	150	55	55	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

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; GSE: ground support equipment; APUs: auxiliary power units; SCAQMD: South Coast Air Quality Management District.

Note: Negative emissions indicate a decrease from the Baseline condition. These decreases are primarily due to reduction in general aviation, increase in electrified GSE, and improved vehicle emission standards.

Source: *Air Quality Technical Report,* Table 5.2-9a, Environ 2014.

Phase 1

CAP emissions from implementation of Phase 1 of Alternative C would exceed the SCAQMD mass daily significance VOC, NOx, SOx, PM10, and PM2.5 thresholds.

Phase 2

CAP emissions from implementation of Phase 2 of Alternative C would exceed the SCAQMD mass daily significance VOC, NOx, SOx, PM10, and PM2.5 thresholds.

Phase 3

CAP emissions from implementation of Phase 3 of Alternative C would exceed the SCAQMD mass daily significance VOC, NOx, SOx, PM10, and PM2.5 thresholds.

Impact Conclusion: *Alternative C's operational emissions would have significant operational mass emissions impacts for all phases.*

No Project Alternative

The calculated daily CAP emissions for the No Project Alternative operations are summarized in Table 4.1-12. The values are incremental changes relative to the Baseline conditions.

TABLE 4.1-12
NO PROJECT ALTERNATIVE CRITERIA POLLUTANT EMISSIONS

Source	No Project Emissions (lbs/day)					
	VOC	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
Aircraft	15.8	408.1	-2,492	40.6	-1.6	-1.6
GSE	-11.8	-49.2	-365.2	-0.6	-1.2	-1.2
APUs	0.4	7.3	4.1	1.0	0.8	0.8
Airside	0.2	0.2	1.0	0.03	0.01	0.01
Traffic	31.7	93.4	420.5	1.1	82.7	22.9
Parking Lots	-0.5	-1.5	-16.0	0.01	-0.03	-0.05
Stationary Sources	0.9	0.6	3.7	0.03	0.5	0.5
Total	36.7	**458.8**	-2,444	42.2	81.1	21.4
SCAQMD Maximum Significance Threshold	55	55	550	150	150	55
Significant?	No	**Yes**	No	No	No	No

lbs/day: pound/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; GSE: ground support equipment; APUs: auxiliary power units; SCAQMD: South Coast Air Quality Management District.

Note: Negative emissions indicate a decrease from the Baseline condition. These decreases are primarily due to reduction in general aviation, increase in electrified GSE, and improved vehicle emission standards.

Source: *Air Quality Technical Report,* Table 5.2-10a, Environ 2014.

As shown in Table 4.1-12, CAP emissions from implementation of the No Project Alternative would exceed the SCAQMD mass daily significance NOx threshold.

Impact Conclusion: *The No Project's Alternative operational emissions would have significant operational mass emissions impacts.*

Ambient Air Quality Standards

Air dispersion modeling of CAPs was performed as described in Section 4.1.3. The results of the modeling are compared with the SCAQMD air quality significance thresholds (Table 4.1-7) and the CAAQS and NAAQS (Table 4.1-1).

The ambient air quality estimates presented below are based on conservative emission estimates. For example, the air dispersion modeling results are based on the combination of maximum emissions that may occur with the maximum environmental impactmeteorological conditions. While it is possible that the calculated ambient air quality concentrations may occur, these are conservatively high estimates and thus they may never occur. Further, the modeling analysis conservatively assumes that general aviation operations remain static (i.e., equivalent to the Baseline condition). If general aviation was included in the air dispersion modeling analysis, the Project impacts would be lower than that estimated due to the resulting decrease in emissions related to general aviation aircraft operations.

Proposed Project

The ambient air quality results from Project operational emissions are summarized in Tables 4.1-13 and 4.1-14.

TABLE 4.1-13
PROPOSED PROJECT CRITERIA POLLUTANT CONCENTRATIONS – SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

	Pollutant	Averaging Time	Maximum Impact from Proposed Project Emissions (µg/m³)	Background Pollutant Concentration (µg/m³)	Maximum Proposed Project + Background Concentration (µg/m³)	SCAQMD CEQA Threshold (µg/m³)	Maximum Proposed Project + Background > SCAQMD?
Phase 1	NO_2	1 hour	229	139	368	339	**Yes**
		Annual	3	21	25	57	No
	SO_2	1 hour	36	26	62	655	No
		24 hour	3	5	9	105	No
	PM10	24 hour	2.9	N/A	N/A	2.5	**Yes**
		Annual	1.2	N/A	N/A	1.0	**Yes**
	PM2.5	24 hour	1.1	N/A	N/A	2.5	No
Phase 2	NO_2	1 hour	356	139	496	339	**Yes**
		Annual	5	21	26	57	No
	SO_2	1 hour	54	26	80	655	No
		24 hour	5	5	10	105	No
	PM10	24 hour	4.6	N/A	N/A	2.5	**Yes**
		Annual	1.9	N/A	N/A	1.0	**Yes**
	PM2.5	24 hour	1.8	N/A	N/A	2.5	No

TABLE 4.1-13
PROPOSED PROJECT CRITERIA POLLUTANT CONCENTRATIONS – SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

	Pollutant	Averaging Time	Maximum Impact from Proposed Project Emissions (µg/m³)	Background Pollutant Concentration (µg/m³)	Maximum Proposed Project + Background Concentration (µg/m³)	SCAQMD CEQA Threshold (µg/m³)	Maximum Proposed Project + Background > SCAQMD?
Phase 3	NO_2	1 hour	432	139	571	339	**Yes**
		Annual	6	21	27	57	No
	SO_2	1 hour	67	26	93	655	No
		24 hour	6	5	12	105	No
	PM10	24 hour	5.9	N/A	N/A	2.5	**Yes**
		Annual	2.4	N/A	N/A	1.0	**Yes**
	PM2.5	24 hour	2.3	N/A	N/A	2.5	No

µg/m³: micrograms per cubic meter; SCAQMD: South Coast Air Quality Management District; CEQA: California Environmental Quality Act; NO_2: nitrogen dioxide; SO_2: sulfur dioxide; 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.

N/A: not applicable; the SCAQMD thresholds for 24-hour and annual PM10 and 24-hour PM2.5 emissions are based on the project incremental emissions and do not consider background concentrations.

Source: *Air Quality Technical Report,* Table 5.3-1a, Environ 2014.

TABLE 4.1-14
PROPOSED PROJECT CRITERIA POLLUTANT CONCENTRATIONS – CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

	Pollutant	Averaging Time	Maximum Impact from Proposed Project Emissions (µg/m³)	Background Pollutant Concentration (µg/m³)	Maximum Proposed Project + Background Concentration (µg/m³)	CAAQS (µg/m³)	Maximum Proposed Project > CAAQS?	NAAQS (µg/m³)	Maximum Proposed Project > NAAQS?
Phase 1	NO_2	1 hour (98th percentile, averaged over 3 years)	149	105	254	N/A	N/A	188	**Yes**
		1 hour	229	139	368	339	**Yes**	N/A	N/A
		Annual	3	21	25	57	No	100	No
	SO_2	1 hour	36	26	62	655	No	196	No
		24 hour	3	5	9	105	No	N/A	N/A
	PM10	24 hour	2.9	53	55.9	50	**Yes**	150	No
		Annual	1.2	24.8	26.0	20	**Yes**	N/A	N/A
	PM2.5	24 hour	1.1	28	29.1	N/A	N/A	35	No
		Annual	0.4	11	11.4	12	No	12	No
Phase 2	NO_2	1 hour (98th percentile, averaged over 3 years)	232	105	337	N/A	N/A	188	**Yes**
		1 hour	356	139	496	339	**Yes**	N/A	N/A
		Annual	5	21	26	57	No	100	No
	SO_2	1 hour	54	26	80	655	No	196	No
		24 hour	5	5	10	105	No	N/A	N/A
	PM10	24 hour	4.6	53	57.6	50	**Yes**	150	No
		Annual	1.9	24.8	26.7	20	**Yes**	N/A	N/A
	PM2.5	24 hour	1.8	28	29.8	N/A	N/A	35	No
		Annual	0.6	11	11.6	12	No	12	No

TABLE 4.1-14
PROPOSED PROJECT CRITERIA POLLUTANT CONCENTRATIONS – CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

	Pollutant	Averaging Time	Maximum Impact from Proposed Project Emissions (µg/m³)	Background Pollutant Concentration (µg/m³)	Maximum Proposed Project + Background Concentration (µg/m³)	CAAQS (µg/m³)	Maximum Proposed Project > CAAQS?	NAAQS (µg/m³)	Maximum Proposed Project > NAAQS?
Phase 3	NO_2	1 hour (98th percentile, averaged over 3 years)	281	105	387	N/A	N/A	188	**Yes**
		1 hour	432	139	571	339	**Yes**	N/A	N/A
		Annual	6	21	27	57	No	100	No
	SO_2	1 hour	67	26	93	655	No	196	No
		24 hour	6	5	12	105	No	N/A	N/A
	PM10	24 hour	5.9	53	58.9	50	**Yes**	150	No
		Annual	2.4	24.8	27.2	20	**Yes**	N/A	N/A
	PM2.5	24 hour	2.3	28	30.3	N/A	N/A	35	No
		Annual	0.8	11	11.8	12	No	12	No

µg/m³: micrograms per cubic meter; CAAQS: California Ambient Air Quality Standards; NAAQS: National Ambient Air Quality Standards; NO_2: nitrogen dioxide; SO_2: sulfur dioxide; 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.

N/A: not applicable; there are no CAAQS for 1-hour NO_2 averaged over 3 years or 24-hour PM2.5 concentrations; the 1-hour NAAQS is evaluated on the 3-year average; there is no NAAQS for annual PM10 concentrations.

Source: *Air Quality Technical Report,* Table 5.3-1b, Environ 2014.

Phase 1

Implementation of Phase 1 of the Proposed Project would result in exceedance of the NO_2 1-hour, PM10 24-hour, and PM10 annual SCAQMD thresholds; exceedance of the NO_2 1-hour, PM10 24-hour, and PM10 annual CAAQS; and exceedance of the NO_2 1-hour NAAQS.

Phase 2

Implementation of Phase 2 of the Proposed Project would result in exceedance of the NO_2 1-hour, PM10 24-hour, and PM10 annual SCAQMD thresholds; exceedance of the NO_2 1-hour, PM10 24-hour, and PM10 annual CAAQS; and exceedance of the NO_2 1-hour NAAQS.

Phase 3

Implementation of Phase 3 of the Proposed Project would result in exceedance of the NO_2 1-hour, PM10 24-hour, and PM10 annual SCAQMD thresholds; exceedance of the NO_2 1-hour, PM10 24-hour, and PM10 annual CAAQS; and exceedance of the NO_2 1-hour NAAQS.

Impact Conclusion: *The Proposed Project would have a significant impact on local ambient air quality concentrations.*

Alternative A

The ambient air quality results from Alternative A operational emissions are summarized in Tables 4.1-15 and 4.1-16.

TABLE 4.1-15
ALTERNATIVE A CRITERIA POLLUTANT CONCENTRATIONS – SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

	Pollutant	Averaging Time	Maximum Impact from Alternative A Emissions ($\mu g/m^3$)	Background Pollutant Concentration ($\mu g/m^3$)	Maximum Alternative A + Background Concentration ($\mu g/m^3$)	SCAQMD CEQA Threshold ($\mu g/m^3$)	Maximum Alternative A + Background > SCAQMD?
Phase 1	NO_2	1 hour	570	139	709	339	**Yes**
		Annual	8	21	29	57	No
	SO_2	1 hour	85	26	111	655	No
		24 hour	8	5	13	105	No
	PM10	24 hour	3.1	N/A	N/A	2.5	**Yes**
		Annual	1.2	N/A	N/A	1.0	**Yes**
	PM2.5	24 hour	1.4	N/A	N/A	2.5	No
		Annual	0.4	11	11	N/A	N/A
Phase 2	NO_2	1 hour	731	139	871	339	**Yes**
		Annual	10	21	32	57	No
	SO_2	1 hour	108	26	134	655	No
		24 hour	10	5	15	105	No
	PM10	24 hour	4.2	N/A	N/A	2.5	**Yes**
		Annual	1.7	N/A	N/A	1.0	**Yes**
	PM2.5	24 hour	1.8	N/A	N/A	2.5	No
		Annual	0.6	11	11.6	N/A	N/A

TABLE 4.1-15
ALTERNATIVE A CRITERIA POLLUTANT CONCENTRATIONS – SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

	Pollutant	Averaging Time	Maximum Impact from Alternative A Emissions (µg/m³)	Background Pollutant Concentration (µg/m³)	Maximum Alternative A + Background Concentration (µg/m³)	SCAQMD CEQA Threshold (µg/m³)	Maximum Alternative A + Background > SCAQMD?
Phase 3	NO_2	1 hour	1069	139	1208	339	**Yes**
		Annual	15	21	36	57	No
	SO_2	1 hour	159	26	185	655	No
		24 hour	15	5	20	105	No
	PM10	24 hour	6.8	N/A	N/A	2.5	**Yes**
		Annual	2.7	N/A	N/A	1.0	**Yes**
	PM2.5	24 hour	2.9	N/A	N/A	2.5	**Yes**
		Annual	0.9	11	11.9	N/A	N/A

µg/m³: micrograms per cubic meter; SCAQMD: South Coast Air Quality Management District; CEQA: California Environmental Quality Act; NO_2: nitrogen dioxide; SO_2: sulfur dioxide; PM10: respirable particulate matter with a diameter of 10 microns or less; N/A: not applicable; PM2.5: fine particulate matter with a diameter of 2.5 microns or less.

Source: *Air Quality Technical Report,* Table 5.3-2a, Environ 2014.

TABLE 4.1-16
ALTERNATIVE A CRITERIA POLLUTANT CONCENTRATIONS – CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

	Pollutant	Averaging Time	Maximum Impact from Alternative A Emissions (µg/m³)	Background Pollutant Concentration (µg/m³)	Maximum Alternative A + Background Concentration (µg/m³)	CAAQS (µg/m³)	Maximum Alternative A > CAAQS?	NAAQS (µg/m³)	Maximum Alternative A > NAAQS?
Phase 1	NO_2	1 hour (98th percentile, averaged over 3 years)	369	105	474	N/A	N/A	188	**Yes**
		1 hour	570	139	709	339	**Yes**	N/A	N/A
		Annual	8	21	29	57	No	100	No
	SO_2	1 hour	85	26	111	655	No	196	No
		24 hour	8	5	13	105	No	N/A	N/A
	PM10	24 hour	3.1	53	56.1	50	**Yes**	150	No
		Annual	1.2	24.8	26.0	20	**Yes**	N/A	N/A
	PM2.5	24 hour	1.4	28	29.4	N/A	N/A	35	No
		Annual	0.4	11	11.4	12	No	12	No
Phase 2	NO_2	1 hour (98th percentile, averaged over 3 years)	473	105	579	N/A	N/A	188	**Yes**
		1 hour	731	139	871	339	**Yes**	N/A	N/A
		Annual	10	21	32	57	No	100	No
	SO_2	1 hour	108	26	134	655	No	196	No
		24 hour	10	5	15	105	No	N/A	N/A
	PM10	24 hour	4.2	53	57.2	50	**Yes**	150	No
		Annual	1.7	24.8	26.5	20	**Yes**	N/A	N/A
	PM2.5	24 hour	1.8	28	29.8	N/A	N/A	35	No
		Annual	0.6	11	11.6	12	No	12	No

TABLE 4.1-16
ALTERNATIVE A CRITERIA POLLUTANT CONCENTRATIONS – CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

	Pollutant	Averaging Time	Maximum Impact from Alternative A Emissions ($\mu g/m^3$)	Background Pollutant Concentration ($\mu g/m^3$)	Maximum Alternative A + Background Concentration ($\mu g/m^3$)	CAAQS ($\mu g/m^3$)	Maximum Alternative A > CAAQS?	NAAQS ($\mu g/m^3$)	Maximum Alternative A > NAAQS?
Phase 3	NO_2	1 hour (98th percentile, averaged over 3 years)	693	105	798	N/A	N/A	188	**Yes**
		1 hour	1,069	139	1,208	339	**Yes**	N/A	N/A
		Annual	15	21	36	57	No	100	No
	SO_2	1 hour	159	26	185	655	No	196	No
		24 hour	15	5	20	105	No	N/A	N/A
	PM10	24 hour	6.8	53	59.8	50	**Yes**	150	No
		Annual	2.7	24.8	27.5	20	**Yes**	N/A	N/A
	PM2.5	24 hour	2.9	28	30.9	N/A	N/A	35	No
		Annual	0.9	11	11.9	12	No	12	No

$\mu g/m^3$: micrograms per cubic meter; CAAQS: California Ambient Air Quality Standards; NAAQS: National Ambient Air Quality Standards; NO_2: nitrogen dioxide; SO_2: sulfur dioxide; 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.

N/A: not applicable; the SCAQMD thresholds for 24-hour and annual PM10 and 24-hour PM2.5 emissions are based on the project incremental emissions and do not consider background concentrations.

Source: *Air Quality Technical Report,* Table 5.3-2b, Environ 2014.

Phase 1

Implementation of Phase 1 of Alternative A would result in exceedance of the NO_2 1-hour, PM10 24-hour, and PM10 annual SCAQMD thresholds; exceedance of the NO_2 1-hour, PM10 24-hour, and PM10 annual CAAQS; and exceedance of the NO_2 1-hour NAAQS.

Phase 2

Implementation of Phase 2 of Alternative A would result in exceedance of the NO_2 1-hour, PM10 24-hour, and PM10 annual SCAQMD thresholds; exceedance of the NO_2 1-hour, PM10 24-hour, and PM10 annual CAAQS; and exceedance of the NO_2 1-hour NAAQS.

Phase 3

Implementation of Phase 3 of Alternative A would result in exceedance of the NO_2 1-hour, PM10 24-hour, PM10 annual, and PM2.5 24-hour SCAQMD thresholds; exceedance of the NO_2 1-hour, PM10 24-hour, and PM10 annual CAAQS; and exceedance of the NO_2 1-hour NAAQS.

Impact Conclusion: *Alternative A would have a significant impact on local ambient air quality concentrations.*

Alternative B

The ambient air quality results from Alternative B operational emissions are summarized in Tables 4.1-17 and 4.1-18.

TABLE 4.1-17
ALTERNATIVE B CRITERIA POLLUTANT CONCENTRATIONS – SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

	Pollutant	Averaging Time	Maximum Impact from Alternative B Emissions (µg/m³)	Background Pollutant Concentration (µg/m³)	Maximum Alternative B + Background Concentration (µg/m³)	SCAQMD CEQA Threshold (µg/m³)	Maximum Alternative B + Background > SCAQMD?
Phase 1	NO_2	1 hour	461	139	601	339	**Yes**
		Annual	7	21	28	57	No
	SO_2	1 hour	70	26	96	655	No
		24 hour	7	5	12	105	No
	PM10	24 hour	3.0	N/A	N/A	2.5	**Yes**
		Annual	1.2	N/A	N/A	1.0	**Yes**
	PM2.5	24 hour	1.3	N/A	N/A	2.5	No
		Annual	0.4	11	11	N/A	N/A
Phase 2	NO_2	1 hour	593	139	732	339	**Yes**
		Annual	9	21	30	57	No
	SO_2	1 hour	89	26	115	655	No
		24 hour	8	5	14	105	No
	PM10	24 hour	6.8	N/A	N/A	2.5	**Yes**
		Annual	2.7	N/A	N/A	1.0	**Yes**
	PM2.5	24 hour	2.6	N/A	N/A	2.5	**Yes**
		Annual	0.9	11	11.9	N/A	N/A

TABLE 4.1-17
ALTERNATIVE B CRITERIA POLLUTANT CONCENTRATIONS – SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

	Pollutant	Averaging Time	Maximum Impact from Alternative B Emissions (µg/m³)	Background Pollutant Concentration (µg/m³)	Maximum Alternative B + Background Concentration (µg/m³)	SCAQMD CEQA Threshold (µg/m³)	Maximum Alternative B + Background > SCAQMD?
Phase 3	NO_2	1 hour	769	139	908	339	**Yes**
		Annual	11	21	32	57	No
	SO_2	1 hour	116	26	143	655	No
		24 hour	11	5	16	105	No
	PM10	24 hour	10.2	N/A	N/A	2.5	**Yes**
		Annual	4.2	N/A	N/A	1.0	**Yes**
	PM2.5	24 hour	3.9	N/A	N/A	2.5	**Yes**
		Annual	1.3	11	12.3	N/A	N/A

µg/m³: micrograms per cubic meter; SCAQMD: South Coast Air Quality Management District; CEQA: California Environmental Quality Act; NO_2: nitrogen dioxide; SO_2: sulfur dioxide; PM10: respirable particulate matter with a diameter of 10 microns or less; N/A: not applicable; PM2.5: fine particulate matter with a diameter of 2.5 microns or less.

Source: *Air Quality Technical Report,* Table 5.3-3a, Environ 2014.

TABLE 4.1-18
ALTERNATIVE B CRITERIA POLLUTANT CONCENTRATIONS – CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

	Pollutant	Averaging Time	Maximum Impact from Alternative B Emissions (µg/m³)	Background Pollutant Concentration (µg/m³)	Maximum Alternative B + Background Concentration (µg/m³)	CAAQS (µg/m³)	Maximum Alternative B > CAAQS?	NAAQS (µg/m³)	Maximum Alternative B > NAAQS?
Phase 1	NO_2	1 hour (98th percentile, averaged over 3 years)	299	105	404	N/A	N/A	188	**Yes**
		1 hour	461	139	601	339	**Yes**	N/A	N/A
		Annual	7	21	28	57	No	100	No
	SO_2	1 hour	70	26	96	655	No	196	No
		24 hour	7	5	12	105	No	N/A	N/A
	PM10	24 hour	3.0	53	56.0	50	**Yes**	150	No
		Annual	1.2	24.8	26.0	20	**Yes**	N/A	N/A
	PM2.5	24 hour	1.3	28	29.3	N/A	N/A	35	No
		Annual	0.4	11	11.4	12	No	12	No
Phase 2	NO_2	1 hour (98th percentile, averaged over 3 years)	385	105	490	N/A	N/A	188	**Yes**
		1 hour	593	139	732	339	**Yes**	N/A	N/A
		Annual	9	21	30	57	No	100	No
	SO_2	1 hour	89	26	115	655	No	196	No
		24 hour	8	5	14	105	No	N/A	N/A
	PM10	24 hour	6.8	53	59.8	50	**Yes**	150	No
		Annual	2.7	24.8	27.5	20	**Yes**	N/A	N/A
	PM2.5	24 hour	2.6	28	30.6	N/A	N/A	35	No
		Annual	0.9	11	11.9	12	No	12	No

TABLE 4.1-18
ALTERNATIVE B CRITERIA POLLUTANT CONCENTRATIONS – CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

	Pollutant	Averaging Time	Maximum Impact from Alternative B Emissions (µg/m³)	Background Pollutant Concentration (µg/m³)	Maximum Alternative B + Background Concentration (µg/m³)	CAAQS (µg/m³)	Maximum Alternative B > CAAQS?	NAAQS (µg/m³)	Maximum Alternative B > NAAQS?
Phase 3	NO_2	1 hour (98th percentile, averaged over 3 years)	500	105	606	N/A	N/A	188	**Yes**
		1 hour	769	139	908	339	**Yes**	N/A	N/A
		Annual	11	21	32	57	No	100	No
	SO_2	1 hour	116	26	143	655	No	196	No
		24 hour	11	5	16	105	No	N/A	N/A
	PM10	24 hour	10.2	53	63.2	50	**Yes**	150	No
		Annual	4.2	24.8	29.0	20	**Yes**	N/A	N/A
	PM2.5	24 hour	3.9	28	31.9	N/A	N/A	35	No
		Annual	1.3	11	12.3	12	**Yes**	12	**Yes**

µg/m³: micrograms per cubic meter; CAAQS: California Ambient Air Quality Standards; NAAQS: National Ambient Air Quality Standards; NO_2: nitrogen dioxide; SO_2: sulfur dioxide; 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.

N/A: not applicable; the SCAQMD thresholds for 24-hour and annual PM10 and 24-hour PM2.5 emissions are based on the project incremental emissions and do not consider background concentrations.

Source: *Air Quality Technical Report,* Table 5.3-3b, Environ 2014.

Phase 1

Implementation of Phase 1 of Alternative B would result in exceedance of the NO_2 1-hour, PM10 24-hour, and PM10 annual SCAQMD thresholds; exceedance of the NO_2 1-hour, PM10 24-hour, and PM10 annual CAAQS; and exceedance of the NO_2 1-hour NAAQS.

Phase 2

Implementation of Phase 2 of Alternative B would result in exceedance of the NO_2 1-hour, PM10 24-hour, PM10 annual, and PM2.5 24-hour SCAQMD thresholds; exceedance of the NO_2 1-hour, PM10 24-hour, and PM10 annual CAAQS; and exceedance of the NO_2 1-hour NAAQS.

Phase 3

Implementation of Phase 3 of Alternative B would result in exceedance of the NO_2 1-hour, PM10 24-hour, PM10 annual, and PM2.5 24-hour SCAQMD thresholds; exceedance of the NO_2 1-hour, PM10 24-hour, PM 10 annual, and PM2.5 annual CAAQS; and exceedance of the NO_2 1-hour and PM2.5 annual NAAQS.

Impact Conclusion: *Alternative B would have a significant impact on local ambient air quality concentrations.*

Alternative C

The ambient air quality results from Alternative C operational emissions are summarized in Tables 4.1-19 and 4.1-20.

TABLE 4.1-19
ALTERNATIVE C CRITERIA POLLUTANT CONCENTRATIONS – SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

	Pollutant	Averaging Time	Maximum Impact from Alternative C Emissions (µg/m³)	Background Pollutant Concentration (µg/m³)	Maximum Alternative C + Background Concentration (µg/m³)	SCAQMD CEQA Threshold (µg/m³)	Maximum Alternative C + Background > SCAQMD?
Phase 1	NO_2	1 hour	2,512	139	2,651	339	**Yes**
		Annual	36	21	57	57	No
	SO_2	1 hour	368	26	394	655	No
		24 hour	35	5	40	105	No
	PM10	24 hour	14.6	N/A	N/A	2.5	**Yes**
		Annual	5.8	N/A	N/A	1.0	**Yes**
	PM2.5	24 hour	5.9	N/A	N/A	2.5	**Yes**
		Annual	2.0	11	13	N/A	N/A
Phase 2	NO_2	1 hour	2,426	139	2,565	339	**Yes**
		Annual	35	21	56	57	No
	SO_2	1 hour	354	26	380	655	No
		24 hour	34	5	39	105	No
	PM10	24 hour	14.5	N/A	N/A	2.5	**Yes**
		Annual	5.8	N/A	N/A	1.0	**Yes**
	PM2.5	24 hour	6.2	N/A	N/A	2.5	**Yes**
		Annual	2.0	11	13	N/A	N/A

TABLE 4.1-19
ALTERNATIVE C CRITERIA POLLUTANT CONCENTRATIONS – SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

	Pollutant	Averaging Time	Maximum Impact from Alternative C Emissions (µg/m³)	Background Pollutant Concentration (µg/m³)	Maximum Alternative C + Background Concentration (µg/m³)	SCAQMD CEQA Threshold (µg/m³)	Maximum Alternative C + Background > SCAQMD?
Phase 3	NO_2	1 hour	2,593	139	2,733	339	**Yes**
		Annual	37	21	58	57	**Yes**
	SO_2	1 hour	382	26	408	655	No
		24 hour	36	5	41	105	No
	PM10	24 hour	14.7	N/A	N/A	2.5	**Yes**
		Annual	5.8	N/A	N/A	1.0	**Yes**
	PM2.5	24 hour	6.3	N/A	N/A	2.5	**Yes**
		Annual	2.1	11	13	N/A	N/A

µg/m³: micrograms per cubic meter; SCAQMD: South Coast Air Quality Management District; CEQA: California Environmental Quality Act; NO_2: nitrogen dioxide; SO_2: sulfur dioxide; PM10: respirable particulate matter with a diameter of 10 microns or less; N/A: not applicable; PM2.5: fine particulate matter with a diameter of 2.5 microns or less.

Source: *Air Quality Technical Report,* Table 5.3-4a, Environ 2014.

TABLE 4.1-20
ALTERNATIVE C CRITERIA POLLUTANT CONCENTRATIONS – CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

	Pollutant	Averaging Time	Maximum Impact from Project Emissions (µg/m³)	Background Pollutant Concentration (µg/m³)	Maximum Project + Background Concentration (µg/m³)	CAAQS (µg/m³)	Maximum Alternative C > CAAQS?	NAAQS (µg/m³)	Maximum Alternative C > NAAQS?
Phase 1	NO_2	1 hour (98th percentile, averaged over 3 years)	1,628	105	1,733	N/A	N/A	188	**Yes**
		1 hour	2,512	139	2,651	339	**Yes**	N/A	N/A
		Annual	36	21	57	57	No	100	No
	SO_2	1 hour	368	26	394	655	No	196	**Yes**
		24 hour	35	5	40	105	No	N/A	N/A
	PM10	24 hour	14.6	53	67.6	50	**Yes**	150	No
		Annual	5.8	24.8	30.6	20	**Yes**	N/A	N/A
	PM2.5	24-hour	5.9	28	33.9	N/A	N/A	35	No
		Annual	2.0	11	13.0	12	**Yes**	12	**Yes**
Phase 2	NO_2	1 hour (98th percentile, averaged over 3 years)	1,572	105	1,678	N/A	N/A	188	**Yes**
		1 hour	2,426	139	2,565	339	**Yes**	N/A	N/A
		Annual	35	21	56	57	No	100	No
	SO_2	1 hour	354	26	380	655	No	196	**Yes**
		24 hour	34	5	39	105	No	N/A	N/A
	PM10	24 hour	14.5	53	67.5	50	**Yes**	150	No
		Annual	5.8	24.8	30.6	20	**Yes**	N/A	N/A
	PM2.5	24 hour	6.2	28	34.2	N/A	N/A	35	No
		Annual	2.0	11	13.0	12	**Yes**	12	**Yes**

TABLE 4.1-20
ALTERNATIVE C CRITERIA POLLUTANT CONCENTRATIONS – CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

	Pollutant	Averaging Time	Maximum Impact from Project Emissions (µg/m³)	Background Pollutant Concentration (µg/m³)	Maximum Project + Background Concentration (µg/m³)	CAAQS (µg/m³)	Maximum Alternative C > CAAQS?	NAAQS (µg/m³)	Maximum Alternative C > NAAQS?
Phase 3	NO_2	1 hour (98th percentile, averaged over 3 years)	1,680	105	1,786	N/A	N/A	188	**Yes**
		1 hour	2,593	139	2,733	339	**Yes**	N/A	N/A
		Annual	37	21	58	57	**Yes**	100	No
	SO_2	1 hour	382	26	408	655	No	196	**Yes**
		24 hour	36	5	41	105	No	N/A	N/A
	PM10	24 hour	14.7	53	67.7	50	**Yes**	150	No
		Annual	5.8	24.8	30.6	20	**Yes**	N/A	N/A
	PM2.5	24 hour	6.3	28	34.3	N/A	N/A	35	No
		Annual	2.1	11	13.1	12	**Yes**	12	**Yes**

µg/m³: micrograms per cubic meter; CAAQS: California Ambient Air Quality Standards; NAAQS: National Ambient Air Quality Standards; NO_2: nitrogen dioxide; SO_2: sulfur dioxide; 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.

N/A: not applicable; the SCAQMD thresholds for 24-hour and annual PM10 and 24-hour PM2.5 emissions are based on the project incremental emissions and do not consider background concentrations.

Source: *Air Quality Technical Report,* Table 5.3-4b, Environ 2014.

Phase 1

Implementation of Phase 1 of Alternative C would result in exceedance of the NO_2 1-hour, PM10 24-hour, PM10 annual, and PM2.5 24-hour SCAQMD thresholds; exceedance of the NO_2 1-hour, PM10 24-hour, PM10 annual, and PM2.5 annual CAAQS; and exceedance of the NO_2 1-hour, SO_2 1-hour, and PM2.5 annual NAAQS.

Phase 2

Implementation of Phase 2 of Alternative C would result in exceedance of the NO_2 1-hour, PM10 24-hour, PM10 annual, and PM2.5 24-hour SCAQMD thresholds; exceedance of the NO_2 1-hour, PM10 24-hour, PM10 annual, and PM2.5 annual CAAQS; and exceedance of the NO_2 1-hour, SO_2 1-hour, and PM2.5 annual NAAQS.

Phase 3

Implementation of Phase 3 of Alternative C would result in exceedance of the NO_2 1-hour, NO_2 annual, PM10 24-hour, PM10 annual, and PM2.5 24-hour SCAQMD thresholds; exceedance of the NO_2 1-hour, PM10 24-hour, PM10 annual, and PM2.5 annual CAAQS; and exceedance of the NO_2 1-hour, SO_2 1-hour, and PM2.5 annual NAAQS.

Impact Conclusion: *Alternative C would have a significant impact on local ambient air quality concentrations.*

No Project Alternative

The ambient air quality results from the No Project Alternative operational emissions are summarized in Tables 4.1-21 and 4.1-22.

Implementation of the No Project Alternative would result in exceedance of the NO_2 1-hour, PM10 24-hour, and PM10 annual SCAQMD thresholds; exceedance of the NO_2 1-hour, PM10 24-hour, and PM10 annual CAAQS; and exceedance of the NO_2 1-hour NAAQS.

Impact Conclusion: *The No Project Alternative would have a significant impact on local ambient air quality concentrations.*

TABLE 4.1-21
NO PROJECT ALTERNATIVE CRITERIA POLLUTANT CONCENTRATIONS – SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

Pollutant	Averaging Time	Maximum Impact from No Project Emissions (µg/m³)	Background Pollutant Concentration (µg/m³)	Maximum No Project + Background Concentration (µg/m³)	SCAQMD CEQA Threshold (µg/m³)	Maximum No Project + Background > SCAQMD?
NO_2	1 hour	229	139	368	339	**Yes**
	Annual	3	21	25	57	No
SO_2	1 hour	36	26	62	655	No
	24 hour	3	5	9	105	No
PM10	24 hour	2.9	N/A	N/A	2.5	**Yes**
	Annual	1.2	N/A	N/A	1.0	**Yes**
PM2.5	24 hour	1.1	N/A	N/A	2.5	No
	Annual	0.4	11	11	N/A	N/A

µg/m³: micrograms per cubic meter; SCAQMD: South Coast Air Quality Management District; CEQA: California Environmental Quality Act; NO_2: nitrogen dioxide; SO_2: sulfur dioxide; PM10: respirable particulate matter with a diameter of 10 microns or less; N/A: not applicable; PM2.5: fine particulate matter with a diameter of 2.5 microns or less.

Source: *Air Quality Technical Report,* Table 5.3-5a, Environ 2014.

TABLE 4.1-22
NO PROJECT ALTERNATIVE CRITERIA POLLUTANT CONCENTRATIONS – CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Maximum Impact from No Project Emissions (µg/m³)	Background Pollutant Concentration (µg/m³)	Maximum No Project + Background Concentration (µg/m³)	CAAQS (µg/m³)	Maximum No Project > CAAQS?	NAAQS (µg/m³)	Maximum No Project > NAAQS?
NO_2	1 hour (98th percentile, averaged over 3 years)	149	105	254	N/A	N/A	188	**Yes**
	1 hour	229	139	368	339	**Yes**	N/A	N/A
	Annual	3	21	25	57	No	100	No
SO_2	1 hour	36	26	62	655	No	196	No
	24 hour	3	5	9	105	No	N/A	N/A
PM10	24 hour	2.9	53	56	50	**Yes**	150	No
	Annual	1.2	25	26	20	**Yes**	N/A	N/A
PM2.5	24 hour	1.1	28	29	N/A	N/A	35	No
	Annual	0.4	11	11	12	No	12	No

µg/m³: micrograms per cubic meter; CAAQS: California Ambient Air Quality Standards; NAAQS: National Ambient Air Quality Standards; NO_2: nitrogen dioxide; SO_2: sulfur dioxide; 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.

N/A: not applicable; the SCAQMD thresholds for 24-hour and annual PM10 and 24-hour PM2.5 emissions are based on the project incremental emissions and do not consider background concentrations.

Source: *Air Quality Technical Report,* Table 5.3-5b, Environ 2014.

Local Carbon Monoxide Hotspots

Based on the discussion below, a detailed CO "hot spots" analysis is not needed to determine whether the change in the level of service ("LOS") of an intersection attributable to the Project would have the potential to result in exceedances of the CAAQS or NAAQS.

The analysis prepared for CO attainment in the SoCAB by the SCAQMD is used to evaluate the potential for CO exceedances. CO attainment was thoroughly analyzed as part of the SCAQMD's 2003 AQMP. A CO hot spot analysis was conducted for four busy intersections in Los Angeles at the peak morning and afternoon time periods. The intersections evaluated included: Long Beach Boulevard and Imperial Highway (Lynwood); Wilshire Boulevard and Veteran Avenue (Westwood); Sunset Boulevard and Highland Avenue (Hollywood); and La Cienega Boulevard and Century Boulevard (Inglewood). These analyses did not predict a violation of CO standards. The busiest intersection evaluated was that at Wilshire Boulevard and Veteran Avenue, which has a daily traffic volume of approximately 100,000 vehicles per day. The 2003 AQMP estimated that the 1-hour concentration for this intersection was 4.6 parts per million ("ppm"), which indicates that the most stringent 1-hour CO standard (20.0 ppm) would likely not be exceeded until the daily traffic at the intersection exceeded more than 400,000 vehicles per day. Therefore, as described below, and based upon the projected daily traffic at intersections in the study area being well below 400,000 vehicles per day, a detailed CO "hot spots" analysis is not needed

Proposed Project

At full implementation of the Proposed Project, the highest average daily trips at an intersection affected by the Proposed Project would be approximately 68,600 at the Jamboree Road and Michelson Drive intersection, which is less than the daily traffic volumes that would be expected to generate CO exceedances as evaluated in the 2003 AQMP. There is no reason unique to SoCAB meteorology to conclude that the CO concentrations at the Jamboree Road and Michelson Drive intersection would exceed the 1-hour CO standard if modeled in detail, based on the studies undertaken for the 2003 AQMP.

Impact Conclusion: *The Proposed Project would have a less than significant impact on local CO concentrations.*

Alternative A

For Alternative A, the highest average daily trips at an intersection affected by Alternative A would be approximately 68,700 at the Jamboree Road and Michelson Drive intersection, which is less than the daily traffic volumes that would be expected to generate CO exceedances as evaluated in the 2003 AQMP. There is no reason unique to SoCAB meteorology to conclude that the CO concentrations at the Jamboree Road and Michelson Drive intersection would exceed the 1-hour CO standard if modeled in detail, based on the studies undertaken for the 2003 AQMP.

Impact Conclusion: *Alternative A would have a less than significant impact on local CO concentrations.*

Alternative B

For Alternative B, the highest average daily trips at an intersection affected by Alternative B would be approximately 69,000 at the Jamboree Road and Michelson Drive intersection, which is less than the daily traffic volumes that would be expected to generate CO exceedances as

evaluated in the 2003 AQMP. There is no reason unique to SoCAB meteorology to conclude that the CO concentrations at the Jamboree Road and Michelson Drive intersection would exceed the 1-hour CO standard if modeled in detail, based on the studies undertaken for the 2003 AQMP.

Impact Conclusion: *Alternative B would have a less than significant impact on local CO concentrations.*

Alternative C

For Alternative C, the highest average daily trips at an intersection affected by Alternative C would be approximately 69,300 at the Jamboree Road and Michelson Drive intersection, which is less than the daily traffic volumes that would be expected to generate CO exceedances as evaluated in the 2003 AQMP. There is no reason unique to SoCAB meteorology to conclude that the CO concentrations at the Jamboree Road and Michelson Drive intersection would exceed the 1-hour CO standard if modeled in detail, based on the studies undertaken for the 2003 AQMP.

Impact Conclusion: *Alternative C would have a less than significant impact on local CO concentrations.*

No Project Alternative

The highest average daily trips at an intersection affected by the No Project Alternative would be approximately 68,100 at the Jamboree Road and Michelson Drive intersection, which is less than the daily traffic volumes that would be expected to generate CO exceedances as evaluated in the 2003 AQMP. There is no reason unique to SoCAB meteorology to conclude that the CO concentrations at the Jamboree Road and Michelson Drive intersection would exceed the 1-hour CO standard if modeled in detail, based on the studies undertaken for the 2003 AQMP.

Impact Conclusion: *The No Project Alternative would have a less than significant impact on local CO concentrations.*

Threshold 4.1-2 Would the project expose sensitive receptors to substantial pollutant concentrations?

Health Risk

A health risk assessment to analyze cancer risks and non-carcinogenic hazards from Project operations was prepared as described in Section 4.1.3. In addition to cancer, exposure to TACs may result in impacts to the respiratory system including inflammation and bronchial irritation, impacts to the nervous system, immune system, reproductive system, the kidneys, and the eyes - including eye irritation, and developmental impacts

Health risks were calculated for Phase 3 emissions of the Proposed Project and alternatives because Phase 3 emissions are the highest; therefore, the utilization of Phase 3 results for the entire exposure period is conservative. The results of the health risk assessment are shown in Table 4.1-23

TABLE 4.1-23
HEALTH RISK ASSESSMENT FROM OPERATIONS

Health Endpoint	Receptor	Maximum Estimated Incremental Risk (Risk in 1 million)					SCAQMD Threshold (Risk in 1 million)
		Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative	
Cancer Risk	Resident	2.4	3.5	3.0	5.9	2.2	≥10
	Sensitive	1.5	2.1	1.8	3.6	1.3	≥10
	Worker	3.7	5.2	4.5	8.8	3.3	≥10
Cancer Burden	All	0.14	0.28	0.21	**0.81**	0.11	≥0.5
Health Endpoint	**Receptor**	**Maximum Estimated Hazard Index**					
		Proposed Project	**Alternative A**	**Alternative B**	**Alternative C**	**No Project Alternative**	**SCAQMD Threshold**
Chronic Non-Cancer Hazard Index	Resident	0.051	0.072	0.062	0.12	0.046	≥1.0
	Sensitive	0.031	0.044	0.038	0.075	0.028	≥1.0
	Worker	0.093	0.13	0.11	0.22	0.083	≥1.0
Acute Non-Cancer Hazard Index	Resident	0.53	0.75	0.64	**1.3**	0.47	≥1.0
	Sensitive	0.60	0.86	0.7	**1.4**	0.54	≥1.0
	Worker	**1.0**	**1.5**	**1.2**	**2.5**	0.92	≥1.0

SCAQMD: South Coast Air Quality Management District

Bold indicates exceedance of the SCAQMD threshold.

Source: *Air Quality Technical Report,* Table 5.4-1, Environ 2014.

Proposed Project

The Proposed Project cancer risks to all receptors would be less than four in one million and would not exceed the SCAQMD significance threshold of greater than or equal to ten in one million. The cancer burden estimate for the Proposed Project, which is the estimated incremental number of cancer cases in the area where the incremental cancer risk is estimated at greater than or equal to 1 in 1 million, would be approximately 0.14, which is less than the SCAQMD significance threshold of equal to or greater than 0.5.

The Proposed Project chronic non-cancer hazard index ("HI") for all receptors would be less than 0.1 and would not exceed the SCAQMD significance threshold of greater than or equal to 1.0. The acute non-cancer HI for residents and other sensitive receptors would be less than the SCAQMD significance threshold of greater than or equal to 1.0. However, the acute non-cancer HI for workers would equal the SCAQMD significance threshold and is considered to be a significant impact.

Impact Conclusion: *The Proposed Project would have less than significant impacts for cancer risk, cancer burden, and chronic non-cancer risk for all receptors and for acute non-cancer risk for residents and other sensitive receptors. The Proposed Project would have a significant acute non-cancer health risk impact for workers.*

Alternative A

Alternative A cancer risks to all receptors would be less than six in one million and would not exceed the SCAQMD significance threshold of greater than or equal to ten in one million. The cancer burden estimate for Alternative A, which is the estimated incremental number of cancer cases in the area where the incremental cancer risk is estimated at greater than or equal to 1 in 1 million, would be approximately 0.28, which is less than the SCAQMD significance threshold of equal to or greater than 0.5.

The Alternative A chronic non-cancer hazard index ("HI") for all receptors would be less than 0.2 and would not exceed the SCAQMD significance threshold of greater than or equal to 1.0. The acute non-cancer HI for residents and other sensitive receptors would be less than the SCAQMD significance threshold of greater than or equal to 1.0. However, the acute non-cancer HI for workers is estimated at 1.5, would exceed the SCAQMD significance threshold, and is considered to be a significant impact.

Impact Conclusion: *Alternative A would have less than significant impacts for cancer risk, cancer burden, and chronic non-cancer risk for all receptors and for acute non-cancer risk for residents and other sensitive receptors. Alternative A would have a significant acute non-cancer health risk impact for workers.*

Alternative B

Alternative B cancer risks to all receptors would be less than five in one million and would not exceed the SCAQMD significance threshold of greater than or equal to ten in one million. The cancer burden estimate for Alternative B, which is the estimated incremental number of cancer cases in the area where the incremental cancer risk is estimated at greater than or equal to 1 in

1 million, would be approximately 0.21, which is less than the SCAQMD significance threshold of equal to or greater than 0.5.

The Alternative B chronic non-cancer hazard index ("HI") for all receptors would be less than 0.2 and would not exceed the SCAQMD significance threshold of greater than or equal to 1.0. The acute non-cancer HI for residents and other sensitive receptors would be less than the SCAQMD significance threshold of greater than or equal to 1.0. However, the acute non-cancer HI for workers is estimated at 1.2, would exceed the SCAQMD significance threshold, and is considered to be a significant impact.

Impact Conclusion: *Alternative B would have less than significant impacts for cancer risk, cancer burden, and chronic non-cancer risk for all receptors and for acute non-cancer risk for residents and other sensitive receptors. Alternative B would have a significant acute non-cancer health risk impact for workers.*

Alternative C

Alternative C cancer risks to all receptors would be less than nine in one million and would not exceed the SCAQMD significance threshold of greater than or equal to ten in one million. The cancer burden estimate for the Alternative C, which is the estimated incremental number of cancer cases in the area where the incremental cancer risk is estimated at greater than or equal to 1 in 1 million, would be approximately 0.81, which exceeds the SCAQMD significance threshold of equal to or greater than 0.5 and is considered to be a significant impact.

The Alternative C chronic non-cancer hazard index ("HI") for all receptors would be less than 0.3 and would not exceed the SCAQMD significance threshold of greater than or equal to 1.0. The acute non-cancer HI for all receptors would exceed the SCAQMD significance threshold of greater than or equal to 1.0 and is considered to be a significant impact.

Impact Conclusion: *Alternative C would have less than significant impacts for cancer risk and chronic non-cancer risk for all receptors. Alternative C would have significant impacts for cancer burden and for acute non-cancer health risk for all receptors.*

No Project Alternative

The No Project Alternative cancer risks to all receptors would be less than four in one million and would not exceed the SCAQMD significance threshold of greater than or equal to ten in one million. The cancer burden estimate for the No Project Alternative, which is the estimated incremental number of cancer cases in the area where the incremental cancer risk is estimated at greater than or equal to 1 in 1 million, would be approximately 0.11, which is less than the SCAQMD significance threshold of equal to or greater than 0.5.

The No Project Alternative chronic non-cancer hazard index ("HI") for all receptors would be less than 0.1 and would not exceed the SCAQMD significance threshold of greater than or equal to 1.0. The acute non-cancer HI for all receptors would be less than the SCAQMD significance threshold of greater than or equal to 1.0.

Impact Conclusion: *The No Project Alternative would have less than significant impacts for cancer risk, cancer burden, chronic non-cancer risk, and for acute non-cancer risk.*

Threshold 4.1-3 Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?

The cumulative impacts analysis for air quality is based on the guidance provided by SCAQMD.

> As Lead Agency, the [SCAQMD] uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for TAC emissions. Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant.

The Project region is a federal or State nonattainment area for O_3 (VOC and NOx precursors), NO_2, PM10, and PM2.5 (Table 4.1-4).

Proposed Project

Phase 1

As shown in the analysis of Threshold 4.1-1, CAP emissions from implementation of Phase 1 of the Proposed Project would exceed the SCAQMD mass daily significance NOx threshold. As shown in the analysis of Threshold 4.1-2, CAP emissions would exceed the NO_2 1-hour, PM10 24-hour, and PM10 annual SCAQMD ambient air quality thresholds and would also exceed the NO_2 1-hour, PM10 24-hour, and PM10 annual CAAQS and NO_2 1-hour NAAQS. Therefore, emissions of these nonattainment pollutants and precursors would be cumulatively considerable.

Phase 2

As shown in the analysis of Threshold 4.1-1, CAP emissions from implementation of Phase 2 of the Proposed Project would exceed the SCAQMD mass daily significance VOC and NOx thresholds. As shown in the analysis of Threshold 4.1-2, CAP emissions would exceed the NO_2 1-hour, PM10 24-hour, and PM10 annual SCAQMD ambient air quality thresholds and would also exceed the NO_2 1-hour, PM10 24-hour, and PM10 annual CAAQS and NO_2 1-hour NAAQS. Therefore, emissions of these nonattainment pollutants and precursors would be cumulatively considerable.

Phase 3

As shown in the analysis of Threshold 4.1-1, CAP emissions from implementation of Phase 3 of the Proposed Project would exceed the SCAQMD mass daily significance VOC, NOx, and PM10 thresholds. As shown in the analysis of Threshold 4.1-2, CAP emissions would exceed the NO_2 1-hour, PM10 24-hour, and PM10 annual SCAQMD ambient air quality thresholds and would also exceed the NO_2 1-hour, PM10 24-hour, and PM10 annual CAAQS and NO_2 1-hour NAAQS. Therefore, emissions of these nonattainment pollutants and precursors would be cumulatively considerable.

Impact Conclusion: *The Proposed Project operational emissions would have a significant cumulative impact on nonattainment pollutants for all phases.*

Alternative A

Phase 1

As shown in the analysis of Threshold 4.1-1, CAP emissions from implementation of Phase 1 of Alternative A would exceed the SCAQMD mass daily significance NOx threshold. As shown in the analysis of Threshold 4.1-2, CAP emissions would exceed the NO_2 1-hour, PM10 24-hour, and PM10 annual SCAQMD ambient air quality thresholds and would also exceed the NO_2 1-hour, PM10 24-hour, and PM10 annual CAAQS and NO_2 1-hour NAAQS. Therefore, emissions of these nonattainment pollutants and precursors would be cumulatively considerable.

Phase 2

As shown in the analysis of Threshold 4.1-1, CAP emissions from implementation of Phase 2 of Alternative A would exceed the SCAQMD mass daily significance NOx threshold. As shown in the analysis of Threshold 4.1-2, CAP emissions would exceed the NO_2 1-hour, PM10 24-hour, and PM10 annual SCAQMD ambient air quality thresholds and would also exceed the NO_2 1-hour, PM10 24-hour, and PM10 annual CAAQS and NO_2 1-hour NAAQS. Therefore, emissions of these nonattainment pollutants and precursors would be cumulatively considerable.

Phase 3

As shown in the analysis of Threshold 4.1-1, CAP emissions from implementation of Phase 3 of Alternative A would exceed the SCAQMD mass daily significance VOC, NOx, and PM10 thresholds. As shown in the analysis of Threshold 4.1-2, CAP emissions would exceed the NO_2 1-hour, PM10 annual, and PM2.5 24-hour SCAQMD ambient air quality thresholds and would also exceed the NO_2 1-hour, PM10 24-hour, and PM10 annual CAAQS and NO_2 1-hour NAAQS. Therefore, emissions of these nonattainment pollutants and precursors would be cumulatively considerable.

Impact Conclusion: *Alternative A operational emissions would have a significant cumulative impact on nonattainment pollutants for all phases.*

Alternative B

Phase 1

As shown in the analysis of Threshold 4.1-1, CAP emissions from implementation of Phase 1 of Alternative B would exceed the SCAQMD mass daily significance NOx threshold. As shown in the analysis of Threshold 4.1-2, CAP emissions would exceed the NO_2 1-hour, PM10 24-hour, and PM10 annual SCAQMD ambient air quality thresholds and would also exceed the NO_2 1-hour, PM10 24-hour, and PM10 annual CAAQS and NO_2 1-hour NAAQS. Therefore, emissions of these nonattainment pollutants and precursors would be cumulatively considerable.

Phase 2

As shown in the analysis of Threshold 4.1-1, CAP emissions from implementation of Phase 2 of Alternative B would exceed the SCAQMD mass daily significance VOC, NOx, PM10, and PM2.5 thresholds. As shown in the analysis of Threshold 4.1-2, CAP emissions would exceed the NO_2 1-hour, PM10 24-hour, and PM10 annual SCAQMD ambient air quality thresholds and would also exceed the NO_2 1-hour, PM10 24-hour, and PM10 annual CAAQS and NO_2 1-hour NAAQS. Therefore, emissions of these nonattainment pollutants and precursors would be cumulatively considerable.

Phase 3

As shown in the analysis of Threshold 4.1-1, CAP emissions from implementation of Phase 3 of Alternative B would exceed the SCAQMD mass daily significance VOC, NOx, PM10, and PM2.5 thresholds. As shown in the analysis of Threshold 4.1-2, CAP emissions would exceed the NO_2 1-hour, PM10 24-hour, PM10 annual, and PM2.5 24-hour SCAQMD ambient air quality thresholds and would also exceed the NO_2 1-hour, PM10 24-hour, PM10 annual, and PM2.5 annual CAAQS and NO_2 1-hour and PM2.5 annual NAAQS. Therefore, emissions of these nonattainment pollutants and precursors would be cumulatively considerable.

Impact Conclusion: *Alternative B operational emissions would have a significant cumulative impact on nonattainment pollutants for all phases.*

Alternative C

Phase 1

As shown in the analysis of Threshold 4.1-1, CAP emissions from implementation of Phase 1 of Alternative C would exceed the SCAQMD mass daily significance VOC, NOx, SOx, PM10, and PM2.5 thresholds. As shown in the analysis of Threshold 4.1-2, CAP emissions would exceed the NO_2 1-hour, PM10 24-hour, PM10 annual, and PM2.5 24-hour SCAQMD ambient air quality thresholds and would also exceed the NO_2 1-hour, PM10 24-hour, PM10 annual, and PM2.5 annual CAAQS and NO_2 1-hour and PM2.5 annual NAAQS. Therefore, emissions of these nonattainment pollutants and precursors would be cumulatively considerable.

Phase 2

As shown in the analysis of Threshold 4.1-1, CAP emissions from implementation of Phase 2 of Alternative C would exceed the SCAQMD mass daily significance VOC, NOx, SOx, PM10, and PM2.5 thresholds. As shown in the analysis of Threshold 4.1-2, CAP emissions would exceed the NO_2 1-hour, PM10 24-hour, PM10 annual, and PM2.5 24-hour SCAQMD ambient air quality thresholds

and would also exceed the NO_2 1-hour, PM10 24-hour, PM10 annual, and PM2.5 annual CAAQS and NO_2 1-hour, SO_2 1-hour, and PM2.5 annual NAAQS. Therefore, emissions of these nonattainment pollutants and precursors would be cumulatively considerable.

Phase 3

As shown in the analysis of Threshold 4.1-1, CAP emissions from implementation of Phase 3 of Alternative C would exceed the SCAQMD mass daily significance VOC, NOx, SOx, PM10, and PM2.5 thresholds. As shown in the analysis of Threshold 4.1-2, CAP emissions would exceed the NO_2 1-hour, NO_2 annual, PM10 24-hour, PM10 annual, and PM2.5 24-hour SCAQMD ambient air quality thresholds and would also exceed the NO_2 1-hour, PM10 24-hour, PM10 annual, and PM2.5 annual CAAQS and NO_2 1-hour, SO_2 1-hour, and PM2.5 annual NAAQS. Therefore, emissions of these nonattainment pollutants and precursors would be cumulatively considerable.

Impact Conclusion: *Alternative C operational emissions would have a significant cumulative impact on nonattainment pollutants for all phases.*

No Project Alternative

As shown in the analysis of Threshold 4.1-1, CAP emissions from implementation of the No Project Alternative would exceed the SCAQMD mass daily significance NOx threshold. As shown in the analysis of Threshold 4.1-2, CAP emissions would exceed the NO_2 1-hour, PM10 24-hour, and PM10 annual SCAQMD ambient air quality thresholds and would also exceed the NO_2 1-hour, PM10 24-hour, and PM10 annual CAAQS and NO_2 1-hour NAAQS. Therefore, emissions of these nonattainment pollutants and precursors would be cumulatively considerable.

Impact Conclusion: *The No Project Alternative operational emissions would have a significant cumulative impact on nonattainment pollutants.*

Threshold 4.1-4 Would the project conflict with or obstruct implementation of the applicable air quality plan?

For purposes of this analysis, the applicable air quality plan is SCAQMD's 2012 AQMP.

As discussed Section 4.1.2, the SCAQMD has adopted the 2012 AQMP. The AQMP includes strategies and tactics to be used to attain the NAAQS and CAAQS in the SoCAB. Included in the AQMP are assumptions for aircraft emissions for JWA. These emissions are based on an assumption that JWA will have 166,327 LTOs in 2035. The LTOs assumed for the Proposed Project and alternatives are shown in the *Air Quality Technical Report* (Appendix D, see Table 3.1-3).

Proposed Project

Phase 1

Phase 1 would have an estimated 205,200 LTOs, which exceeds the 2012 AQMP assumption; thus, implementation of Phase 1 of the Proposed Project would be inconsistent with the 2012 AQMP.

Phase 2

Phase 2 would have an estimated 196,666 LTOs, which exceeds the 2012 AQMP assumption; thus, implementation of Phase 2 of the Proposed Project would be inconsistent with the 2012 AQMP.

Phase 3

Phase 3 would have an estimated 188,236 LTOs, which exceeds the 2012 AQMP assumption; thus, implementation of Phase 3 of the Proposed Project would be inconsistent with the 2012 AQMP.

Impact Conclusion: *The Proposed Project would have a significant impact relative to consistency with the 2012 Air Quality Management Plan.*

Alternative A

Phase 1

Phase 1 would have an estimated 203,807 LTOs, which exceeds the 2012 AQMP assumption; thus, implementation of Phase 1 of Alternative A would be inconsistent with the 2012 AQMP.

Phase 2

Phase 2 would have an estimated 193,043 LTOs, which exceeds the 2012 AQMP assumption; thus, implementation of Phase 2 of Alternative A would be inconsistent with the 2012 AQMP.

Phase 3

Phase 3 would have an estimated 187,233 LTOs, which exceeds the 2012 AQMP assumption; thus, implementation of Phase 3 of Alternative A would be inconsistent with the 2012 AQMP.

Impact Conclusion: *Alternative A would have a significant impact relative to consistency with the 2012 Air Quality Management Plan.*

Alternative B

Phase 1

Phase 1 would have an estimated 204,250 LTOs, which exceeds the 2012 AQMP assumption; thus, implementation of Phase 1 of Alternative B would be inconsistent with the 2012 AQMP.

Phase 2

Phase 2 would have an estimated 201,836 LTOs, which exceeds the 2012 AQMP assumption; thus, implementation of Phase 2 of Alternative B would be inconsistent with the 2012 AQMP.

Phase 3

Phase 3 would have an estimated 199,718 LTOs, which exceeds the 2012 AQMP assumption; thus, implementation of Phase 3 of Alternative B would be inconsistent with the 2012 AQMP.

Impact Conclusion: *Alternative B would have a significant impact relative to consistency with the 2012 Air Quality Management Plan.*

Alternative C

Phase 1

Phase 1 would have an estimated 235,220 LTOs, which exceeds the 2012 AQMP assumption; thus, implementation of Phase 1 of Alternative C would be inconsistent with the 2012 AQMP.

Phase 2

Phase 2 would have an estimated 222,220 LTOs, which exceeds the 2012 AQMP assumption; thus, implementation of Phase 2 of Alternative C would be inconsistent with the 2012 AQMP.

Phase 3

Phase 3 would have an estimated 210,220 LTOs, which exceeds the 2012 AQMP assumption; thus, implementation of Phase 3 of Alternative C would be inconsistent with the 2012 AQMP.

Impact Conclusion: *Alternative C would have a significant impact relative to consistency with the 2012 Air Quality Management Plan.*

No Project Alternative

The No Project Alternative would have an estimated 205,200 LTOs, which exceeds the 2012 AQMP assumption; thus, implementation of the No Project Alternative would be inconsistent with the 2012 AQMP.

Impact Conclusion: *The No Project Alternative would have a significant impact relative to consistency with the 2012 Air Quality Management Plan.*

4.1.7 MITIGATION PROGRAM

As discussed in Thresholds 4.1-1, 4.1-2, 4.1-3, and 4.1-4, the Proposed Project's CAP and TAC emissions would result in significant environmental impacts. As discussed in Section 4.1.4, the ACRP's Report 56, *Handbook for Considering Practical Greenhouse Gas Emission Reduction Strategies for Airports* provides an inventory of practical, low-cost strategies to reduce and manage GHG, CAP, and TAC emissions. Strategies currently implemented at JWA are shown in Table 4.1-6. Another group of strategies was determined to be inapplicable and/or infeasible for JWA. These strategies are listed in Table A-2 of Appendix A, the Air Quality Technical Report.

The County of Orange has identified additional mitigation measures that would be implemented in order to lessen the Project's air quality impacts. Of the 15 mitigation measures identified and listed below, only the pollutant emissions reduction attributable to the GSE electrification mitigation measure, AQ/GHG-5(i), were quantified in this impact analysis. This limited quantification is conservative and appropriate in light of the uncertainty regarding the specific emission reduction benefits attributable to many of the mitigation measures. Further, because of he County of Orange's inability to directly regulate or improve tailpipe emissions from aircraft and other mobile sources, which are subject to federal and State regulations, even with adoption and implementation of these mitigation measures, the identified mass emissions, local concentrations, and health risk air quality impacts would be significant and unavoidable. (Note: for each mitigation measure's corresponding ACRP Strategy, please see Table 1.1-1 of Appendix D).

AQ/GHG-1 Upon Project approval, the County of Orange shall support single/reduced engine taxiing procedures authorized by the Federal Aviation Administration ("FAA") that achieve corresponding benefits in air quality and/or greenhouse gas ("GHG") emission reductions and do not result in adverse noise impacts.

AQ/GHG-2 Upon Project approval, the County of Orange shall support the efforts of the airport industry—including those of the FAA, commercial air carriers, and aircraft manufacturers —to develop air quality and Greenhouse Gas ("GHG") emission benchmarking databases that improve the understanding of the relative efficiencies of aviation operations by actively participating in aviation community networks and participating in the biannual Airports Council International – North America ("ACI-NA") Environmental Benchmark Survey.

AQ/GHG-3 Upon Project approval, the County of Orange shall continue to 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 the California Environmental Quality Act ("CEQA").

AQ/GHG-4 By January 1, 2018, the County of Orange shall develop and adopt a Climate Action Plan for greenhouse gas emissions sources at the Airport under the County's control. The Climate Action Plan shall be consistent with the requirements of the Global Warming Solutions Act of 2006 ("AB 32") and the goals of Executive Order S-3-05.

In order to secure greenhouse gas emission reductions from sources under the County's control, the Climate Action Plan shall identify one or more of the following greenhouse gas reduction strategies, or combination thereof.

i. Maximizing the energy efficiency of existing Airport structures and facilities through retrofitting and redevelopment at the conclusion and/or expiration of their useful life;

ii. Tracking energy use at intervals no less than every 12 months in order to allow for the efficient optimization of energy use;

iii. Utilizing energy-efficient (light-emitting diode ["LED"] or equivalent) lighting on the airfield, within terminal buildings, and in connection with surface and parking lot security lighting;

iv. Installing window awnings, sunshades, or window tinting in appropriate areas;

v. Providing a minimum of 60 electric car charging stations consistent with AQ/GHG-11 below;

vi. Increasing the purchase and use of renewable energy;

vii. Requiring third parties, concurrent with the execution of new, renewed or amended lease or contractual agreements, to meet the more stringent energy efficiency requirements required in AQ/GHG-5 below;

viii. Continuing to maximize use of hybrid or alternatively fueled on-site equipment, including equipment fueled by Clean Natural Gas ("CNG"), Liquified Natural Gas ("LNG"), or Biodiesel;

ix. Installing light colored "cool" roofs and cool pavements in any new development subsequently proposed at the Airport;

x. Purchasing carbon offset credits through an adopted program such as the California Air Pollution Control Officer's Association ("CAPCOA's") Greenhouse Gas Reduction Exchange ("Rx") Registry, of which the the South Coast Air Quality Management District ("SCAQMD") is a participating air district (www.ghgrx.org);

xi. Increasing solid waste reduction and recycling in accordance with AQ/GHG-10 below; and/or

xii. Collaborating with commercial air carriers to reduce ground-based aircraft engine greenhouse gas emissions through single engine taxiing ("SET") for purposes of taxi-in and taxi-out between the runway ends and terminal areas to the extent feasible and without compromising passenger safety and aircraft engine operational considerations.

The above list of greenhouse gas reduction strategies is non-exclusive and can be supplemented by any additional strategies subsequently identified by the County of Orange.

In order to ensure progress in implementation of the Climate Action Plan and its reduction objectives, the County of Orange shall conduct annual greenhouse gas emission inventories for all stationary sources and other sources over which JWA has control.

AQ/GHG-5 Upon Project approval, the County of Orange shall specify energy efficiency requirements and goals for equipment and appliances in contractual agreements, as applicable. At a minimum:

i. Concurrent with the execution of lease agreements, amendments, and/or renewals with commercial air carriers, the County of Orange shall set a Ground Support Equipment electrification requirement of a 15 percent increase above baseline by 2016, 35 percent above baseline by 2021, and 50 percent increase above baseline by 2026. (The baseline electrification conditions are established by reference to calendar year 2013.)

ii. Concurrent with the execution of lease agreements, amendments, and/or renewals with all applicable Airport tenants, the County of Orange shall require that any new equipment or appliances purchased by the tenant for the provision of services under its contract with JWA shall be ENERGY STAR rated or equivalent, to the extent such equipment and appliances are commercially and technologically available.

iii. Concurrent with the execution of lease agreements, amendments, and/or renewals with all applicable Airport tenants, the County of Orange shall require that all tenants develop, implement and submit to the Airport—within six months of lease execution—a fleet-wide, anti-idling policy. At a minimum, the anti-idling policy shall include the requirement that vehicle engines shall be turned off when vehicles are not occupied, and that occupied vehicles be turned off after no more than a five-minute idling period.

AQ/GHG-6 Upon Project approval, the County of Orange shall install energy efficient equipment and controls for equipment being replaced as technologically available.

AQ/GHG-7 Upon Project approval, the County of Orange shall install variable speed drives and optimize the control of air handling unit pumps for equipment being replaced as technologically available.

AQ/GHG-8 Upon Project approval, and as technologically available, the County of Orange shall install energy efficient elevators and escalators as the existing ones require replacement.

AQ/GHG-9 By 2016, the County of Orange shall optimize the energy efficiency and control of the conveyor motors in the baggage handling system by adding more "photo eyes" to track bags and reduce the time that the system runs after a bag has gone through from 20 minutes to 10 minutes. The County of Orange also will replace the older electric conveyor drive motors in Terminals A and B with new, more efficient ones capable of variable frequency by 2016.

AQ/GHG-10 By 2016, the County of Orange shall develop an Integrated Solid Waste Management Plan ("ISWMP") that strives to achieve the policy goal of the State of California—set forth in Section 41780.01 of the *California Public Resources Code*—that not less than 75 percent of solid waste generated be source reduced, recycled, or composted by the year 2020, and annually thereafter. In furtherance of the State's policy goal, the ISWMP shall evaluate further improvements to the Airport's existing solid waste diversion rate through enhanced recycling and composting opportunities.

AQ/GHG-11 By 2016, the County of Orange shall install electric vehicle chargers in public parking structures A1, A2, B2 and C, the Main Street parking lot, and the employee parking lots. Chargers will be located close to the terminals to give preference to the electric vehicle users. By 2021, the County of Orange shall also provide preferential parking for vehicles powered by compressed natural gas and other low emission sources.

JWA's parking program ("PARCS") will be used to track the demand/use of the low emission vehicle spaces/chargers, and the County of Orange will re-evaluate the percentage/quantity of spaces required every two years. the County of Orange will optimize the efficiency of the parking program and adjust it according to future demands for electric chargers and the other types of low-emission vehicles driven by the public.

AQ/GHG-12 Upon Project approval, the County of Orange shall support the expansion of public transit opportunities to the Airport by coordinating with the Orange County Transportation Authority ("OCTA"), Irvine iShuttle, and MetroLink upon the request of the transit providers. Additionally, the County of Orange will continue to make available—on the Airport's website—current information about public transit options that can be utilized to access the Airport.

AQ/GHG-13 Upon Project approval, the County of Orange shall support bicycle use by Airport employees and the air traveling public by providing convenient, secure bicycle racks for use on the Airport's premises.

AQ/GHG-14 Upon Project approval, the County of Orange shall continue to support the use of alternatively fueled taxis and shuttles through the Request for Proposal process and in the contractual agreements (all taxis are currently CNG). JWA also shall support the use of alternatively fueled rental vehicles by providing electricity for chargers where practicable by 2020.

AQ/GHG-15 Upon Project approval, the County of Orange shall support the efforts of commercial air carriers to utilize paperless ticket technology by upgrading the current kiosks and Common Use Passenger Processing System ("CUPPS") system with new, more efficient technology as it becomes commercially available.

4.1.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Even with implementation of the mitigation measures identified above, impacts from the CAP and TAC emissions for the Proposed Project and Alternatives A, B, and C would be significant and unavoidable. Impacts with the No Project Alternative would also be significant and unavoidable; however, with this alternative the mitigation measures, other than those that continue existing programs, would not apply because the action would be to allow the Settlement Agreement to expire.

Table 4.1-24 provides a summary of the findings of significance after implementation of the mitigation measures for each threshold for each alternative. Each of the three phases is addressed.

TABLE 4.1-24
SUMMARY OF AIR QUALITY IMPACTS

Threshold	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Threshold 4.1-1	**Mass Daily Emissions – CAP** Significant and unavoidable impact **Ambient Air Quality Standards** Significant and unavoidable impact **Local CO Hotspots** Less than significant impact	**Mass Daily Emissions – CAP** Significant and unavoidable impact **Ambient Air Quality Standards** Significant and unavoidable impact **Local CO Hotspots** Less than significant impact	**Mass Daily Emissions – CAP** Significant and unavoidable impact **Ambient Air Quality Standards** Significant and unavoidable impact **Local CO Hotspots** Less than significant impact	**Mass Daily Emissions – CAP** Significant and unavoidable impact **Ambient Air Quality Standards** Significant and unavoidable impact **Local CO Hotspots** Less than significant impact	**Mass Daily Emissions – CAP** Significant and unavoidable impact **Ambient Air Quality Standards** Significant and unavoidable impact **Local CO Hotspots** Less than significant impact
Threshold 4.1-2	**Health Risk-Cancer and Cancer Burden** Less than significant impact **Chronic Non-Cancer** Less than significant impact **Acute Non-Cancer** Significant and unavoidable impact to workers	**Health Risk-Cancer and Cancer Burden** Less than significant impact **Chronic Non-Cancer** Less than significant impact **Acute Non-Cancer** Significant and unavoidable impact to workers	**Health Risk-Cancer and Cancer Burden** Less than significant impact **Chronic Non-Cancer** Less than significant impact **Acute Non-Cancer** Significant and unavoidable impact to workers	**Health Risk-Cancer** Less than significant impact **Cancer Burden** Significant and unavoidable impact **Chronic Non-Cancer** Less than significant impact **Acute Non-Cancer** Significant and unavoidable impact to all receptors	**Health Risk Cancer and Cancer Burden** Less than significant impact **Chronic Non-Cancer** Less than significant impact **Acute Non-Cancer** Less than significant impact
Threshold 4.1-3	Significant and unavoidable impact	Significant and unavoidable impact	Significant and unavoidable impact	Significant and unavoidable impact	Significant and unavoidable impact
Threshold 4.1-4	Significant and unavoidable impact	Significant and unavoidable impact	Significant and unavoidable impact	Significant and unavoidable impact	Significant and unavoidable impact

4.1.9 REFERENCES

AECOM. 2014 (April). *John Wayne Airport Settlement Agreement Amendment Environmental Impact Report Aviation Forecasts Technical Report.* Orange, CA: AECOM.

Boyle, K.A. 2010 (September). *Air Quality in Newport Beach, California: Field Measurements of Ambient Particulates and Associated Trace Elements and Hydrocarbons* (prepared in association with Environmental & Regulatory Specialists, Inc.). Newport Beach, CA: EARSI. https://www.newportbeachca.gov/Modules/ShowDocument.aspx?documentid=8855Environ International Corporation. 2014 (April). *John Wayne Airport Settlement Agreement Amendment Air Quality Technical Report.* Irvine, CA: Environ (Appendix D).Orange, County of. 2005 (as amended through 2011). *County of Orange*

General Plan. Santa Ana, CA: the County. http://www.ocplanning.net/GeneralPlan2005.aspx.

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4.2 BIOLOGICAL RESOURCES

This section addresses the potential impacts of the Project on biological resources. For biological resources, the area of greatest concern is the area south of the Airport, specifically Upper Newport Bay (also known as Upper Newport Back Bay, or Upper Newport Bay Ecological Reserve). While there would be no direct impacts to Upper Newport Bay, this area is evaluated in the Environmental Impact Report ("EIR") because of potential indirect impacts on wildlife associated with noise and startle impacts from aircraft activities.

As discussed in Section 1.6, EIR Focus and Effects Found Not to be Significant, and in the Notice of Preparation ("NOP")/Initial Study in Appendix A, the Project would not involve any facilities improvements or construct any improvements on or in proximity of wetlands; therefore, the Project would not result in direct impacts to federally listed wetlands. This topic is not discussed in this section.

Impacts from the Project on the water quality in Upper Newport Bay are discussed in Section 4.10, Water Quality In summary, operation of JWA involves activities known to generate atmospheric pollutants – mainly combustion of fossil fuels and resuspension of dust airborne. These 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) 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 thousands of miles before being deposited (USEPA 2001). With the exception of sediment, and potentially metals, the pollutants of concern for the receiving waterways on the 303(d) list are not the pollutants generally associated with emissions from aviation activities. Oil and grease are generally associated with aviation activities, and Newport Bay is not impacted by those pollutants (SWRCB 2011).

4.2.1 REGULATORY SETTING

FEDERAL

Federal Endangered Species Act

The Federal Endangered Species Act ("FESA") protects plants and animals that the U.S. Fish and Wildlife Service ("USFWS") has listed as "Endangered" or "Threatened." A federally listed species is protected from unauthorized "take," which is defined in the FESA as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or attempt to engage in any such conduct."

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act requires consultation with the USFWS and the fish and wildlife agencies of States where the "waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted… or otherwise controlled or modified" by any agency under a federal permit or license. Consultation is to be undertaken for the purpose of "preventing loss of and damage to wildlife resources."

Migratory Bird Treaty Act

Pursuant to the Migratory Bird Treaty Act ("MBTA") of 1918, federal law prohibits the taking of migratory birds, their nests, or their eggs (16 *United States Code,* Section 703). In 1972, the MBTA was amended to include protection for migratory birds of prey (such as raptors).

STATE

California Endangered Species Act

Pursuant to the California Endangered Species Act ("CESA") and Section 2081 of the *California Fish and Game Code,* an Incidental Take Permit from the California Department of Fish and Wildlife ("CDFW") is required for projects that could result in the "take" of a State-listed Threatened or Endangered species. Under the CESA, "take" is defined as an activity that would directly or indirectly kill an individual of a species.

Native Plant Protection Act

Sections 1900–1913 of the *California Fish and Game Code* were developed to preserve, protect, and enhance Rare and Endangered plants in the State of California. The act requires all State agencies to use their authority to carry out programs to conserve Endangered and Rare native plants. Provisions of the Native Plant Protection Act prohibit the taking of listed plants from the wild and require notification of the CDFW at least ten days in advance of any change in land use which would adversely impact listed plants. This allows the CDFW to salvage listed plant species that would otherwise be destroyed.

Unlawful Take or Destruction of Nests or Eggs

Sections 3503 and 3503.5 of the *California Fish and Game Code* specifically protect nests and eggs of birds of prey. Section 3513 of the *California Fish and Game Code* duplicates the federal protection of migratory birds and prohibits the take and possession of any migratory nongame bird, as designated in the MBTA.

California Environmental Quality Act Treatment of Non-Listed Plant and Animal Species

Section 15380 of the California Environmental Quality Act ("CEQA") Guidelines indicates that a lead agency can consider a non-listed species (e.g., California Rare Plant Rank ["CRPR"] List 1B and 2 plants) to be Endangered, Rare, or Threatened for the purposes of CEQA if the species can be shown to meet the criteria in the definition of "Rare" or "Endangered."

California Fully Protected Species

The State of California created the "Fully Protected" classification in an effort to identify and provide additional protection to those animals that were rare or that faced possible extinction. Lists were created for fish, amphibians and reptiles, birds and mammals. Most of the species on these lists have subsequently been listed under the State and/or Federal Endangered Species Acts; however, white-tailed kite, golden eagle, trumpeter swan, northern elephant seal, and ring-tailed cat are the exceptions.

Natural Communities Conservation Plan

On August 30, 1991, the California Fish and Game Commission considered a petition in support of listing the coastal California gnatcatcher (*Polioptila californica californica*) as a State Endangered species. The Commission decided not to list the coastal California gnatcatcher in favor of pursuing preparation of a Natural Communities Conservation Plan ("NCCP") program, as proposed by Assembly Bill ("AB") 2172 (*California Fish and Game Code,* Sections 2800 et seq.). AB 2172 authorizes the CDFW to enter into agreements with any person or local, State, or federal agencies for the purpose of preparing and implementing NCCPs and for preparing guidelines for developing and implementing NCCPs. The purpose of the NCCP program is to provide regional or area wide protection and to promote perpetuation of natural wildlife diversity while allowing compatible and appropriate development and growth. The focus of the NCCP program represents a dramatic shift from "individual species" to "habitat" preservation.

The County of Orange (in conjunction with State and federal resource agencies, local jurisdictions, utility companies, the Transportation Corridor Agencies, and major private landowners) prepared the NCCP/Habitat Conservation Plan ("HCP") for the Central/Coastal Subregion (approved on July 10, 1996). This NCCP/HCP is intended to ensure the long-term survival of the coastal California gnatcatcher and other special status, coastal sage scrub-dependent plant and wildlife species in accordance with State-sanctioned NCCP program guidelines. The Project site is located within the Central/Coastal Subregion.

4.2.2 METHODOLOGY

Upper Newport Bay was used as the Biological Study Area ("BSA") for the Project because it encompasses the area with natural habitat where potential impacts attributable to Airport operations may occur. The area identified as Upper Newport Bay for purposes of this discussion is depicted in Exhibit 4.2-1, Upper Newport Bay Boundaries.This includes the Upper Newport Bay State Marine Conservation Area, which is owned and operated by the CDFW, and terrestrial portions of the Upper Newport Bay Regional Park ("Regional Park"), which is owned and operated by the County of Orange. The Upper Newport Bay boundary is based on CDFW Geographic Information Systems ("GIS") data (2012), which has jurisdiction over all State-listed wildlife species that occur in Upper Newport Bay. The Upper Newport Bay boundaries reflect the CDFW's best representation of marine-protected areas based on the current *California Code of Regulations* (Title 14, Section 632). The total area of both the Upper Newport Bay State Marine Conservation Area and the Regional Park is 1,033 acres. For the purposes of this discussion, the combined area is called "Upper Newport Bay."

To determine potential impacts, the 60 dB CNEL contour was used to ensure consistency with thresholds used in conjunction with the resource agencies as part of previous JWA studies (JWA 2002b). The Airport site itself, the area immediately south of the Airport (previously known as Santa Ana Heights), and the area north of the Airport are predominately urbanized and do not provide sufficient areas of natural habitat to support sensitive species. Therefore, these areas have not been included in this evaluation.



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Upper Newport Bay Boundaries

Exhibit 4.2-1

John Wayne Airport Settlement Agreement Amendment

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Miles

JOHN WAYNE AIRPORT
ORANGE COUNTY

(Rev: 5-21-2014 CJS) R:\Projects\JWA\J003\Graphics\EIR\Ex4.2-1_bay_boundary.pdf

A literature review was conducted prior to the initiation of the biological resource analysis in order to determine the potential for special status species known to occur in the Project region. The California Native Plant Society's ("CNPS") Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2013), the CDFW's California Natural Diversity Database ("CNDDB") (CDFW 2013), and a compendia of special status species published by the USFWS and CDFW were also reviewed. A species list specific to the Project region was obtained from the USFWS on October 31, 2013.

Because the Airport has been in operation for over 60 years, the potential impacts of the Project on biological resources were evaluated by comparing the change in conditions for biological resources under existing conditions to the conditions under the Proposed Project, the three alternatives, and the No Project Alternative. The Project does not include any facilities improvements that would result in direct impacts to biological resources. The Project, however, would increase the number of Class A Average Daily Departures ("ADDs") and the annual passenger limit, which has the potential to increase the noise level in the area. Therefore, the existing noise contours within the BSA were compared to the future noise contours that would occur under the Proposed Project and each of the alternatives. Methods utilized to determine the existing conditions, as well as the impacts of the Proposed Project and alternatives, included a review of previous biological documentation of the area, including the 2002 *Final Environmental Impact Report No. 582 for the John Wayne Airport Settlement Agreement Extension* ("EIR 582"), other relevant literature, and knowledge of the area by the project biologist.

The impact analysis for Upper Newport Bay focused on the indirect impact associated with noise from the aircraft over the native habitat types in the flight path. The 60 dB CNEL and 65 dB CNEL contour lines were generated for the existing noise conditions (2013), which are used as the baseline, and then the contours for the Proposed Project and alternatives were compared. Any increase in the area exposed to noise levels over 60 CNEL was identified as a potential impact.

Noise level contours are based on the data from the Noise Analysis prepared for the Project (see Appendix C). As discussed in Section 4.6, Noise, aircraft noise is recorded by ten permanent noise monitoring stations ("NMS") located around the Airport. Four of these stations (4S, 5S, 6S, and 7S) are located adjacent or in close proximity to Upper Newport Bay and the data have been used to accurately document noise levels in the area.

4.2.3 EXISTING CONDITIONS

Upper Newport Bay is approximately one mile south of JWA and is under the JWA southern departure corridor. The estuarine habitat of Upper Newport Bay is considered regionally significant in that it supports a highly diverse and abundant assemblage of wildlife and represents one of the few relatively large pristine salt marsh ecosystems remaining in Southern California. Several habitat enhancement/replacement programs have been initiated in the bay to restore coastal sage scrub and riparian communities; to remove exotic species; and to improve the conditions of the nesting islands in the upper reaches of the bay.

Upper Newport Bay is currently subject to overflights from JWA. The northern edge of Upper Newport Bay is approximately one mile south of the end of the JWA commercial runway. Exhibit 4.2-2 provides an aerial photograph with the existing 60 and 65 decibel ("dB") Community Noise Equivalent Level ("CNEL") contours associated with JWA. Based on the *Noise*



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Existing CNEL Contours Map

Exhibit 4.2-2

John Wayne Airport Settlement Agreement Amendment

N W E S

1,500 750 0 1,500 Feet

JOHN WAYNE AIRPORT ORANGE COUNTY

Analysis Technical Report prepared by Landrum & Brown for this EIR (see Appendix C), on average in 2013, there were between 13 and 55 events at the noise monitoring stations in Upper Newport Bay (NMS 4S through 7S) where the Single Event Noise Exposure Level ("SENEL") was greater than 85 A-weighted decibels ("dBA"). This equates to a maximum noise level of approximately 75 dBA.[1] Existing ambient noise levels consist of noise associated with aircraft; boats using the southern portion of Upper Newport Bay; and highway noise resulting from traffic on State Route ("SR") 73 and Jamboree Road. However, SR-73 and Jamboree Road traffic-related noise does not dominate the ambient noise levels since Upper Newport Bay is mostly protected from traffic noise by surrounding development. Based on the presence of Rare and Endangered species in Upper Newport Bay, as described further below, it would appear that the wildlife in the area is habituated to aircraft overflights.

VEGETATION

Upper Newport Bay is generally comprised of three vegetation types that provide habitat for an abundance of wildlife species. Specifically, Upper Newport Bay contains a diverse assemblage of upland and marine/wetland vegetation types, including coastal salt marsh, coastal sage scrub, and riparian. Upper Newport Bay also has a limited extent of disturbed annual grassland/ruderal. The estuarine habitat of Upper Newport Bay is considered regionally significant in that it supports a highly diverse and abundant assemblage of wildlife.

Coastal Salt Marsh

Coastal salt marsh is the predominant vegetation type in Upper Newport Bay, comprising well in excess of 90 percent of the vegetation found in the Upper Newport Bay Ecological Reserve. This vegetation is typically low growing and adapted to a wide range of environmental conditions, particularly with respect to salinity and desiccation. The distribution of vegetation within the marsh depends upon the degree of tidal inundation that, in turn, controls salinity and soil aeration. The resultant plant distribution is a gradual shift in species composition and dominance from the lowest level of the marsh, or littoral zone (i.e., constantly submerged, high salinity, low soil aeration), to the highest level, or maritime zone (i.e., never submerged, reached by salt spray and moist marine air, greater soil aeration).

As stated in EIR 582 and CNDDB (2013) and CNPS (2013) database search results, the dominant species in this continuum, from lowest to highest level in the marsh, are as follows: (1) California cord grass (*Spartina foliosa*); (2) saltwort (*Batis maritima*) and common woody pickleweed (*Salicornia pacifica*); (3) sea arrow-grass (*Triglochin maritima*) and alkali heath (*Frankenia salina*); and (4) common woody pickleweed, shore grass (*Monanthochloe littoralis*), alkali heath, salt grass (*Distichlis spicata*), and estuary seablite (*Suaeda esteroa*) (JWA 2002). Forty-three species of plants have been recorded from the Upper Newport Bay salt marsh. Mudflats are an important component of the salt marsh and occupy large expanses of land below the salt grass belt, which are exposed at low tide. In some areas, mats of green algae cover these flats.

[1] L_{max} is the maximum noise level that occurs during a flyover; the SENEL is a measure of the total noise exposure during the noise event and is the sum of all the acoustic energy during the noise event. SENEL is a function of the L_{max} and the duration of the event. Two noise events with the same L_{max} will have different SENEL values if the durations of the noise event differ, with the longer event having the larger SENEL. SENEL is always larger than L_{max}.

Coastal Sage Scrub

The coastal sage scrub vegetation type occurs sporadically on the mesas overlooking the salt marsh, and in some places along the steep sides of the bluffs and on level areas at the foot of the bluffs above the high waterline. The coastal sage scrub vegetation type consists generally of semi-woody subshrubs, one to four feet in height, occurring in a relatively open arrangement usually interspersed by grasses and forbs. Common species in Upper Newport Bay include California sagebrush (*Artemisia californica*), California brittlebush (*Encelia californica*), black sage (*Salvia mellifera*), and coastal goldenbush (*Isocoma menziesii*).

In Southern California as a whole, the coastal sage scrub vegetation type is disappearing due to development and encroachment by many species of competing weedy and ornamental plants. Though there has been historical loss of coastal sage scrub on the bluffs surrounding Upper Newport Bay, the City of Newport Beach has preserved the bluff face around Upper Newport Bay. The County of Orange also has implemented revegetation with coastal sage scrub at Upper Newport Bay Regional Park.

Riparian

Upper Newport Bay supports several small areas of riparian, or streamside, vegetation types. These areas often contain freshwater marsh vegetation in addition to riparian woodland and/or riparian scrub. The vegetation in these areas is usually quite dense and lush, and is most commonly dominated by willows (*Salis* spp.) and mule fat (*Baccharis salicifolia* ssp. *salicifolia*). Typical freshwater marsh plants that occur within this vegetation type include broad-leaved cattail (*Typha latifolia*), alkali bulrush (*Bolboschoenus maritimus*), and sedges (*Carex* spp.).

Disturbed Annual Grassland/Ruderal

Non-native annual grassland/ruderal vegetation typically occurs in area subject to historic disturbance such as intense grazing, mechanical clearing, or fire. These areas generally have heavily compacted soils and may be mowed on a regular basis. These areas contain a mixture of non-native grasses and ruderal species, including non-native Brome grasses (*Bromus* sp.), non-native oats (*Avena sp.),* hare barley (*Hordeum murinum* ssp. *leporiunum*), rattail fescue (*Festuca myuros*), and red-stemmed filaree (*Erodium cicutarium*).

WILDLIFE

Each wildlife component of the Upper Newport Bay ecosystem is diverse and contains many members. The marine and terrestrial habitats within the bay provide habitat for approximately 75 species of fish, 19 species of amphibians/reptiles, 200 species of birds, and 17 species of mammals. The main indicator species of each class are described in the following sections.

Fish

Approximately 75 species of fish occur within Upper Newport Bay. The most common species of fish include topsmelt (*Atherinops affinis*), deepbody anchovy (*Anchova compressa*), striped mullet (*Mugil cephalus*), and round stingray (*Urolophus halleri*). Coastal fish species that use Upper Newport Bay seasonally for spawning and as a nursery include the spotted sand bass (*Paralabrax maculatofasciatus*), yellowfin croaker (*Umbrina roncador*), California halibut (*Paralichthys californicus*), and Pacific barracuda (*Sphyraene argentea*). Specialist fish adapted

for life in the mudflats and marshes include the long-jawed mudsucker (*Gillichthys mirabilis*), California killifish (*Fundulus parvipinnis*), and gobys (*Clevelandea ios*).

Amphibians

Approximately seven species of amphibians occur in the freshwater portions of marshes and drainages in Upper Newport Bay. The most common amphibian species include the garden slender salamander (*Batrachoseps major major*), Baja California treefrog (*Pseudacris hypochondriaca*), western toad (*Anaxyrus boreas*), and introduced African-clawed frog (*Xenopus laevis*). The latter species presents a threat to many native aquatic species in the BSA.

Reptiles

Approximately 12 species of reptiles are present in the Upper Newport Bay terrestrial system, including common species such as the side-blotched lizard (*Uta stansburiana*), western fence lizard (*Sceloporus occidentalis*), southern alligator lizard (*Elgaria multicarinata*), and gopher snake (*Pituophis catenifer*). The less common reptile species potentially occurring within the BSA include the Blainville's horned lizard (*Phrynosoma blainvillii*), coastal western whiptail (*Aspidoscelis* [*Cnemidophorus*] *tigris stejnegeri*), orange-throated whiptail (*Aspidoscelis* [*Cnemidophorus*] *hyperythra*), and coast patch-nosed snake (*Salvadora hexalepis virgultea*).

Birds

The extensive wetland system in Upper Newport Bay is well known for supporting a high diversity of bird species. Birds are the most visible and abundant vertebrate group in Upper Newport Bay, with well over 200 species recorded. The highest numbers and variety occur between late fall and spring, when the population of wintering shorebirds and waterfowl may number well into the tens of thousands. Upper Newport Bay is considered a regionally important stopover for migratory birds along the Pacific Flyway,[2] and is one of the largest coastal estuaries in Southern California.

The salt marsh and mudflats provide foraging habitat for such common-to-abundant species as the northern pintail (*Anas acuta*), American wigeon (*Anas americana*), black-bellied plover (*Pluvialis squatarola*), American avocet (*Recurvirostra americana*), willet (*Tringa semipalmatus*), long-billed curlew (*Numenis americanus*), whimbrel (*Numenius phaeopus*), marbled godwit (*Limosa fedoa*), short-billed dowitcher (*Limnodromus griseus*), various sandpipers, California gull (*Larus californicus*), and several species of egrets and herons. Songbirds common in the salt marsh include marsh wren (*Cistothorus palustris*), common yellowthroat (*Geothlypis trichas*), and song sparrow (*Melospiza melodia*). Open water areas are frequented by several varieties of grebes; by double-crested cormorant (*Phalacrocorax auritus*); and by diving ducks, such as lesser scaup (*Aythya affinis*), bufflehead (*Bucephala albeola*), ruddy duck (*Oxyura jamaicensis*); and by terns and skimmers: Forster's tern (*Sterna forsteri*), least tern (*Sternula antillarum*), and black skimmer (*Rynchops niger*). The upland areas of Upper Newport Bay provide habitat for Anna's hummingbird (*Calypte anna*), Bewick's wren (*Thryomanes bewickii*), black phoebe (*Sayornis nigricans*), yellow-rumped warbler (*Setophaga coronata*), and lesser goldfinch (*Spinus psaltria*).

[2] The Pacific Flyway is a major north-south flyway for migratory birds, extending from Alaska to South America. Migratory birds travel some or all of this distance both in spring and in fall, following food sources, heading to breeding grounds, or travelling to overwintering sites.

Raptors occurring in wetlands and/or upland communities of Upper Newport Bay include northern harrier (*Circus cyaneus*), red-shouldered hawk (*Buteo lineatus*), red-tailed hawk, osprey (*Pandion haliaetus*), turkey vulture (*Cathartes aura*), white-tailed kite (*Elanus leucurus*), Cooper's hawk (*Accipiter cooperii*), and American kestrel (*Falco sparverius*).

Upper Newport Bay also provides important habitat for many special status birds, including several Threatened and Endangered species, as described in the following Special Status Species section.

Mammals

Over 17 mammal species are present or expected to be present in Upper Newport Bay. Marsh inhabitants include the western harvest mouse (*Reithrodontomys megalotis*) and the California vole (*Microtus californicus*). Common upland species include the California deer mouse (*Peromyscus maniculatus*), ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), and desert cottontail (*Sylvilagus audubonii*). Other mammals include coyote (*Canis latrans*), raccoon (*Procyon lotor*), common gray fox (*Urocyon cinereoargentis*), long-tailed weasel (*Mustela frenata*), and bobcat (*Lynx rufus*). Introduced mammals include the Virginia opposum (*Dideplhis virginiana*), red fox (*Vulpes vulpes*), feral house cats (*Felis catus*), feral dogs (*Canis domesticus*), house mouse (*Mus muscalus*), black rat (*Rattus rattus*), and Norway rat (*Rattus norvegicus*).

SPECIAL STATUS SPECIES

Special Status Plant Species

Several special status plant species are known to occur in the region (CDFW 2013; CNPS 2013); however, only one species is designated as Threatened and/or Endangered either at the State or federal level or both and is known to occur in Upper Newport Bay: Saltmarsh bird's beak (*Cordylanthus maritimus maritimus*). A large population of Saltmarsh bird's beak is found along Bayside Drive at Big Canyon Creek and Shellmaker Island in Upper Newport Bay. It is associated with coastal dunes and marsh habitats.

Special Status Wildlife Species

Many special status wildlife species are known to occur at Upper Newport Bay (CDFW 2013; Gallagher 1997). Table 4.2-1 lists the nine bird species designated as Threatened and/or Endangered either at the State or federal level or both.

TABLE 4.2-1
THREATENED AND ENDANGERED WILDLIFE SPECIES
AT UPPER NEWPORT BAY

Wildlife Species	Designation	
	State (CDFW)	Federal (USFWS)
western snowy plover *Charadrius alexandrinos nivosus*	–	Threatened
California black rail *Laterallus jamaicensis coterniculus*	Threatened/Fully Protected	–
light-footed clapper rail *Rallus longirostris levipes*	Endangered/Fully Protected	Endangered
American peregrine falcon *Falco peregrinus anatum*	Delisted/Fully Protected	Delisted
California brown pelican *Pelecanus occidentalis californicus*	Delisted/Fully Protected	Delisted
coastal California gnatcatcher *Polioptila californica californica*	–	Threatened
Belding's savannah sparrow *Passerculus sandwichensis beldingi*	Endangered	–
least Bell's vireo *Vireo bellii pusillus*	Endangered	Endangered
California least tern *Sternula antillarum browni*	Endangered/Fully Protected	Endangered

CDFW: California Department of Fish and Wildlife; USFWS: U.S. Fish and Wildlife Service.

Source: California Natural Diversity Database, CDFW 2013.

Four of these nine species—the light-footed clapper rail (*Rallus longirostris levipes*), California least tern (*Sternula antillarum browni*), coastal California gnatcatcher, and Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)—breed at Upper Newport Bay. The light-footed clapper rail, coastal California gnatcatcher, and Belding's savannah sparrow are year-round residents, but the California least tern migrates south in fall to spend the winter season on the Pacific coast of Mexico. According to the *Nature Reserve of Orange County, County of Orange Central/Coastal NCCP/HCP 2012 Annual Report*, there were approximately 268 pairs of the Belding's savannah sparrow on high marsh behind the Tern Island and on the islands in the south Newport Bay (NROC 2013). The light-footed clapper rail and Belding's savannah sparrow occur in the salt marsh habitats throughout Upper Newport Bay. According to the *Upper Newport Back Bay Annual Report 2011-2012,* Upper Newport Bay contains the largest subpopulation of the light-footed clapper rail statewide and according to the California Coastal Commission approximately 70 percent of the nationwide population (NROC 2013; CCC 2013). According to the USFWS, in 2008 the number of nesting clapper rail pairs totaled 88, a decline of 50 percent from 2007 (USFWS 2009). The reasons of the decline remain unknown.

The California least tern nests in a colony located on what is known as "Tern Island" near Jamboree Road in the upper reaches of Upper Newport Bay. The coastal California gnatcatcher is present in the coastal sage scrub habitats found on the hillsides surrounding Upper Newport Bay. According to the *Nature Reserve of Orange County, County of Orange Central/Coastal*

NCCP/HCP 2012 Annual Report, a total of six breeding territories were detected in coastal sage scrub community along the western and eastern bluffs (NROC 2013). The other five species, except for the California brown pelican, have nested or have the potential to nest at Upper Newport Bay. The California brown pelican is found year round at Upper Newport Bay, but nests in secluded locations such as the Channel Islands of Southern California.

Numbers of American peregrine falcons have been increasing and they can be found year round at Upper Newport Bay. This falcon nests on unreachable ledges on cliffs or urban structures such as tall buildings or bridges.

The status of the California black rail at Upper Newport Bay is poorly known due to its secretive habits, but is believed to be a very rare winter visitor. The last known sighting of this species in Upper Newport Bay is from 1983 (CDFW 2013). The wetland restoration project within the Ecological Reserve provided additional habitat for these species. No sightings, however, have occurred within Upper Newport Bay since January 1983. Therefore, for the purpose of this analysis, California black rail is not considered to be breeding in Upper Newport Bay, such that the Project would not result in impacts to the breeding populations.

The western snowy plover formerly bred at Upper Newport Bay, but now occurs only as a rare migrant or winter visitor. The open areas above the high tide zone, especially on the tern islands, provide potentially suitable nesting habitat for this plover. Since about 1990, numbers of least Bell's vireo have been steadily increasing in Orange County; however, they have not been nesting in Upper Newport Bay. No least Bell's vireo was reported or is known to occur and breed in Upper Newport Bay. Therefore, for the purpose of this analysis, the western snowy plover and least Bell's vireos are considered absent from Upper Newport Bay.

COUNTY OF ORANGE NATURAL COMMUNITIES CONSERVATION PROGRAM

The purpose of the County of Orange NCCP is to provide regional protection and perpetuation of natural wildlife diversity while allowing compatible and appropriate development and growth. The County of Orange approved the NCCP/HCP for the Coastal/Central Subregion on July 10, 1996. This program will ensure the long-term survival of the coastal California gnatcatcher and other special status coastal sage scrub-dependent plant and animal species in accordance with State-sanctioned NCCP program guidelines. The Central-Coastal NCCP/HCP referred to the Upper Newport Bay State Marine Conservation Area and Regional Park as the "Upper Newport Bay Ecological Reserve." As a major landowner in Southern California, the County of Orange has enrolled approximately 20,263 acres of park, open space, and landfills in the program. Upper Newport Bay is enrolled in the NCCP/HCP program and includes 25 acres of coastal sage scrub habitat.

4.2.4 THRESHOLDS OF SIGNIFICANCE

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

Threshold 4.2-1 Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

Threshold 4.2-2 Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.

Threshold 4.2-3 Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Threshold 4.2-4 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Threshold 4.2-5 Conflict with provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

4.2.5 IMPACT ANALYSIS

DISCUSSION OF THE IMPACTS IN CONTEXT OF LITERATURE REVIEW

The following provides an overview of the literature review regarding the effect of noise on birds. This provides a basis for some of the conclusions regarding potential impacts on sensitive species in Upper Newport Bay.

Potential impacts to biological resources would be limited to indirect effects associated with an increase in the overall ambient noise level on Upper Newport Bay. The indirect effects of increases in ambient noise levels and other disturbance on wildlife are subject to interpretation, particularly as not much literature is available regarding the effect of noise on amphibians, reptiles, and mammals. The literature that is available focuses on birds and the effect noise has on avian species' abilities to communicate during the breeding season. More specifically, the Southern California-specific literature (summarized below) that is available has focused on two bird species: the coastal California gnatcatcher and least Bell's vireo. The coastal California gnatcatcher is known to occur in Upper Newport Bay. And, while the least Bell's vireo has not been sighted in Upper Newport Bay since 1990, the habitat for the bird does exist.

EIR 582 concluded that noise effects on birds from operations at JWA would be less than significant. The noise levels evaluated in EIR 582 at the monitoring stations near Upper Newport Bay ranged from roughly 58 to 61 dB CNEL. EIR 582 reported that, although there are exceptions reported in the literature, the general conclusion reached by investigators is that both subsonic flight noise and sonic booms have very little effect upon wildlife behavior or survival, and that behavioral effects manifested are almost always short term in nature, followed by rapid and complete recovery and resumption of normal behavior. Species and taxonomic groups examined generally exhibited a high degree of habituation to non-threatening noise. Moreover, even in a noisy environment, many species possess highly developed discriminatory capabilities, allowing them to circumvent the adverse effects of signal masking.

EIR 582 cited several studies that conclude there are no effects of subsonic aircraft overflight on nesting birds such as gulls, Brandt's cormorants, and several raptor species. For example,

- Jehl and Cooper (1980), investigating the potential effects of space shuttle sonic booms upon seabirds, experimentally exposed Brandt's cormorants and western gulls on the California Channel Islands to explosions in excess of 130 dB. No significantly negative results were encountered.
- A US Forest Service (1992) report to Congress states that passerines (small song birds such as least bell's vireo and California gnatcatcher) cannot be driven any great distance from a favored food source by a nonspecific disturbance such as aircraft overflight.
- The most recent research applicable to the bird species present in the Upper Newport Bay, *The Effects of Aircraft Operations on Passerine Reproduction* (Hunsaker 2000), studied two locations along the Santa Margarita River near the Camp Pendleton military base and Marine Corps Air Station Miramar. The birds were studied for reproduction impacts incurred from overflying planes, specifically on egg laying and fledglings. The studied birds were subject to noise levels ranging from 45 dBA to 85 dBA. According to the study, there was no statistically significant correlation between noise levels and reproductive effort or success. The study also mentioned that early mid-morning flights, such as those occurring after 7:00 AM, allowed for valuable time in the earlier hours for bonding and feeding.

EIR 582 also discussed the results of the EIR 102 (1978) prepared by the County of Orange. EIR 102 attempted to measure and qualify the reactions of several species of birds in Upper Newport Bay to overflights from commercial jets taking off from the Airport. This study identified short-term behavioral changes in some individuals in response to noise and visual intrusion associated with the aircraft. However, observed residual responses were reported as virtually nonexistent. Resumption of normal activities occurred almost immediately after the departure of the aircraft. EIR 508 came to the same conclusions.

Specific studies have not been conducted on the effect of noise on Rare and Endangered species in Upper Newport Bay, though it would appear that the wildlife in the area are habituated to aircraft overflights and any unusually sensitive species already would have left the area. This opinion was expressed by the Department of the Interior, USFWS (1981) in a consultation memorandum to the Civil Aeronautics Board addressing the effects on the California least tern and the lightfooted clapper rail of overflights from JWA in conjunction with the preparation of EIR 508. In 1984, in a memo to the Federal Aviation Administration ("FAA"), the Department of the Interior also stated that their review of the revised EIR 508/EIS found that "the document adequately addresses areas of concern to this agency" (County of Orange and FAA 1985).

Other recent studies on the effects of noise from aircraft on birds have been conducted. Strict comparisons cannot be drawn because of site specific differences; however, several situations analogous to JWA where the California least tern and/or the light-footed clapper rail are known to breed in close proximity to airports in California do exist). Airports evaluated included Imperial Beach Naval Air Station, Point Magu Pacific Missile Range, Santa Barbara Airport, Alameda Naval Air Station, North Island Naval Air Station, and San Diego International Airport. Additionally, specific studies at Vandenberg Air Force Base on the effects of missile launches on a nearby nesting colony of California least terns disclosed no unusual response behavior (JWA 2002).

In 1993, the USFWS provided comments on the amendments to the JWA Phase 2 Access Plan (EIR 546). The document indicated that noise levels may increase in Upper Newport Bay. EIR 582 cites the USFWS, who stated that (JWA 2002b):

> Because of the lack of carefully controlled studies, and the difficulty of assessing the impacts of noise, the Service is unable to establish what the effects of current noise levels are, or to establish a threshold of significant impact. However, given the acoustic dependence of the species of concern in the Bay, it is unlikely that the effects of the aircraft noise are either neutral or therapeutic. In view of the inadequacy of methods to assess noise impacts, it is clear that function could be affected even in birds that appear to be completely adapted to current conditions.

They further expressed concern over the effect of noise on birds with frequencies less than 100 hertz. The County of Orange addressed this concern with the following discussion and analysis:

> The data and comments provided in the letter from the Department of the Interior refer to noise with frequencies less than 100 hertz ["Hz"] and is primarily noise that is technically called infrasound. If wildlife is more sensitive to infrasound, the A-weighted decibel will not adequately describe that noise, and the traditional A-weighted analyses will have to be supplemented by $^1/_3$ octave unweighted data.
>
> It is important to note that fixed wing aircraft noise does not contain infrasound components. Aircraft noise spectral characteristics drop off very rapidly at frequencies below 100 Hz. This is shown in a series of figures for jet and turbofan aircraft that are included in "*Annoyance Caused by Advanced Turboprop Aircraft Flyover Noise,*" NASA Technical Paper 2782, March 1988. The data show for several turboprop and jet aircraft that fixed wing aircraft are not sources of infrasound, and therefore, the comment of the Department is not relevant to the changes in noise limits caused by the proposed changes in AC 91-53A.
>
> It is appropriate to comment that helicopters, particularly those with 2 blade rotors and slow rotation speeds, can be a source of infrasound. However, those types of aircraft do not typically operate over Upper Newport Bay, rather, helicopter operations at JWA are typically routed directly east or west from the Airport (i.e., perpendicular to the extended runway center-line).
>
> Also, the area behind an aircraft during landing where turbulent wind wake vortices intersect the ground may show higher components of infrasound (as well as potentially high velocity air currents). This would be limited to the area covered by the clear zone on the approach runway (i.e., within approximately 1000' of the landing threshold).

According to the literature discussed above, bird species are not highly and easily susceptible to elevated noise levels. Bird response to change in noise levels is typically benign, and there is not enough data that support the hypothesis that incremental increases in noise levels have adverse effects in bird populations.

THRESHOLDS EVALUATION

Threshold 4.2-1 **Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?**

Threshold 4.2-2 **Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS?**

Proposed Project

The listed plant species and sensitive natural communities (riparian, coastal sage scrub, and coastal salt marsh) in Upper Newport Bay would not be directly impacted because the Proposed Project would not result in any physical impacts to these plant communities. Therefore, the Proposed Project would have no direct impacts on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.

Since the Proposed Project does not propose any physical improvements, it would not have a substantial adverse direct impact on wildlife species. Additionally, wildlife would not be impacted as a result of habitat modification because none is proposed. The potential indirect impacts associated with increased noise levels on sensitive species associated with the various habitat types are discussed below under Threshold 4.2-3.

Impact Conclusion: *The Proposed Project would not have a substantial adverse direct effect on any candidate, sensitive, or special status species or any riparian habitat or other sensitive natural community.*

Alternative A

The analysis provided for the Proposed Project for these thresholds would also be applicable to Alternative A.

Impact Conclusion: *Alternative A would not have a substantial adverse direct effect on any candidate, sensitive, or special status species or any riparian habitat or other sensitive natural community.*

Alternative B

The analysis provided for the Proposed Project for these thresholds would also be applicable to Alternative B.

Impact Conclusion: *Alternative B would not a substantial adverse direct effect on any candidate, sensitive, or special status species or any riparian habitat or other sensitive natural community.*

Alternative C

The analysis provided for the Proposed Project for these thresholds would also be applicable to Alternative C.

Impact Conclusion: *Alternative C would not have a substantial adverse direct effect on any candidate, sensitive, or special status species or any riparian habitat or other sensitive natural community.*

No Project Alternative

The analysis provided for the Proposed Project for these thresholds would also be applicable to the No Project Alternative.

Impact Conclusion: *The No Project Alternative would not have a substantial adverse direct effect on any candidate, sensitive, or special status species or any riparian habitat or other sensitive natural community.*

THRESHOLD EVALUATION

Threshold 4.2-3 **Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?**

Proposed Project

Migratory Fish or Wildlife Species

The Proposed Project would not interfere with the movement of migratory fish because it does not adversely affect any waters supporting marine life. Due to its nature, the Proposed Project does not place any type of structures in the Upper Newport Bay. Therefore, no direct impacts related to fish movement are expected to migratory fish.

As discussed in Section 4.10, Water Quality, the airside activities at JWA operate under a National Pollutant Discharge Elimination System ("NPDES") Industrial General Permit, which requires the implementation of Best Management Practices. The landside (non-industrial) areas of the Airport are under the jurisdiction of Orange County's Municipal Separate Storm Sewer System ("MS4") Permit. These permits are intended to protect against sources of storm water quality degradation to receiving waters. With the exception of sediment, the pollutants of concern for the receiving waterways on the Regional Water Quality Control Board's 303(d) list (i.e., Upper Newport Bay and the Santa Ana Delhi Channel) are not the pollutants associated with emissions from aviation activities. To minimize the resuspension of dust on the runways, JWA's best management practices include daily cleaning of the runways. For the past 15 years, JWA has provided the Santa Ana Regional Water Quality Control Board ("RWQCB") with storm water runoff sampling data that demonstrates that the Airport does not have oil/grease and all other petroleum hydrocarbons ("TPH-total petroleum hydrocarbons") contaminants going off site and the concentrations have not increased with the increase in flights since 1997. No impacts are expected to migratory fish.

JWA, as with most of the coastal areas in California, is located within the migratory Pacific Flyway. The Pacific Flyway is a major north-south flyway for migratory birds in America, extending from Alaska to Patagonia. Every year, migratory birds travel some or all of this distance both in spring and in fall, following food sources, heading to breeding grounds, or travelling to overwintering sites. JWA does not act as an attractor for birds utilizing the flyway because it does not provide suitable habitat for migrating birds. However, Upper Newport Bay,

located nearby, holds critical nesting, feeding, and breeding grounds for the wide array of birds on the Pacific Flyway. The Pacific Flyway is utilized by 24 priority bird species, including the federally and State-listed Endangered least tern, which nests in Upper Newport Bay.

As discussed above, JWA does not generally attract wildlife species, including migratory birds, because there is no suitable habitat on the Airport. The Airport is located in an urbanized area and is not located within or near an established terrestrial wildlife movement corridor. Typically, only urban-adapted wildlife would be present on the Airport. Urban-adapted birds (e.g., crows, ravens), raptors, and mammals like coyotes would most likely be attracted to the Airport due to the presence of rodent populations that serve as their prey base. Thus, rodent control plays an important factor in keeping the wildlife out of airports and minimizes potential for conflicts between wildlife and aircrafts. JWA implements a rodent and pest control program.

The FAA requires Part 139 airports to conduct a Wildlife Hazard Assessment ("WHA") as part of their Wildlife Hazard Management Plan ("WHMP"). The WHMP is an ongoing Airport effort that documents the occurrences of wildlife aircraft collisions and identifies measures to minimize them. The last WHA for JWA was submitted in 1994 (USDA 2013b). In December 2012, the Board of Supervisors authorized an agreement with U.S. Department of Agriculture ("USDA") for an updated WHA. Surveys for the updated WHA began in July 2013.

The USDA prepares monthly reports as part of the WHA update effort. Bird strikes at JWA are relatively rare. In 2013, there were four wildlife strikes reported in May, two strikes in July, two strikes in August, one strike in September, three strikes in October, no strikes in November,[3] and four strikes in December (USDA 2014, , 2013a, 2013b, 2013c, 2013d,2013e). Bird collisions reported in the WHMP include collisions with red-tailed hawk, American kestrel, American crow, great blue heron, rock pigeon (*Columba livia),* western meadowlark (*Sturnella neglecta*), double-crested cormorant, and several unknown birds (USDA 2013b). Additional birds reported to occur and be deterred from the JWA include: Say's phoebe (*Sayornis saya*), killdeer (*Charadrius vociferous*), great horned owl (*Bubo virginianus*), and rough legged-hawk (*Buteo lagopus*).

With an increase of flight operations during the peak bird activity period, which generally falls in the morning hours of 6:00 AM to noon, under the Proposed Project, the potential for wildlife aircraft collisions at the JWA site may slightly increase if no wildlife management program is implemented. The updated WHMP, which is expected to be completed in late 2014, will address bird collision potential and prescribe measures to minimize such conflicts for the existing and projected level of Airport activities. JWA will continue its depredation activities under the WHMP, such as pole trapping for live captures of birds of prey, and relocating birds, using decoys, chasing out coyotes, and permanently removing individual animals under the FAA Depredation Permit. Additional planned actions under the WHMP include initiating efforts to identify and remove any type of habitats attracting wildlife at the JWA, initiation of live raptor demonstrations to maintain high level of awareness for bird strike reporting, and distribution of bird strike kits for identification purposes and data collection.

Because JWA has a WHMP that meets its obligations under FESA and meets the requirements of the FAA and USDA, with the implementation of the existing plan, the Proposed Project is not

[3] The November 2013 report identified a burrowing owl (*Athene cunicularia*), California Species of Special Concern, roosting in the engine cowl of a Cessna plane. This individual is believed to be a winter migrant. Such occurrences in the late fall or winter are unusual and rare, which would indicate a dispersing owl. Due to safety concerns, the burrowing owl dispersed safely.

expected to result in an increase in aircraft collisions with migratory birds on the JWA site (USDA 2014, 2013a, 2013b, 2013c, 2013d, 2013e). Bird migration typically occurs in the evening hours and overnight with birds arriving to their foraging ground very early morning. With the Proposed Project, JWA will not be active during nighttime hours. Further, a review of the literature on the subject indicates that airport-related bird strikes are almost never of any ecological significance. No significant direct or indirect biotic impacts would occur on the Project site. Therefore, the Proposed Project is not expected to substantially increase the potential for bird strikes and this impact is considered less than significant.

JWA is located approximately one mile from Upper Newport Bay. In contrast to the Airport, Upper Newport Bay attracts numerous migratory bird species during the winter months. Given the Airports departure pattern (i.e., very steep climb to minimize noise impacts over the residences in Newport Beach, reaching an elevation of approximately 1,000 feet at the northern edge of the Upper Newport Bay) the height at which departing commercial aircraft pass over Upper Newport Bay is such that bird strikes would be expected to occur very infrequently. Although occasional bird strikes involving both private and commercial aircraft are reported at JWA, there is no evidence to indicate that these occurrences are of any significance to local bird populations or to migrating birds utilizing the Pacific Flyway. In addition, as discussed above JWA has a WHMP that provides minimization measures to wildlife-aircraft conflicts. Therefore, the Proposed Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors.

Native Wildlife Nursery Sites

The Proposed Project has the potential to slightly increase the ambient noise level resulting from the increase in number of flights over time. The gradual increase in the noise levels resulting from the increase in flight numbers would have the potential to indirectly impact wildlife species present in Upper Newport Bay. The effects of noise on Upper Newport Bay wildlife species would be influenced by two factors: (1) the overall increase in ambient noise levels and (2) the frequency of flights. Based on the species composition in Upper Newport Bay, the majority of wildlife is active during early morning hours or during the nighttime hours, with the morning hours (6:00 AM to noon) being the most critical during the breeding period, lesser peak of activity occurs in the evening. The morning hours are also defined as the highest activity periods by the USFWS and CDFW survey protocols for the majority of the federally and State-listed avian species present in Upper Newport Bay (including, but not limited to gnatcatcher, least Bell's vireo, snowy plover, rails, Belding's sparrow). Morning hours are the key time for bird's signalizing, bonding, and breeding and it is highly influenced by the circadian cycle. In addition, during the morning hours the ambient temperatures are lower and the wind is lower, thus the ambient sound levels tend to be lower and birds signals are in general more consistent and less interrupted than in the evening. Consistent bird calls and song patterns are essential for birds to recognize each other (Brown and Handford 2003; McNamara et al. 1987). Thus, birds have more chances of successful bonding and breeding in the morning hours than in the evening, when they generally tend to focus on foraging. If the flight frequency and associated noise dramatically increases in the morning, it could have the potential to disrupt their activities if there is not a sufficient duration between flights to enable them to resume their activities.

The listed wildlife species present in Upper Newport Bay and potentially subject to noise impacts are avian species (western snowy plover, California black rail, American peregrine falcon, light-footed clapper rail, California brown pelican, coastal California gnatcatcher, Belding's savannah

sparrow, least Bell's vireo, and California least tern). Generally, their peak breeding activity falls into the early morning hours roughly between 6:00 AM and noon depending on the ambient temperature levels. As the ambient temperature rises, bird activity slows down in order to avoid excessive heat and loss of energy.

Table 4.2-2, Flight Frequency During Morning Hours for the Average Day Peak Month Under the Proposed Project,[4] shows the existing and projected number of flights by hour.

TABLE 4.2-2
FLIGHT FREQUENCY DURING MORNING HOURS FOR THE AVERAGE DAY PEAK MONTH UNDER THE PROPOSED PROJECT

Departure Time	Existing Conditions 2013	Phase 1	Phase 2	Phase 3
6:00 AM	0	0	0	0
7:00 AM	17	16	17	18
8:00 AM	11	8	9	9
9:00 AM	5	3	4	4
10:00 AM	11	12	13	14
11:00 AM	6	9	10	10
Noon	9	13	14	15
Total	**59**	**61**	**67**	**70**

Source: Data from *Aviation Forecasts Technical Report,* Tables 5-1 through 5-3, AECOM 2014a.

Under the Proposed Project, the flight frequency in morning flights would gradually increase. By Phase 3 there would be in an 18.6 percent increase over existing conditions in the frequency of flights during the morning hours (6:00 AM to noon). This means that, on average, there would be 1 plane departing every 5.1 minutes compared to the every 6.1 minutes experienced under the existing conditions during the key morning hours (from 7:00 AM until noon). As discussed previously, the highest bird activity occurs during the morning hours when bird communication signals (e.g., songs, calls) are most effective. During the peak hour (the hour with the most flights), under the existing baseline, there is a flight every 3.5 minutes, whereas with the Proposed Project there would be a flight every 3.3 minutes. The single event noise levels would not change from the existing noise levels because the type of aircraft that would be used and the departure pattern would not change. The Proposed Project also would maintain the curfew, thereby ensuring there would be no flights before 7:00 AM. This would result in opportunities for bird bonding, breeding, foraging and/or feeding activity, similar to existing conditions.

When assessing the potential impact on breeding, a comparison of the number of acres of habitat that are exposed to the heightened noise levels is also a consideration. If only a small portion of the suitable habitat is exposed to high noise levels, the species are less likely to be adversely affected because alternative nesting opportunities are available. Exhibit 4.2-3, Proposed Project CNEL Contours Map, shows the 60 and 65 CNEL noise level contours for the Proposed Project

[4] The noise analysis prepared for the Proposed Project and the alternatives uses the average day peak month ("ADPM"). Therefore, the data presented is for the ADPM, which at JWA is typically August. This allows the EIR to evaluate a reasonable worst case.



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Proposed Project CNEL Contours Map

Exhibit 4.2-3

John Wayne Airport Settlement Agreement Amendment

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JOHN WAYNE AIRPORT ORANGE COUNTY

and the monitoring station locations located in and adjacent to Upper Newport Bay. Table 4.2-3 shows the acreage of Upper Newport Bay that would be affected by these respective noise levels.

TABLE 4.2-3
ACREAGE OF UPPER NEWPORT BAY AFFECTED BY NOISE LEVELS GREATER THAN 60 CNEL

	60 dB CNEL Noise (acres affected)	Percent Change of Area in the 60 CNEL Compared to Existing/Percent of Upper Newport Bay in the 60 CNEL	65 dB CNEL Noise (acres affected)*
Baseline 2013	225	0/21	0
Proposed Project			
Phase 1	237	5/23	0
Phase 2	259	15/25	0
Phase 3	274	22/27	0
Alternative A			
Phase 1	235	4/23	0
Phase 2	249	11/24	0
Phase 3	282	25/27	0
Alternative B			
Phase 1	236	5/23	0
Phase 2	284	26/27	0
Phase 3	317	41/31	2
Alternative C			
Phase 1	344	53/33	99
Phases 2 and 3	610	171/59	182
No Project Alternative			
Phases 1 through 3	237	5/23	0

CNEL: Community Noise Equivalent Level; dB: decibel.

* Percentage calculations of change for the 65 CNEL cannot be calculated since none of Upper Newport Bay is within the 65 CNEL under existing conditions.

Source: Acreages are based on the noise contours developed as part of the *Noise Analysis Technical Report,* Landrum & Brown 2014.

The baseline conditions (2013) and projected level of noise at the key monitoring stations are shown in Table 4.2-4. Monitoring stations 4S, 5S, and 6S are located in the natural plant communities in Upper Newport Bay and thus accurately represent the noise levels that terrestrial wildlife species would experience. Monitoring Station 7S is at the southern edge of Upper Newport Bay where the habitat has been heavily disturbed.

TABLE 4.2-4
EXISTING AND FUTURE CNEL LEVELS
AT KEY MONITORING STATIONS

	Noise Monitoring Stations near Upper Newport Bay			
	Station 4S	**Station 5S**	**Station 6S**	**Station 7S**
Existing Noise Level 2013 (dB CNEL)	57.5	57.3	58.2	55.8[a]
Proposed Project				
Phase 1	57.8	57.4	58.2	55.9
Phase 2	58.1	57.7	58.5	56.2
Phase 3	58.4	57.9	58.6	56.4
Alternative A				
Phase 1	57.6	57.4	58.6	56.1
Phase 2	57.8	57.6	58.9	56.3
Phase 3	58.2	58.0	59.2	56.7
Alternative B				
Phase 1	57.7	57.4	58.5	56.0
Phase 2	58.4	58.0	58.9	56.6
Phase 3	59.0	58.5	59.2	57.0
Alternative C				
Phase 1	59.5	59.3	60.6	58.0
Phases 2 and 3	61.9	61.7	63.0	60.5
No Project Alternative				
Phases 1 through 3	57.8	57.4	58.2	55.9

CNEL: Community Noise Equivalent Level; dB: decibel.

Source: Data from *Noise Analysis Technical Report,* Table 20, Landrum & Brown 2014.

As shown in the Table 4.2-3, under existing conditions, 225 acres of Upper Newport Bay are within the 60 CNEL noise contour. Under the Proposed Project, the areas of Upper Newport Bay affected by the 60 CNEL noise level would increase to approximately 274 acres by 2026, which constitutes an additional 49 acres affected. This represents an approximate 22 percent increase in affected area over existing conditions and approximately 27 percent of the habitat area within Upper Newport Bay. As shown in the Table 4.2-3, under existing conditions and the Proposed Project, no areas in Upper Newport Bay are affected by the 65 CNEL noise contour.

Although the areas of native habitat in Upper Newport Bay subject to 60 CNEL noise level would increase by 22 percent, the increase would not have substantial adverse effect on the habitats and wildlife species in Upper Newport Bay because this noise level has been already present in the Newport Bay and wildlife have habituated to it. As shown on Table 4.2-4, the projected noise levels at the monitoring stations around Upper Newport Bay are only slightly (1.1 percent) higher than under existing noise levels (2013), and none of the monitoring stations are projected to record noise approaching 60 CNEL under the Proposed Project.

Based on the results of the current research on birds and conclusions of EIR 582, the overall increase of number of flight departures in the late morning hours combined with the slight incremental increase (less than 1 CNEL) of noise levels is not expected to have substantial impacts on avian species since noise levels will be very similar to existing conditions. The slight increase in noise levels and the areas of Upper Newport Bay subject to these noise levels are below the noise levels evaluated under the original Settlement Agreement (EIR 508) and are less than the impacts analyzed in EIR 582 and Addendum EIR 582-1 for the 2003 Settlement Agreement Amendment, which were found not to be significant.

As discussed under the Migratory Fish or Wildlife Species Section above, the Proposed Project is not expected to substantially increase the potential for bird strikes, and this impact is considered less than significant. The previous studies conducted for the expansion of the JWA operations (EIRs 582, 508, 102) examined effects of similar levels of noise on birds and concluded that no adverse effects on bird behavior were observed and that birds tend to return quickly to their activities after noise events. Otherwise, they would not have been present and successfully breeding in the area in the first instance. Because the birds in Upper Newport Bay have habituated to the 60 CNEL noise level, this less than 1 dBA increase, which would occur over a 10-year period, is not expected to result in substantial adverse effects to the listed bird species. Therefore, the incremental increase in noise levels under the Proposed Project would not result in significant effects to the following listed species: western snowy plover, California black rail, light-footed clapper rail, American peregrine falcon, California brown pelican, coastal California gnatcatcher, Belding's savannah sparrow, least Bell's vireo, and California least tern.

Impact Conclusion: *The Proposed Project would not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established wildlife corridors.*

The Proposed Project would have a less than significant impact on the use of native wildlife nursery sites.

Alternative A

Migratory Fish or Wildlife Species

Similar to the Proposed Project, Alternative A would not interfere with the movement of migratory fish because it would not result in substantial adverse effects on waters supporting marine life. No impacts are expected to migratory fish or wildlife species. The analysis presented for the Proposed Project would be applicable to Alternative A.

In addition, Alternative A is not expected to substantially elevate the potential for aircraft collisions with migratory birds because JWA has a WHMP that meets its obligations under FESA and which meets the requirements of the FAA and USDA (USDA 2014, 2013a, 2013b, 2013c, 2013d, 2013e). Bird migration typically occurs in the evening hours and overnight with birds arriving at their foraging ground in the very early morning. Under Alternative A, JWA will not be active during nighttime hours. Further, a review of the literature on the subject indicates that airport-related bird strikes are almost never of any ecological significance. With implementation of the WHMP, no significant direct or indirect biotic impacts are expected occur on the Project site. Thus, Alternative A is not expected to substantially increase the potential for bird strikes and this impact is considered less than significant.

Native Wildlife Nursery Sites

Alternative A would increase ambient noise levels resulting from the increase of number of flights over time. The noise increases under Alternative A would be similar to those under the Proposed Project. From a biological perspective, these indirect impacts would be mostly borne by the wildlife species present in Upper Newport Bay.

Under Alternative A, the flight frequency would gradually increase. As shown in Table 4.2-5, Flight Frequency During Morning Hours for the Average Day Peak Month Under Alternative A, there is a 25 percent increase of number of flights during the morning hours (6:00 AM to noon). As with the Proposed Project, the curfew would be maintained and the single event noise levels would not change from the noise levels because the type of aircraft that would be used and the departure pattern would not change. This increase is not expected to result in adverse impacts to listed bird species activities such as bird bonding, breeding, foraging, and/or feeding. On average, there would be 1 plane departing every 4.8 minutes compared to the every 6.1 minutes experienced under existing conditions during the key morning hours (from 7:00 AM until noon). During peak hour, under the existing baseline, there would be a flight every 3.5 minutes, whereas Alternative A would have a flight every 2.8 minutes. The overall increase in flight operations over Upper Newport Bay is not expected to result in disruption to listed bird species. As discussed above under the Proposed Project, the birds in Upper Newport Bay have habituated to aircraft noise over time and are successfully breeding and nesting.

TABLE 4.2-5
FLIGHT FREQUENCY DURING MORNING HOURS FOR THE AVERAGE DAY PEAK MONTH UNDER ALTERNATIVE A

Departure Time	Existing Conditions 2013	Phase 1	Phase 2	Phase 3
6:00 AM	0	0	0	0
7:00 AM	17	17	18	21
8:00 AM	11	8	9	10
9:00 AM	5	4	4	4
10:00 AM	11	12	12	14
11:00 AM	6	9	10	11
Noon	9	12	13	14
Total	**59**	**62**	**66**	**74**

Source: Data from *Aviation Forecasts Technical Report,* Tables 5-4 through 5-6, AECOM 2014a.

Exhibit 4.2-4, Alternative A CNEL Contours Map, depicts the noise contours for Alternative A. As shown in Table 4.2-3, under Alternative A, the areas of Upper Newport Bay affected by the 60 CNEL noise level would gradually increase from 225 acres under existing conditions, to approximately 283 acres in Phase 3. Phase 3 would constitute an additional 58 acres over existing conditions and would affect 27 percent of Upper Newport Bay. This represents an approximate 25 percent increase over existing conditions.



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Alternative A CNEL Contours Map

Exhibit 4.2-4

John Wayne Airport Settlement Agreement Amendment

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JOHN WAYNE AIRPORT ORANGE COUNTY

As shown in Table 4.2-3, under existing conditions and Alternative A, no areas in Upper Newport Bay are affected by the 65 CNEL contour. As shown in Table 4.2-4, the projected noise levels at the key monitoring stations around Upper Newport Bay are only slightly higher than the existing noise levels and none of the monitoring stations are projected to reach or exceed the 60 CNEL contour under Alternative A. Although the areas of native habitat in Upper Newport Bay are subject to the 60 CNEL contour and noise levels would increase over existing conditions, these factors would not have substantial adverse effect on the habitats and wildlife species because this noise level is present in Upper Newport Bay and it represents a minor portion of the natural habitat. As under existing conditions, wildlife has habituated to the Airport noise levels. The slight increase in noise level and areas of Upper Newport Bay subject to these noise levels under Alternative A are below the noise levels evaluated under the original Settlement Agreement (EIR 508) and below impacts analyzed in the 2003 Settlement Agreement Amendment (EIR 582), which were found not to be significant.

Based on the results of the current research on birds and conclusions of EIR 582, the increase in numbers of flight departures in the morning hours combined with the slight incremental increase (not exceeding 1 dB CNEL) of noise levels does not have a potential to result in disruption of bird activities. Alternative A is not expected to have a significant impact on avian species since there would be time in the early morning hours when birds would experience noise levels and frequency of noise events similar to existing conditions. Therefore, the incremental increase in noise levels under Alternative A would not result in significant effects to the following listed species: western snowy plover, California black rail, light-footed clapper rail, American peregrine falcon, California brown pelican, coastal California gnatcatcher, Belding's savannah sparrow, least Bell's vireo, and California least tern.

Impact Conclusion: *Alternative A would not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established wildlife corridors.*

Alternative A would have a less than significant impact on the use of native wildlife nursery sites.

Alternative B

Migratory Fish or Wildlife Species

Similar to the Proposed Project, Alternative B would not interfere with the movement of migratory fish because it would not result in substantial adverse effects on waters supporting marine life. No impacts are expected to migratory fish or wildlife species. The analysis presented for the Proposed Project would be applicable to Alternative B.

Similar to the Proposed Project and Alternative A, Alternative B is not expected to substantially elevate the potential for aircraft collisions with migratory birds because JWA has a WHMP that meets its obligations under FESA and meets the requirements of the FAA and USDA (USDA 2014, 2013a, 2013b, 2013c, 2013d, 2013e). Bird migration typically occurs in the evening hours and overnight with birds arriving at their foraging ground in the very early morning. Under Alternative B, JWA will not be in operation during nighttime hours. Further, a review of the literature on the subject indicates that airport-related bird strikes are almost never of any ecological significance. With implementation of the WHMP, no significant direct or indirect biotic impacts are expected occur on the Project site. Thus, Alternative B is not expected to

substantially increase the potential for bird strikes and this impact is considered less than significant.

Native Wildlife Nursery Sites

Alternative B would increase the ambient noise levels resulting from the increase of number of flights over time. Table 4.2-6, Flight Frequency During Morning Hours for the Average Day Peak Month Under Alternative B, shows the existing and projected number of flights by hour under Alternative B.

TABLE 4.2-6
FLIGHT FREQUENCY DURING MORNING HOURS FOR THE AVERAGE DAY PEAK MONTH UNDER ALTERNATIVE B

Departure Time	Existing Conditions 2013	Phase 1	Phase 2	Phase 3
6:00 AM	0	0	0	0
7:00 AM	17	16	19	22
8:00 AM	11	8	10	11
9:00 AM	5	4	4	4
10:00 AM	11	12	14	16
11:00 AM	6	9	11	12
Noon	9	12	15	17
Total	**59**	**61**	**73**	**82**

Source: Data from *Aviation Forecasts Technical Report,* Tables 5-7 through 5-9, AECOM 2014a.

Under Alternative B, the flight frequency would increase. As shown in Table 4.2-6, Flight Frequency During Morning Hours Under Alternative B, there is nearly a 39 percent increase of number of flights during the morning hours. This means that, on average, there would be one plane departing every 4.3 minutes compared to the every 6.1 minutes experienced under existing conditions during the key morning hours (from 7:00 AM until noon). During peak hour, under the existing baseline, there is a flight every 3.5 minutes and with Alternative B there would be a flight every 2.7 minutes. The single event noise levels would not change from the existing noise levels because the type of aircraft that would be used and the departure pattern would not change. Alternative B also would maintain the curfew, thereby ensuring there would be no flights before 7:00 AM. This would result in opportunities for bird bonding, breeding, foraging and/or feeding activity, similar to existing conditions. An increase in flight operations over Upper Newport Bay would not substantially disrupt bird activity because the birds have habituated to aircraft noise over time and are successfully breeding and nesting.

Exhibit 4.2-5, Alternative B CNEL Contour Map, shows the 60 and 65 CNEL contours and key monitoring station locations for Alternative B. The acreage within each of the contours was shown in Table 4.2-3. The baseline conditions and projected level of noise at the key monitoring stations are shown in the Table 4.2-4. As previously indicated, the monitoring stations are located in the natural plant communities in Upper Newport Bay and thus they likely more accurately represent the noise levels that terrestrial mammals and birds experience while breeding and nesting.



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Alternative B CNEL Contours Map

Exhibit 4.2-5

John Wayne Airport Settlement Agreement Amendment

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JOHN WAYNE AIRPORT ORANGE COUNTY

As shown in the Table 4.2-3, under existing conditions, 225 acres of Newport Bay Reserve is affected by the 60 CNEL noise level, which constitutes 21 percent of the total affected area. Under Alternative B, the areas of Upper Newport Bay affected by the 60 CNEL noise level would gradually increase to approximately 317 acres in 2026, which constitutes an additional 81 acres (a 41 percent increase) over existing conditions and 31 percent of Upper Newport Bay being affected.

As shown in Table 4.2-3 under Alternative B, two acres of Upper Newport Bay would be affected by the 65 CNEL noise contour. The areas of Upper Newport Bay subject to projected 65 CNEL are barren and lack vegetation and, thus, do not provide a habitat for listed birds.

Although the acreage in Upper Newport Bay subject to 60 CNEL noise level would increase by 41 percent over existing conditions, wildlife in Upper Newport Bay has habituated to this level of noise and, judging from existing conditions, this noise level does not interfere with their activities. Actually, as shown on Table 4.2-3, the projected noise levels at the monitoring stations around Upper Newport Bay are not substantially higher than the existing noise levels (2013), and none of the monitoring stations are projected to record noise that are at or that exceed 60 CNEL under Alternative B. This is similar to existing conditions, the Proposed Project, and Alternative A. The slight increase in noise level and areas in Upper Newport Bay subject to these noise levels under Alternative B are below the noise levels evaluated under original Settlement Agreement (EIR 508) and below impacts analyzed in conjunction with 2003 Settlement Agreement Amendment (EIR 582).

Alternative B is not expected to have a substantial adverse impact on avian species since there would be time in the early morning hours when the birds would experience noise levels and frequency of noise events similar to existing conditions. The existing ambient noise levels in Upper Newport Bay allows birds to successfully bond, breed, nest, and forage and they have habituated to the noise. Therefore, the incremental increase in noise levels under Alternative B would not result in significant effects to the following listed species: western snowy plover, California black rail, light-footed clapper rail, American peregrine falcon, California brown pelican, coastal California gnatcatcher, Belding's savannah sparrow, least Bell's vireo, and California least tern.

Impact Conclusion: *Alternative B would not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established wildlife corridors.*

Alternative B would have a less than significant impact on the use of native wildlife nursery sites.

Alternative C

Migratory Fish or Wildlife Species

Similar to the Proposed Project, Alternative C would not interfere with the movement of migratory fish because it would not result in substantial adverse effects on waters supporting marine life. No impacts are expected to migratory fish or wildlife species. The analysis presented for the Proposed Project would be applicable to Alternative C.

Although Alternative C could elevate the potential for aircraft collisions with migratory birds due increased frequency of the flights, the impact is not expected to be substantial. Implementation of the WHMP, which meets JWA obligations under FESA and meets the requirements of the FAA and USDA (USDA 2014, 2013a, 2013b, 2013c, 2013d, 2013e) would minimize aircraft collisions with migratory birds to the level below significance. Similar to other Alternatives, under Alternative C, JWA will not be in operation during nighttime hours. Further, a review of the literature on the subject indicates that airport-related bird strikes are almost never of any ecological significance. With implementation of the WHMP, no significant direct or indirect biotic impacts are expected occur on the Project site. Thus, Alternative C is not expected to substantially increase the potential for bird strikes; this impact is considered less than significant.

Native Wildlife Nursery Sites

Alternative C would increase the ambient noise levels resulting from the substantial increase in number of flights. Under Alternative C, there would be an increase in the noise levels resulting from the increase in flight numbers, which would occur in Phase 1 (2016). However, unlike the Proposed Project and other alternatives, with Alternative C, starting in 2021, the curfew could be eliminated. As discussed in the Section 3, Project Description, assumptions regarding the distribution of flights in the night time hours is based on similar airports that operate without a curfew.

Table 4.2-7, Flight Frequency During Morning Hours for the Average Day Peak Month Under Alternative C, shows the existing and projected number of flights between 6:00 AM and noon under Alternative C.

Under Alternative C the flight frequency would increase over the entire Upper Newport Bay. As shown in Table 4.2-7, the morning departures (6:00 AM to noon) would increase to 108 flights in Phase 1 and 114 flights in Phases 2 and 3, an 83 and 93 percent increase over existing conditions, respectively. This means that, on average, there would be one plane departing every 3.3 minutes in Phase 1 and 3.6 minutes in Phases 2 and 3, which is greater than the every 6.1 minutes experienced under existing conditions during the key morning hours.[5] Additionally, this frequency of flights includes an additional hour for Phases 2 and 3 (from 6:00 AM until noon). During peak hour, the difference between the existing baseline (a flight every 3.5 minutes) and Alternative C (a flight every 1.8 minutes for Phase 1 and every 2.1 minutes for Phases 2 and 3) becomes more pronounced.

[5] For Phases 2 and 3, the flights are distributed over 7 hours because flights in the 6:00 AM hour have been added.

TABLE 4.2-7
FLIGHT FREQUENCY DURING MORNING HOURS FOR THE AVERAGE DAY PEAK MONTH UNDER ALTERNATIVE C

Departure Time	Existing Conditions 2013	Phase 1	Phases 2 and 3
6:00 AM	0	0	11
7:00 AM	17	33	28
8:00 AM	11	16	16
9:00 AM	5	7	7
10:00 AM	11	18	18
11:00 AM	6	14	14
Noon	9	20	20
Total	**59**	**108**	**114**

Source: Data from *Aviation Forecasts Technical Report,* Tables 5-10 through 5-12, AECOM 2014a.

Though the total number of allowed Class A ADDs and Million Annual Passengers ("MAP") is the same in all phases for Alternative C, the number of morning flights increase in Phases 2 and 3 because the curfew would no longer be applicable and flights before 7:00 AM are projected to occur. The single event noise level would not be different from existing conditions because the type of aircraft that would be used and the departure pattern would not change. This substantial increase in flight operations over Upper Newport Bay would have the potential to disrupt bird activity over a large percentage of sensitive habitat. Therefore, the majority of wildlife in Upper Newport Bay would be subject to almost constant levels of noise compared to existing conditions. Even though wildlife is habituated to increased noise levels in Upper Newport Bay, the increased frequency of flights, extended hours of exposure, and the fact that a substantially greater portion of the sensitive habitat would be subject to noise in excess of the 60 CNEL would have the potential to disturb bird activity.

Exhibit 4.2-6, Alternative C CNEL Contour Map shows the 60 and 65 CNEL contours and key monitoring station locations for Alternative C. The acreage within each of the contours was shown in Table 4.2-3. The baseline conditions and projected level of noise at the key monitoring stations are shown in Table 4.2-4. As previously indicated, the monitoring stations are located in natural plant communities in Upper Newport Bay and thus they likely accurately represent the noise levels that terrestrial mammals and birds experience while breeding and nesting.

As shown in the Table 4.2-3, under existing conditions, 225 acres of Newport Bay Reserve are affected by the 60 CNEL noise level. Under Alternative C, the areas of Upper Newport Bay affected by the 60 CNEL noise level would increase to approximately 344 acres in 2016 and 610 acres 2021 when the curfew is removed. For Phase 1, this constitutes an additional 119 acres (a 53 percent increase) over existing conditions and for Phases 2 and 3 an additional 385 acres would be affected (a 171 percent increase).[6]

[6] The difference between Phase 1 and Phases 2 and 3 is entirely due to the elimination of the curfew. CNEL includes a 10 dB penalty for the night time period from 10:00 PM to 7:00 AM.



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Alternative C CNEL Contours Map

Exhibit 4.2-6

John Wayne Airport Settlement Agreement Amendment

N W E S

1,500 750 0 1,500 Feet

JOHN WAYNE AIRPORT ORANGE COUNTY

As shown in Table 4.2-3 under Alternative C, 99 acres of Upper Newport Bay would be affected by the 65 CNEL in Phase 1 and 182 acres in Phases 2 and 3.

It is unknown whether the listed bird species would continue their existing activities under Alternative C. Although the research suggests that gnatcatcher successfully breed, lay eggs, and survive in elevated noise levels (i.e., above 65 CNEL), constant noise levels in the majority of the reserve could detrimentally affect local populations of listed species in Upper Newport Bay. Because the implications of these noise impact levels in the reserve are unknown, it is concluded that Alternative C may result in significant effects to sensitive species in Upper Newport Bay, which include the western snowy plover, California black rail, light-footed clapper rail, American peregrine falcon, California brown pelican, coastal California gnatcatcher, Belding's savannah sparrow, least Bell's vireo, and California least tern located in Upper Newport Bay. Alternative C would not jeopardize existence of these bird species on a regional level, but the local populations could be affected. Because Upper Newport Bay supports habitat for the largest statewide subpopulation of the light-footed clapper rail, Alternative C could result in significant effects to the light-footed clapper rail on the local and regional level. Absent a reduction in the operational parameters of Alternative C, there are no minimization and mitigation measures that would help to alleviate noise impacts to the listed bird species to the less than significant levels. Therefore, it is concluded that Alternative C would result in significant unavoidable impacts to listed bird species on the local level and result in significant unavoidable impact to the light-footed clapper rail on the local and regional level.

Impact Conclusion: *Alternative C would not substantially interfere with the movement of any native resident or migratory fish or with established wildlife corridors.*

Alternative C would result in significant adverse impacts to wildlife species, specifically to the western snowy plover, California black rail, light-footed clapper rail, American peregrine falcon, California brown pelican, coastal California gnatcatcher, Belding's savannah sparrow, least Bell's vireo, and California least tern.

No Project Alternative

Migratory Fish or Wildlife Species

Similar to the Proposed Project, the No Project Alternative would not interfere with the movement of migratory fish because it would not result in substantial adverse effects on waters supporting marine life. No impacts are expected to migratory fish or wildlife species. The analysis presented for the Proposed Project would be applicable to the No Project Alternative.

Native Wildlife Nursery Sites

The No Project Alternative would slightly increase the ambient noise level compared to existing conditions because, currently, the Airport is not operating at the maximum capacity allowed under the Settlement Agreement. Based on the assumption that JWA would maintain its operation levels as prescribed in the Settlement Agreement (as amended in 2003), the assumptions for the No Project Alternative would be the same as the Proposed Project Phase 1.

As shown in Table 4.2-8, Flight Frequency During Morning Hours for the Average Day Peak Month Under the No Project Alternative, on average, there would be 1 plane departing every 5.9

minutes compared to the every 6.1 minutes experienced with existing conditions during the key morning hours (from 7:00 AM until noon). During peak hour, under the existing baseline there is a flight every 3.50 minutes, whereas with the No Project Alternative there would be a flight every 3.75 minutes. An increase in flight operations over Upper Newport Bay would not substantially disrupt bird activity because the birds have habituated to aircraft noise over time and are successfully breeding and nesting.

TABLE 4.2-8
FLIGHT FREQUENCY DURING MORNING HOURS FOR THE AVERAGE DAY PEAK MONTH UNDER THE NO PROJECT ALTERNATIVE

Departure Time	Existing Conditions 2013	No Project All Phases
6:00 AM	0	0
7:00 AM	17	16
8:00 AM	11	8
9:00 AM	5	3
10:00 AM	11	12
11:00 AM	6	9
Noon	9	13
Total	**59**	**61**
Source: Data from *Aviation Forecasts Technical Report,* Table 5-13, AECOM 2014a.		

As with the Proposed Project, the curfew would be maintained and the single event noise levels would not change because the type of aircraft that would be used and the departure pattern would not change. However, it should be noted that with the No Project Alternative, the Settlement Agreement would expire on December 31, 2015 and the flight level and curfew could be modified in the future.

Exhibit 4.2-7, No Project Alternative CNEL Contours Map, depicts the noise contours for the No Project Alternative. As shown earlier in Table 4.2-3, the No Project Alternative would increase the amount of natural habitat exposed to the 60 CNEL noise contour by approximately 12 acres, to a total of 237 acres. As shown in Table 4.2-4, the increase would be less than 1 dB CNEL at the key monitoring locations, which would not be perceptible. No areas of natural habitat would be exposed to the 65 CNEL noise contour. This increase is not expected to result in adverse impacts to activities of listed bird species (e.g., bonding, breeding, foraging, and/or feeding) because the change is not substantially different from existing conditions. No significant impacts are expected.

Impact Conclusion: *The No Project Alternative would not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established wildlife corridors.*

The No Project Alternative would have a less than significant impact on the use of native wildlife nursery sites.



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No Project Alternative CNEL Contours Map

Exhibit 4.2-7

John Wayne Airport Settlement Agreement Amendment

N W E S

1,500 750 0 1,500 Feet

JOHN WAYNE AIRPORT ORANGE COUNTY

Threshold 4.2-4 **Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

Threshold 4.2-5 **Would the project conflict with provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?**

Proposed Project

The Proposed Project would not result in removal of trees because the Proposed Project does not propose any physical improvements to the Airport. Thus, the Proposed Project would not conflict with a tree preservation policy and would not impact nesting birds through removal of vegetation. No impact related to a tree policy or ordinance is expected.

The Project site is located in the Orange County Central-Coastal Subregion NCCP/HCP; however, it is located outside the designated protection areas. The closest NCCP/HCP-designated area is the Newport Bay Ecological Reserve, located in Upper Newport Bay.

The Project would not interfere with the NCCP/HCP goals to establish the reserve system because it does not convert any of the Newport Bay Ecological Reserve sensitive habitats to other types of habitat or use. The indirect effects (e.g., incremental increase in noise) would not result in significant impacts to the NCCP/HCP. As shown on the Exhibit 4.2-2 and Tables 4.2-2 through 4.2-4, the increase in noise levels is relatively small and the additional area in Upper Newport Bay subject to noise is relatively small. As discussed above, the Proposed Project does not propose new structures that would result in direct adverse impacts to biotic resources that, in turn, could affect the conservation goals and policies established in the NCCP/HCP or other regional or local plans.

JWA is an existing airport and the Proposed Project does not directly affect the sensitive habitats in the BSA. Under the Proposed Project, the slight increase in noise levels and slight increase in number of flights would not jeopardize local populations of wildlife species (e.g., coastal California gnatcatcher) and other target species covered under the NCCP/HCP, or designated sensitive habitats such as riparian and coastal sage scrub. Therefore, the Proposed Project would not conflict with provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. No impacts are expected.

Additional General Plan policy analysis is provided in Section 4.5, Land Use and Planning.

Impact Conclusion: *The Proposed Project would not conflict with any local policies or ordinances protecting biological resources.*

Although the Proposed Project would slightly increase noise levels and increase areas subject to noise in the NCCP/HCP Reserve area, the increase in noise levels would not be substantial and would not jeopardize existence of wildlife species and plant communities in the NCCP/HCP. As such, the Proposed Project would not conflict with the provisions of an adopted habitat conservation plan.

Alternative A

The analysis presented for the Proposed Project for this threshold would also apply to Alternative A.

Impact Conclusion: *Alternative A would not conflict with any local policies or ordinances protecting biological resources.*

Although Alternative A would slightly increase noise levels and increase areas subject to noise in the NCCP/HCP Reserve area, the increase in noise levels would not be substantial and would not jeopardize existence of wildlife species and plant communities in the NCCP/HCP. As such, Alternative A would not conflict with the provisions of an adopted habitat conservation plan.

Alternative B

The analysis presented for the Proposed Project for this threshold would also apply to Alternative B.

Impact Conclusion: *Alternative B would not conflict with any local policies or ordinances protecting biological resources.*

Although Alternative B would slightly increase noise levels and increase areas subject to noise in the NCCP/HCP Reserve area, the increase in noise levels would not be substantial and would not jeopardize existence of wildlife species and plant communities in the NCCP/HCP. As such, Alternative B would not conflict with the provisions of an adopted habitat conservation plan.

Alternative C

As with the Proposed Project, Alternative C would not result in the removal of trees because the Proposed Project does not propose any physical improvements to the Airport. Thus, this alternative would not conflict with a tree preservation policy and would not impact nesting birds through removal of vegetation. No impact related to a tree policy or ordinance is expected.

As previously indicated, the Upper Newport Bay is part of the Reserve Area for the Central-Coastal NCCP/HCP. As discussed above under Threshold 4.2-3, Alternative C would substantially increase the overall noise levels and the frequency of flights over Upper Newport Bay. The majority of wildlife in Upper Newport Bay would be subject to almost constant elevated levels of noise, substantially higher than it is under existing conditions. It was concluded that Alternative C could interfere with breeding activities for avian species in Upper Newport Bay. This would be considered inconsistent with the NCCP/HCP and the Upper Newport Bay goals. This scenario would result in significant biotic impacts on resources within the Central-Coastal NCCP/HCP Reserve, which include the Upper Newport Bay.

Impact Conclusion: *Alternative C would not conflict with any local policies or ordinances protecting biological resources.*

Alternative C would result in potential significant impacts to the local population of listed bird species within Upper Newport Bay, which is a component of the Central-Coastal NCCP/HCP Reserve area. Therefore, Alternative C would conflict with the provisions of an adopted habitat conservation plan.

No Project Alternative

The analysis presented for the Proposed Project for this threshold would also apply to the No Project Alternative.

Impact Conclusion: *The No Project Alternative would not result in any impacts related to a tree preservation policy or ordinance.*

The No Project Alternative would slightly increase noise levels and increase areas subject to noise in the NCCP/HCP Reserve area; the increase in noise levels would not be substantial and would not jeopardize existence of wildlife species and plant communities in the NCCP/HCP. As such, the No Project Alternative is consistent with the general plans, local plans, and the NCCP/HCP, and impacts would be less than significant.

4.2.6 MITIGATION PROGRAM

There are no feasible and practicable mitigation measures that would reduce the level of impacts for Alternative C to a less than significant level. Therefore, no mitigation measures are proposed and the impact for Alternative C remains significant and unavoidable.

4.2.7 LEVEL OF SIGNIFICANCE AFTER MITIGATION

There are no feasible biological mitigation measures. A summary of the level of significance for each of the biological thresholds is presented in Table 4.2-9.

TABLE 4.2-9
SUMMARY OF SIGNIFICANCE OF BIOLOGICAL RESOURCE IMPACTS

Threshold	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Threshold 4.2-1 Threshold 4.2-2	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact
Threshold 4.2-3	Less than significant impact	Less than significant impact	Less than significant impact	Significant and unavoidable impact	Less than significant impact
Threshold 4.2-4 Threshold 4.2-5	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact (policy/ordinance conflict) Significant and unavoidable impact (NCCP/HCP conflict)	Less than significant impact

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[7] Although the California Department of Fish and Game (CDFG) changed its name to the California Department of Fish and Wildlife (CDFW) effective January 1, 2013, "CDFG" is still used throughout this document for all documents published or database searches completed before January 1, 2013.

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4.3 GREENHOUSE GAS EMISSIONS

This section discusses potential impacts to global climate change as related to the anticipated Project-related greenhouse gas ("GHG") emissions. The GHG emissions analysis in this section is based on the *John Wayne Airport Settlement Agreement Amendment Greenhouse Gas Technical Report* ("*Greenhouse Gas Technical Report"*) prepared by Environ International Corporations and included in this EIR as Appendix E (Environ 2014b).

The Project does not propose any physical construction or change to the nature of the Airport ground operations. Therefore, the Project would not generate GHG emissions associated with construction activities.

4.3.1 BACKGROUND INFORMATION

SCIENTIFIC BACKGROUND

There is a general scientific consensus that global climate change is occurring, caused in whole or in part by increased emissions of GHGs that keep the Earth's surface warm by trapping heat in the Earth's atmosphere, in much the same way as glass traps heat in a greenhouse. The Earth's climate is changing because human activities, primarily the combustion of fossil fuels, are altering the chemical composition of the atmosphere through the buildup of GHGs.

GHGs allow the sun's radiation to penetrate the atmosphere and warm the Earth's surface, but do not let the infrared radiation emitted from the Earth to escape back into outer space. As a result, global temperatures are predicted to increase over the century. In particular, if climate change remains unabated, surface temperatures in California are expected to increase anywhere from 4.1 to 8.6 degrees Fahrenheit ("°F") by the end of the century. Not only would higher temperatures directly affect the health of individuals through greater risk of dehydration, heat stroke, and respiratory distress, the higher temperatures may increase ozone formation, thereby worsening air quality. Rising temperatures could also reduce the snowpack, which would increase the risk of water shortages. Higher temperatures along with reduced water supplies could reduce the quantity and quality of agricultural products. In addition, there could be an increase in wildfires and a shift in distribution of natural vegetation throughout the State. Global warming could also increase sea levels and coastal storms resulting in greater risk of flooding.

Emissions of carbon dioxide ("CO_2") are the leading cause of global warming, with other pollutants such as methane ("CH_4"), nitrous oxide ("N_2O"), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride also contributing. The magnitude of each GHGs impact on global warming differs because each GHG has a different global warming potential ("GWP"), which indicates, on a pound for pound basis, how much the pollutant will contribute to global warming relative to how much warming would be caused by the same mass of CO_2. CH_4 and N_2O, for example, are substantially more potent than CO_2, with GWPs of 21 and 310, respectively.

The effect each GHG has on climate change is measured as a combination of the volume of its emissions and its GWP. Thus, GHG emissions are typically measured in terms of pounds, tons, tonnes, or metric tons of CO_2 equivalent ("CO_2e"). A tonne is the same as a metric tons (1,000 kilograms) and is equal to 2,205 pounds, or 1.103 tons. CO_2 has the greatest impact on global warming because of the relatively large quantities of CO_2 emitted into the atmosphere.

Globally, CO_2 concentrations, which ranged from 265 parts per million ("ppm") to 280 ppm over the last 10,000 years, only began rising in the last 200 years to current levels of 397 ppm, which is a 42 percent increase.

In 2011, the United States emitted about 5.44 billion tonnes (net emissions) of CO_2e or about 17.2 tonnes per person per year ("tonnes/person/year"). This represents a 6.5 percent reduction below 2005 levels. Of the four major sectors nationwide—residential, commercial, industrial, and transportation—transportation accounts for the highest fraction of GHG emissions (approximately 33 percent); these emissions are entirely generated from direct fossil fuel combustion. Nearly 65 percent of the transportation emissions resulted from gasoline consumption for personal vehicle use. The remaining emissions came from other transportation activities, including the combustion of diesel-fuel in heavy duty vehicles and jet fuel in aircraft. According to the Sixth U.S. Climate Action Report, from 2005 to 2011, transportation emissions dropped by 8 percent due, in part, to increased fuel efficiency across the U.S. vehicle fleet; due to higher fuel prices; and due to an associated decrease in the demand for passenger transportation. However, from 1990 to 2011 as a whole, transportation emissions rose by 17 percent, principally because of increased demand for travel and the stagnation of fuel efficiency across the U.S. vehicle fleet.

In 2011, California emitted approximately 448 million tonnes of CO_2e, or about 7 percent of the U.S. emissions. Of these emissions, approximately 3.3 million tonnes were attributed to intrastate aviation. California's percentage contribution is due primarily to the sheer size of California, as compared to other states, as California has the fourth lowest per capita GHG emission rate in the country, due to the success of its energy-efficiency and renewable energy programs and to the commitments that have lowered the State's GHG emissions rate of growth by more than half of what it would have been otherwise. Another factor that contributes to the low per capita rate is its mild climate compared to that of many other states.

The California Energy Commission found that transportation is the source of approximately 41 percent of the State's GHG emissions, followed by electricity generation (both in-state and out-of-state) at 23 percent, and industrial sources at 20 percent. Agriculture and forestry is the source of approximately 8.3 percent. The source category "other", which includes residential and commercial activities, also comprised approximately 8.3 percent of the inventory.

It has not been demonstrated that new GHG emissions caused by a single project can affect global climate change, or that a project's net increase in GHG emissions, if any, when coupled with other activities in the region, would be cumulatively considerable.

POTENTIAL EFFECTS OF HUMAN ACTIVITY ON GLOBAL CLIMATE CHANGE

Globally, climate change has the potential to impact numerous environmental resources through anticipated, though uncertain, impacts related to future air temperatures and precipitation patterns. Some scientific modeling predicts that the continued emission of GHGs at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. A warming of about 0.2 degree Celsius ("°C", 0.36°F) per decade is projected, and there are identifiable signs that global warming is taking place, including substantial loss of ice in the Arctic.

However, the understanding of the role that GHG emissions, particulate matter, and aerosols play on global climate trends remains uncertain. In addition to uncertainties about the extent to which human activity rather than solar or volcanic activity is responsible for increasing warming, there is also evidence that some human activity has cooling, rather than warming, effects, as discussed in detail in numerous publications by the Intergovernmental Panel on Climate Change ("IPCC").

Acknowledging uncertainties regarding the rate at which anthropogenic GHG emissions would continue to increase (based upon various factors under human control, such as future population growth and the locations of that growth; the amount, type, and locations of economic development; the amount, type, and locations of technological advancement; adoption of alternative energy sources; legislative and public initiatives to curb emissions; and public awareness and acceptance of methods for reducing emissions), and the impact of such emissions on climate change, the IPCC devised a set of six emission scenarios that utilize various assumptions about the rates of economic development, population growth, and technological advancement over the course of the next century. These emission scenarios are paired with various climate sensitivity models to attempt to account for the range of uncertainties that affect climate change projections. The wide range of temperature, precipitation, and similar projections yielded by these scenarios and models reveal the magnitude of uncertainty presently limiting climate scientists' ability to project long-range climate change.

The projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects, according to the IPCC:

- Snow cover is projected to contract, with permafrost areas sustaining thawing;
- Sea ice is projected to shrink in both the Arctic and Antarctic;
- Hot extremes, heat waves, and heavy precipitation events are likely to increase in frequency;
- Future tropical cyclones (typhoons and hurricanes) will likely become more intense;
- Non-tropical storm tracks are projected to move toward the poles, with consequent changes in wind, precipitation, and temperature patterns. Increases in the amount of precipitation are very likely in high-latitudes, while decreases are likely in most subtropical regions; and
- Warming is expected to be greatest over land and at most high northern latitudes, and least over the Southern Ocean and parts of the North Atlantic Ocean.

Potential secondary effects from global warming include global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.

4.3.2 REGULATORY SETTING

INTERNATIONAL

International Civil Aviation Organization

The International Civil Aviation Organization ("ICAO") was created in 1944 to promote the safe and orderly development of international civil aviation throughout the world. It sets standards and regulations necessary for aviation safety, security, efficiency and regularity, as well as for aviation environmental protection. The ICAO serves as the forum for cooperation in all fields of civil aviation among its 191 Member States.

A comprehensive assessment concerning aviation's contribution to global atmospheric problems is contained in the Special Report on Aviation and the Global Atmosphere. This Special Report was prepared by the IPCC in collaboration with the Scientific Assessment Panel to the Montreal Protocol on Substances that Deplete the Ozone Layer and was published in 1999 at ICAO's request. The Special Report recognized that the effects of some types of aircraft emissions are well understood; revealed that the effects of others are not; and identified a number of key areas of scientific uncertainty that limit the ability to project aviation impacts on climate and ozone. The ICAO requested that the IPCC include an update of the main findings of the Special Report in its Fourth Assessment Report ("IPCC AR4"), which was published in 2007.

In 2007, the ICAO continued to study policy options to limit or reduce the environmental impact of aircraft engine emissions, and to develop concrete proposals and provide advice as soon as possible to the Conference of the Parties to the United Nations Framework Convention on Climate Change ("UNFCCC"). It called for special emphasis to be placed on the use of technical solutions, while continuing consideration of market-based measures and taking into account potential implications for developing and developed countries.

A global agreement reached by the 37th Session of the ICAO Assembly in October 2010 established ICAO's objective for aviation's role in the management of climate change. It provides a roadmap for action through 2050 for the 191 Member States and invited them to voluntarily submit their action plans to reduce CO_2 emissions to ICAO by June 2012. The action plans are intended to allow Member States to showcase the specific voluntary measures they intend to take in order to improve efficiency and thereby contribute to the global environmental aspirational goals established by the Assembly.

ICAO has taken immediate steps to help Member States prepare their action plans by developing guidance material and a framework for collecting, analyzing, and reporting aviation CO_2 emissions. ICAO has also prepared a web interface to serve as an electronic template for the submission of action plans. This web tool provides material to assist in the preparation of action plans and dissemination of information on the various measures being undertaken by Member States. In addition, ICAO held regional hands-on training workshops from May to July 2011 in its Regional Offices. These workshops allowed Member States to obtain maximum benefit from the guidance material and provide opportunities for them to help refine their material. The workshops trained participants in the use of the web interface. Twenty-four Member States have made their action plans publically available, including the United States (discussed further below).

FEDERAL

Federal Aviation Administration

2014 Climate Action Report

According to the 2014 Climate Action Report, the 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 the National Aeronautics and Space Administration. 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.

Aviation Greenhouse Gas Emissions Reduction Plan

The United States is committed to addressing the climate change impacts of commercial aviation and is pursuing a multi-pronged approach to achieve GHG emissions reductions. The Aviation Greenhouse Gas Emissions Reduction Plan, which was submitted to ICAO as the U.S. Action Plan, 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 during the last five years 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.

Supreme Court Ruling in Massachusetts et al. v. Environmental Protection Agency

In *Massachusetts et al. v. Environmental Protection Agency* (549 US 497 [2007]), the U.S. Supreme Court held that the United States Environmental Protection Agency ("USEPA") has authority under the Clean Air Act to regulate CO_2 emissions from new motor vehicles. The Court did not mandate that the USEPA enact regulations to reduce GHG emissions, but found that the only instances in which the USEPA could avoid taking action were if it found that GHGs do not contribute to climate change or if it offered a "reasonable explanation" for not determining that GHGs contribute to climate change.

U.S. Environmental Protection Agency

On December 7, 2009, the USEPA issued an "endangerment finding" under the Clean Air Act, concluding that GHGs threaten the public health and welfare of current and future generations and that motor vehicles contribute to GHG pollution. These findings provide the basis for adopting new national regulations to mandate GHG emission reductions under the federal Clean Air Act.

On September 22, 2009, the USEPA issued the Final Mandatory Reporting of Greenhouse Gases Rule. The rule requires annual reporting to the USEPA of GHG emissions from large sources and suppliers of GHGs, including facilities that emit 25,000 metric tons (22,675 tonnes) or more a year of GHGs. 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 Cogeneration Facility [natural gas use] to the State of California Air Resources Board ["CARB"].)

Section 233 of the Clean Air Act 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 the USEPA's standards. To date, the USEPA has not adopted GHG emission standards for aircraft engines.

However, the USEPA recently adopted oxides of nitrogen ("NOx") 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 NOx, 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.

U.S. Environmental Protection Agency and National Highway Transportation Safety Administration Joint Rulemaking for Vehicle Standards

In response to the Massachusetts v. EPA ruling discussed above, the Bush Administration issued an Executive Order on May 14, 2007, directing the USEPA, the Department of Transportation ("DOT"), and the Department of Energy ("DOE") to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008.

On October 10, 2008, the National Highway Transportation Safety Administration ("NHTSA") released a final environmental impact statement analyzing proposed interim standards for passenger cars and light trucks in model years 2011 through 2015. The NHTSA issued a final rule for model year 2011 on March 30, 2009. In addition, on May 7, 2010, the USEPA and the NHTSA issued a final rule regulating fuel efficiency and GHG pollution from motor vehicles for cars and light-duty trucks for model years 2012–2016.

On May 21, 2010, President Obama issued a memorandum to the Secretaries of Transportation and Energy and to the Administrators of the USEPA and the NHTSA calling for the establishment of additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure.[1] In response to this directive, the USEPA and NHTSA issued a Supplemental Notice of Intent announcing plans to propose stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The agencies proposed standards projected to achieve 163 grams per mile of CO_2 in model year 2025, on an average industry fleetwide basis, which is equivalent to 54.5 miles per gallon ("mpg") if this level were achieved solely through fuel efficiency. California has announced its support of this national

[1] President Obama has demonstrated a commitment to reducing the U.S.' GHG emissions level; for example, on June 25, 2013, President Obama announced a set of executive actions that will cut carbon pollution, prepare for the impacts of climate change, and lead international efforts to address climate change.

program. The final rule was adopted in October 2012 for model years 2017–2021, and NHTSA intends to set standards for model years 2022–2025 in a future rulemaking.

Heavy-Duty Engines and Vehicles Fuel Efficiency Standards

In addition to the regulations applicable to cars and light-duty trucks, on August 9, 2011, the USEPA and the NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks, which apply to vehicles from model year 2014–2018. The USEPA and NHTSA have adopted standards for CO_2 emissions and fuel consumption, respectively, tailored to each of three main vehicle categories: combination tractors; heavy-duty pickup trucks and vans; and vocational vehicles. According to the USEPA, this program will reduce GHG emissions and fuel consumption for affected vehicles by 6 percent to 23 percent over the 2010 baseline year. (These emissions reductions were not included in the Project emissions inventory due to the difficulty in quantifying the reductions. Excluding these reductions results in a more conservative [i.e., higher] Project emissions inventory.)

STATE

Executive Order S-3-05

In June 2005, former Governor Schwarzenegger signed Executive Order S-3-05, which established the following GHG emission reduction targets for California: (1) by 2010, reduce GHG emissions to 2000 levels; (2) by 2020, reduce GHG emissions to 1990 levels; and (3) by 2050, reduce GHG emissions to 80 percent below 1990 levels.

Assembly Bill 32 (Statewide Greenhouse Gas Reductions)

Assembly Bill ("AB") 32, the California Global Warming Solutions Act of 2006 was signed into law in September 2006 after considerable study and expert testimony before the Legislature. The law instructs CARB to develop and enforce regulations for the reporting and verifying of statewide GHG emissions. AB 32 specifically directed CARB to set a GHG emission limit based on 1990 levels, to be achieved by 2020; the bill also set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner.

The heart of AB 32 is the requirement that statewide GHG emissions be reduced to 1990 levels by 2020. In order to achieve this reduction mandate, AB 32 requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions. CARB has accomplished the key preliminary milestones set forth in AB 32, including the following:

- On June 21, 2007, CARB approved three discrete early action measures. These were later supplemented by adding six other discrete early action measures.
- On December 6, 2007, CARB approved a statewide limit on GHG emissions levels for the year 2020 consistent with the determined 1990 baseline.
- On December 11, 2008, CARB adopted the *Climate Change Scoping Plan: A Framework for Change* (Scoping Plan), discussed in more detail below.
- On January 1, 2010, several discrete early action measures became effective.

- On October 28, 2010, CARB released its proposed cap-and-trade regulations, which cover sources responsible for approximately 85 percent of California's GHG emissions. CARB's Board ordered CARB's Executive Director to prepare the final regulatory package for cap-and-trade on December 16, 2010. The regulations were subsequently adopted in 2011 and became enforceable on January 1, 2012.

As noted above, on December 11, 2008, CARB adopted the Scoping Plan to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions for various emission sources/sectors.

In the Scoping Plan, CARB determined that achieving the 1990 emission level in 2020 would require a reduction in GHG emissions of approximately 28.5 percent in the absence of new laws and regulations (referred to as "Business-As-Usual" ["BAU"] or "No Action Taken" ["NAT"]). The Scoping Plan evaluates opportunities for sector-specific reductions; integrates all CARB and California Climate Action Team early actions and additional GHG reduction measures; identifies additional measures to be pursued as regulations; and outlines the role of the cap-and-trade program.

The key elements of the Scoping Plan include:

- Expanding and strengthening existing energy efficiency programs, as well as building and appliance standards.

- Achieving a statewide renewable energy mix of 33 percent.

- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions.

- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets.

- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard ("LCFS").

- Creating targeted fees, including a public goods charge on water use; fees on high global warming potential gases; and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation.

In connection with its preparation of the August 2011 Final Supplement to the Scoping Plan's Functional Equivalent Document, CARB released revised estimates of the 2020 emissions level projection in light of the economic recession and the availability of updated information from development of measure-specific regulations. Based on the new economic data, CARB determined the 2020 emissions level projection in the BAU condition would be reduced from 596 metric tonnes of CO_2 equivalent ("$MTCO_2e$") to 545 $MTCO_2e$. Under that assessment, achieving the 1990 emissions level in 2020 would require a reduction of GHG emissions of 118 $MTCO_2e$, or 21.7 percent (down from 28.5 percent), from the BAU condition.

When the 2020 emissions level projection also was updated to account for implemented regulatory measures, including Pavley (vehicle model-years 2009–2016) and the renewable portfolio standard (12 percent–20 percent), the 2020 projection in the BAU condition was reduced further to 507 $MTCO_2e$. As a result, based on the updated economic and regulatory data, CARB determined that achieving the 1990 emissions level in 2020 would now require a reduction of GHG emissions of 80 $MTCO_2e$, or approximately 16 percent of the BAU emissions.

On February 10, 2014, CARB released a Draft Proposed First Update of the Scoping Plan. The draft recalculates 1990 GHG emissions using new global warming potentials identified in the IPCC Fourth Assessment Report released in 2007. Using those GWPs, the 427 $MTCO_2e$ 1990 emissions level and 2020 GHG emissions limit identified in the 2008 Scoping Plan would be slightly higher, at 431 $MTCO_2e$. Based on the revised 2020 emissions level projection identified in the 2011 Final Supplement and the updated 1990 emissions levels identified in the discussion draft of the First Update, achieving the 1990 emissions level in 2020 would require a reduction of 78 $MTCO_2e$ (down from 509 $MTCO_2e$), or approximately 15.3 percent of the BAU emissions.

Renewable Portfolio Standards

Established in 2002 under Senate Bill ("SB") 1078, and accelerated in 2006 under SB 107 and again in 2011 under SBX1-2, California's Renewable Portfolio Standards ("RPS") require retail sellers of electric services to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020. The 33 percent standard is consistent with the RPS goal established in the Scoping Plan. As interim measures, the RPS requires 20 percent of retail sales to be sourced from renewable energy by 2013, and 25 percent by 2016. Initially, the RPS provisions applied only to investor-owned utilities, community choice aggregators, and electric service providers. SBX1-2 added, for the first time, publicly owned utilities to the entities subject to RPS.

The expected growth in RPS to meet the standards in effect in 2008 is not reflected in the BAU calculation in the AB 32 Scoping Plan, discussed above. In other words, the Scoping Plan's BAU 2020 analysis does not take credit for implementation of RPS that occurred after its adoption.

Mobile Source Reductions

Assembly Bill 1493 ("the Pavley Standard" or AB 1493) required CARB to adopt regulations by January 1, 2005, to reduce GHG emissions from non-commercial passenger vehicles and light-duty trucks of model year 2009 through 2016. AB 1493 also required the California Climate Action Registry ("CCAR") to develop and adopt protocols for the reporting and certification of GHG emissions reductions from mobile sources for use by CARB in granting emission reduction credits. AB 1493 further authorized CARB to grant emission reduction credits for reductions of GHG emissions prior to the date of enforcement of regulations, using model year 2000 as the baseline for reduction.

In 2004, CARB applied to the USEPA for a waiver under the Federal Clean Air Act to authorize implementation of the AB 1493 regulations. Subsequently, on June 30, 2009, the USEPA granted the waiver to California for its GHG emission standards for motor vehicles. As part of this waiver, USEPA specified the following provision: CARB may not hold a manufacturer liable or responsible for any noncompliance caused by emission debits generated by a manufacturer for the 2009 model year.

Under AB 1493, CARB's approach to passenger vehicles (cars and light trucks) combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of standards. This new approach also includes efforts to support and accelerate the numbers of plug-in hybrids and zero-emission vehicles in California. These standards will apply to all passenger and light duty trucks used by customers, employees of and deliveries to the Project site.

Low Carbon Fuel Standard

Executive Order S-01-07 (January 18, 2007) requires a ten percent or greater reduction in the average fuel carbon intensity for transportation fuels in California regulated by CARB by 2020. (Carbon intensity is a measure of the GHG emissions associated with the various production, distribution, and use steps in the "lifecycle" of a transportation fuel.) Accordingly, CARB identified the LCFS as a Discrete Early Action item under AB 32, and the final resolution (09-31) was issued on April 23, 2009. In 2009, CARB approved the LCFS regulation, which became fully effective in April 2010 and is codified in the *California Code of Regulations* ("CCR", Title 17, Sections 95480–95490).

On December 29, 2011, the U.S. District Court for the Eastern District of California issued several rulings in the federal lawsuits challenging the LCFS. One of the district court's rulings preliminarily enjoined CARB from enforcing the regulation. In January 2012, however, CARB appealed that decision to the Ninth Circuit Court of Appeals. On September 18, 2013, the Ninth Circuit concluded that the LCFS ethanol and initial crude-oil provisions are not facially discriminatory, but remanded the case to the district court to determine whether the LCFS ethanol provisions are discriminatory in purpose and effect. Additionally, the Ninth Circuit remanded to the District Court with instructions to vacate the preliminary injunction against CARB's enforcement of the regulation.

Advanced Clean Cars

In January 2012, CARB approved the Advanced Clean Cars ("ACC") program, a new emissions-control program for model year 2017 through 2025. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles. By 2025, when the rules will be fully implemented, the new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions.

Senate Bill 375 and Southern California Association of Governments' Regional Transportation Plan/Sustainable Community Plan

SB 375 provides for a new planning process to coordinate land use planning, regional transportation plans, and funding priorities in order to help California meet the GHG reduction mandates established in AB 32. SB 375 also includes provisions for streamlined California Environmental Quality Act ("CEQA") review for some infill projects, such as transit-oriented development.

SB 375 specifically requires the Metropolitan Planning Organization ("MPO") relevant to the Project area (i.e., the Southern California Association of Governments ["SCAG"]) to incorporate a sustainable communities strategy ("SCS") into its regional transportation plans ("RTPs") that will achieve GHG emission reduction targets set by CARB by reducing vehicle miles traveled ("VMT") from light-duty vehicles through the development of more compact, complete, and efficient

communities. SB 375 is similar to the Regional Blueprint Planning Program, established by the California Department of Transportation, which provides discretionary grants to fund regional transportation and land use plans voluntarily developed by MPOs working in cooperation with Councils of Governments. (The Scoping Plan, adopted by CARB in December 2008 relies on the requirements of SB 375 to implement the carbon emissions reductions anticipated from land use decisions.)

On September 23, 2010, CARB adopted Regional Targets for the reduction of GHGs applying to years 2020 and 2035. For the area under SCAG's jurisdiction, including the Project area, CARB adopted Regional Targets for reduction of GHG emissions by 8 percent for 2020 and by 13 percent for 2035. On February 15, 2011, CARB's Executive Officer approved the final targets.

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act of 1989 (*California Public Resources Code,* Sections 40000 et seq.) requires each jurisdiction's source reduction and recycling element to include an implementation schedule that shows: (1) diversion of 25 percent of all solid waste by January 1, 1995, through source reduction, recycling, and composting activities; and (2) diversion of 50 percent of all solid waste on and after January 1, 2000, through source reduction, recycling, and composting activities Additionally, jurisdictions are not prohibited from implementing source reduction, recycling, and composting activities designed to exceed these requirements.

AB 341 (2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the State that not less than 75 percent of solid waste generated be source reduced, recycled, or composted by the year 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery ("CalRecycle") to develop strategies to achieve the State's policy goal. CalRecycle conducted several stakeholder workshops and published a discussion document in May 2012 entitled *California's New Goal: 75 Percent Recycling,* which identifies concepts that CalRecycle believes would assist the state in reaching the 75 percent goal by 2020.

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 VMT focus on transportation and land use planning that include 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 is expected to reduce per capital transportation emissions by 9 percent by 2020 and by 16 percent by 2035. In June of 2012, 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 SCAQMD is principally responsible for comprehensive air pollution control in the South Coast Air Basin ("SoCAB" or "the Basin"), which includes Los Angeles, Orange, and the urbanized

portions of Riverside and San Bernardino Counties, including the Project site. The SCAQMD works directly with SCAG, County transportation commissions, and local governments and cooperates actively with all federal and State government agencies to regulate air quality.

In April 2008, the SCAQMD convened a Working Group to develop GHG significance thresholds. On December 5, 2008, the SCAQMD Governing Board adopted an interim CEQA GHG significance threshold for projects where the SCAQMD is the lead agency; specifically, the Board adopted an interim threshold of 10,000 $MTCO_2e$ per year for industrial stationary source projects.

For all other projects, SCAQMD staff developed a draft, multiple tier framework to assist with the significance evaluation. The draft framework includes the following tiers: Tier 1 is any applicable CEQA exemption(s); Tier 2 is consistency with a GHG reduction plan; Tier 3 is a screening value or bright line; Tier 4 is a performance-based standard; and Tier 5 is GHG mitigation offsets.

According to the presentation given at the September 28, 2010, Working Group meeting, SCAQMD staff reviewed the tiered significance threshold approach. The draft tiers are as follows:

- **Tier 1:** Determine if any CEQA exemption(s) is (are) applicable. If not, move to Tier 2.

- **Tier 2:** Consider whether or not the proposed project is consistent with a locally adopted GHG reduction plan (often called a Climate Action Plan) that has gone through public hearings and CEQA review, which has an approved inventory that includes monitoring, etc. If not, move to Tier 3.

- **Tier 3:** For all land use types, if projects emit less than 3,000 metric tonnes/year of CO_2e, the project is presumed to be less than significant for GHGs. If the project emits more than 3,000 metric tonnes of CO_2 equivalent per year ("$MTCO_2e$/yr"), move to Tier 4.

  (More specific screening thresholds were also provided, which include 1,400 $MTCO_2e$/yr for commercial projects and 3,500 $MTCO_2e$/yr for residential and mixed use projects. These thresholds were based on a review of the Office of Planning and Research database, which included 711 CEQA projects using a 90 percent capture approach.)

- **Tier 4:** The proposed performance standards include three options:

  1. *Percent Emission Reduction Target (no further recommendation)*

     This target is typically defined as a percent reduction target that is based on consistency with AB 32, as it was based on the same numeric reductions calculated in the Scoping Plan to reach 1990 levels by 2020.

  2. *Early Implementation of Applicable AB 32 Scoping Plan Measures (incorporated into option 3, below)*

  3. *SCAQMD Efficiency Target*

     This efficiency metric per service population threshold was developed based on the statewide 1990 GHG emissions estimates for transportation, electric power generation, commercial and residential land uses, and recycling and waste and divided by the projected statewide growth for 2020. For option 3, there are targets for 2020 and 2035.

The proposed 2020 target is:

- 4.8 tonnes per year of CO_2e per service population for project level threshold (land use employment only).
- 6.6 tonnes/year CO_2e per service population for plan level threshold.

The proposed 2035 target is:

- 3.0 tonnes/year CO_2e per service population for project level threshold.
- 4.1 tonnes/year CO_2e per service population for plan level threshold.
- Incorporate Sustainable Communities and Climate Protection Act of 2008 or SB 375 regional targets.

- **Tier 5:** Off-site mitigation for life of project (30 years); if this threshold is to be used, however, GHG emissions must be mitigated to less than the Tier 3 screening significance threshold.

  SCAQMD staff clarified that offsets should have a 30-year project life, should be real, quantifiable, verifiable, and surplus and will be considered in the following prioritized manner:

  - Project design feature/on-site reduction measures.
  - Off site within neighborhood.
  - Off site within district.
  - Off site within state.
  - Off site out of state.
  - Substitution allowed via enforceable commitment (e.g., when an offset project ends prematurely).

If the proposed project cannot meet any of the Tiers, it is presumed to result in a significant impact for purposes of GHG emissions.

The Working Group has not convened since the fall of 2010. As of April 2014, the proposal has not been considered or approved for use by the SCAQMD Board. In the meantime, no GHG significance thresholds are approved for use in the Basin.

COUNTY OF ORANGE

There are no County of Orange policies or regulations adopted specifically for the reduction of GHG emissions.

4.3.3 METHODOLOGY

As described in Section 4.3.2, in the Scoping Plan, CARB determined that achieving the 1990 emission level in 2020 would require a reduction in GHG emissions of approximately 28.5 percent in the absence of new laws and regulations (referred to as "Business-As-Usual" ["BAU"] or "No Action Taken"). This analysis includes comparisons of the existing GHG emissions to the GHG emissions of the Proposed Project and each alternative using a BAU or No Action Taken ("NAT") approach in terms of design, methodology, and technology. For this comparative analysis, both the proposed and NAT scenarios are calculated for the year 2020, consistent with the Scoping Plan target.

PROPOSED PROJECT AND ALTERNATIVES

This analysis evaluates the potential GHG-related impacts of the Proposed Project, Alternatives A, B and C, and the No Project Alternative. The GHG emissions are calculated for the three phases (i.e., Phase 1: 2016–2020; Phase 2: 2021–2025; Phase 3: 2026–2030).

Where not otherwise specified, emissions for the alternatives were based on the same data and same models as used for the Proposed Project analysis. For aircraft, EDMS was used to calculate emissions based on alternative-specific aircraft estimates. Since the basis for other sources of emissions was similar to the Proposed Project, the Million Annual Passengers ("MAP") level for each alternative was used to estimate emissions for the stationary sources, utilities, and parking. The number of average daily departures ("ADD") for each alternative was used to estimate emissions for ground support equipment ("GSE") and JWA vehicles and equipment sources. The trip generation data was used to estimate emissions for traffic.

EMISSIONS MODELS

Emissions Dispersion and Modeling System

The Emissions Dispersion and Modeling System ("EDMS") 5.1.4 was used to quantify GHG emissions from aircraft. EDMS is a combined emissions and dispersion model for assessing GHG impacts at civilian airports and military air bases that was developed by the FAA in cooperation with the United States Air Force ("USAF").

EDMS performs two primary functions: (1) it generates emissions inventories and (2) it performs dispersion analyses. EDMS calculates CO_2 emissions for aircraft based on aircraft engine performance, times in mode, and landing takeoff counts ("LTOs") by engine type for each inventory. EDMS incorporates both USEPA-approved emissions inventory methodologies and dispersion models to ensure that analyses performed with the application conform to USEPA guidelines.

California Emission Estimator Model™

The California Emissions Estimator Model ("CalEEMod") Version 2013.2.2 was used to quantify the GHG emissions for Project-related traffic, water and solid waste. CalEEMod calculates GHG emissions for projects located in California and was developed under the auspices of the SCAQMD upon receiving input from other California air districts.

CalEEMod utilizes widely accepted models for emissions estimates combined with appropriate default data that can be used if site-specific information is not available. For example, CalEEMod incorporates the USEPA-developed emission factors; CARB's on-road and off-road equipment emission models (EMFAC and OFFROAD); and studies commissioned by California agencies, such as the California Energy Commission ("CEC") and CalRecycle. (EMFAC is an emissions factor model used to calculate emissions rates from on-road vehicles, such as passenger vehicles and haul trucks. OFFROAD is an emissions factor model used to calculate emission rates from off-road mobile sources, such as construction equipment and agricultural equipment.)

As for the CalEEMod default values and existing regulation methodologies, the program is set to be customized for use in each specific local air district region. The GHG emissions analysis provided in this EIR used default factors for Orange County, unless otherwise noted in the methodology descriptions below.

PROJECT GREENHOUSE GAS EMISSIONS SOURCES

Aircraft

Aircraft operational emissions are based on Project-specific projections of aircraft landings and takeoffs, and are modeled using EDMS. The aircraft data included 44 potential aircraft types (as summarized in Appendix E, Table 4.6-1, which identifies the aircraft classifications and engine types included in the inventories). Emission factors for each aircraft type are EDMS defaults.

Note that the analysis conservatively assumes the continuation of the existing fleet mix for the entire term of the Project. Given the length of this planning timeframe (i.e., through 2030), it is reasonable to assume that there will be some fleet turnover and interest in introducing newer and next generation aircraft, which are anticipated to be more fuel efficient and produce less GHG emissions. However, because of the uncertainty regarding the specifics of the emission benefits attributable to the next generation of aircraft, and the uncertainty regarding the timing of the introduction of those aircraft into the commercial market, the assumption of no improvement in the fleet's GHG emission characteristics has been made to evaluate the maximum environmental impact.

Additional inputs to the EDMS model included:

- LTO estimates for commercial aviation and general aviation aircraft (see Appendix E, Table 4.6-2);
- EDMS default times-in-mode for approach, takeoff, and climb out, which vary by aircraft (see Appendix E, Table 4.6-3); and
- Taxi time, based on data estimated for JWA (see Appendix E, Table 4.6-4).

Aircraft GHG emissions for the Baseline (2013), Proposed Project, and Alternatives A, B, and C are provided in the *Greenhouse Gas Technical Report*, (Appendix E, Table 4.6-5). The No Project Alternative has the same activity as the Proposed Project, Phase 1. Thus, emissions for No Project Alternative are equal to the Proposed Project Phase 1 emissions.

The CARB 2020 NAT scenario conservatively assumes the same aircraft-related emissions. While the USEPA has adopted standards regarding NOx emission standards from aircraft and the United States has an Aviation Greenhouse Gas Emissions Reduction Plan, a quantitative method

to estimate the potential GHG reductions from these commitments is not available. Thus, this analysis conservatively assumes no difference in aircraft emissions between the Project and CARB 2020 NAT scenario.

Ground Support Equipment

GSE includes air conditioners, air starts, aircraft tractors, baggage tractors, belt loaders, cabin service trucks, cargo loaders, catering trucks, forklifts, fuel trucks, hydrant trucks, lavatory trucks, service trucks, and water service equipment. EDMS does not estimate GHG emissions for GSE; however, EDMS does contain default aircraft GSE assignments for fuel type, operating time, horsepower and load factor, which are presented in Appendix E (see Table 4.6-6). These data were used to determine overall GSE usage for JWA per year. JWA fuel use records also were used to determine baseline fuel usage.

Fuel usage for the Project was estimated by scaling based on changes in ADD and by incorporating the JWA commitment to increase the percentage of electrified GSE from baseline conditions by 15 percent for Phase 1; by 35 percent for Phase 2; and by 50 percent for Phase 3. This commitment is mitigation measure AQ/GHG-7(i). Gasoline and diesel emission factors are from USEPA sources (see Appendix E, Table 4.6-7). Baseline and Project fuel usage and electrification are shown in the *Greenhouse Gas Technical Report*, (Appendix E, Table 4.6-7), which also shows the calculated GSE GHG emissions.

The CARB 2020 NAT scenario assumes the same commitment to increase electrification of GSE since JWA previously committed to electrifying GSE prior to the enactment of AB 32. Thus, this analysis conservatively assumes no difference in GSE emissions between the Project and the CARB 2020 NAT scenario.

Mobile Sources

The emissions inventory includes three types of mobile sources: vehicles in the JWA parking lots and structures; passenger-related terminal and off-site traffic; and JWA-owned vehicles and equipment.

Parking Lots

GHG emissions for parking lot activity were calculated in accordance with the methodology outlined in the EDMS. The related inputs included idling time, distance traveled (based on size of parking lot), and total number of vehicles entering and exiting per hour of day. Idling and speed assumptions are estimates specific to JWA, and parking lot volumes for existing traffic were provided in the Project's traffic analysis (see Appendix G). The parking lot traffic includes employee and delivery vehicles, including aircraft fuel tank truck deliveries.

Parking lot activity for each phase was estimated by scaling the ratio of the MAP for each Phase to the Baseline MAP. It also was assumed that the Parking Structure C2 extension would be completed by the beginning of Phase 1 of the Project.[2] Emission factors are from EMFAC 2011. For the Project, the emission factors include the emissions reductions that will result from the

[2] Parking Structure C was an improvement addressed in Final Supplemental EIR 582, certified in October 2004. JWA is planning to construct Phase 2 of Parking Structure C ("C2"), which would add 1,381 parking spaces by 2016. The first phase of Parking Structure C was completed with the new Terminal C in November 2011. The Phase 2 project will begin in 2015 and will be completed in 2016. Currently, documents are being prepared so that a design-build contract can be awarded by summer 2014.

implementation of the Pavley light-duty vehicle regulations and the LCFS and conservatively does not include emissions reductions that will result from the ACC program. The Pavley and LCFS reductions are not included in the CARB 2020 NAT emissions calculations.

Input data, including vehicle trips and trip distance by parking area, emission factors, and emission totals are provided in the *Greenhouse Gas Technical Report*, (Appendix E) for the Proposed Project scenario (Table 4.6-8a) and for the NAT scenario (in Table 4.6-8b).

Terminal Traffic

GHG emissions from terminal traffic, including off-site traffic, were calculated from trip generation rates and average trip lengths provided in Fehr & Peers' *John Wayne Airport Transportation Impact Analysis Draft Report* (Traffic Technical Report), which is Appendix G of this EIR. CalEEMod emission factors, which include emissions reductions associated with Pavley and LCFS regulations, were used to estimate Proposed Project GHG emissions for each Phase years (2016-2020, 2021-2025, and 2026-2030). Fleet mix and emission factor data, as well as Baseline and Project terminal traffic vehicle trips and GHG emissions, are provided in the *Greenhouse Gas Technical Report*, (Appendix E, see Table 4.6-9a).

The Project 2020 analysis includes the benefit of emissions reductions from the Pavley and LCFS regulations and also includes reductions anticipated from ACC regulations. The emission factors were adjusted for the ACC regulation based on the CARB's LEV III database model ("LEV3 Tool"), which was used to estimate the statewide ACC emissions reduction factors for 2020. (Terminal traffic Phase 1, Phase 2, and Phase 3 emissions of the Proposed Project and alternative scenarios conservatively do not account for emission reductions due to ACC because ACC emission factors have only been estimated for the year 2020.)

The CARB 2020 NAT terminal traffic GHG emission calculations do not include the Pavley, LCFS, or ACC regulations. Fleet mix and emission factor data for the 2020 scenarios, as well as the Baseline, Project 2020, and NAT 2020 terminal traffic vehicle trips and GHG emissions, are provided in the *Greenhouse Gas Technical Report*, (Appendix E, see Table 4.6-9b).

John Wayne Airport Vehicles and Equipment

Vehicles associated with the Airport's day-to-day operations include landside and airside vehicles owned and operated by the Airport and by third parties, such as on-site maintenance trucks, shuttle services, employee and passenger transportation, taxis, and off-road equipment not included in GSE above. The estimated emissions are based on site-specific data, including a list of equipment/vehicles, horsepower or model year, annual mileage/operating hours, fuel type, and fuel consumption totals. GHG emissions from JWA-owned vehicles and equipment were calculated utilizing site-specific fuel usage information and USEPA-published emission factors as shown in Appendix E (see Table 4.6-10). The Baseline and Project JWA vehicle and equipment GHG emissions are shown in Appendix E, Table 4.6-10.

Purchased Electricity

JWA uses electricity from two sources: the on-site natural gas fueled cogeneration facility ("CoGen") and purchased electrical power supplied by Southern California Edison ("SCE"). Estimates of current electrical use are based on site-specific data. Electrical demand is comprised of two elements: (1) uses that would not vary with implementation of the Proposed Project or

alternatives and (2) uses that would vary with implementation of the Proposed Project or alternatives. Estimates of the electrical use that would vary with implementation of the Proposed Project or alternatives were developed from a base load requirement at night (when there are no passengers) plus a daytime load requirement assumed to be proportional to the number of passengers. The variable demand was calculated for the Proposed Project and alternatives.

The generation of purchased electricity off site results in indirect GHG emissions. The amount of GHG emissions per unit of electricity—called the "GHG intensity"—is derived from the composition of the electrical suppliers' generation sources, which may include coal, oil, natural gas, nuclear, and renewable sources (e.g., solar and wind). As described in Section 4.3.2, retail sellers of electric services are required to provide at least 33 percent of their power from renewable energy resources by 2020. Therefore, project emissions were calculated using a Southern California Edison ("SCE") emission factor that accounts for the 33 percent RPS required by 2020.

Estimated GHG emissions resulting from purchased electricity for the Baseline and Project are provided in Appendix E (see Table 4.6-16a). While the amount of purchased electricity would be constant through all three phases of the Project, the GHG emissions would be reduced beginning in Phase 2 because of the increased renewable energy sources in the SCE inventory.

The CARB 2020 NAT scenario does not include the 33 percent RPS in the SCE emission factor consistent with the CARB AB 32 Scoping Plan. All other assumptions of electricity demand are the same for the CARB 2020 NAT scenario. Baseline, Project 2020, and NAT 2020 purchased electricity GHG emissions are provided in Appendix E (see Table 4.6-16b).

Stationary Sources

GHG emissions from JWA stationary source equipment were estimated for two categories. The first category includes sources such as boilers, space heaters, and engines for emergency generators. Baseline GHG emissions estimates are based on site-specific fuel usage information and USEPA-published emission factors as shown in Appendix E (see Table 4.6-11). Project GHG emissions are scaled from the baseline based on the anticipated increase in Class A ADDs for each Phase. Baseline and Project stationary source GHG emissions are shown in Appendix E (see Table 4.6-11).

The second category of stationary sources is the CoGen facility, which is a primary source of electricity at the Airport terminal. The CoGen facility is fueled by natural gas, and thus it generates direct GHG emissions. The CoGen facility's operating parameters and annual electrical energy use estimates are provided in Appendix E (see Table 4.6-12). The increased demand for electricity as described above was the basis to estimate CoGen emissions. Electrical use is comprised of two elements: (1) uses that would not vary with implementation of the Proposed Project or alternatives and (2) uses that would vary implementation of the Proposed Project or alternatives.

Estimates of the electrical use that would vary with implementation of the Proposed Project or alternatives were developed from a base requirement at nighttime (when there are no passengers) plus a daytime requirement assumed to be proportional to the number of passengers. The total electrical demand for the Proposed Project and alternatives was calculated with the daytime demand for each scenario scaled in proportion to the scenario MAP. For scenarios where the demand exceeds the CoGen facility's capacity, additional electricity would

be purchased. Estimated CoGen facility GHG emissions for the Baseline and Project are shown in Appendix E (see Table 4.6-13).

The CARB 2020 NAT scenario assumes the same commitment to operate the CoGen as the Project since JWA committed to operating the CoGen prior to the enactment of AB 32. Thus, this analysis conservatively assumes no difference in CoGen and stationary source emissions between the Project and CARB 2020 NAT scenario.

Water Supply, Treatment, and Distribution

Indirect GHG emissions result from the production of electricity used to convey, treat, and distribute water and wastewater. The amount of electricity required to convey, treat, and distribute water depends on the volume of water and the sources of the water. Additionally, direct emissions from wastewater treatment include CH_4 and N_2O, which are GHGs.

Water demand values were estimated based on site-specific data for the Baseline conditions and scaled based on MAP for the Project. Calculations include CalEEMod default assumptions for average embodied energy for distribution and treatment of water in Southern California. The calculations also include the RPS assumptions for electricity. Estimated GHG emissions resulting from water use and wastewater treatment for the Baseline and Project are shown in Appendix E (see Table 4.6-17a).

The CARB 2020 NAT scenario assumed the same water usage as the Project, which is a conservative assumption given the State's increasing efforts to enhance water efficiency and reduce water demand. Consistent with the CARB 2020 NAT scenario, GHG emissions related to the water and wastewater conveyance were based on the utility emission factors assuming that the 33 percent RPS requirement did not exist. All other assumptions regarding water supply and wastewater treatment for the Project 2020 and NAT 2020 scenarios were the same as for the Project. Baseline, Project 2020, and NAT 2020 water supply and treatment GHG emissions are shown in Appendix E (see Table 4.6-17b).

Solid Waste

Municipal solid waste ("MSW") is the amount of material that is disposed of by landfilling, recycling, or composting. CalEEMod calculates the indirect GHG emissions associated with waste that is disposed of at a landfill in quantities that are based upon land use type according to waste disposal studies conducted by CalRecycle.

Solid waste quantities were estimated based on site-specific data for the Baseline conditions and scaled based on MAP for the Project. The analysis assumes that additional waste will be diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting to meet the statewide goal of 75 percent waste diversion. The remainder of the waste not diverted is assumed to be disposed of at a landfill. GHG emissions associated with non-landfill diverted waste streams are not considered because it is generally assumed that these diversions do not result in any appreciable amounts of GHG emissions when operated effectively. Estimated GHG emissions resulting from solid waste disposal for the Baseline and Project are shown in Appendix E (see Table 4.6-18a).

The CARB 2020 NAT scenario assumes a solid waste diversion from the landfills consistent with what was occurring prior to the passing of AB 32. This was assumed as 41 percent, the waste

diversion rate reported for the year 2006. Project 2020 and NAT 2020 solid waste GHG emissions are shown in Appendix E (see Table 4.6-18b).

4.3.4 EXISTING CONDITIONS

BASELINE GREENHOUSE GAS EMISSIONS

Baseline GHG emissions were calculated using the methodologies described in Section 4.3.3, using actual data when available and are shown in Table 4.3-1. The baseline inventory incorporated data for actual airport operations including aircraft, vehicle, equipment, fuel use, utility usage from July 2012 through June 2013. As shown in Table 4.3-1, GHG emissions for baseline/existing conditions were estimated to be 217,162 $MTCO_2e$/year. These emissions are approximately 0.05 percent of the approximate 448 million tonnes of CO_2e emitted in California in 2011 and approximately 6.6 percent of the GHG emissions attributed to intrastate aviation.

TABLE 4.3-1
BASELINE/EXISTING CONDITIONS GHG EMISSIONS

Source		GHG Emissions ($MTCO_2e$/year)
Utilities		
Natural Gas (Non-CoGen)		248
Electricity (Non-CoGen, Terminal)		838
Electricity (Non-CoGen, Non-Terminal)		630
Water		7
Waste		597
Stationary Sources		
CoGen	Natural gas	18,722
Other Stationary Sources	Gasoline	0.2
	Diesel	36
Mobile Sources		
Traffic		94,312
Parking lots		2,831
Airside	Gasoline	297
	Diesel	81
GSE and Aircraft		
GSE	Gasoline	306
	Diesel	641
Aircraft		97,616
Total Annual Emissions		**217,162**

$MTCO_2e$/year: metric tonnes carbon dioxide equivalent per year; CoGen: cogeneration facility; GSE: ground service equipment.

Source: *Greenhouse Gas Technical Report,* Table 4.4-1, Environ 2014.

EXISTING EMISSIONS REDUCTION STRATEGIES

The Airport Cooperative Research Program's ("ACRP") Report 56, *Handbook for Considering Practical Greenhouse Gas Emission Reduction Strategies for Airports* is a handbook and decision support tool that assists airport operators in identifying, evaluating, prioritizing, and implementing practical, low-cost strategies to reduce and manage greenhouse gas (GHG) emissions. The ACRP report identifies strategies in 12 categories. Many of these strategies are currently implemented at JWA, as shown in Table 4.1-6 in Section 4.1, Air Quality. Strategies determined to be inapplicable and/or infeasible for JWA are listed in Table A-2 of Appendix E, the GHG Technical Report; the table includes explanations of inapplicability and/or infeasibility.

4.3.5 THRESHOLDS OF SIGNIFICANCE

To preface, there are no widely established or readily accepted thresholds of significance for GHG emissions for airport-related projects. Additionally, a quantitative threshold of significance for GHG emissions was not identified in the amendments to the State CEQA Guidelines that became effective in March 2010. Rather, these amendments affirmed the discretion of lead agencies to establish their own significance thresholds, provided such thresholds are supported by substantial evidence.

Specifically, Section 15064.4 of the State CEQA Guidelines discusses the significance evaluation for GHG emissions. Section 15064.4(a) recognizes that the "determination of the significance calls for a careful judgment" by the lead agency that is coupled with lead agency discretion to determine whether to (1) use a model or methodology, and/or (2) rely on a qualitative analysis or performance-based thresholds. Section 15064.4(b) further states that a lead agency should consider the following, non-exclusive list of factors when assessing the significance of GHG emissions:

1. The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;

2. The extent to which project emissions exceed a threshold of significance that the lead agency determines applies to the project; and

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 GHG emissions.

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

Threshold 4.3-1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment (comparable to State CEQA Guidelines, Section 15064.4[b][1–2]).

Threshold 4.3-2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases (comparable to State CEQA Guidelines, Section 15064.4[b][3]).

The analysis under Threshold 4.3-1 discloses the extent to which the Proposed Project and its alternatives increase GHG emission levels relative to existing GHG emission levels.

The Threshold 4.3-1 analysis also assesses the significance of the Project's GHG emissions based on consistency with AB 32 by comparing the Proposed Project's and alternatives' GHG emissions as proposed to the Proposed Project's and alternatives' emissions if the Project were built using a BAU or NAT approach in terms of design, methodology, and technology. If the difference between the Project's emissions as proposed and the Project's emissions under a CARB 2020 NAT scenario is at least the difference that has been determined by CARB as necessary to meet AB 32's goals in the Scoping Plan, then the Project can be determined to be consistent with AB 32 and thus not significant for purposes of CEQA. This analysis conservatively utilizes the original, 28.5 percent reduction from a CARB 2020 NAT scenario as identified in the 2008 Scoping Plan as the point of comparison for purposes of assessing the Project's significance under the BAU methodology, even though CARB subsequently determined that a lower reduction from BAU may be sufficient for purposes of achieving the mandates of AB 32.

Also, note that while the SCAQMD adopted a 10,000 $MTCO_2e$/yr interim CEQA GHG significance threshold for industrial stationary source projects on which it is the lead agency, this threshold is not applicable to airports because the great majority of GHG emissions associated with the airport operations are not associated with stationary sources, but rather aircraft and mobile sources. Similarly, the draft SCAQMD thresholds for residential and commercial projects are not applicable to airports.

4.3.6 IMPACT ANALYSIS

THRESHOLD EVALUATION

Threshold 4.3-1 Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Existing Conditions Analysis

This analysis discloses the extent to which the Proposed Project and its alternatives increase GHG emission levels relative to the emission levels associated with existing operations at JWA.

As shown below, reductions in non-CoGen electricity emissions are anticipated due to the increased amount of renewable generation in the SCE inventory. Reductions in GSE emissions are expected due to increased electrification of the GSE. Reductions in solid waste emissions are anticipated due to increased diversion of waste from landfills.

Proposed Project

The calculated GHG emissions for the Proposed Project are shown in Table 4.3-2, Proposed Project Greenhouse Gas Emissions. As shown in the table, Phase 1 GHG emissions would exceed existing emissions by 33,229 $MTCO_2e$/year; Phase 2 GHG emissions would exceed existing emissions by 47,661 $MTCO_2e$/year; and Phase 3 GHG emissions would exceed existing emissions by 59,774 $MTCO_2e$/year.

TABLE 4.3-2
PROPOSED PROJECT GREENHOUSE GAS EMISSIONS

Source		GHG Emissions ($MTCO_2e$/year)		
		Phase 1	**Phase 2**	**Phase 3**
Utilities				
Natural Gas		44	71	90
Electricity (Non-CoGen)		0	-171	-171
Water		1	1	1
Waste		106	-270	-251
Stationary Sources				
CoGen	Natural gas	934	1,507	1,907
Other Stationary Sources	Gasoline	0	0	0
	Diesel	2	7	7
Mobile Sources				
Traffic		15,621	21,766	26,838
Parking lots		148	353	1,167
Airside	Gasoline	19	56	56
	Diesel	5	15	15
Aircraft and GSE				
GSE	Gasoline	-19	-41	-83
	Diesel	-39	-86	-175
Aircraft		16,405	24,453	30,373
Total Annual Emissions		**33,229**	**47,661**	**59,774**
Baseline Emissions		**217,162**	**217,162**	**217,162**
Total Project Plus Baseline Emissions		**250,391**	**264,823**	**276,936**

GHG: greenhouse gas; $MTCO_2e$/year: metric tonnes carbon dioxide equivalent per year; CoGen: cogeneration facility; GSE: ground support equipment.

Source: *Greenhouse Gas Technical Report,* Table 4.6-19, Environ 2014.

Impact Conclusion: *The Proposed Project would result in an increase in GHG emissions as compared to the existing conditions. However, there is no scientific or regulatory consensus regarding what particular quantity of GHG emissions would result in a substantial adverse change to the physical conditions resulting in global climate change. Further, no agency with regulatory authority and expertise (such as CARB or SCAQMD) has adopted numeric GHG thresholds for airports for purposes of CEQA. Therefore, the estimated increases of GHG emissions over the existing GHG emissions are not a meaningful or reliable indicator of the Proposed Project's significance. The impact therefore is speculative on a global scale.*

Alternative A

The calculated GHG emissions for Alternative A are shown in Table 4.3-3, Alternative A Greenhouse Gas Emissions. As shown in the table, Phase 1 GHG emissions would exceed existing

emissions by 32,089 $MTCO_2e$ per year; Phase 2 GHG emissions would exceed existing emissions by 39,590 $MTCO_2e$/year and Phase 3 GHG emissions would exceed existing emissions by 63,102 $MTCO_2e$/year.

TABLE 4.3-3
ALTERNATIVE A GREENHOUSE GAS EMISSIONS

Source		GHG Emissions ($MTCO_2e$/year)		
		Phase 1	**Phase 2**	**Phase 3**
Utilities				
Natural Gas		44	69	92
Electricity (Non-CoGen)		0	-171	-171
Water		1	1	1
Waste		106	-261	-257
Stationary Sources				
CoGen	Natural gas	981	1,609	2,119
Other Stationary Sources	Gasoline	0	0	0
	Diesel	3	8	9
Mobile Sources				
Traffic		15,463	18,283	29,015
Parking lots		148	341	1,195
Airside	Gasoline	23	71	79
	Diesel	6	19	22
Aircraft and GSE				
GSE	Gasoline	-18	-38	-48
	Diesel	-37	-79	-100
Aircraft		15,367	19,737	31,144
Total Annual Emissions		**32,089**	**39,590**	**63,102**
Baseline Emissions		**217,162**	**217,162**	**217,162**
Total Project Plus Baseline Emissions		**249,251**	**256,752**	**280,264**

GHG: greenhouse gas; $MTCO_2e$/year: metric tonnes carbon dioxide equivalent per year; CoGen: cogeneration facility; GSE: ground support equipment.

Source: *Greenhouse Gas Technical Report,* Table 4.6-20, Environ 2014.

Impact Conclusion: *Alternative A would result in an increase in GHG emissions as compared to the existing conditions. However, there is no scientific or regulatory consensus regarding what particular quantity of GHG emissions would result in a substantial adverse change to the physical conditions resulting in global climate change. Further, no agency with regulatory authority and expertise (such as CARB or SCAQMD) has adopted numeric GHG thresholds for airports for purposes of CEQA. Therefore, the estimated increases of GHG emissions over the existing GHG emissions are not a meaningful or reliable indicator of Alternative A's significance. The impact therefore is speculative on a global scale.*

Alternative B

The calculated GHG emissions for Alternative B are shown in Table 4.3-4, Alternative B Greenhouse Gas Emissions. As shown in the table, Phase 1 GHG emissions would exceed existing emissions by 32,444 $MTCO_2e$/year; Phase 2 GHG emissions would exceed existing emissions by 67,554 $MTCO_2e$/year; and Phase 3 GHG emissions would exceed existing emissions by 101,570 $MTCO_2e$/year.

TABLE 4.3-4
ALTERNATIVE B GREENHOUSE GAS EMISSIONS

Source		GHG Emissions ($MTCO_2e$/year)		
		Phase 1	**Phase 2**	**Phase 3**
Utilities				
Natural Gas		44	78	108
Electricity (Non-CoGen)		0	-171	-141
Water		1	1	1
Waste		106	-297	-301
Stationary Sources				
CoGen	Natural gas	981	1,683	2,240
Other Stationary Sources	Gasoline	0	0	0
	Diesel	3	8	8
Mobile Sources				
Traffic		15,498	31,563	46,888
Parking lots		148	389	1,400
Airside	Gasoline	22	65	68
	Diesel	6	18	18
Aircraft and GSE				
GSE	Gasoline	-20	-47	-86
	Diesel	-42	-99	-180
Aircraft		15,698	34,364	51,548
Total Annual Emissions		**32,444**	**67,554**	**101,570**
Baseline Emissions		**217,162**	**217,162**	**217,162**
Total Project Plus Baseline Emissions		**249,606**	**284,716**	**318,732**

GHG: greenhouse gas; $MTCO_2e$/year: metric tonnes carbon dioxide equivalent per year; CoGen: cogeneration facility; GSE: ground support equipment.

Source: *Greenhouse Gas Technical Report,* Table 4.6-21, Environ 2014.

Impact Conclusion: *Alternative B would result in an increase in GHG emissions as compared to the existing conditions. However, there is no scientific or regulatory consensus regarding what particular quantity of GHG emissions would result in a substantial adverse change to the physical conditions resulting in global climate change. Further, no agency with regulatory authority and expertise (such as CARB or SCAQMD) has adopted numeric GHG thresholds for airports for purposes of CEQA. Therefore, the estimated increases of GHG emissions over the existing GHG emissions are not a meaningful or reliable indicator of*

Alternative B's significance. The impact therefore is speculative on a global scale.

Alternative C

The calculated GHG emissions for Alternative C are shown in Table 4.3-5, Alternative C Greenhouse Gas Emissions. As shown in the table, Phase 1 GHG emissions would exceed existing emissions by 155,731 $MTCO_2e$/year; Phase 2 GHG emissions would exceed existing emissions by 146,100 $MTCO_2e$/year; and Phase 3 GHG emissions would exceed existing emissions by 145,992 $MTCO_2e$/year.

TABLE 4.3-5
ALTERNATIVE C GREENHOUSE GAS EMISSIONS

Source		GHG Emissions ($MTCO_2e$/year)		
		Phase 1	**Phase 2**	**Phase 3**
Utilities				
Natural Gas		69	102	122
Electricity (Non-CoGen)		416	293	293
Water		2	1	2
Waste		167	-386	-339
Stationary Sources				
CoGen	Natural gas	1,097	1,769	2,240
Other Stationary Sources	Gasoline	0	0	0
	Diesel	6	16	16
Mobile Sources				
Traffic		73,840	63,991	62,342
Parking lots		231	506	1,577
Airside	Gasoline	50	134	134
	Diesel	14	37	37
Aircraft and GSE				
GSE	Gasoline	23	64	130
	Diesel	47	134	273
Aircraft		79,769	79,441	79,166
Total Annual Emissions		**155,731**	**146,100**	**145,992**
Baseline Emissions		**217,162**	**217,162**	**217,162**
Total Project Plus Baseline Emissions		**372,893**	**363,263**	**363,154**

GHG: greenhouse gas; $MTCO_2e$/year: metric tonnes carbon dioxide equivalent per year; CoGen: cogeneration facility; GSE: ground support equipment.

Source: *Greenhouse Gas Technical Report,* Table 4.6-22, Environ 2014.

Impact Conclusion: *Alternative C would result in an increase in GHG emissions as compared to the existing conditions. However, there is no scientific or regulatory consensus regarding what particular quantity of GHG emissions would result in a substantial adverse change to the physical conditions resulting in global climate change. Further, no agency with regulatory authority and expertise (such as CARB or SCAQMD) has adopted numeric GHG thresholds for airports*

for purposes of CEQA. Therefore, the estimated increases of GHG emissions over the existing GHG emissions are not a meaningful or reliable indicator of Alternative Cs significance. The impact therefore is speculative on a global scale.

No Project Alternative

The calculated GHG emissions for the No Project Alternative are shown in Table 4.3-6, No Project Alternative Greenhouse Gas Emissions. As shown in the table, the No Project Alternative GHG emissions would exceed existing emissions by 33,229 $MTCO_2e$/year.

TABLE 4.3-6
NO PROJECT ALTERNATIVE GREENHOUSE GAS EMISSIONS

Source		GHG emissions (MT CO_2e/year)
Utilities		
Natural Gas (Non-CoGen)		44
Electricity (Non-CoGen)		0
Water		1
Waste		106
Stationary Sources		
CoGen	Natural gas	934
	Gasoline	0
Stationary Sources	Diesel	2
Mobile Sources		
Traffic		15,621
Parking lots		148
	Gasoline	19
Airside	Diesel	5
GSE and Aircraft		
	Gasoline	-19
GSE	Diesel	-39
Aircraft		16,405
Total Annual Emissions		**33,229**
Baseline Emissions		**217,162**
Total No Project Alternative Plus Baseline Emissions		**250,391**

GHG: greenhouse gas; $MTCO_2e$/year: metric tonnes carbon dioxide equivalent per year; CoGen: cogeneration facility; GSE: ground support equipment.

Source: *Greenhouse Gas Technical Report,* Table 4.6-23, Environ 2014.

Impact Conclusion: *The No Project Alternative would result in an increase in GHG emissions as compared to the existing conditions. However, there is no scientific or regulatory consensus regarding what particular quantity of GHG emissions would result in a substantial adverse change to the physical conditions*

resulting in global climate change. Further, no agency with regulatory authority and expertise (such as CARB or SCAQMD) has adopted numeric GHG thresholds for airports for purposes of CEQA. Therefore, the estimated increases of GHG emissions over the existing GHG emissions are not a meaningful or reliable indicator of the No Project Alternative's significance. The impact therefore is speculative on a global scale.

Assembly Bill 32 Analysis

In accordance with Section 15064.4(b)(2–3) of the State CEQA Guidelines, and because the existing conditions analysis provided above did not yield a significance determination or conclusion supported by sound scientific, factual or regulatory underpinnings, this analysis considers: (1) whether the Project's emissions "exceed a threshold of significance that the lead agency determines applies" and (2) "the extent to which the [P]roject complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of [GHG] emissions". In assessing the Project's significance under these two criteria, reference is made to AB 32's mandate that the State return to its 1990 levels of GHG emissions by 2020, which numerically equates to a 28.5 percent reduction in GHG emissions according to CARB's Scoping Plan.

As previously described, the analysis compares the Proposed Project's and the alternatives' emissions as proposed to the Proposed Project's and the alternatives' emissions using a BAU or NAT approach. Stated a bit differently, the analysis compares the Proposed Project's and the alternatives' GHG emissions to the emissions that would occur without the regulatory requirements that have been promulgated to comply with AB 32.

The analysis for the Proposed Project and the Alternatives addresses Phase 3 emissions. However, to be consistent with AB 32, the analysis utilizes an evaluation year of 2020. Due to the differences in the emission factors for vehicles in the EMFAC model for different years of analysis, the Proposed Project's and the alternatives' estimated vehicle-related emissions (i.e., traffic, parking lots) for the AB 32 analysis are different than for the Existing Condition analysis. The Existing Conditions analysis assumes an evaluation year of 2026, consistent with the phasing.

Proposed Project

A summary of the Proposed Project 2020 and CARB 2020 NAT (or Business as Usual) scenario assumptions is included in Table 4.3-7. The differences between the two scenarios are that the Proposed Project includes the following: Renewable Portfolio Standard for offsite electrical generation; an increased diversion of solid waste; and reduced vehicle emissions resulting from regulatory requirements for cleaner cars and low-carbon fuels. The CARB 2020 NAT scenario includes default values for these parameters, which assume levels of renewable electricity and waste diversion and vehicle emissions without improvements resulting from regulatory requirements consistent with the assumptions made by CARB for the BAU scenario in the AB 32 Scoping Plan. The estimated GHG emissions for the Proposed Project and the CARB 2020 NAT scenarios are shown in Table 4.3-8. As shown in Table 4.3-8, the GHG emissions for the Proposed Project Phase 3 2020 are estimated to be 60,673 $MTCO_2e$/year; the GHG emissions for the CARB 2020 NAT scenario are estimated to be 71,489 $MTCO_2e$/year. Therefore, the Proposed Project GHG emissions would be 15 percent less than the CARB 2020 NAT scenario.

TABLE 4.3-7
SUMMARY OF 2020 PROPOSED PROJECT AND CARB 2020 NAT SCENARIO ASSUMPTIONS

Parameter	Proposed Project Phase 3 (2020)	CARB 2020 NAT Phase 3
MAP	12.5	12.5
ADDs	95	95
EDMS Inputs		
Airport	John Wayne Airport – Orange County	
Model Year	2020	2020
GSE Electrification	50% increase in electrification	
CalEEMod Inputs		
Model Year	2020	2020
CO_2 Utility Intensity Factors	RPS included (501.88)	Default (630.89)
Solid Waste Diversion Rate	75%	41% (Baseline Conditions)
Emission Factors	EMFAC 2011 annual average total fleet CO_2 emission rates with Pavley + LCFS for Orange County adjusted for Advanced Clean Cars	EMFAC 2011 annual average total fleet CO_2 emission rates for Orange County

CARB: California Air Resources Board; NAT: No Action Taken; MAP: million annual passengers; ADDs: average daily departures; EDMS: Emissions Dispersion and Modeling System; GSE: ground support equipment; CalEEMod: California Emissions Estimator Model; CO_2: carbon dioxide; RPS: Renewable Portfolio Standards; LCFS: Low Carbon Fuel Standard.

Source: *Greenhouse Gas Technical Report,* Table 5.2-1, Environ 2014.

TABLE 4.3-8
COMPARISON OF PROPOSED PROJECT PHASE 3 2020 TO 2020 NO ACTION TAKEN GREENHOUSE GAS EMISSIONS

Source		GHG Emissions ($MTCO_2e$/year)	
		Proposed Project Phase 3 2020 Emissions	**CARB 2020 NAT Emissions**
Utilities			
Natural Gas (Non-CoGen)		90	90
Electricity (Non-CoGen)		-171	0
Water		1	3
Waste		-251	217
Stationary Sources			
CoGen	Natural gas	1,907	1,907
Stationary Sources	Gasoline	0	0
	Diesel	7	7
Mobile Sources			
Traffic		27,483	36,270
Parking lots		1,420	2,809
Airside	Gasoline	56	56
	Diesel	15	15
GSE and Aircraft			
GSE	Gasoline	-83	-83
	Diesel	-175	-175
Aircraft		30,373	30,373
Total Annual Emissions		**60,673**	**71,489**
Reduction from the CARB 2020 NAT Scenario		**15%**	

CARB: California Air Resources Board; NAT: No Action Taken; GHG: greenhouse gas; $MTCO_2e$/year: metric tonnes carbon dioxide equivalent per year; CoGen: cogeneration facility; GSE: ground support equipment

Source: *Greenhouse Gas Technical Report,* Table 5.2-2, Environ 2014.

Impact Conclusion: *The GHG emissions for the Proposed Project would be 15 percent less than the corresponding NAT GHG emissions, but would be less than the 28.5 percent reduction identified by CARB in the 2008 Scoping Plan to ensure consistency with AB 32's requirement to achieve 1990 emission levels by 2020. The impact would be significant.*

Alternative A

The estimated GHG emissions for the Alternative A and the CARB 2020 NAT scenarios are shown in Table 4.3-9. The differences between the two scenarios are the same as described for the Proposed Project. As shown in Table 4.3-9, the GHG emissions for Alternative A Phase 3 2020 are estimated to be 64,059 $MTCO_2e$/year; the GHG emissions for the CARB 2020 NAT scenario are

estimated to be 75,633 $MTCO_2e$/year. Therefore, the Alternative A GHG emissions would be 15 percent less than the CARB 2020 NAT scenario.

TABLE 4.3-9
COMPARISON OF ALTERNATIVE A PHASE 3 2020 TO 2020 NO ACTION TAKEN GREENHOUSE GAS EMISSIONS

Source		GHG Emissions ($MTCO_2e$/year)	
		Alternative A Phase 3 2020 Emissions	**Alternative A CARB 2020 NAT Emissions**
Utilities			
Natural Gas (Non-CoGen)		92	92
Electricity (Non-CoGen)		-171	0
Water		1	3
Waste		-257	223
Stationary Sources			
CoGen	Natural gas	2,119	2,119
Stationary Sources	Gasoline	0	0
	Diesel	9	9
Mobile Sources			
Traffic		29,713	39,213
Parking lots		1,455	2,876
Airside	Gasoline	79	79
	Diesel	22	22
Aircraft and GSE			
GSE	Gasoline	-48	-48
	Diesel	-100	-100
Aircraft		31,144	31,144
Total Annual Emissions		**64,059**	**75,633**
Reduction from the CARB 2020 NAT Scenario		**15%**	

CARB: California Air Resources Board; NAT: No Action Taken; GHG: greenhouse gas; $MTCO_2e$/year: metric tonnes carbon dioxide equivalent per year; CoGen: cogeneration facility; GSE: ground support equipment

Source: *Greenhouse Gas Technical Report,* Table 5.2-3, Environ 2014.

Impact Conclusion: *The GHG emissions for Alternative A would be 15 percent less than the corresponding NAT GHG emissions, but would be less than the 28.5 percent reduction identified by CARB in the 2008 Scoping Plan to ensure consistency with AB 32's requirement to achieve 1990 emission levels by 2020. The impact would be significant.*

Alternative B

The estimated GHG emissions for the Alternative B and the CARB 2020 NAT scenarios are shown in Table 4.3-10. The differences between the two scenarios are the same as described for the

Proposed Project. As shown in Table 4.3-10, the GHG emissions for Alternative B Phase 3 2020 are estimated to be 103,002 $MTCO_2e$/year; the GHG emissions for the CARB 2020 NAT scenario are estimated to be 120,763 $MTCO_2e$/year. Therefore, the Alternative B GHG emissions would be 15 percent less than the CARB 2020 NAT scenario.

TABLE 4.3-10
COMPARISON OF ALTERNATIVE B PHASE 3 2020 TO 2020 NO ACTION TAKEN GREENHOUSE GAS EMISSIONS

Source		GHG Emissions ($MTCO_2e$/year)	
		Alternative B Phase 3 2020	**Alternative B CARB 2020 NAT**
Utilities			
Natural Gas (Non-CoGen)		108	108
Electricity (Non-CoGen)		-141	38
Water		1	3
Waste		-301	261
Stationary Sources			
CoGen	Natural gas	2,240	2,240
Stationary Sources	Gasoline	0	0
	Diesel	8	8
Mobile Sources			
Traffic		48,015	63,367
Parking lots		1,705	3,371
Airside	Gasoline	68	68
	Diesel	18	18
Aircraft and GSE			
GSE	Gasoline	-86	-86
	Diesel	-180	-180
Aircraft		51,548	51,548
Total Annual Emissions		**103,002**	**120,763**
Reduction from the CARB 2020 NAT Scenario		**15%**	

CARB: California Air Resources Board; NAT: No Action Taken; GHG: greenhouse gas; $MTCO_2e$/year: metric tonnes carbon dioxide equivalent per year; CoGen: cogeneration facility; GSE: ground support equipment

Source: *Greenhouse Gas Technical Report,* Table 5.2-4, Environ 2014.

Impact Conclusion: *The GHG emissions for Alternative B would be 15 percent less than the corresponding NAT GHG emissions, but would be less than the 28.5 percent reduction identified by CARB in the 2008 Scoping Plan to ensure consistency with AB 32's requirement to achieve 1990 emission levels by 2020. The impact would be significant.*

Alternative C

The estimated GHG emissions for the Alternative C and the CARB 2020 NAT scenarios are shown in Table 4.3-11. The differences between the two scenarios are the same as described for the Proposed Project. As shown in Table 4.3-11, the GHG emissions for Alternative C Phase 3 2020 are estimated to be 147,834 $MTCO_2e$/year; the GHG emissions for the CARB 2020 NAT scenario are estimated to be 171,050 $MTCO_2e$/year. Therefore, the Alternative C GHG emissions would be 14 percent less than the CARB 2020 NAT scenario.

TABLE 4.3-11
COMPARISON OF ALTERNATIVE C PHASE 3 2020 TO 2020 NO ACTION TAKEN GREENHOUSE GAS EMISSIONS

Source		GHG Emissions ($MTCO_2e$/year)	
		Alternative C Phase 3 2020	**Alternative C CARB 2020 NAT**
Utilities			
Natural Gas (Non-CoGen)		122	122
Electricity (Non-CoGen)		293	584
Water		2	4
Waste		-339	294
Stationary Sources			
CoGen	Natural gas	2,240	2,240
Stationary Sources	Gasoline	0	0
	Diesel	16	16
Mobile Sources			
Traffic		63,841	84,253
Parking lots		1,920	3,798
Airside	Gasoline	134	134
	Diesel	37	37
Aircraft and GSE			
GSE	Gasoline	130	130
	Diesel	273	273
Aircraft		79,166	79,166
Total Annual Emissions		**147,834**	**171,050**
Reduction from the CARB 2020 NAT Scenario		**14%**	

CARB: California Air Resources Board; NAT: No Action Taken; GHG: greenhouse gas; $MTCO_2e$/year: metric tonnes carbon dioxide equivalent per year; CoGen: cogeneration facility; GSE: ground support equipment.

Source: *Greenhouse Gas Technical Report,* Table 5.2-5, Environ 2014.

Impact Conclusion: *The GHG emissions for Alternative C would be 14 percent less than the corresponding NAT GHG emissions, but would be less than the 28.5 percent reduction identified by CARB in the 2008 Scoping Plan to ensure consistency with AB 32's requirement to achieve 1990 emission levels by 2020. The impact would be significant.*

No Project Alternative

The estimated GHG emissions for the No Project Alternative and the CARB 2020 NAT scenarios are shown in Table 4.3-12. The differences between the two scenarios are the same as described for the Proposed Project. As shown in Table 4.3-12, the GHG emissions for the No Project Alternative 2020 are estimated to be 43,425 $MTCO_2e$/year; the GHG emissions for the CARB 2020 NAT scenario are estimated to be 49,520 $MTCO_2e$/year. Therefore, the No Project Alternative GHG emissions would be 12 percent less than the CARB 2020 NAT scenario.

TABLE 4.3-12
COMPARISON OF THE NO PROJECT ALTERNATIVE 2020 TO 2020 NO ACTION TAKEN GREENHOUSE GAS EMISSIONS

Source		GHG Emissions ($MTCO_2e$/year)	
		No Project Alternative 2020	**No Project CARB 2020 NAT**
Utilities			
Natural Gas (Non-CoGen)		78	78
Electricity (Non-CoGen)		-171	0
Water		1	2
Waste		-217	188
Stationary Sources			
CoGen	Natural gas	1,817	1,817
Stationary Sources	Gasoline	0	0
	Diesel	6	6
Mobile Sources			
Traffic		13,506	17,824
Parking lots		1,227	2,427
Airside	Gasoline	50	50
	Diesel	14	14
Aircraft and GSE			
GSE	Gasoline	-20	-20
	Diesel	-42	-42
Aircraft		27,176	27,176
Total Annual Emissions		**43,425**	**49,520**
Reduction from the CARB 2020 NAT Scenario		**12%**	

CARB: California Air Resources Board; NAT: No Action Taken; GHG: greenhouse gas; $MTCO_2e$/year: metric tonnes carbon dioxide equivalent per year; CoGen: cogeneration facility; GSE: ground support equipment.

Source: *Greenhouse Gas Technical Report,* Table 5.2-6, Environ 2014.

Impact Conclusion: *The GHG emissions for the No Project Alternative would be 12 percent less than the corresponding NAT GHG emissions, but would be less than the 28.5 percent reduction identified by CARB in the 2008 Scoping Plan to ensure*

consistency with AB 32's requirement to achieve 1990 emission levels by 2020. The impact would be significant.

Threshold 4.3-2 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 All Alternatives

Executive Order S-3-05 and AB 32 are the primary State policies adopted for the purpose of reducing GHG emissions. Statewide regulations adopted in furtherance of those State policies, such as GHG emissions standards for vehicles, the LCFS, and increasingly more efficient Title 24 building requirements and green building standards, are being implemented at the statewide level. In addition to establishing targets for GHG emission reductions for 2010 and 2020, which have been the primary focus of AB 32 and many other State policies, Executive Order S-3-05 establishes a target to reduce GHG emissions to 80 percent below 1990 levels by 2050.

Accounting for a population growth from 35,840,000 people in 2004 to approximately 55,000,000 people in 2050, the emissions per capita would have to be only 12 percent of what they were in 2004. Renewable power requirements, the low carbon fuel standard, and vehicle emissions standards will all decrease GHG emissions. Clearly, energy efficiency and reduced vehicle miles traveled will play important roles in achieving this aggressive goal, but the decarbonization of fuel will also be necessary.

The California Energy Commission (CEC) published "State Alternative Fuels Plan" in which it noted the existence of "challenging but plausible ways to meet 2050 [transportation] goals." The main finding from this analysis is that reducing today's average per capita driving miles by about 5 percent (or back to 1990 levels), in addition to the decarbonization strategies listed below, would achieve S-03-05 goals of 80 percent below 1990 levels. The CEC report indicated that the following set of measures could be combined to produce this result:

- Lowering the energy needed for personal transportation by tripling the energy efficiency of on-road vehicles in 2050 with:
    a. Conventional gas, diesel, and flexible fuel vehicles (FFVs) averaging more than 40 miles per gallon (mpg).
    b. Hybrid gas, diesel, and FFVs averaging almost 60 miles per gallon.
    c. All electric and plug-in hybrid electric vehicles (PHEVs) averaging well over 100 miles per gallon (on a gallons of gasoline equivalents (GGE) basis) on the electricity cycle.
    d. Fuel cell vehicles (FCVs) averaging over 80 miles per gallon (on a GGE basis).
- Moderating growth in per capita driving, reducing today's average per capita driving miles by about 5 percent or back to 1990 levels.
- Changing the energy sources for transportation fuels from the current 96 percent petroleum-based to approximately:
    a. 30 percent from gasoline and diesel from traditional petroleum sources or lower GHG emission fossil fuels such as natural gas.

b. 30 percent from transportation biofuels.

c. 40 percent from a mix of electricity and hydrogen.

- Producing transportation biofuels, electricity, and hydrogen from renewable or very low carbon-emitting technologies that result in, on average, at least 80 percent lower life cycle GHG emissions than conventional fuels.
- Encouraging more efficient land uses and greater use of mass transit, public transportation, and other means of moving goods and people.

Studies have shown that in order to meet the 2050 target, aggressive technologies in the transportation and energy sectors, such as electrification and maturation of technologies still in development, such as advanced batteries and more efficient biofuels will be required. Another study indicates that even with these emerging technologies, the 2050 goal will not be met, due to the population growth to 55 million by 2050. More technologies and policy development is needed to achieve the 2050 target.

Due to the wholesale shifts in energy technology required and more aggressive regulations needed both of which are not currently in place, analyzing a project's impacts relative to the 2050 target is speculative for purposes of CEQA.

The County of Orange has not yet adopted a Climate Action Plan, and no regulatory agency with GHG expertise and jurisdiction (e.g., CARB or SCAQMD) has adopted GHG limits or requirements applicable to the airport sector. Thus, the Project would not conflict with State, regional, or local plans, policies, or regulations adopted for the purpose of reducing GHGs.

Impact Conclusion: *Neither the Proposed Project nor any of the alternatives would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of greenhouse gases. There would be a less than significant impact.*

4.3.7 MITIGATION PROGRAM

As discussed in the Threshold 4.3-1 AB 32 analysis, the Proposed Project's GHG emissions would result in a significant environmental impact. As discussed in Section 4.3.4, the ACRP's Report 56, *Handbook for Considering Practical Greenhouse Gas Emission Reduction Strategies for Airports* provides an inventory of practical, low-cost strategies to reduce and manage GHG emissions. Strategies currently implemented at JWA are shown in Section 4.1, Table 4.1-6. Another group of strategies was determined to be inapplicable and/or infeasible for JWA. These strategies are listed in Table A-2 of Appendix E, the GHG Technical Report; the table includes explanations of inapplicability and/or infeasibility.

The County of Orange has identified additional, feasible mitigation measures that would be implemented by JWA in order to mitigate the Project's GHG-related impacts were identified. Of the 15 mitigation measures identified, only the GHG emissions reduction attributable to the GSE electrification mitigation measure, AQ/GHG-5(i) was quantified in this impact analysis. This limited quantification is conservative and appropriate in light of the uncertainty regarding the specific emission reduction benefits attributable to many of the mitigation measures. Further, because of the County of Orange's inability to directly regulate or improve tailpipe emissions from aircraft and other mobile sources, which are subject to federal and State regulations, even

with adoption and implementation of these mitigation measures, GHG-related impacts would be significant and unavoidable. (Note: for each mitigation measure's corresponding ACRP Strategy, please see Table 1.1-1 of Appendix E).

AQ/GHG-1 Upon Project approval, the County of Orange shall support single/reduced engine taxiing procedures authorized by the Federal Aviation Administration ("FAA") that achieve corresponding benefits in air quality and/or greenhouse gas ("GHG") emission reductions and do not result in adverse noise impacts.

AQ/GHG-2 Upon Project approval, the County of Orange shall support the efforts of the airport industry—including those of the FAA, commercial air carriers, and aircraft manufacturers —to develop air quality and Greenhouse Gas ("GHG") emission benchmarking databases that improve the understanding of the relative efficiencies of aviation operations by actively participating in aviation community networks and participating in the biannual Airports Council International – North America ("ACI-NA") Environmental Benchmark Survey.

AQ/GHG-3 Upon Project approval, the County of Orange shall continue to 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 the California Environmental Quality Act ("CEQA").

AQ/GHG-4 By January 1, 2018, the County of Orange shall develop and adopt a Climate Action Plan for greenhouse gas emissions sources at the Airport under the County's control. The Climate Action Plan shall be consistent with the requirements of the Global Warming Solutions Act of 2006 ("AB 32") and the goals of Executive Order S-3-05.

In order to secure greenhouse gas emission reductions from sources under the County's control, the Climate Action Plan shall identify one or more of the following greenhouse gas reduction strategies, or combination thereof.

i. Maximizing the energy efficiency of existing Airport structures and facilities through retrofitting and redevelopment at the conclusion and/or expiration of their useful life;

ii. Tracking energy use at intervals no less than every 12 months in order to allow for the efficient optimization of energy use;

iii. Utilizing energy-efficient (light-emitting diode ["LED"] or equivalent) lighting on the airfield, within terminal buildings, and in connection with surface and parking lot security lighting;

iv. Installing window awnings, sunshades, or window tinting in appropriate areas;

v. Providing a minimum of 60 electric car charging stations consistent with AQ/GHG-11 below;

vi. Increasing the purchase and use of renewable energy;

vii. Requiring third parties, concurrent with the execution of new, renewed or amended lease or contractual agreements, to meet the

more stringent energy efficiency requirements required in AQ/GHG-5 below;

viii. Continuing to maximize use of hybrid or alternatively fueled on-site equipment, including equipment fueled by Clean Natural Gas ("CNG"), Liquified Natural Gas ("LNG"), or Biodiesel;

ix. Installing light colored "cool" roofs and cool pavements in any new development subsequently proposed at the Airport;

x. Purchasing carbon offset credits through an adopted program such as the California Air Pollution Control Officer's Association ("CAPCOA's") Greenhouse Gas Reduction Exchange ("Rx") Registry, of which the the South Coast Air Quality Management District ("SCAQMD") is a participating air district (www.ghgrx.org);

xi. Increasing solid waste reduction and recycling in accordance with AQ/GHG-10 below; and/or

xii. Collaborating with commercial air carriers to reduce ground-based aircraft engine greenhouse gas emissions through single engine taxiing ("SET") for purposes of taxi-in and taxi-out between the runway ends and terminal areas to the extent feasible and without compromising passenger safety and aircraft engine operational considerations.

The above list of greenhouse gas reduction strategies is non-exclusive and can be supplemented by any additional strategies subsequently identified by the County of Orange.

In order to ensure progress in implementation of the Climate Action Plan and its reduction objectives, the County of Orange shall conduct annual greenhouse gas emission inventories for all stationary sources and other sources over which JWA has control.

AQ/GHG-5 Upon Project approval, the County of Orange shall specify energy efficiency requirements and goals for equipment and appliances in contractual agreements, as applicable. At a minimum:

i. Concurrent with the execution of lease agreements, amendments, and/or renewals with commercial air carriers, the County of Orange shall set a Ground Support Equipment electrification requirement of a 15 percent increase above baseline by 2016, 35 percent above baseline by 2021, and 50 percent increase above baseline by 2026. (The baseline electrification conditions are established by reference to calendar year 2013.)

ii. Concurrent with the execution of lease agreements, amendments, and/or renewals with all applicable Airport tenants, the County of Orange shall require that any new equipment or appliances purchased by the tenant for the provision of services under its contract with JWA shall be ENERGY STAR rated or equivalent, to the extent such

equipment and appliances are commercially and technologically available.

iii. Concurrent with the execution of lease agreements, amendments, and/or renewals with all applicable Airport tenants, the County of Orange shall require that all tenants develop, implement and submit to the Airport—within six months of lease execution—a fleet-wide, anti-idling policy. At a minimum, the anti-idling policy shall include the requirement that vehicle engines shall be turned off when vehicles are not occupied, and that occupied vehicles be turned off after no more than a five-minute idling period.

AQ/GHG-6 Upon Project approval, the County of Orange shall install energy efficient equipment and controls for equipment being replaced as technologically available.

AQ/GHG-7 Upon Project approval, the County of Orange shall install variable speed drives and optimize the control of air handling unit pumps for equipment being replaced as technologically available.

AQ/GHG-8 Upon Project approval, and as technologically available, the County of Orange shall install energy efficient elevators and escalators as the existing ones require replacement.

AQ/GHG-9 By 2016, the County of Orange shall optimize the energy efficiency and control of the conveyor motors in the baggage handling system by adding more "photo eyes" to track bags and reduce the time that the system runs after a bag has gone through from 20 minutes to 10 minutes. The County of Orange also will replace the older electric conveyor drive motors in Terminals A and B with new, more efficient ones capable of variable frequency by 2016.

AQ/GHG-10 By 2016, the County of Orange shall develop an Integrated Solid Waste Management Plan ("ISWMP") that strives to achieve the policy goal of the State of California—set forth in Section 41780.01 of the *California Public Resources Code*—that not less than 75 percent of solid waste generated be source reduced, recycled, or composted by the year 2020, and annually thereafter. In furtherance of the State's policy goal, the ISWMP shall evaluate further improvements to the Airport's existing solid waste diversion rate through enhanced recycling and composting opportunities.

AQ/GHG-11 By 2016, the County of Orange shall install electric vehicle chargers in public parking structures A1, A2, B2 and C, the Main Street parking lot, and the employee parking lots. Chargers will be located close to the terminals to give preference to the electric vehicle users. By 2021, the County of Orange shall also provide preferential parking for vehicles powered by compressed natural gas and other low emission sources.

JWA's parking program ("PARCS") will be used to track the demand/use of the low emission vehicle spaces/chargers, and the County of Orange will re-evaluate the percentage/quantity of spaces required every two years. the

County of Orange will optimize the efficiency of the parking program and adjust it according to future demands for electric chargers and the other types of low-emission vehicles driven by the public.

AQ/GHG-12 Upon Project approval, the County of Orange shall support the expansion of public transit opportunities to the Airport by coordinating with the Orange County Transportation Association ("OCTA"), Irvine iShuttle, and MetroLink upon the request of the transit providers. Additionally, the County of Orange will continue to make available—on the Airport's website—current information about public transit options that can be utilized to access the Airport.

AQ/GHG-13 Upon Project approval, the County of Orange shall support bicycle use by Airport employees and the air traveling public by providing convenient, secure bicycle racks for use on the Airport's premises.

AQ/GHG-14 Upon Project approval, the County of Orange shall continue to support the use of alternatively fueled taxis and shuttles through the Request for Proposal process and in the contractual agreements (all taxis are currently CNG). JWA also shall support the use of alternatively fueled rental vehicles by providing electricity for chargers where practicable by 2020.

AQ/GHG-15 Upon Project approval, the County of Orange shall support the efforts of commercial air carriers to utilize paperless ticket technology by upgrading the current kiosks and Common Use Passenger Processing System ("CUPPS") system with new, more efficient technology as it becomes commercially available.

4.3.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Even with implementation of the mitigation measures identified above, impacts from the GHG emissions for the Proposed Project, Alternatives A, B, and C, and the No Project Alternative, would be significant and unavoidable.

Table 4.3-13 provides a summary of the findings of significance after implementation of the mitigation measures for each threshold for each alternative.

TABLE 4.3-13
SUMMARY OF GREENHOUSE GAS EMISSIONS IMPACTS

Threshold	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Threshold 4.3-1	**Existing Conditions** Speculative **AB 32 Analysis** Significant and unavoidable impact	**Existing Conditions** Speculative **AB 32 Analysis** Significant and unavoidable impact	**Existing Conditions** Speculative **AB 32 Analysis** Significant and unavoidable impact	**Existing Conditions** Speculative **AB 32 Analysis** Significant and unavoidable impact	**Existing Conditions** Speculative **AB 32 Analysis** Significant and unavoidable impact
Threshold 4.3-2	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact

4.3.9 REFERENCES

Environ International Corporation. 2014 (April). *John Wayne Airport Settlement Agreement Amendment Greenhouse Gas Technical Report.* Irvine, CA: Environ (Appendix E).

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4.4 HAZARDS AND HAZARDOUS MATERIALS

This section discusses the use, storage and handling of hazardous materials at John Wayne Airport ("JWA"); it also assesses the Project's potential hazardous materials impacts that could potentially affect human health and/or the environment. Because the Project does not propose any construction or change to the nature of Airport operations, including the on-site storage and delivery of jet fuel, and because the Project would not affect ongoing remedial activities at JWA, the sole hazard associated with the Project relates to the potential release of hazardous materials resulting from the increased transport and use of jet fuel commensurate with the increase in the number of flights. Pursuant to State CEQA Guidelines Section 15150, this EIR hereby incorporates by reference Section 3.11 (Risk of Upset) of EIR 582 (SCH #2001011068), which is available for public review and inspection at the JWA Administrative Offices located at 3160 Airway Avenue, Costa Mesa, CA. As discussed further below, Section 3.11 of EIR 582 contains relevant information regarding the methodology and results of a "risk of upset" analysis for fuel delivery.

As discussed in Section 1.6, EIR Focus and Effects Found Not to be Significant, and in the Notice of Preparation ("NOP")/Initial Study in Appendix A, the Project 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.

4.4.1 REGULATORY SETTING

Since hazards and hazardous materials cover many diverse topics, for ease of readability this section is organized by topic or regulation rather than by jurisdiction.

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.

FEDERAL AVIATION REGULATION PART 139

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.

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 Agency ("OCHCA") was designated as the Certified Unified Program Agency ("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; Business Emergency Plan; Hazardous Waste; Underground Storage Tank ("UST"); Aboveground Petroleum Storage Tank; and the California Accidental Release Prevention ("CalARP").

CALIFORNIA GOVERNMENT CODE, SECTION 65962.5

The provisions in Section 65962.5 of the *California Government Code* are commonly referred to as the "Cortese List" (after the Legislator who authored the legislation that enacted it). The list is a compilation of hazardous waste facilities subject to corrective action pursuant to various provisions of the *California Health and Safety Code.* The list is maintained by the California Department of Toxic Substance Control. The regulation requires the list to be updated as appropriate, but at least annually. As discussed below in Section 4.4.5, Impact Analysis, the Airport is not identified on the Cortese List.

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 for the 20-year planning future for JWA; to safeguard the general welfare of the inhabitants in the vicinity of the Airport; and to ensure the continued operation of the Airport. Specifically, the AELUP seeks to protect the public from 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 airspace.

4.4.2 METHODOLOGY

The effects of the Project related to hazardous materials were assessed by identifying the existing jet fuel-related activities at JWA (i.e., storage, transport, handling, fueling activities, fuel demand); the spill prevention and response protocols; and ten-year spill history. The potential for increased fuel demand to create or result in increased risk of exposing surrounding

populations or the environment to hazardous materials due to operation of the Proposed Project and each alternative was assessed in light of the following: (1) the existing fuel management programs in place at JWA; (2) the number and severity of spills under the existing fuel management program relative to the rate of daily fuel use; and (3) the results of the "risk of upset" analysis prepared as part of the 2002 *Final Environmental Impact Report No. 582 for the John Wayne Airport Settlement Agreement Extension* ("EIR 582"). The specific methodology of the risk of upset analysis is provided below as part of the impact discussion under the "Previous Risk Assessment for Fuel Storage and Transport" heading.

4.4.3 EXISTING CONDITIONS

HAZARDOUS MATERIALS USE

The main activity conducted at JWA 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 JWA, therefore reducing the number and quantities of other hazardous materials, as well as their potential impacts. Two types of jet fuel are used at JWA: LL100 (AvGas) and Jet-A. Avgas is aviation's equivalent to leaded gasoline, and Jet-A is a heavier kerosene (no lead), which is closer to diesel than gasoline in volatility. AvGas is used by smaller piston engine aircraft (general aviation) and not used by commercial airlines at JWA (Pope 2014). This EIR discusses increases in Jet-A usage, not AvGas, because the smaller "general aviation" aircraft activity is not increasing in any of the Project scenarios. Jet-A is transported to JWA via tanker truck delivery, as discussed below.

There are two "fuel farm" locations at JWA (the location of the fuel farms are shown on Exhibit 2-1, Existing On-Site Uses). 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."). SNAFuel provides Jet-A fuel to the commercial aircraft and red-dye diesel for their GSE. The "old" fuel farm is located in the southeast corner of the airfield and is operated by the Fixed Based Operators ("FBOs") and JWA for general aviation, their GSE, and other airport vehicles and equipment. The underground fuel tanks located at the fuel farms include Jet-A, AvGas, regular unleaded Gasoline, and Diesel (Pope 2014).

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 Regional Water Quality Control Board ("RWQCB") issued Cleanup and Abatement Order 88-123 to JWA and the remediation is still on-going. This EIR does not address the old fuel farm remediation as the increased Jet-A usage related to the Project will not be supplied from the old fuel farm. Former Fire Station 33 (366 Paularino) is also undergoing groundwater monitoring from previous impacts, but is also not considered as part of this assessment as it will not be affected as part of the Project (Pope 2014).

As noted previously, changes in fueling operations in support of increased Airport operations are the primary source of potential impacts related to hazardous materials under the Project. Therefore, this discussion focuses on JWA's commercial fueling system.

Fuel Storage

The greatest quantity of hazardous material stored at JWA is Jet-A fuel. Jet-A ("jet fuel", "fuel") has been transported to and used at JWA since 1967. The airline consortium (SNAFuel) currently receives fuel via tanker truck from two refineries located in El Segundo, California and Carson, California. Approximately 60 percent of the jet fuel currently being trucked to the Airport originates in El Segundo and the balance is trucked from Carson. The current suppliers are Tesoro, Chevron, Kinder Morgan, BP, and World Fuel (Pope 2014).

SNAFuel is located on approximately two acres on the west side of the airfield at the northern end, within the security fencing of the airfield.[1] The fuel farm includes three 300,000-gallon, aboveground storage tanks ("ASTs") for the storage of jet fuel. These tanks were constructed as part of the 1985 Master Plan improvements. The fuel tanks have approximately 750,000 gallons of storage capacity because, in all fuel systems, there is a portion of the fuel that is unusable and referred to as "dead fuel". This is fuel that is at the bottom of tanks and not able to be pumped out through normal system operation, along with fuel that resides in pipes, pumps, and filters. The dead fuel represents a static and unchanging amount and therefore is not included in the analysis

The ASTs are each approximately 52 feet in diameter and 21 feet in height. They are constructed of welded steel with a full contact internal floating roof to eliminate vapor space within the tank; this construction minimizes the likelihood of fire or explosion, even though Jet-A fuel is considered to be non-volatile. The three ASTs are connected to a hydrant refueling system by an underground, double-walled, transfer piping system that is equipped with multiple overflow alarms. An approximate 16,431-square-foot dike system for controlling any fuel spills provides a containment capacity that is approximately 132 percent of the volume of a single tank. The entire facility drains into a Petro-pack equipped oil-water separator that has cathodic protection.[2] The separator and the underground pipeline and hydrant system are fully monitored and have leak alarms. The fuel farm also has a self-contained fire alarm and suppression system. All existing tanks at JWA, including those in the commercial fuel farm and old fuel farm, meet current mandated leak protection and detection standards (Pope 2014).

The full capacity of the fuel tanks is not currently being utilized due to the location of some of the existing vents. JWA has plans to modify the lower vents, thereby creating more space for fuel in the tanks. These minor modifications will be completed by 2016 and will increase fuel storage capacity in the existing tanks to 254,000 gallons per tank, for a total capacity of approximately 762,000 gallons.

Additionally, the County of Orange is currently evaluating 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 fuel farm. This proposal is currently undergoing separate environmental review, as discussed in Chapter 5.0, Cumulative Impacts. The proposal would include construction of two 1.5 million gallon capacity tanks and connection of these large tanks with an underground pipe to a larger pipeline distribution system, in order to increase Airport-related jet fuel storage capabilities and provide for delivery of Jet-A via pipeline. The intent of this

[1] The original fuel farm ("old fuel farm"), located at the southeast corner of the airfield, is used by general aviation aircraft and GSE only. Because the Project would not change the operation of the old fuel farm, references to "fuel farm" hereinafter pertain to the commercial aircraft fueling facility constructed in 1991 unless otherwise specified.

[2] Cathodic protection is used to control the corrosion of a metal surface.

proposed project is to reduce/remove the need to truck fuel from the refinery to the Airport (AECOM 2014a). Because this privately-initiated proposal is not approved, the capacity offered by these tanks is only considered in the cumulative impacts assessment provided in Section 5.

Fuel Transport and Handling

Jet fuel is delivered to the ASTs by tanker truck. Truck unloading operations occur only at night (i.e., between 11:30 PM and 5:30 AM), seven nights a week. JWA has 4 truck unloading positions, which can unload trucks simultaneously to the fuel farm facility. The maximum capability of the existing system is for 32 truck deliveries during the night time hours (between 11:30 PM and 5:30 AM). In 2013, an average of 28 trucks of fuel were delivered to the Airport on a nightly basis.

Jet-A fuel dispensed in commercial operations at JWA has decreased from about 82 million gallons in 2003 to about 62 million gallons in 2012. In 2003, about 1,515 gallons were dispensed per commercial departure. Over the last 10 years, 1,349 gallons were dispensed per commercial departure, on average, and these dispensations have been generally trending down as airlines have continued to look for ways to reduce operating expenses and as aircraft manufacturers have increased fuel efficiencies of aircraft fleets. The last three years have been essentially flat at an average of 1,356 gallons dispensed per departure. The amount of Jet-A fuel dispensed per passenger has also trended down as load factors, on average, have increased at JWA. Other variations could potentially be explained by variations in aircraft types and average trip distances (AECOM 2014a).

The majority of the commercial aircraft are fueled via the aforementioned hydrant system located beneath the commercial terminal apron; however, some small commuter aircraft are fueled via individual fuel trucks. These trucks load fuel from the commercial fuel farm and unload fuel into commuter aircraft parked north and south of the terminal. Commercial ground service equipment ("GSE") is fueled on the airfield with fuel from SNAFuel. 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 (Pope 2014).

On an annualized basis, assuming the completion of the current tank modifications (expected to be completed by 2016), the daily working capacity of the fuel system can accommodate 12.5 annual MAP, based on the following assumptions:

- **Daily working capacity of fuel system:** 254,000 gallons
- **Fuel dispensed per passenger:** 7.4 gallons
- **Daily passenger capacity:** 34,300
- **Annual passenger capacity:** 12.5 MAP

Regulatory Oversight and Fuel Safety

As previously indicated, SNAFuel is located within the secured airfield. 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 Federal Aviation Administration ("FAA"). Furthermore, all fueling operations are subject to Emergency Response, Spill Response, and

Storm Water Pollution Prevention Plans, among others. These plans must meet the approval of the OCFA, JWA, and County and State health and water quality officials (i.e., the RWQCB).

The current Spill Prevention, Control, and Countermeasure ("SPCC") Plan, dated July 2011 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, is jet fuel. 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, and for which 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 regarding fuel-related emissions. The 2013 ASIG inspection records for the fuel farm and associated facilities indicate that all components were determined to be in proper working order with ratings of "Satisfactory", "Clean", and/or "Pass" as appropriate (Pope 2014). Pursuant to the annual requirements for certification of compliance with FAR 139.321, "Handling and Storing of Hazardous Substances and Materials", ASIG documented their review of SNAFuel, which concludes (SNAFuel 2013):

- All personnel are FAR 139 certified.
- The OCFA regularly completes quarterly and annual inspections of the facility.
- All ASIG corporate safety and operations manuals are current.
- All personnel completed annual recurrent training.
- The facility requires the operator on duty to conduct and document hourly inspections to monitor for safety violations, fuel dispensing/receiving operations, possible fuel leaks and facility security.
- The facility has retained an International Organization for Standardization ("ISO") 9001:2008 certification of the past 12 years.[3]

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

Fuel Spill Management and History

The on-site Airport Rescue and Fire Fighting ("ARFF") Station is notified and called to the scene for all fuel spills. Tanker truck and into-plane (fuel dispensing) operators are primarily responsible for clean-up and containment; however, ARFF personnel will 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

[3] 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 2014).

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.

Between 2003 and 2013, there were no fuel spills or other incidents that resulted in releases that extended off the airfield (Pope 2014). All minor spills were contained and properly cleaned up.

4.4.4 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 4.4-1 Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Threshold 4.4-2 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 4.4-3 Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or wastes within one-quarter mile of an existing or proposed school.

Threshold 4.4-4 Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.

Threshold 4.4-5 Be located within an airport land use plan or, where such plan has not been adopted, within two miles of a public airport or public use airport, resulting in a safety hazard for people residing or working in the project area.

4.4.5 IMPACT ANALYSIS

PREVIOUS RISK ASSESSMENT FOR FUEL STORAGE AND TRANSPORT

A complex "risk of upset" analysis was prepared as part of EIR 582, which addressed operation of the commercial fuel farm with an extension of the Settlement Agreement, similar to the Project being evaluated in this EIR. Since the conditions at JWA have not changed, this analysis and the findings would still be applicable to the Project and, as discussed in the introduction to this section, Section 3.11 (Risk of Upset) of EIR 582 is incorporated by reference pursuant to CEQA Guidelines Section 15150. The following provides an overview of the analysis conducted for EIR 582.

The risk of upset analysis prepared for the EIR 582 project evaluated potential public health and safety risks by determining the probability of an accident and the potential severity of consequences associated with three hypothetical accident scenarios:

1. Accidents involving the highway transportation of jet fuel.
2. Accidents involving the uncontrolled release of jet fuel from on-Airport bulk fuel storage tanks due to unspecified causes.
3. Accidents involving aircraft collisions with on-Airport bulk jet fuel storage tanks.

The potential for increased flights to create or result in increased hazards to surrounding populations/environs was evaluated in the following three steps: (1) Hazards Identification, (2) Vulnerability Analysis, and (3) Risk Analysis.

Hazards Identification

Hazards identification provides information on situations that have the potential for causing injury to life or damage to property and the environment due to a materials spill or release. Hazards identification includes information on:

- Types and quantities of hazardous materials used, processed, or stored at a facility;
- Quantities of materials that could be involved in an airborne release;
- Conditions of storage, processing, and use; and
- Potential hazards associated with spills or other releases.

The material of concern for the risk of upset analysis is Jet-A fuel ("jet fuel", "fuel"). The hazard associated jet fuel would be the potential for adverse effects in the event of an uncontrolled, accidental release, either at the JWA site or during highway transport.

Vulnerability Analysis

The vulnerability analysis identifies areas in the community that may be affected or exposed; individuals in the community who may display enhanced sensitivity to certain specific hazardous materials; and which facilities, property, or environments may be susceptible to damage should a hazardous materials release occur. A vulnerability analysis provides information on the following:

- The extent of the vulnerable zones (i.e., an estimation of the area that may be affected in a significant way as a result of a spill or release of a known quantity of a specific material under defined conditions);
- The population, in terms of numbers, density, and/or types of individuals (e.g., facility employees; neighborhood residents; people in hospitals, schools, nursing homes, and/or daycare centers) that could be within a vulnerable zone; and
- Private and public property (e.g., critical facilities, homes, schools, hospitals, businesses, offices) that may be damaged, including essential support systems (e.g., water, food, power, communication, medical) and transportation facilities and corridors.

Risk Analysis

A risk analysis is an assessment of the likelihood (probability) of an accidental release of a hazardous material and the actual consequences that might occur, based on estimated vulnerable zones. In this light, a risk analysis is a judgment of the probability of an accident and the potential severity of associated consequences based on the history of previous incidents, local experience, and the best available current technological information. Risk analyses provide an estimation of the following:

- The likelihood (probability of occurrence) of an accidental release based on the history of current conditions and controls at the facility, consideration of any unusual environmental conditions, or the possibility of simultaneous emergency incidents;
- The severity and number of consequences of human injury that may occur and the associated high-risk groups; and
- The severity of consequences/damage to critical facilities, property, and the environment.

The potential for fire or explosion associated with the Proposed Project Scenarios addressed in the EIR 582 were evaluated using a Gaussian-based model, the Automated Resource for Chemical Hazard Incident Evaluation ("ARCHIE"), which was jointly developed by the Federal Emergency Management Agency ("FEMA") in concert with the U.S. Department of Transportation ("USDOT") and the U.S. Environmental Protection Agency ("USEPA"). The ARCHIE computer program comprises a set of hazard assessment procedures and models that can be utilized to evaluate the off-site consequences of potential discharges or releases of hazardous materials and, thereby, assist in the development of a basis for emergency planning.

The primary purpose of ARCHIE is to provide emergency preparedness personnel with several integrated estimation methods that can be used to assess potential vapor dispersion, fire, and explosion impacts associated with discharges of hazardous materials into the environment. This method of analysis facilitates a better understanding of the nature and sequence of events that may follow an accident and the resulting consequences. For jet fuel, ARCHIE has been used to evaluate the following:

- The discharge rate and duration of a gas or liquid material released from a tank or pipeline;
- The size of liquid product pools that may form on the ground;
- The rate at which a liquid pool will evaporate or boil, and the duration of these phenomena until that point in time at which the pool is depleted;
- The size of the downwind hazard zone that may require evacuation or other public protective action due to the release of a hazardous gas or vapor;
- The thermal radiation hazards resulting from the ignition of a flammable or combustible pool of liquid;
- The size of the downwind area that may be subjected to flammable or explosive concentrations of gases or vapors in the air due to the release of a flammable or explosive gas or vapor—together with the maximum weight of potentially explosive gas or vapors in air that occurs during the incident; and

- The consequences of an unconfined vapor cloud explosion if the flammable gas or vapor in air should explode upon ignition.

The modeled risk analysis utilized FEMA-recommended equipment failure rates to evaluate the potential probabilities and consequences associated with hypothetical jet fuel transport/storage accidents of unspecified origin and associated releases. Hypothetical aircraft-induced accidents involving bulk jet fuel storage tanks on the JWA site were derived from and evaluated on the basis of the on-site fatal accident probabilities calculated in the *Airport System Master Plan for John Wayne Airport and Proposed Orange County International Airport.*

The calculated accident probabilities and severity for the three accident scenarios cited above—(1) fuel transport accidents, (2) bulk fuel storage facility accidents, and (3) aircraft-related bulk fuel storage facility accidents—with Project scenarios involving up to 181 Class A Average Daily Departures ("ADDs") and 13.9 Million Annual Passengers ("MAP") were all judged in EIR 582 not to result in reasonably foreseeable upset and accident conditions involving the release of jet fuel into the environment and thus creating no potential hazard to the public or the environment. Each of these accident scenarios are discussed in more detail below.

Fuel Transport Accidents

The probability for tanker truck transport accidents to result in a release of jet fuel while en route to the JWA site from a fuel supplier in El Segundo was deemed in EIR 582 to be in the High/Likely range for a ten percent cargo loss accident, and in the Medium/Reasonably Likely range for other truck transport accident scenarios. A potential accident consequence severity was developed with output from the ARCHIE program. The severity of jet fuel truck transport-related accidental releases/fires occurring under the Project Scenarios addressed in EIR 582 was deemed to be Moderate.

A High/Likely accident probability (ten percent cargo release) coupled with a Moderate level of severity accident normally would mandate comprehensive planning and preparedness according to the FEMA screening matrix. In this regard, however, there are certain inherent safeguards in place that would preclude or reduce the likelihood of occurrence or severity of jet fuel transport accidents, as discussed in EIR 582 and applicable to the current JWA operations.

First, transportation of hazardous materials 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"]) level. The carrier responsible for the transportation of the hazardous material is required to have a Hazardous Materials Transportation License, which is issued by the California Highway Patrol ("CHP").

Second, since fuel deliveries are from suppliers within California, these intrastate carriers are also subject to CHP's Biennial Inspection of Terminals ("BIT") program. These carriers must receive a satisfactory BIT inspection rating at each terminal from which the hazardous material-transporting vehicles are operated, and the CHP cannot issue a Hazardous Materials Transportation License ("HMTL") unless and until this occurs. Carriers are also required to implement preventive maintenance requirements for their truck fleets. In addition, drivers must make daily inspections of the trucks and keep time records of their driving hours. These records and equipment are subject to inspections by the CHP. Further, the carrier must enroll each driver in the Department of Motor Vehicles ("DMV") pool notice program, which informs the carrier of

driving violations of any of its drivers, either on or off the job, including previous traffic violations.

Third, the County of Orange has established guidelines consistent with State and federal 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 are handled in full compliance with applicable requirements, and the necessary permits are maintained by the Airport.

Bulk Fuel Storage Facility Accidents

To address potential accidents at bulk storage facilities of this type, FEMA recommends an approach that addresses a single release scenario based on historic equipment failure rates. For the Proposed Project Scenarios addressed in EIR 582, the estimated failure rate for single and double walled petroleum storage tanks is 1.0×10^{-4} per tank-year. The analysis determined the total probability for all project-related bulk jet fuel storage tank accidents to result in a release of jet fuel at the JWA to lie in the Low/Very Unlikely range.

For the accident severity, it was determined in EIR 582 that the vulnerable zone would extend somewhat beyond the northwestern boundary of the JWA site; however, no potentially sensitive receptors have been identified within this area. Localized evacuation of members of the public in the immediate off-site vicinity of such an accident could be initiated as a safety precaution. In addition to the JWA on-site ARFF, emergency response could require additional assistance from other off-site County resources. On this basis, the severity of non-aviation-related accidental releases/fires occurring at the JWA site under the Proposed Project Scenarios was determined in EIR 582 to be Moderate.

Given a Low/Very Unlikely accident probability and a Moderate severity accident, comprehensive emergency planning would be unwarranted and unnecessary for all project scenarios addressed in EIR 582. On this basis, the evaluation determined that there would not be a reasonably foreseeable upset or accident condition involving the release of jet fuel into the environment, thus creating a potential hazard to the public or the environment through the routine use and storage of jet fuel. As a result, the use and storage of jet fuel at the JWA site was deemed not to result in a significant adverse impact to public health and safety under risk of upset conditions.

Aircraft-Related Bulk Fuel Storage Facility Accidents

The potential for aircraft accidents involving the bulk jet fuel storage facility was assessed in EIR 582 by evaluating the probabilities for aircraft accidents to occur at JWA. The JWA bulk fuel storage facility is located within an approximate 2-acre area in the northern portion of the JWA site approximately 320 feet from the centerline of Runway 1L/19R. This location, which is consistent with FAA design standards, was determined in EIR 582 to reduce the probability of an incident to Extremely Low/Very Unlikely. For the alternatives evaluated in EIR 582, probability of an accident for Alternative D (181 Class A ADDs) was estimated to occur less than once in approximately 1.69×10^{8} years. In the event of an occurrence, the severity of aviation-related accidental releases/fires occurring at the JWA site was deemed to range from Major to Catastrophic.

Given an accident scenario with an Extremely Low/Very Unlikely probability of occurrence and a Major to Catastrophic severity, comprehensive emergency planning would be considered unnecessary or optional. EIR 582 determined that it would be unlikely for increased aviation activities to result in reasonably foreseeable upset and accident conditions involving the release of jet fuel into the environment, thus creating a potential hazard to the public or the environment through the routine use and storage of jet fuel. As a result, the use and storage of jet fuel at the JWA site was deemed in EIR 582 not to result in a significant adverse impact to public health and safety under risk of upset conditions.

THRESHOLDS EVALUATION

Threshold 4.4-1 **Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?**

Threshold 4.4-2 **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

The Proposed Project would result in an increase in fueling activities to support the increased passenger levels, which could ultimately reach 12.5 MAP. The commercial passenger aircraft would be served by JWA's commercial fuel farm.

Access to the fuel farm, for purposes of Jet-A fuel deliveries, would not be modified as a result of the Proposed Project. Rather, consistent with current practice, the fuel trucks would continue to take I-405 southbound to the Bristol Street exit and then turn south onto Paularino Avenue.[4] The trucks would then proceed through the JWA security gate (where Paularino Avenue ends) and turn left onto Perimeter Road.

The increased fueling activity would increase the statistical likelihood of a spill (i.e., upset and accident conditions). However, because the current Best Management Practices (BMPs) for handling of the fuel would continue to apply, there is not a reasonably foreseeable significant hazard to the public or environment.

No new bulk jet fuel storage facilities would be constructed at JWA as part of the Proposed Project. Though the existing facilities could accommodate the Proposed Project's annual MAP level, when assessing transport of the fuel, the demand for the Average Day Peak Month ("ADPM") is assessed. Since the Proposed Project does not contemplate any change to procedures for transporting jet fuel to JWA via tanker trucks, the fuel required to serve the increased operational levels would be provided by increasing the number of daily truck deliveries of fuel.

[4] Over the past few years due to the reconstruction of the I-405/I-605 interchange, which resulted in frequent night time shut downs for construction, drivers have been using SR-91 to either I-5 or directly to SR-55 and used the Baker Street exit from SR-55 and turn south onto Paularino Avenue. The trucks would then proceed through the JWA security gate.

Table 4.4-1 presents the required fuel capacity; the amount of unused fuel at the end of each day; and the number of additional daytime truck deliveries that are needed to support the passenger activity level of each scenario. As shown in Table 4.4-1, Phase 1 of the Proposed Project would result in an increased demand of approximately 39,000 gallons of fuel daily compared to existing conditions. In Phase 2, the demand would increase by an additional 23,000 gallons per day (or 62,000 more gallons per day than the existing ADPM). Phase 3 would require a total of 280,000 gallons of fuel per day, which is 77,000 gallons more than the existing usage on an ADPM. When compared to existing conditions, the increased demand would result in an additional four tanker truckers per day for Phase 1, six additional fuel tanker deliveries for Phase 2, and eight additional fuel tanker deliveries for Phase 3.

In addition to requiring more fuel, on the ADPM, Phases 2 and 3 would require modifications to the current operations. Currently, one tank of fuel is used as the supply for commercial aircraft refueling. The second tank is used to store fuel that is settling and will be ready for aircraft refueling the following day. The third tank is a "flex" tank. When the demand increases beyond the capacity of the single tank, the third tank would need to be used for storage to meet the peak demand.

Due to settling requirements and the capacity limitations of the existing tanks, it would not be possible to just have the additional trucks deliver during the night time hours. The maximum capability of the existing system is for 32 truck deliveries during the night time hours (between 11:30 PM and 5:30 AM), though currently on average only 28 trucks per day are delivered. As a result, four additional truck loads can be delivered during the night time hours but during the peak month when the demand is greatest, the remaining fuel deliveries would need to start earlier in the evening (i.e., before 11:30 PM). This would be a minor modification to the operations. Fuel delivery would still be required to adhere to all state and federal regulations, as well as the utilization of Best Management Practices, when handling hazardous materials.

Though the handling of hazardous materials is forecast to increase proportionately with the growth of enplaned passengers, Best Management Practices regarding handling and transporting hazardous materials would be utilized to ensure environmental safety.

The increased fueling activity would nominally increase the statistical likelihood of a spill. Minor fuel spills that occurred during these fueling activities would be contained and cleaned following existing procedures discussed above in Section 4.4.2. As discussed above, the risks associated with the fuel delivery and storage practices were previously evaluated and determined not to pose a significant impact. Based on the previous analysis and the limited number of additional trucks, impacts associated with the Proposed Project would be less than significant.

TABLE 4.4-1
AVERAGE DAY PEAK MONTH
FUEL CAPACITY AND TRUCKING REQUIREMENTS

Item	Existing 2013	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Phase 1						
MAP Level	9.17	10.8	10.8	10.8	16.9	10.8
ADPM Passengers[a]	27,451	32,742	32,742	32,742	51,258	32,742
Required Gallons of Fuel for Daily Working Capacity	203,000	242,000	242,000	242,000	379,000	242,000
Existing Daily Working Fuel Capacity (in gallons) [b]	254,000	254,000	254,000	254,000	254,000	254,000
Remaining Fuel Capacity at Days' End	51,000	12,000	12,000	12,000	**(125,000)**	12,000
Total Additional Truck Deliveries	0	4	4	4	20	4
Additional Truck Deliveries Outside of Current Delivery Hours (11:30 PM to 5:30 AM)[c]	0	0	0	0	16	0
Phase 2						
MAP Level	9.17	11.8	11.4	13.0	16.9	10.8
ADPM Passengers[a]	27,451	35,774	34,581	39,419	51,258	32,742
Required Gallons of Fuel for Daily Working Capacity	203,000	265,000	256,000	292,000	379,000	242,000
Existing Daily Working Fuel Capacity (in gallons) [b]	254,000	254,000	254,000	254,000	254,000	254,000
Remaining Fuel Capacity at Days' End	51,000	**(11,000)**	**(2,000)**	**(38,000)**	**(125,000)**	12,000
Total Additional Truck Deliveries		6	5	9	20	4
Additional Truck Deliveries Outside of Current Delivery Hours (11:30 PM to 5:30 AM)[c]	0	2	1	5	16	0
Phase 3						
MAP Level	9.17	12.5	12.8	15.0	16.9	10.8
ADPM Passengers[a]	27,451	37,903	38,806	45,484	51,258	32,742
Required Gallons of Fuel for Daily Working Capacity	203,000	280,000	287,000	337,000	379,000	242,000
Existing Daily Working Fuel Capacity (in gallons) [b]	254,000	254,000	254,000	254,000	254,000	254,000
Remaining Fuel Capacity at Days' End	51,000	**(26,000)**	**(33,000)**	**(83,000)**	**(125,000)**	12,000
Total Additional Truck Deliveries		8	9	15	20	4

TABLE 4.4-1
AVERAGE DAY PEAK MONTH
FUEL CAPACITY AND TRUCKING REQUIREMENTS

Item	Existing 2013	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Additional Truck Deliveries Outside of Current Delivery Hours (11:30 PM to 5:30 AM)[c]	0	4	5	11	16	0

MAP: million annual passengers; ADPM: Average Day Peak Month.

Boldface text denotes a capacity exceedance.

[a] The ADPM passengers levels are from the *Aviation Forecasts Technical Report* (Table 3.5) and are also provided in Section 3 of this EIR in Table 3-2.

[b] Assumes completion of the ongoing tank modifications.

[c] The maximum number of truck deliveries within the existing, night time delivery hours is 32 truck deliveries.

Source: *Aviation Forecasts Technical Report,* (Table 3-5), AECOM 2014a; *Capacity Analysis Technical Report*, (Table 4-1), AECOM 2014b.

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 retaining area that surrounds the ASTs, and does not represent a public or environmental health risk. The adopted safety programs currently in operation are able to reduce the potential health risks because the fuel spills are contained and cleaned up and do not enter the Airport drainage system.

Based on review of historical operations that reflect the Airport's stringent fuel safety protocols and associated low incidence of jet fuel releases, the continuation of these protocols in compliance with applicable regulations and permits, and the modeled analysis of potential impacts associated with increased flights as provided for in EIR 582, there is substantial evidence that the increase in ADDs under the Proposed Project would not create a significant hazard to the public or the environment related to increased fueling activity. 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.*

Alternative A

As shown in Table 4.4-1, Phase 1 of Alternative A would result in an increased demand of approximately 39,000 gallons of fuel daily compared to existing conditions. In Phase 2, the demand would increase by an additional 14,000 gallons per day (or 53,000 more gallons per day than the existing ADPM). Phase 3 would require a total of 287,000 gallons of fuel per day, which is 84,000 gallons more than the existing usage on an ADPM. When compared to existing conditions, the increased demand would result in an additional four tanker truckers per day for Phase 1, five additional fuel tanker deliveries for Phase 2, and nine additional fuel tanker deliveries for Phase 3.

As with the Proposed Project, on the ADPM, Phases 2 and 3 would require modifications to the current operations. Fuel deliveries would need to start earlier in the evening (i.e., before 11:30 PM). Fuel delivery would still be required to adhere to all state and federal regulations, as well as the utilization of Best Management Practices, when handling hazardous materials. Though the handling of hazardous waste is forecast to increase proportionately with the growth of enplaned passengers, Best Management Practices regarding handling and transporting hazardous materials would be utilized to ensure environmental safety.

As discussed for the Proposed Project, based on review of historical operations that reflect the Airport's stringent fuel safety protocols, the continuation of these protocols in compliance with applicable regulations and permits, and the modeled analysis of potential impacts associated with increased flights as provided for in EIR 582, there is substantial evidence that the increase in ADDs under Alternative A would not create a significant hazard to the public or the environment related to increased fueling activity. Alternative A would result in a less than significant impact and no mitigation is required.

Impact Conclusion: *Alternative A 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.*

Alternative B

As shown in Table 4.4-1, Phase 1 of Alternative B would result in an increased demand of approximately 39,000 gallons of fuel daily compared to existing conditions. In Phase 2, the demand would increase by an additional 50,000 gallons per day (or 89,000 more gallons per day than the existing ADPM). Phase 3 would require a total of 337,000 gallons of fuel per day, which is 134,000 gallons more than the existing usage on an ADPM. When compared to existing conditions, the increased demand would result in an additional 4 tanker truckers per day for Phase 1, 9 additional fuel tanker deliveries for Phase 2, and 14 additional fuel tanker deliveries for Phase 3.

As with the Proposed Project, on the ADPM, Phases 2 and 3 would require modifications to the current operations. Fuel deliveries would need to start earlier than current practices; given the number of additional tanker truckers that would be required, it is anticipated that fueling would need to commence during daytime hours (i.e., afternoon hours). Fuel delivery would still be required to adhere to all state and federal regulations and utilization of Best Management Practice; however, daytime fuel delivery operations can present several logistical challenges at the Airport, at the refinery, and transportation between the two. The existing fuel farm has physical limitations, with a maximum of four fuel trucks offloading to the fuel farm at any one time. There is also limited space adjacent to the facility for tankers to queue. Though this would not result in a safety risk, with Alternative B, there would need to be established refueling schedules during the day in order to avoid conflict with other refinery customers and delivery schedules.

As discussed for the Proposed Project, based on review of historical operations that reflect the Airport's stringent fuel safety protocols, the continuation of these protocols in compliance with applicable regulations and permits, and the modeled analysis of potential impacts associated

with increased flights as provided for in EIR 582, there is substantial evidence that the increase in ADDs under Alternative B would not create a significant hazard to the public or the environment related to increased fueling activity. Alternative B would result in a less than significant impact and no mitigation is required.

Impact Conclusion: *Alternative B 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.*

Alternative C

As shown in Table 4.4-1, Alternative C (all phases) would result in an increased demand of approximately 176,000 gallons of fuel daily compared to existing conditions on an ADPM. When compared to existing conditions, the increased demand would result in an additional 20 tanker truckers per day. Given the number of additional tanker truckers and the limitations of the existing facilities, it is anticipated that near continuous fuel delivery throughout the day would be required. The continuous fuel delivery would present several logistical challenges at the Airport. However, fuel delivery would still be required to adhere to all state and federal regulations and utilization of BMPs and no safety risks are anticipated. As with Alternative B, there would need to be an established refueling schedules during the day in order to avoid conflict at the Airport and with other refinery customers.

The risk of upset analysis evaluated in EIR 582 considered a maximum of 181 ADDs, which is 47 fewer than the maximum of 228 ADDs under this alternative. However, the analysis showed a limited increase in risk with increasing ADDs for the scenarios/alternatives assessed in EIR 582. As such, it can be concluded that the hazards associated with up to 228 ADDs would remain less than significant. Although there would be a statistically higher risk of release than with a lower number of ADDs, this analysis is focused on fuel spills of a severity that constitute an acute or catastrophic public health and/or environmental hazard, which has never occurred at JWA.

As discussed for the Proposed Project, based on review of historical operations that reflect the Airport's stringent fuel safety protocols, the continuation of these protocols in compliance with applicable regulations and permits, and the modeled analysis of potential impacts associated with increased flights as provided for in EIR 582, there is substantial evidence that the increase in ADDs under Alternative C would not create a significant hazard to the public or the environment related to increased fueling activity. Alternative C would result in a less than significant impact and no mitigation is required.

Impact Conclusion: *Alternative C 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.*

No Project Alternative

As shown in Table 4.4-1, the No Project Alternative (all phases) would result in an increased demand of approximately 39,000 gallons of fuel daily compared to existing conditions. When

compared to existing conditions, the increased demand would result in an additional four tanker truckers per day. This can be accommodated within the existing operational parameters (deliveries during night time hours).

JWA would continue to manage jet fuel transport, storage, and handling in full compliance with applicable requirements, and JWA would maintain all necessary permits such that there is no impact related to hazardous materials. No mitigation is required.

While there would be no direct impact related to hazardous materials associated with the No Project Alternative, this alternative has the potential (subject to additional discretionary action by the County and preparation of CEQA documentation) to indirectly result in increased ADDs because the Settlement Agreement would no longer be binding. The Board of Supervisors could decide to approve a new Master Plan, which would allow Airport operations to increase. However, as discussed for the Proposed Project and the other alternatives, if Airport operations are expanded in the absence of the Settlement Agreement, it is anticipated that continued management of jet fuel transport, storage, and handling would be in full compliance with applicable requirements and maintenance of all necessary permits. Therefore, an increase in Airport operations under the No Project Alternative would not create a significant hazard to the public or the environment. The No Project Alternative would result in a less than significant impact and no mitigation is required.

Impact Conclusion: *The No Project Alternative 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 4.4-3 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?

Proposed Project and All Alternatives

At its closest point, Mariner's Christian School, located at Red Hill Avenue and Fisher Avenue, is approximately ¼-mile west of the Airport and 0.6 miles from the commercial fuel storage tanks. As discussed above, for the Proposed Project and Alternatives A and B, implementation of Phase 3 on the ADPM would represent a worst-case fuel demand and all phases of Alternative C would have the same demand. The maximum capability of the existing system is for 32 truck deliveries during the night time hours (between 11:30 PM and 5:30 AM). This would fill one of the three fuel storage tanks in the commercial fuel farm. To serve the additional fuel requirements, increased daily truck deliveries would be needed to support the increased operational levels. The fuel demand for each alternative is provided in Table 4.4-1. The total number of fuel truck deliveries for the ADPM would be:

- Proposed Project—A total of 36 trucks (4 trucks beyond the capacity for night time delivery);
- Alternative A—A total of 37 trucks (5 trucks beyond the capacity for night time delivery);
- Alternative B—A total of 43 trucks (11 trucks beyond the capacity for night time delivery);

- Alternative C—A total of 48 trucks (16 trucks beyond the capacity for night time delivery); and
- No Project Alternative—A total of 32 trucks (all within the capacity for night time delivery.

For operational purposes, the fuel deliveries that exceed the night time capacity (32 trucks) would need to be delivered when the first fuel storage tank has been emptied. As previously indicated, during the peak month when the demand is greatest, additional truck deliveries would need to started in the evening hours for the Proposed Project and Alternative A (i.e., before 11:30 PM), late afternoon for Alternative B, and near continuous for Alternative C (AECOM 2014b). For the Proposed Project, Alternative A, and the No Project Alternative, fuel would continue to be delivered outside of extended school hours (assumed to generally be from 7:00 AM to 6:00 PM, including after-school activities).

To access the fuel farm, the fuel trucks either exit I-405 at Bristol Street or SR-55 at the Baker Street exit and turn south onto Paularino Avenue. The trucks then proceed through the JWA security gate (where Paularino Avenue ends) and turn left onto Perimeter Road. The trucks then pass the ARFF station and enter the tank farm by making a right turn into the fuel unloading bays. Once the fuel is unloaded, the trucks circle around the fuel tanks and return the same way they arrived via Perimeter Road and Paularino Avenue. As a result, the closest the fuel trucks would come to the Mariner's Christian School facilities is 0.27 miles (as measured from the northern edge of the school property to Paularino Avenue). Therefore, the distance exceeds the ¼ mile identified in the threshold of significance. Therefore, the Proposed Project and the alternatives would result in a less than significant impact related to handling of hazardous materials within one-quarter mile of a school, and no mitigation is required.

Impact Conclusion: *The Proposed Project and all alternatives would have a less than significant impact related to handling of hazardous materials within one-quarter mile of a school. The quantitative risk modeling of increased fueling operations determined this activity would not create a significant hazard to the public, which includes schools and other sensitive receptors, or the environment.*

Threshold 4.4-4 Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment?

Proposed Project and All Alternatives

In Orange County, there are 16 sites on the Hazardous Waste and Substance Site List on the Cortese List (DTSC 2014). The closest site is the Costa Mesa Air National Guard facility in Costa Mesa, which is approximately one mile southwest of the Airport. The Project does not involve any construction activity and would not expose the public to hazardous materials associated with the sites on the Cortese List.

Impact Conclusion: *The Airport site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Therefore, neither the Proposed Project nor any of the alternatives would create a significant*

hazard to the public or the environment attributable to undertaking activity on such a listed site. There would be no impact.

Threshold 4.4-5 Would the project be located within an airport land use plan or, where such plan has not been adopted, within two miles of a public airport or public use airport, resulting in a safety hazard for people residing or working in the project area?

Proposed Project and All Alternatives

The assessment to determine if the Project or the alternatives would result in a safety hazard for the people residing or working in the area considers if the Project would necessitate modification to the provisions of the AELUP that have been developed to safeguard the general welfare of the inhabitants of the surrounding areas. The AELUP identifies the runway protection zones/accident potential zones, and Height Restriction Zone and associated navigable airspace, which have been established to minimize intrusion into navigable airspace. Protection of the airspace is important to ensure that people and facilities are not concentrated in areas susceptible to aircraft accidents and that no urban features are introduced that would interfere with Airport operations. Neither the Proposed Project nor any of the alternatives would conflict with the provisions of the AELUP. No modifications are proposed to on-site or surrounding land uses as part of the Proposed Project or any of the alternatives; therefore, the Project would not introduce obstructions or other urban encroachment that would affect operations at the Airport with the resulting safety hazard for the people residing or working in the area.

Though the number of flights and passengers served would increase compared to existing conditions, the Proposed Project and all the alternatives assume the operational characteristics of the Airport would remain unchanged. As discussed in Section 3, Project Description, the analysis assumes the continuation of the same fleet mix and take-off/landing patterns. Since the operational characteristics would not change, there would not be a change to the safety compatibility issues addressed in the AELUP. Neither the Proposed Project nor the alternatives would necessitate an amendment to the runway protection zones/accident potential zones, or the Height Restriction Zone and associated navigable airspace. The Project would not directly or indirectly result in any modifications to off-site uses that would result in conflicts with provisions of the AELUP.

Impact Conclusion: *While the Airport site is located within an existing airport land use plan, neither the Proposed Project nor any of the alternatives would result in safety hazards for people residing or working in the project area. Impacts would be less than significant.*

4.4.6 MITIGATION PROGRAM

Compliance with applicable federal, State, and local requirements and the fueling safety programs 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 alternatives. Therefore, no additional hazardous materials mitigation measures have been identified.

4.4.7 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 alternatives. A summary of the level of significance for each threshold is provided in Table 4.4-2.

TABLE 4.4-2
SUMMARY OF HAZARDS AND HAZARDOUS MATERIALS IMPACTS

Threshold	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Thresholds 4.4-1 and 4.4-2	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact
Threshold 4.4-3	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact
Threshold 4.4-4	No impact	No impact	No impact	No impact	No impact
Threshold 4.4-5	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact

4.4.8 REFERENCES

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4.5 LAND USE AND PLANNING

This section describes the existing and land uses both on-site and surrounding the 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.

The Project does not propose any construction or change to the nature of the Airport operations. Therefore, the Project 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).

4.5.1 REGULATORY SETTING

One aspect of land use planning considered under the California Environmental Quality Act ("CEQA") is the consistency of the Proposed Project with relevant planning documents. Relevant planning documents associated with this Project include the *County of Orange General Plan*, the *City of Newport Beach General Plan,* the *City of Irvine General Plan,* the *City of Costa Mesa General Plan,* the *City of Tustin General Plan,* the *City of Santa Ana General Plan*, the *Airport Environs Land Use Plan for John Wayne Airport*, and the Southern California Association of Governments ("SCAG") *2012–2035 Regional Transportation Plan/Sustainable Communities Strategy* ("RTP/SCS"). Based on comments on the NOP, the *City of Laguna Beach General Plan* was reviewed. Though the Noise Element identifies aircraft overflights from JWA as one of the noise sources impacting the City, there are no goals, policies or actions related to aircraft noise presented in the Noise Element.

REGIONAL

Southern California Association of Governments

SCAG is the Metropolitan Planning Organization ("MPO") for six counties: Orange, Los Angeles, San Bernardino, Riverside, Ventura, and Imperial. The region's population exceeds 19 million persons in an area that encompasses more than 38,000 square miles (SCAG 2014). 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 for consistency with regional plans;
- Serving as the authorized areawide waste treatment management planning agency pursuant to federal water pollution control statutes; and
- 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 Project is the RTP/SCS (adopted on April 4, 2012; Amendment No. 1 adopted on June 6, 2013). 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.

2012–2035 Regional Transportation Plan/Sustainable Communities Strategy

The RTP 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. On April 4, 2012, the SCAG Regional Council adopted the 2012–2035 RTP/SCS. Amendment No. 1 was approved by SCAG's Transportation Committee on June 6, 2013. The 2012–2035 RTP/SCS includes goals and policies applicable to transportation projects. Section 4.5.5 evaluates the Project's consistency with applicable goals and policies in the 2012–2035 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 2011 to reflect adopted General Plan amendments to the Safety and Housing elements. 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 Project's consistency with applicable *County of Orange General Plan* goals and policies is provided in Section 4.5.5. Brief descriptions of applicable General Plan elements are provided below.[1]

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 only 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 project area. The Orange County Local Agency Formation Commission ("LAFCO") Unincorporated Islands Vicinity Map (2012) shows three islands located immediately south of the Airport. However, one of the

[1] The General Plan Elements for the County of Orange and cities of Newport Beach, Irvine, Costa Mesa, Tustin, and Santa Ana were reviewed to goals and policies that pertain to JWA, either directly or indirectly. The goals and policies were considered to be applicable if through implementation the Project 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.

islands, Emerson Island, was incorporated into the City of Newport Beach, effective March 19, 2013 (Emery 2013). Emerson Island is bound by Tustin Avenue, Glouchester Drive, and Emerson Street. (Refer to the Land Use Element discussion under the *City of Newport Beach General Plan.*) The remaining two islands are discussed below.

The Santa Ana Avenue/Colleen Street Island has a land use designation of 1B (Suburban Residential) and remains unincorporated. The island is located to the northeast of the intersection of Santa Ana Boulevard and 22nd Street. The City of Costa Mesa is exploring annexation of this island; however, no formal application has been submitted (Emery 2013).

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 there has been no movement towards annexation (Emery 2013).

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 Project area are discussed in Section 4.8, Transportation/Traffic, of this EIR.

Resources Element

The Resources Element sets forth a comprehensive strategy for the development, management, preservation, and conservation of resources that are necessary to meet Orange County's existing and future demands. This strategy is expressed as an integrated framework of resource goals, policies, and programs. Upper Newport Back Bay is recognized as an important ecosystem in the county.

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 County. A noise study has been conducted for the Project and is discussed in Section 4.6, Noise, of this 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.

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.

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 Project's consistency with applicable goals and policies in the *City of Newport Beach General Plan* is provided in Section 4.5.5. 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 in the City as well as its Sphere of Influence. The southern and southeastern boundaries of John Wayne Airport ("JWA") are adjacent to the City of Newport Beach jurisdictional boundary.

In May 2013, the Newport Beach City Council initiated an amendment to the Land Use Element which, if approved by the City Council and voters, would shape future development within the City by altering land uses in certain areas of the City, including, potentially, Newport Center/Fashion Island and the Airport Area near JWA. The proposed amendment, which has not been considered by the City Council, sets forth potential changes to land use designation and/or development capacities in these subareas. The proposed amendment also proposes revisions to the Land Use Element goals and policies as they relate to land use changes and, as appropriate, updates/refines said policies. A Draft Supplemental Environmental Impact Report (SEIR) for the amendment was released for 45-day public review and comment period, which concluded on April 30, 2014. Public hearings on the amendment are tentatively scheduled for July 2014. If approved by the City Council, the amendment will be placed on the November 2014 ballot for voter approval pursuant to Section 423 of the Charter of the City of Newport Beach.

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 Project area are discussed in Section 4.8, Transportation/Traffic, of this 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 Environmental 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 near 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 2008–2014 Housing Element is an update and revision of the 2006 Housing Element and consists of new technical data and updated policies and programs. In the 2006 General Plan update process, several key areas in the City were identified as for future housing opportunities, including the Airport Area near JWA, Newport Center, Banning Ranch, and the Balboa Peninsula area. The proposed City of Newport Beach General Plan Land Use Element Amendment, identified above and discussed in greater detail in Section 5, Cumulative Impacts, would allow for additional mixed use (MU-H2 designated parcels) in the Airport Area, allowing for additional residential development.

City of Irvine General Plan

The *City of Irvine General Plan* is current as of City Council Resolution 12-60, adopted May 8, 2012 (Supplement 8, July 2012). 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 Project's consistency with applicable goals and policies in the *City of Irvine General Plan* is provided in Section 4.5.5. 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. There are four different types of systems that compose Irvine's circulation system: air, road, public transit, and transit. The northern and northeastern boundaries of JWA are adjacent to City of Irvine jurisdiction roadways (Michelson Drive, Campus Drive, and Main Street).

City of Costa Mesa General Plan

The *City of Costa Mesa 2000 General Plan* was adopted in January 2002 and is current as of City Council Resolution 02-08 adopted on January 22, 2002. The *City of Costa Mesa 2000 General Plan* contains the following ten elements: Land Use; Circulation; Growth Management; Housing; Conservation; Noise; Safety; Community Design; Open Space and Recreation; and Historic and Cultural Resources. A discussion of the Project's consistency with applicable goals and policies in the *City of Costa Mesa 2000 General Plan* is provided in Section 4.5.5. Brief descriptions of the applicable General Plan elements are provided below.

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. The Noise Element includes an exhibit that depicts the noise contours associated with JWA, which has been used for planning consistency within the City of Costa Mesa. The Noise Element indicates the exhibit is from the *Orange County Airport Land Use Commission's 1999 Airport Environs Land Use Plan*, which utilized the noise contours from the 1985 JWA Master Plan. This exhibit identified a small portion of Costa Mesa located within the 65 A-weighted decibel ("dBA") Community Noise Equivalent Level ("CNEL") contour for JWA. At the time the Noise Element was adopted, a portion of the area south of the Airport was also in the City's Sphere of Influence ("SOI"). However, this area of Santa Ana Heights ultimately was annexed into the City of Newport Beach.

City of Tustin General Plan

The *City of Tustin General Plan* is current as of City Council Resolution 12-83, adopted October 2, 2012. The Noise Element was last amended with City Council Resolution 08-43, adopted June 17, 2008. The *City of Tustin General Plan* contains the following seven elements: Land Use, Housing, Circulation, Conservation/Open Space/Recreation, Public Safety, Noise, and Growth Management. A discussion of the Project's consistency with applicable goals and policies in the *City of Tustin General Plan* is provided in Section 4.5.5. A brief description of the applicable General Plan element is provided below.

Noise Element

The Noise Element of a General Plan is a comprehensive approach for including noise control in the planning process. It is a tool for achieving and maintaining environmental noise levels compatible with land use. The Noise Element identifies noise-sensitive land uses and noise sources, and defines areas of noise impact. The Noise Element establishes goals, policies, and programs to ensure that Tustin residents will be protected from excessive noise.

City of Santa Ana General Plan

The *City of Santa Ana General Plan* contains the following 16 elements: Airport Environs; Circulation; Conservation; Economic Development; Education; Energy; Growth Management; Housing; Land Use; Noise; Open Space, Parks and Recreation; Public Facilities; Public Safety; Scenic Corridors; Seismic Safety; and Urban Design. Each element has a different adoption date with the Airport Environs Element adopted on February 11, 2009. A discussion of the Project's consistency with applicable goals and policies in the *City of Santa Ana General Plan* is provided in Section 4.5.5. A brief description of the applicable General Plan element is provided below.

Airport Environs Element

The Airport Environs Element of the *City of Santa Ana General Plan* serves as a long-range policy guide ensuring that development in the City does not endanger the general public from safety or noise hazards associated with aircraft in the vicinity of JWA. Additionally, the Airport Environs Element provides guidance for the purpose of ensuring navigable airspace is not impacted by future development in the City.

City of Newport Beach Coastal Land Use Plan

The certified Coastal Land Use Plan ("CLUP") for the City of Newport Beach establishes goals, objectives, and policies that govern the use of land and water in the Coastal Zone within the City of Newport Beach. The Project site is not located within the Coastal Zone; however, land uses and sensitive habitat areas located south of JWA are located within the Coastal Zone. Any applicable CLUP land use and resources protection policies are also contained in the General Plan Land Use Element and Natural Resources Element. Therefore, further consistency analysis is not required.

John Wayne Airport 1985 Master Plan

In April 1985, the County, acting as the proprietor and operator of JWA, adopted the Master Plan and Compatible Land Use Plan ("the 1985 Master Plan") for further development of physical facilities at the Airport and an increase in previously imposed limits on certain aircraft operations. The Compatible Land Use Plan set forth zoning controls and other mechanisms to make the land uses south of the Airport compatible with the 65 CNEL contour for the Master Plan Project. Environmental Impact Report ("EIR") 508 was certified to address the impacts associated with the Master Plan.

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." For review purposes, applicable land use guidelines, policies, and regulations are related to the 60 and 65 decibel ("dB") CNEL contours established for JWA activities based on Federal Aviation Administration ("FAA") criteria. Noise-sensitive land uses, defined in terms of use type and intensity, are specifically discouraged, or not permitted within the 65 CNEL contour.

The implementation of the AELUP will forestall urban encroachment on the Airport and will allow for its continued operation. 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 they have areas of their jurisdiction within the 60 CNEL contour or Federal Aviation Regulation ("FAR") Part 77 notice area for JWA. 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 notifies 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 be accompanied by specific findings pursuant to Section 21670 of the *California Public Utilities Code.*

4.5.2 METHODOLOGY

This section describes the land use conditions for the Project site (and the immediate vicinity) and discusses potential land use impacts that could result from implementing the Proposed Project. Pursuant to Section 15125(a) of the State CEQA Guidelines, the discussion of the Project site is based on the conditions of the site when the NOP was published in September 2013.

ON-SITE LAND USE EVALUATION

The threshold from the County's *Environmental Analysis Checklist,* as well as the State CEQA Guidelines Appendix G Checklist, is focused on planning and policy consistency. The County General Plan does not have specific criteria for capacity considerations of the Airport facilities. Given that the Project does not propose any changes to the type of use on site or physical improvements to the Airport facilities, the evaluation will assess the potential for exceeding capacity of the existing facilities based on historical usage of the Airport and industry standards. The assessment considers airfield (runway) capacity and the capacity of other airport facilities such as terminal gates, remain overnight ("RON") apron, Federal Inspection Services ("FIS") facilities used for the processing of international passengers, commercial fuel storage capacity, general aviation facilities, and parking.

- **Airfield (Runway) Capacity.** Hourly runway capacity has been estimated using a methodology contained in FAA Advisory Circular 150/5060-5, Airport Capacity and Delay. The estimates of hourly runway capacity were then compared to the hourly projections of aircraft operations for each operational scenario contemplated by the Proposed Project and four alternatives to determine whether runway capacity issues can be expected.
- **Remain Overnight Capacity.** The Airport can accommodate a total of 37 aircraft remaining overnight under current usage patterns. Parking on the north RON apron can be configured to accommodate additional air carrier aircraft, at the expense of displacing commuter aircraft at Gate 1C. In this configuration, a total of 38 aircraft can remain parked overnight as follows: 20 at gates with passenger loading bridges, 5 at the commuter ground loading gates, 10 on the south RON, and 3 on the north RON. This would not require physical improvements, just changes to the operations to ensure that commuter aircraft are out of Gates 1A, 1B and/or 1C before the RON aircraft is parked.

  For the purpose of this analysis, it is assumed that the departures in the first hour of operation represent the demand for RON space because the aircraft would need to be available at the Airport to accommodate the first flights of the day.[2] For the Proposed Project and the alternatives (with the exception of Phases 2 and 3 of Alternative C), the flights in the 7:00 AM and 8:00 AM hours represent the required number of aircraft stored overnight. The exception to this is Alternative C, Phases 2 and 3, in which the curfew is removed. For Phases 2 and 3 of Alternative C, it is assumed that departures in the 6:00 AM and 7:00 AM hours represent the demand for the total number of aircraft stored overnight.
- **Gate Capacity.** The capacity of the existing gates was assessed by reviewing existing ramp charts that depict the use of the passenger terminal gates throughout the day. The gates were also evaluated in terms of their utilization, which is measured by the number

[2] Note that this is total flights in the first hour, which includes Class A and Class E operations.

of annual enplanements per gate and the number of departures per gate. Based on review of this data, it was possible to identify whether potential gate issues might result under any of the operational scenarios contemplated by the Proposed Project and four alternatives.

The analysis assumes a similar mix of airlines as presently operating at the Airport today. This is a key assumption as gate utilizations vary widely by airline and could have a dramatic impact on an Airport's capacity. The present mix of airlines serving JWA represents a balance between airlines with very efficient ground operations and those with longer aircraft servicing times per flight. Thus, the present mix of airline operations represents a suitable average for gate capacity analysis.

- **Terminal Capacity for International Passengers.** Airports serving international airline operations require dedicated space for the inspection of passengers, crew, and baggage by federal inspectors (i.e., U.S. immigrations, customs, agriculture, and public health officers). In the airport industry, these services and facilities are commonly referred to as "federal inspection services." A review of the existing JWA FIS facilities was performed to identify whether the projected number of international passengers for any of the operational scenarios contemplated by the Proposed Project and four alternatives exceeded the existing capacity.
- **Commercial Fuel Storage Capacity.** The existing fuel system's ability to serve the projected flight levels was evaluated based on demand for the Average Day Peak Month ("ADPM"). As discussed below under Existing Conditions, the daily working capacity of the fuel system is assumed to be 254,000 gallons a day and a projection based on fuel dispensed per passenger was used to determine demand. The fuel per passenger ratio represents a 5-year average of 7.4 gallons per passenger.[3]
- **General Aviation.** The analysis evaluated if there would be the displacement of any general aviation facilities or a need to modify general aviation operations at the Airport.
- **Airport Parking.** The analysis assumed that, with the projected increases in passenger travel, parking demand would likely increase proportionally. The evaluation used a 90 percent threshold to indicate when parking facilities are at capacity. This threshold is the "effective" capacity of a parking facility and reflects conditions such as when a person may park improperly thereby limiting access to adjacent spaces or drivers circulating around to find spaces.

The analysis of the on-site facilities is based on data provided in the *Capacity Analysis Technical Report* provided in Appendix F and the *Parking Adequacy for JWA With Increased MAP and Flights*, provided in Appendix F of the *Transportation Impact Analysis*, provided in Appendix G of this EIR.

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 Project does not

[3] As discussed in the *Aviation Forecasts Technical Report*, a projection based on fuel dispensed per passenger is considered appropriate for planning purposes since this approach results in a more conservative estimate (i.e., higher forecast) and could be less affected by the relative amount of commuter operations (AECOM 2014a).

propose any construction that would result in land use incompatibility associated with physical improvements. Therefore, this analysis focuses on land use incompatibility associated with increased noise levels from aircraft.

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 4.5-1.

TABLE 4.5-1
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, 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

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.

TABLE 4.5-1
COUNTY OF ORANGE COMPATIBILITY MATRIX FOR LAND USE AND COMMUNITY NOISE EQUIVALENT LEVELS

Type of Use	65+ decibels CNEL	60 to 65 decibels CNEL

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: *Noise Analysis Technical Report,* Tables 3 and 4, Landrum & Brown 2014.

Existing noise-sensitive land uses newly located within the 65 CNEL contour as a result of the Proposed Project are identified as incompatible land uses because there are no feasible measures that would reduce the outdoor noise levels to less than 65 CNEL. 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.

It should be noted that 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"), [4] then – even if the existing land use is within the 65 CNEL – no land use impact would occur. Additionally, there are a number of noise-sensitive land uses (e.g., schools and places of worship) that 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, there would not be a noise impact.

[4] To avoid confusion between the residential attenuation program adopted as part of the 1985 Master Plan and the program recommended as part of this EIR, the 1985 program has been identified as the Santa Ana Heights Acoustical Insulation Program ("AIP"), whereas the program identified in conjunction with this Project (Mitigation Measure LU-1) is identified as a Sound Insulation Program ("SIP").

The land use analysis is based on review of aerial photographs; 2010 U.S. Census data; review of relevant planning documents referenced in this section; and field reconnaissance. The field reconnaissance was used to verify the surrounding sensitive land uses (e.g., residences, schools, places of worship, hospitals, and daycare facilities) that are located within the 60 CNEL contour of Alternative C, the alternative with the largest noise contour.

For a determination that a noise-sensitive land use is incompatible, it must be in the 65 CNEL contour or greater. Information on development in the 60 to 65 CNEL contour has been provided because the County of Orange uses the 60 NEL contour as a threshold in order to screen projects and ensure that the 65 CNEL exterior and 45 CNEL interior criteria are met. In other words, projects located within the 60 CNEL contour are required to submit detailed acoustical studies ensuring compliance with the County noise standards. The outdoor to indoor noise reduction achieved by typical Southern California wood frame residences is 12 dBA with windows open and 20 dBA with windows closed.[5]

It should be noted that the EIR may determine there is a noise impact (see Section 4.6) when no land use impact is identified because of the difference in the threshold being applied for the noise analysis. The City of Newport Beach noise thresholds address substantial increases in noise for areas outside of the 65 CNEL contour.

To be eligible for sound insulation funded by the Airport or FAA, the FAA Program Guidance Letter 12-09, indicates the windows-closed interior noise level of a structure must be 45 dB or greater. The measurement of interior noise levels is an average of all habitable spaces in a particular residential unit, or educational spaces in a school. (FAA 2012). However, the County's noise standards specifically require that the noise level in any habitable room or educational space must be less than 45 CNEL. This is implied in the City of Newport Beach's noise standards, as well. Under CEQA, the lead agency's noise standard is used to determine impacts. Therefore, a noise sensitive use is considered significantly impact if the noise level in any habitable room or educational space exceeds 45 CNEL. However, when assessing the feasibility of mitigation, the availability of funding must be considered. If FAA precludes the Airport from using Airport funds for implementation of sound insulation, then there may be cases where a habitable room at a noise sensitive use experiences noise levels in excess of 45 CNEL but on average is less than 45 CNEL. In these cases, mitigation (i.e., sound insulation) would not be feasible because there would be no funding source to pay for it.

POLICY CONSISTENCY EVALUATION

As part of the land use analysis, the State CEQA Guidelines require the EIR to evaluate potential "conflicts with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project." For this Project, the agencies with jurisdiction over the Project would be the County of Orange and the City of Newport Beach. These are the agencies that must approve the Settlement Agreement Amendment. The plans and policies of these agencies have been used as the basis of making a determination of a significant impact. However, for informational purposes,

[5] Detailed outdoor and indoor noise measurements were made in these neighborhoods as part of the earlier sound insulation program (see *Noise Analysis Technical Report*, Appendix C). 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.

information from other jurisdictions adjacent to the Airport and SCAG have been included in the analysis.

4.5.3 EXISTING CONDITIONS

LAND USES

On-Site Land Uses

Existing facilities within the JWA property include airside facilities, passenger terminal facilities, support facilities, general aviation facilities, and Airport access and auto parking facilities. The location of these uses is depicted on Exhibit 2-1, Existing On-Site Uses. The following are the existing conditions for the key land uses on the Airport.

Airside Facilities

The term "airside," as used in this EIR, relates principally to the airfield facilities and includes the runway and taxiway system; the runway approach areas; RON parking apron; and associated equipment (e.g., airfield lighting and navigational aids). As discussed in Section 2.4, Environmental Setting, the airfield includes 2 runways: a 5,701-foot main runway and a 2,887-foot general aviation runway. The existing taxiway system is comprised of three parallel and a number of exit taxiways, which facilitate the movement of aircraft while on the ground at JWA.

There are ten RON spaces on the south RON apron and three in the north RON area. This is in addition to the aircraft that can be parked at each of the 20 gates with passenger loading bridges. However, while the south RON spaces are independent of commuter terminal parking, the north RON area is shared with the north commuter terminal. If 3 commuter aircraft are parked at the commuter terminal, then only 1 narrow-body RON space is available for a total of 11 spaces. Combined, in its current configuration, a total of 37 aircraft can remain overnight (20 at gates with passenger loading bridges, 6 at the commuter ground loading gates, 10 on the south RON apron, and 1 on the north RON apron).[6] Observations in October 2013 indicated that a total of 26 aircraft remained overnight: 20 at gates with passenger loading bridges and 3 each on both the north and south RON aprons. During the peak month, one additional aircraft is parked on the south apron. Therefore, presently the RON spaces are underutilized.

Passenger Terminal Facilities

The terminal building is located at the north end of the airfield, parallel to and east of the runways. The JWA terminal building, officially named the Thomas F. Riley Terminal Building, was opened to the public on September 16, 1990, and consisted of Terminals A and B. In November 2011, Terminal C was completed. Federal Inspection Services ("FIS") facilities are located in the lower (arrivals) level of Terminal C. The FIS facilities comprise approximately 28,400 square feet.

[6] As discussed in Section 4.5.2, parking on the north RON apron can be configured to accommodate additional air carrier aircraft, at the expense of displacing commuter aircraft at Gate 1C. In this configuration, a total of 38 aircraft can remain parked overnight as follows: 20 at gates with passenger loading bridges, 5 at the commuter ground loading gates, 10 on the south RON, and 3 on the north RON. This more efficient configuration is used for analysis of future conditions.

The terminal building functions as 1 contiguous building encompassing 730,505 square feet and providing 20 passenger loading bridges. The terminal includes security screening checkpoints, federal inspection services for international flights, a baggage claim area, and ticket counters along with a variety of concessions, retail space for rental car companies, and other ground-transportation options. Commuter holdroom areas are located at the northern and southern ends of the concourses. Access to the commuter aircraft (Gates 1A, 1B, and 1C and Gates 22A, 22B, and 22C) occurs across the tarmac and not via a passenger loading bridge.

The Airport is presently served by three airlines that provide international service: Interjet, Airtran Airways, and Westjet. Interjet and Airtran serve Mexico destinations and Westjet serves Canada destinations. Presently, passengers arriving from Vancouver, Canada are prescreened in Vancouver. Thus, Canadian arrivals do not use the FIS facilities at JWA. In order to be conservative in this assessment, it is assumed that future Canadian arrivals will be screened at JWA. International departures do not utilize the FIS facilities; rather, passengers are screened at the gate during the boarding process.

Based on the current operations, there is only 1 international arrival per hour and, therefore, the maximum number of international arriving passengers is 150 (represented by an arriving Interjet Airbus A320).

Fuel Facilities

The existing commercial fuel farm ("SNAFuel") is located on approximately two acres on the west side of the airfield at the northern end, within the security fencing of the airfield. The fuel farm includes three 300,000-gallon, aboveground storage tanks ("ASTs") for the storage of jet fuel. These tanks were constructed as part of the 1985 Master Plan improvements. The fuel tanks have approximately 750,000 gallons of storage capacity because, in all fuel systems, there is a portion of the fuel that is unusable and referred to as "dead fuel". This is fuel that is at the bottom of tanks and not able to be pumped out through normal system operation, along with fuel that resides in pipes, pumps, and filters.

The full capacity of the fuel tanks is not currently being utilized due to the location of some of the existing vents. JWA has plans to modify the lower vents, thereby creating more space for fuel in the tanks. These minor modifications will be completed by 2016 and will increase fuel storage capacity in the existing tanks to 254,000 gallons per tank, for a total capacity of approximately 762,000 gallons.

During any given day, only one tank of fuel is available for commercial aircraft refueling. The second tank is used to store fuel that is settling and will be ready for aircraft refueling the following day. The third tank is a "flex" tank, used to transfer fuel and hold fuel that does not pass quality inspection.[7] The third tank also provides additional storage during periods of peak demand. Without the use of the third tank, the total daily working capacity of the present fuel system is 187,000 gallons (existing) to 254,000 gallons (with tank modifications).

[7] In all fuel systems, there is a portion of the fuel that is unusable and referred to as "dead fuel." This is fuel that is at the bottom of tanks and not able to be pumped out through normal system operation, along with fuel that resides in pipes, pumps, and filters. The dead fuel represents a static and unchanging amount and, therefore, is not included in the analysis.

Fuel is delivered to the Airport on a nightly basis in 8,000-gallon tanker trucks from nearby refineries. JWA has 4 truck unloading positions, which can unload trucks simultaneously to the fuel farm facility.[8] The maximum capability of the existing system is for 32 truck deliveries during the night time hours (between 11:30 PM and 5:30 AM). In 2013, an average of 28 trucks of fuel were delivered to the Airport on a nightly basis on the ADPM.

General Aviation Facilities

JWA is the home base for approximately 419 private general aviation aircraft. JWA's general aviation aircraft run the gamut from vintage biplanes and helicopters to sleek corporate jets. The general aviation facilities include fixed based operators ("FBOs"), tie-downs, and hangars. The FBOs provide fuel, supplies, aircraft maintenance, flying lessons, and other services. There are also currently 406 county tie-down spaces for general aviation at JWA. Additional hangar space is provided by the County and several of the FBOs. 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 FBOs.

Airport Parking Facilities

Passenger terminal parking on the Airport is provided in 4 multi-level parking structures located adjacent to and immediately north and south of the passenger terminal building. Combined, the parking structures provide a total of 6,597 parking spaces. There are an additional 1,959 parking spaces in the long-term parking lot, which can be accessed via Main Street or from the direct connector ramp to State Route ("SR") 55. Out of the 8,556 total spaces, 8,356 of these are designated as "revenue-generating" spaces and are priced through various mechanisms. Within the parking structures, the hourly cost is $2 per hour with a maximum of $20 per day. The Main Street lot costs $2 per hour as well with a maximum of $14 a day. The parking garages and the Main Street lot have a 15-minute grace period. Valet service is provided, which costs $10 an hour with a maximum of $30 per day.

Anecdotal evidence suggests that parking rates at JWA are comparable to other regional airports, such as the Ontario Airport and Long Beach. JWA daily parking rates are less than what is charged at Los Angeles International Airport ("LAX") (Fehr & Peers 2014, Appendix G).

Peak parking demand at JWA currently occurs in August. Data collected in August 2013 yielded a daily peak parking demand of 5,681 spaces based on observed entries and exits at parking facilities. When compared against the existing Million Annual Passengers ("MAP") of 9.17, this observed parking demand yields 619 parking spaces per 1 MAP. With this parking demand, there are approximately 2,675 parking spaces available for passenger use.

Parking Structure C was an improvement addressed in Final Supplemental EIR 582, certified in October 2004. The first phase of Parking Structure C was completed with the new Terminal C in November 2011. Design plans for Phase 2 of Parking Structure C ("C2"), which would add 1,381 parking spaces, have been completed and construction will initiated when the demand warrants.

Surrounding Land Uses

A majority of the area surrounding the Airport is within the cities of Newport Beach, Costa Mesa, Santa Ana, and Irvine. The formerly unincorporated area of Santa Ana Heights was fully annexed

[8] Once the fuel is at the Airport, it is stored in large, aboveground tanks, comprising a fuel farm. The fuel farm also contains a variety of pumps and filters to clean the fuel; transfer fuel from one tank to another; and dispense the fuel.

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 remaining unincorporated areas in the vicinity of the Airport are identified above under the Land Use Element discussion of the *County of Orange General Plan.*

The Airport is located in an urbanized area; therefore, the majority of land surrounding JWA is already 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) 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, is located in the City of Newport Beach. (Refer to Section 4.2, Biological Resources, for additional discussion of this resource.)

Sensitive Land Uses

The *Noise Analysis Technical Report* prepared for this EIR provides a baseline of land uses within JWA's existing noise contours. The following provides a description of the amount of area and the sensitive receptors in the 2013 baseline contours:

- **70 CNEL contour:** 379 acres/0.59 square mile, including 1 place of worship (the Orange Coast Free Methodist Church), but no other noise-sensitive land uses.
- **65 to 70 CNEL contour:** 561 acres/0.88 square mile, including 96 residences (of which 49 are sound insulated) and 2 places of worship (Islamic Educational Center of Orange County and Berean Community Church), but no other noise-sensitive land uses.
- **60 to 65 CNEL contour:** 1,313 acres/2.05 square miles, including 932 residences (of which 348 are sound insulated), 5 places of worship, and 4 schools, as listed below:

  Places of Worship

  - Central Baptist Church of Orange County
  - California Victory Church
  - Disciple Church
  - St. Mark Orthodox Church of Irvine

- Grace Fellowship Church

Schools/Educational Facilities

- Children's Village
- Peter and Mary Muth Interpretative Center
- Tutor Time Child Care/Learning Center
- Newport Montessori

It should be noted, that some of these uses are housed in buildings adjacent to the Airport, which have been designed to provide sufficient noise attenuation to reduce the interior noise levels to acceptable levels.

As result of the 1985 Master Plan EIR and the Land Use Compatibility Plan ("LUCP"), the County implemented an Acoustical Insulation Program ("AIP")[9] for the residences in Santa Ana Heights projected to be within the 65 CNEL contour and exposed to aircraft noise levels in excess of 65 CNEL. Of the 603 residences within the AIP area, 426 residences have been acoustically insulated and the owners have granted avigation easements for all but 9 of the insulated residences. Noise levels measured in five of the 603 residences were found to be below 45 CNEL and, therefore, not eligible for sound insulation. Avigation easements also were acquired for 16 residences that were not acoustically insulated. The owners of 18 residences declined the insulation offer and the owners of 64 residences did not respond to multiple attempts, including return-receipt mailings, to inform them of their eligibility for the program.

In addition to the AIP, the County adopted the Santa Ana Heights Specific Plan ("SAHSP"), which provided for the conversion of the residential area along Birch Street to Acacia Avenue to business park. Residences in this area are not eligible for insulation. Since the adoption of the SAHSP, the residential uses within the business park zone have been reduced from approximately 12.5 acres in 1990 to approximately 6 acres in 2013. There are 76 uninsulated residences in this area.

The AIP has resulted in 71 percent of the AIP area having sufficient outdoor-to indoor noise reduction to reduce interior noise levels to below 45 CNEL based on the 1985 Master Plan noise contours. The 65 CNEL noise contour under any phase of the Proposed Project, Alternative A, Alternative B and No Project Alternative is not projected to extend beyond the 1985 Master Plan 65 CNEL contour. Therefore, all of the residences with projected outdoor noise exposures of 65 CNEL or greater under these scenarios were included in the 1985 Master Plan AIP and were eligible for insulation (except for the non-conforming uses located in the Business Park zone).

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

[9] To avoid confusion between the residential attenuation program adopted as part of the 1985 Master Plan and the program recommended as part of this EIR, the 1985 program has been identified as the Santa Ana Heights Acoustical Insulation Program ("AIP"), whereas the program identified in conjunction with this Project (Mitigation Measure LU-1) is identified as a Sound Insulation Program ("SIP").

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.).

The land uses deemed compatible by Title 21 include agricultural; airport property; industrial property; commercial property; properties subject to an aviation easement for noise; and zoned open space. In addition, high-rise apartments with acoustical treatments that reduce interior noise levels to 45 dB during aircraft operations are also compatible. Existing residences that have been acoustically treated may be in an area affected by a CNEL that is 15 dB higher than would normally be allowed.

Zones which are incompatible with the requirements of Title 21 include not only residential zones, but also the County's A1 "General Agricultural" zone, which also allows for residential uses. As indicated above, the Cities of Newport Beach, Costa Mesa, Santa Ana, and Irvine surround the majority of the project site. 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); and
- Santa Ana zoning is C2 (General Commercial), M1 (Light Industrial), SD76 (Specific Development).

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 land use impact if it would:

Threshold 4.5-1 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 following significance threshold addresses consistency with applicable habitat conservation plans: "Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?" In this EIR, that threshold is addressed Section 4.2, Biological Resources.

4.5.5 IMPACT ANALYSIS

THRESHOLD EVALUATION

Threshold 4.5-1 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?

The analysis for this threshold is broken down into three areas: (1) capacity of on-site facilities to serve the projected demand; (2) compatibility with surrounding land uses; and (3) consistency with applicable planning documents.

Proposed Project

Capacity of On-Site Facilities

Airfield Capacity

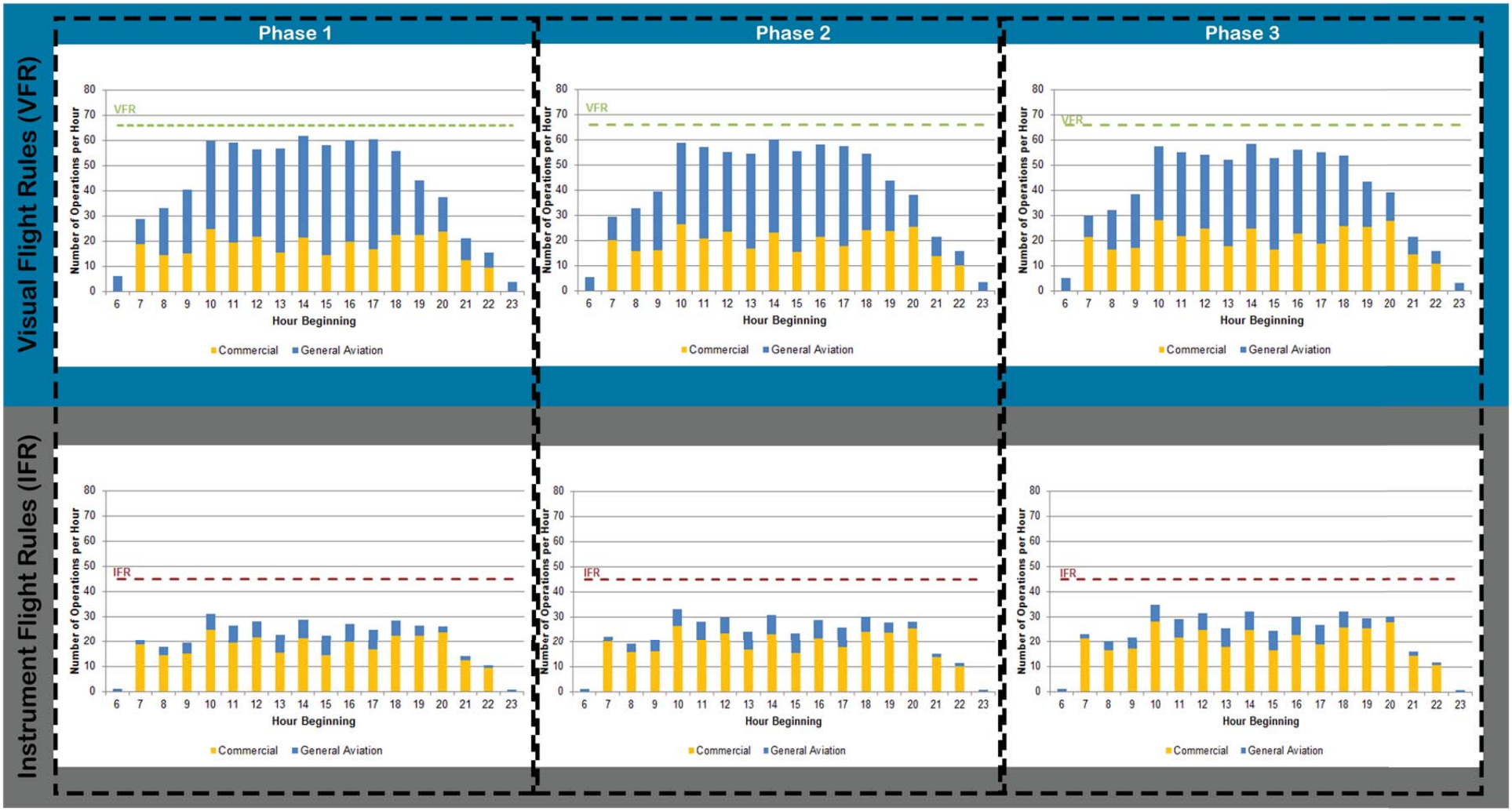
There are four major assumptions and inputs applied in the runway capacity analysis. These are:

- The runway configuration (layout).
- Weather conditions (Visual Flight Rule ["VFR"] or Instrument Flight Rule ["IFR"]).
- The aircraft mix index.
- Percentage of touch-and-go operations.[10]

For the purpose of the runway capacity evaluation, an average condition, where the number of arrivals equals the number departures, has been assumed. For JWA, this assumes an hourly capacity of 66 operations for VFR conditions or 45 operations for IFR conditions.

Exhibit 4.5-1 presents a comparison of hourly demand (aircraft operations) and runway capacity for the Proposed Project during VFR and IFR conditions. As seen, the runway capacity is sufficient and capable of accommodating the Proposed Project in each of the three phases. Therefore, there would be no impact associated with airfield capacity with the Proposed Project.

[10] Touch-and-go operations are when an aircraft lands and immediately takes off again. This is often done by general aviation pilots as part of training/proficiency. The number of these operations usually decreases as the number of air carrier operations increase, as demand approaches runway capacity, or as weather conditions deteriorate. For 2013, touch-and-go operations at JWA accounted for approximately 27 percent of total operations.



Source: *Aviation Forecasts Technical Report*, AECOM 2014a

Hourly Demand Versus Capacity for the Proposed Project

Exhibit 4.5-1

John Wayne Airport Settlement Agreement Amendment

JOHN WAYNE AIRPORT ORANGE COUNTY

(03/06/14 MMD) R:\Projects\JWA\J003\Graphics\EIR\Ex_HourlyDemand_Proposed.pdf

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Remain Overnight Capacity

As discussed above, the evaluation assumes that the north RON spaces are maximized for air carrier aircraft and a total of 38 RON spaces are available at the Airport. During the morning peak, gates with passenger loading bridges are "reloaded" with aircraft from the RON. This refers to moving an aircraft parked on the RON to an open gate with a passenger loading bridge. The RON aircraft is towed by an aircraft tug from the RON parking position to an open gate with a passenger loading bridge (in other words, the aircraft is not under its own power, i.e., using its engines, for this operation).

RON requirements are assumed to be equal to the number of departures scheduled during the first hour of operation in the morning (7:00 AM to 8:00 AM for the Proposed Project). The "flight schedules" for the Proposed Project and the alternatives are based on a 5-year average; which captures the latest trend at the Airport (See the *Aviation Forecast Technical Report*, Appendix B, Tables 5-1 through 5-13).

Table 4.5-2 presents the available RON capacity and requirements for the Proposed Project (as well as the other three alternatives and the No Project Alternative). The RON requirements for the Proposed Project (Phase 3) are similar to existing conditions and would not place an undue burden on gates with passenger loading bridges or reloading of the same gates from the RON. For all phases of the Proposed Project, the demand would not exceed the RON capacity.

TABLE 4.5-2
REMAIN OVERNIGHT AIRCRAFT PARKING REQUIREMENTS

Type of RON Space	Existing (2013)	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Phase 1						
Commuter						
Available	5	5	5	5	5	5
Required	0	0	0	0	0	0
Shortage	0	0	0	0	0	0
Air Carrier						
Available	33	33	33	33	33	33
Required	27	23	24	23	48	23
Shortage	0	0	0	0	**(15)**	0
Phase 2						
Commuter						
Available	5	5	5	5	5	5
Required	0	0	0	0	0	0
Shortage	0	0	0	0	0	0
Air Carrier						
Available	33	33	33	33	33	33
Required	27	24	26	27	37	23
Shortage	0	0	0	0	**(4)**	0

TABLE 4.5-2
REMAIN OVERNIGHT AIRCRAFT PARKING REQUIREMENTS

Type of RON Space	Existing (2013)	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Phase 3						
Commuter						
Available	5	5	5	5	5	5
Required	0	0	0	0	0	0
Shortage	0	0	0	0	0	0
Air Carrier						
Available	33	33	33	33	33	33
Required	27	26	30	31	37	23
Shortage	0	0	0	0	**(4)**	0

RON: remaining overnight
Boldface text denotes a shortage of RON spaces.
Source: *Capacity Analysis Technical Report,* Table 2-3, AECOM 2014b.

Gate Capacity

There presently are 20 air carrier gates with passenger loading bridges and 6 commuter gates where ground loading occurs. The Proposed Project removes the passenger loading bridge limit effective January 1, 2021; however, the Proposed Project does not contemplate a change in the number of passenger loading bridges or the number of commuter gates. Therefore, the analysis is based the current gate configuration.

As indicated above, several methodologies were used for analyzing gate capacity. The first involved a graphic review of current ramp charts (schedules) at JWA during a week of the peak month (August) in 2013. From this analysis, it was determined that commuter flights at JWA are on the ground for an average of 45 minutes; domestic air carrier flights (utilizing 18 gates) are on the ground for an average of 60 minutes; and international air carrier flights (utilizing 2 gates) are on the ground for an average of 90 minutes. Using this approach and comparing the ramp chart with future schedules projected in the *Aviation Forecasts Technical Report* (AECOM 2014a), it is possible to identify whether potential gate shortages would occur.

Table 4.5-3 presents the gate capacity analysis for the Proposed Project (as well as the other three Alternatives and the No Project Alternative). Based on this analysis, there would be no impacts associated with gate capacity for any of the phases of the Proposed Project.

TABLE 4.5-3
GATE SCHEDULE ANALYSIS RESULTS FOR JOHN WAYNE AIRPORT

Type of Service	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
Commuter (Ground Loading)	Sufficient gates available.	Sufficient gates available.	Sufficient gates available.	No commuter operations.	Sufficient gates available.
Air Carrier (Passenger Loading Bridge)	Sufficient gates available.	Sufficient gates available.	Gate shortages in Phase 3; operations in the 11:00 AM and 8:00 PM hours exceed gate availability by 2 and 7 gates, respectively.	Gate shortages in Phase 1 in the 10:00 AM through noon; 2:00 PM; and 6:00 PM through 8:00 PM hours. Gate availability is exceeded by as few as 2 gates (6:00 PM) and as many as 11 gates (11:00 AM). Gate shortages occur in Phases 2 and 3 from 10:00 AM through noon and 2:00 PM. Gate availability is exceeded by as few as 2 gates (6:00 PM) and as many as 11 gates (11:00 AM).	Sufficient gates available.

Source: *Capacity Analysis Technical Report,* Table 3-1, AECOM 2014b.

In addition to a schedule-based analysis, a review of "turns per gate" was conducted to determine the number of turns (or departures per day) per gate. Prior to the opening of Terminal C, the Airport consistently experienced a high number of turns per gate. (This information is provided in Appendix B.) The peak number of daily departures per gate (turns) coincides with the peak year experienced in 2007, at 9.1 turns per gate with a passenger loading bridge (AECOM 2014b). For the purpose of this analysis, the 2007 level of activity is used as the maximum number of turns per gate with a passenger loading bridge.

As seen in Table 4.5-4, the Proposed Project does not exceed the historical peak of 9.1 turns per gate with a passenger loading bridge and, based on this measure of gate capacity, that the number of gates with passenger loading bridges is adequate for the Proposed Project.

TABLE 4.5-4
PROJECTED TURNS PER GATE JOHN WAYNE AIRPORT

	Existing (2013)	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
Phase 1						
Air Carrier Operations	86,000	95,000	92,000	93,000	164,000	95,000
Departures	43,000	47,500	46,000	46,500	82,000	47,500
Gates with passenger loading bridges	20	20	20	20	20	20
Daily Departures/Gate	5.9	6.5	6.3	6.4	**11.2**	6.5
Phase 2						
Air Carrier Operations	86,000	104,000	96,000	114,000	164,000	95,000
Departures	43,000	52,000	48,000	57,000	82,000	47,500
Gates with passenger loading bridges	20	20	20	20	20	20
Daily Departures/Gate	5.9	7.1	6.6	7.8	**11.2**	6.5
Phase 3						
Air Carrier Operations	86,000	111,000	109,000	134,000	164,000	95,000
Departures	43,000	55,500	54,500	67,000	82,000	47,500
Gates with passenger loading bridges	20	20	20	20	20	20
Daily Departures/Gate	5.9	7.6	7.5	**9.2**	**11.2**	6.5

Boldface text denotes an exceedance of gates capacity.

Source: *Capacity Analysis Technical Report,* Table 3-2, AECOM 2014b.

The third method of defining gate capacity utilized in this analysis is measuring throughputs of passengers at gates, specifically the number of enplanements per gate. Enplanement throughputs can be affected by a number of variables, such as airlines, ticketing methods, and terminal configuration. Since 2003, JWA has averaged 294,514 enplanements per gate with a passenger loading bridge, with a peak reached in 2007 when 356,418 enplanements per gate a with passenger loading bridge were processed. Since Terminal C was completed, the number of enplanements per gate with a passenger loading bridge has decreased to an average of 248,664 enplanements per gate with a loading bridge. The reason for the decrease in throughputs is a result of additional gates (six passenger loading bridges) being added as part of the completed Terminal C project.

For the purpose of this analysis, it is assumed that when enplanements per gate reach 90 percent of the historical peak throughput per gate with passenger loading bridge (or approximately 306,000), terminal levels of service are impacted. As shown in Table 4.5-5, the gate throughputs are not exceeded in any phase of the Proposed Project. This substantiates the findings from the other methodologies used for evaluating gate capacity, that there would be no impacts on gate capacity associated with the Proposed Project.

TABLE 4.5-5
JOHN WAYNE AIRPORT PROJECTED ENPLANEMENTS PER GATE WITH A PASSENGER LOADING BRIDGE

	Existing (2013)	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
Phase 1						
Passengers[a]	9,168,000	10,300,000	10,300,000	10,300,000	16,900,000	10,300,000
Enplanements	4,584,000	5,150,000	5,150,000	5,150,000	8,450,000	5,150,000
Gates*	20	20	20	20	20[b]	20
Enplanements/ Gate*	229,200	257,500	257,500	257,500	**422,500**	257,500
Phase 2						
Passengers[a]	9,168,000	11,300,000	10,900,000	12,500,000	16,900,000	10,300,000
Enplanements	4,584,000	5,650,000	5,450,000	6,250,000	8,450,000	5,150,000
Gates*	20	20	20	20	20[b]	20
Enplanements/ Gate*	229,200	282,500	272,500	**312,500**	**422,500**	257,500
Phase 3						
Passengers[a]	9,168,000	12,000,000	12,300,000	14,500,000	16,900,000	10,300,000
Enplanements	4,584,000	6,000,000	6,150,000	7,250,000	8,450,000	5,150,000
Gates*	20	20	20	20	20[b]	20
Enplanements/ Gate*	229,200	300,000	**307,500**	**362,500**	**422,500**	257,500

Boldface text denotes an exceedance of gate capacity.

* Reflects the number of gates with passenger loading bridges.

[a] Passenger numbers of the Proposed Project, Alternative A, Alternative B, and the No Project Alternative are reduced by 500,000 as that quantity is reserved for commuter passengers, who are not loaded via bridge. Forecasts for Alternative C do not include commuter passengers.

[b] There is no limit to the number of loading bridges for Alternative C; however, additional loading bridges are not proposed under this alternative.

Source: *Capacity Analysis Technical Report,* Table 3-5, AECOM 2014b.

Terminal Capacity for International Passengers

As previously indicated, currently there is only 1 international arrival per hour and, therefore, the maximum number of international arriving passengers is 150 (represented by an arriving Interjet Airbus A320). Comparing current operations to the design capacity of 300 passengers per hour, there is adequate capacity provided by FIS facilities. Although two international arrivals in an hour can be accommodated, it would be very crowded and levels of service could drop if arrivals are simultaneous. Facilities appear adequate to accommodate 2 arriving flights in an hour if the flights are not simultaneous; for example, 1 flight arriving near the top of an hour with the other arriving 30 minutes (or more) later in the hour. Critical points of the process that would be stressed by simultaneous arrivals would be the primary processing area and baggage claim. Also, operations of international aircraft with greater seating capacity than those presently operating at JWA will create additional demand on FIS facilities. This is not necessarily problematic if an arrival of a larger aircraft is the only international operation in an hour.

There are currently two terminal gates that accommodate international operations (Gates 13 and 14), both of which have passenger loading bridges. In the processing of international arriving passengers, it is important that passengers be kept separate from other, domestic passengers, until the international arrivals clear U.S. immigration and customs officers. In order to achieve this separation of international passengers, Gates 13 and 14 are connected to a sterile corridor, leading passengers directly downstairs to the FIS facilities. Progression from the gate to and through FIS is fairly straight forward and a short distance. Due to the configuration of the terminal and location of FIS facilities (the sterile corridor), it would be very difficult to connect additional gates with passenger loading bridges directly to the FIS facilities.

It is estimated that approximately 16 daily international flights could be accommodated using the present FIS facilities. This assumes that flights are on the ground 1.5 hours for passenger deplaning, aircraft servicing, and passenger enplaning and allows approximately 1 hour in between arriving international flights. Table 4.5-6 summarizes the projected average daily international flights (arrivals) for the Proposed Project and each of the alternatives. With the Proposed Project, there would be no terminal capacity impacts associated with international flights.

TABLE 4.5-6
PROJECTED INTERNATIONAL DAILY FLIGHTS
JOHN WAYNE AIRPORT

	Existing (2013)	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
Phase 1						
International Operations	4,900	6,100	6,100	6,100	9,500	6,100
International Departures	2,450	3,050	3,050	3,050	4,750	3,050
Daily Departures	6.7	8.4	8.4	8.4	13.0	8.4
Phase 2						
International Operations	4,900	8,600	8,300	9,400	12,300	6,100
International Departures	2,450	4,300	4,150	4,700	6,150	3,050
Daily Departures	6.7	11.8	11.4	12.9	**16.8**	8.4
Phase 3						
International Operations	4,900	10,100	10,300	12,100	13,600	6,100
International Departures	2,450	5,050	5,150	6,050	6,800	3,050
Daily Departures	6.7	13.8	14.1	**16.6**	**18.6**	8.4

Boldface text denotes a capacity exceedance at the FIS facilities.
Source: *Capacity Analysis Technical Report,* Table 5-3, AECOM 2014b.

Fuel Storage Capacity

As previously indicated in Section 4.4, Hazards and Hazardous Material, on an annualized basis, assuming the completion of the current tank modifications, the daily working capacity of the fuel system can accommodate 12.5 annual MAP. However, to ensure the analysis evaluates the maximum environmental impact scenario, the calculations have been done based on the number of gallons required to support ADPM operations. Table 4.5-7 presents the required fuel capacity; the amount of unused fuel at the end of each day; and the number of additional truck deliveries that are needed to support the passenger activity level of each scenario during the ADPM.

As shown in Table 4.5-7, the additional fuel tanker delivers required for Phase 1 can be accommodated with no modifications to the existing fuel farm facilities or modification of operation. Compared to existing conditions, for Phase 2 there would be the need for 6 additional fuel tanker truck deliveries for the ADPM; 2 would be outside the current hours when fuel is delivered (for a total of 34 trucks). In Phase 3 there would be the need for 8 additional fuel tanker truck deliveries for the ADPM, with 4 outside the current hours when fuel is delivered (for a total of 36 trucks) for the ADPM.

TABLE 4.5-7
AVERAGE DAY PEAK MONTH FUEL CAPACITY AND TRUCKING REQUIREMENTS

Item	Existing 2013	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Phase 1						
MAP Level	9.17	10.8	10.8	10.8	16.9	10.8
ADPM Passengers[a]	27,451	32,742	32,742	32,742	51,258	32,742
Required Gallons of Fuel for Daily Working Capacity	203,000	242,000	242,000	242,000	379,000	242,000
Existing Daily Working Fuel Capacity (in gallons) [b]	254,000	254,000	254,000	254,000	254,000	254,000
Remaining Fuel Capacity at Days' End	51,000	12,000	12,000	12,000	**(125,000)**	12,000
Total Additional Truck Deliveries	0	4	4	4	20	4
Additional Truck Deliveries Outside of Current Delivery Hours (11:30 PM to 5:30 AM)	0	0	0	0	16	0
Phase 2						
MAP Level	9.17	11.8	11.4	13.0	16.9	10.8
ADPM Passengers[a]	27,451	35,774	34,581	39,419	51,258	32,742
Required Gallons of Fuel for Daily Working Capacity	203,000	265,000	256,000	292,000	379,000	242,000
Existing Daily Working Fuel Capacity (in gallons) [b]	254,000	254,000	254,000	254,000	254,000	254,000
Remaining Fuel Capacity at Days' End	51,000	**(11,000)**	**(2,000)**	**(38,000)**	**(125,000)**	12,000
Total Additional Truck Deliveries		6	5	9	20	4
Additional Truck Deliveries Outside of Current Delivery Hours (11:30 PM to 5:30 AM)	0	2	1	5	16	0

TABLE 4.5-7
AVERAGE DAY PEAK MONTH FUEL CAPACITY AND TRUCKING REQUIREMENTS

Item	Existing 2013	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Phase 3						
MAP Level	9.17	12.5	12.8	15.0	16.9	10.8
ADPM Passengers[a]	27,451	37,903	38,806	45,484	51,258	32,742
Required Gallons of Fuel for Daily Working Capacity	203,000	280,000	287,000	337,000	379,000	242,000
Existing Daily Working Fuel Capacity (in gallons) [b]	254,000	254,000	254,000	254,000	254,000	254,000
Remaining Fuel Capacity at Days' End	51,000	**(26,000)**	**(33,000)**	**(83,000)**	**(125,000)**	12,000
Total Additional Truck Deliveries		8	9	15	20	4
Additional Truck Deliveries Outside of Current Delivery Hours (11:30 PM to 5:30 AM)	0	4	5	11	16	0

MAP: million annual passengers; ADPM: Average Day Peak Month

Boldface text denotes a fueling capacity exceedance.

[a] The ADPM passengers levels are from the *Aviation Forecasts Technical Report,* Table 3-5, (AECOM 2014a) and are also provided in Section 3 of this EIR in Table 3-2.

[b] Assumes completion of the planned tank modifications.

Source: *Capacity Analysis Technical Report*, Table 4-1, AECOM 2014b.

The increased demand could be accommodated with the current facilities, but Phases 2 and 3 would require modifications to the current operations. As previously discussed in Section 4.4, Hazards and Hazardous Materials, due to fuel settling requirements and the capacity limitations of the existing tanks, it would not be possible to just extend the hours of delivery and have the additional trucks deliver during the night time hours. A maximum of 32 fuel trucks can deliver fuel during the night time hours. The fuel deliveries would need to arrive when the first tank has been emptied which, based on the limited amount of the shortfall-a maximum of 4 trucks for the Proposed Project, would be in the evening hours. As a result, during the peak month when the demand is greatest, fuel deliveries would need to start earlier in the evening (i.e., before 11:30 PM). Since there would not need to be an expansion of the facilities and the demand can be met with only a minor modification to the operations, this would not be considered a significant impact.

General Aviation Facilities

None of the phases of the Proposed Project would displace any general aviation facilities or have any impact on the operations of the FBOs.

Airport Parking Facilities

With the projected increases in passenger travel, parking demand would likely increase proportionally. Using the factor of 619 parking spaces per 1 MAP, the parking demand was generated for the future levels of passenger travel. As previously indicated, the "effective" capacity of the parking facility was used to assess whether sufficient parking would be available

based on the current parking configuration, as well as with the build out of Parking Structure C2. Parking Structure C2 was evaluated in the Final Supplemental EIR 582, certified in October 2004.

The anticipated parking demand is shown in Table 4.5-8 below. The analysis assumes:

- The existing parking facilities or the manner in which they are operated will not substantially change. For example, these estimates could change if JWA were to allocate additional parking for rental cars within the parking structures.
- The current travel patterns for JWA passengers will not change in the future. Passengers currently access the Airport through a variety of travel modes including driving themselves, shuttles, taxis, and via other shared ride measures.

As shown in Table 4.5-8, under the existing parking configuration, there would be sufficient parking capacity for the Proposed Project in Phases 1 and 2; however, Phase 3 would exceed the 90 percent effective capacity threshold. When the additional spaces in Parking Structure C2 are constructed, there would be adequate capacity for all phases of the Proposed Project. However, since the construction of Parking Structure C2 is not currently programmed for construction, the shortfall in parking would be considered a potentially significant impact, prior to mitigation.

TABLE 4.5-8
PROJECTED PARKING DEMAND BY MILLION ANNUAL PASSENGERS

MAP	Applicable Scenario	Parking Demand	Existing Parking Configuration		Existing Parking Plus 1,381 Additional Spaces	
			Parking Supply	Parking Occupancy %	Parking Supply	Parking Occupancy %
9.17	Existing	5,681	8,356	68	9,737	58
10.8	PP-1; Alt A-1; Alt B-1, NP	6,669	8,356	80	9,737	69
11.4	Alternative A, Phase 2	7,040	8,356	85	9,737	73
11.8	Proposed Project, Phase 2	7,287	8,356	87	9,737	75
12.5	Proposed Project, Phase 3	7,719	8,356	**93**	9,737	80
12.8	Alternative A, Phase 3	7,904	8,356	**95**	9,737	81
13	Alternative B, Phase 2	8,028	8,356	**96**	9,737	83
15	Alternative B, Phase 3	9,263	8,356	**111**	9,737	**95**
16.9	Alternative C, All Phases	10,436	8,356	**125**	9,737	**108**

MAP: million annual passengers; PP-1: Proposed Project, Phase 1; Alt A-1: Alternative A, Phase 1; Alt B-1: Alternative B, Phase 1; NP: No Project All Phases

Scenarios where parking demand exceeds 90 percent occupancy are noted in **boldface text.**

Source: *Transportation Impact Analysis Report*, Appendix F, Table 1, Fehr & Peers 2014.

Summary of Capacity of On-Site Facilities Evaluation

In summary, the Proposed Project would not require any unplanned physical improvements to terminal or airfield facilities. However, based on existing parking facilities, there would be insufficient automobile parking with Phase 3. Implementation of the planned Parking Structure C2 improvements would provide the needed capacity. Therefore, with implementation of the

mitigation measure requiring the timely construction of Parking Structure C2, any potential impacts on the on-site facilities would be reduced to a level of less than significant.

Compatibility with Surrounding Land Uses

As identified above, if the noise impacts are of sufficient magnitude, noise-sensitive uses would 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. Data also has been provided for the 60 to 65 CNEL contour for information purposes; however, standard construction methods generally provide sufficient outdoor to indoor noise reduction for noise-sensitive uses located within this contour. Typical Southern California wood frame residences provide a reduction 20 dBA with windows closed. Newer or upgraded residences may provide even greater attenuation. For purposes of this analysis, the typical structural attenuation is being assumed when determining a potential land use compatibility impact.

Table 4.5-9 provides a comparison of the sensitive land uses located within the CNEL contours for the existing year (2013) conditions; 1985 JWA Master Plan;[11] Proposed Project; Alternatives A through C; and the No Project Alternative (all the scenarios are provided in a single table to facilitate comparison).

Phase 1

As shown in Table 4.5-9, the Proposed Project, Phase 1 would increase both the total 65 to 70 CNEL contour areas and the greater than 70 CNEL contour by approximately 0.06 square mile (7 percent and 10 percent, respectively) compared to existing conditions. Outside the Airport boundaries, the 65 to 70 CNEL contour would increase by 0.07 square mile (10 percent) and the greater than 70 CNEL contour would increase by 0.04 mile (44 percent) when compared to existing conditions. Exhibit 4.5-2a provides a comparison of the existing 60, 65, 70, and 75 CNEL contours and the projected contours with the Proposed Project, Phase 1. Exhibits 4.5-2b through 4.5-2d provide larger scale exhibits with the noise-sensitive land uses depicted.

Though the physical area encompassed by the subject noise contours would increase, the assessment of land use impacts needs to consider whether there are sensitive receptors. No additional sensitive receptors would be within the greater than 70 CNEL contour when Phase 1 of the Proposed Project is compared to existing conditions. Increased noise levels would add 31 additional residences to the area within the 65 to 70 CNEL contour, of which 10 were insulated under the AIP and 21 were not. For the 21 additional residences that have not been insulated, 17 of them are located in the area zoned for business park and are non-conforming uses. No other sensitive receptors would be included in the area added to the 65 to 70 CNEL contour.

[11] The 1985 Master Plan data is provided for informational purposes because this data was used as the basis for the Settlement Agreement. The assessment of impact in this EIR provides a comparison to the existing conditions.

The 1985 Master Plan noise contour used for the Land Use Compatibility Program ("LUCP") was developed to establish a program to achieve land use compatibility between projected noise levels at JWA and the surrounding land uses. The LUCP included an acoustical insulation program for homes in the then-unincorporated Santa Ana Heights and the Anniversary Tract neighborhood in the City of Newport Beach for those residences that were willing to participate in the program.

The County General Plan land use and noise compatibility standard (see Table 4.5-1) for residential uses requires an interior CNEL of less than 45 dB for habitable rooms and a CNEL of less than 65 dB in outdoor living areas. There is no feasible mitigation for the reduction of exterior noise levels. Therefore, as the 65 CNEL contour expands beyond the existing contour and includes additional residences this would be a significant impact. The non-conforming residential uses within the business park are not eligible for future sound attenuation; therefore, from a land use compatibility perspective, these residences are being exposed to exterior and potentially interior noise levels in excess of the County standards, which would be a significant impact and mitigation is not feasible. [12] (*Noise Analysis Technical Report*, Landrum & Brown, 2014, Appendix C)

Residences that have received insulation would be compatible with the interior noise standards. For the uninsulated residences, however, there is also the potential for incompatibility due to excessive interior noise levels, which would be considered a significant 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. If this standard is exceeded, implementation of a Sound Insulation Plan ("SIP") would be used to address interior noise impacts. With implementation of the SIP (see Mitigation Measure LU-1), the land use compatibility impact associated with interior noise levels would also be reduced to a less than significant level for those residences with an average noise level in excess of 45 CNEL that are outside of the business park. For those residences within the business park and those residences with a habitable room with noise levels in excess of 45 CNEL but the average noise levels in the habitable rooms is less than 45 CNEL, mitigation would not be feasible; therefore, the impact would be significant and unavoidable. (See discussion in Section 4.5.2, Methodology regarding FAA's noise attenuation requirements.)

Phase 2

The Proposed Project, Phase 2 would increase both the total 65 to 70 CNEL contour areas and the greater than 70 CNEL contour by approximately 0.10 square mile (11 percent and 17 percent, respectively) compared to existing conditions. Outside the Airport boundaries, the 65 to 70 CNEL contour would increase by 0.11 square mile (16 percent), and the greater than 70 CNEL contour would increase by 0.07 mile (78 percent) when compared to existing conditions. Exhibit 4.5-3a provides a comparison of the existing 60, 65, 70, and 75 CNEL contours and the projected contours with the Proposed Project, Phase 2. Exhibits 4.5-3b through 4.5-3d provide larger scale exhibits with the noise-sensitive land uses depicted.

[12] As discussed above, this analysis utilizes the typical minimum structural attenuation of 20 dB; there may be homes exposed to greater than 65 CNEL exterior noise levels that would achieve the interior noise levels of 45 dB. As discussed in Section 4.6, Noise, for those homes that received attenuation as part of the 1985 AIP, approximately 95 percent of the untreated rooms achieved more than 22 dB of outdoor-to-indoor noise reduction. Therefore, most of the remaining untreated dwelling units would need to be exposed to outdoor noise levels of 67 CNEL or greater in order to experience interior noise levels greater than 45 CNEL.

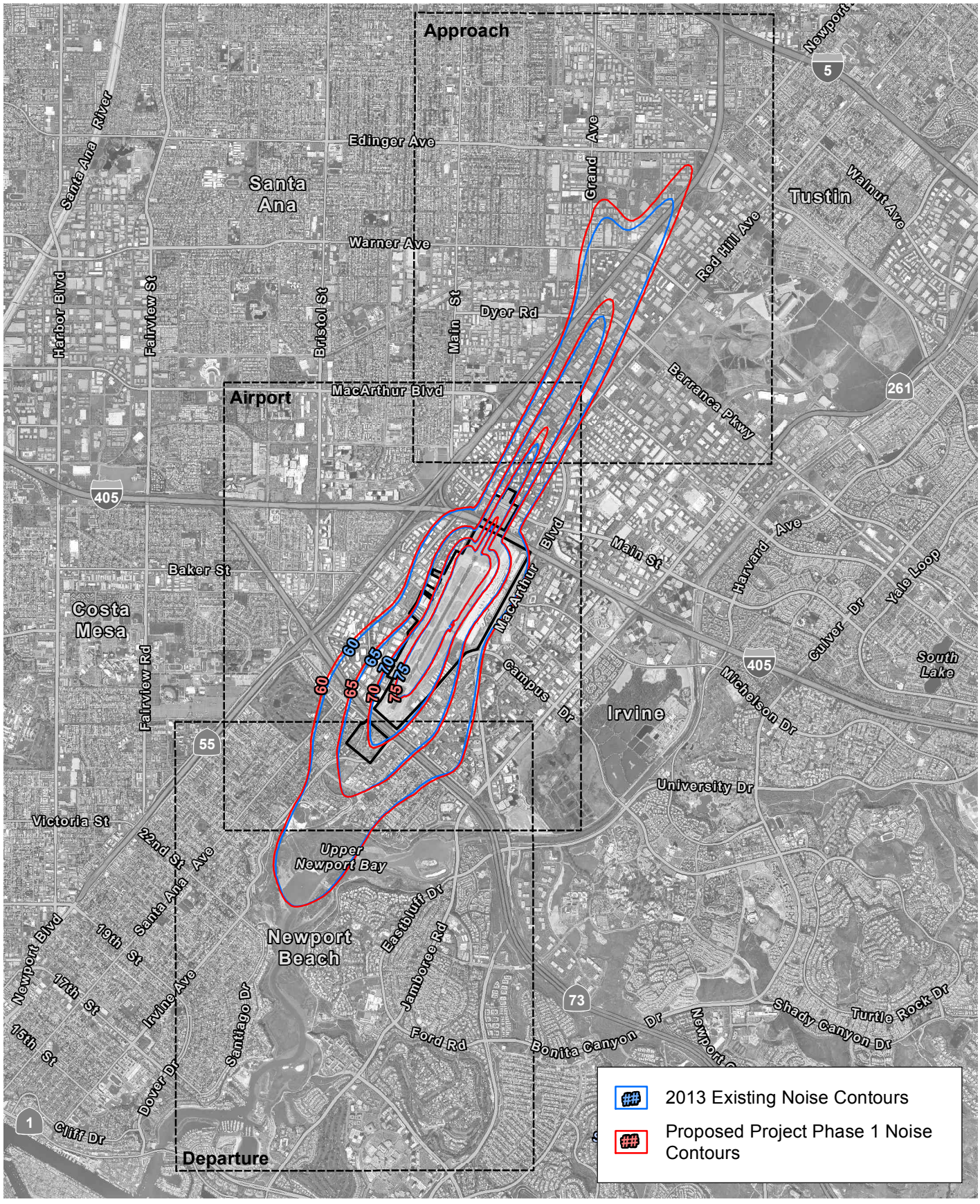
TABLE 4.5-9
LAND USES WITHIN COMMUNITY NOISE EQUIVALENT LEVEL CONTOURS

CNEL	2013	Master Plan	No Project	Proposed Project Phases			Alternative A Phases			Alternative B Phases			Alternative C Phases		
				1	2	3	1	2	3	1	2	3	1	2	3
Total Contour Area (sq. mi.)															
60–65	2.05	4.39	2.22	2.22	2.33	2.42	2.16	2.21	2.37	2.18	2.46	2.71	2.96	4.61	4.61
65–70	0.88	1.29	0.94	0.94	0.98	1.02	0.92	0.94	0.99	0.93	1.03	1.12	1.34	1.71	1.70
>70	0.59	1.08	0.65	0.65	0.69	0.72	0.64	0.66	0.72	0.64	0.74	0.83	0.92	1.29	1.29
Contour Area Within Airport Boundaries (sq. mi.)															
60–65	0.10	0.01	0.09	0.09	0.08	0.08	0.09	0.09	0.08	0.09	0.07	0.06	0.05	0.00	0.00
65–70	0.20	0.08	0.19	0.19	0.19	0.17	0.20	0.19	0.18	0.20	0.18	0.16	0.15	0.11	0.12
>70	0.50	0.71	0.52	0.52	0.53	0.55	0.51	0.52	0.54	0.51	0.55	0.58	0.60	0.69	0.68
Contour Area Outside Airport Boundaries (sq. mi.)															
60–65	1.95	4.38	2.13	2.13	2.25	2.34	2.07	2.12	2.29	2.09	2.39	2.65	2.91	4.61	4.61
65–70	0.68	1.21	0.75	0.75	0.79	0.85	0.72	0.75	0.81	0.73	0.85	0.96	1.19	1.60	1.58
>70	0.09	0.37	0.13	0.13	0.16	0.17	0.13	0.14	0.18	0.13	0.19	0.25	0.32	0.60	0.61
Total Number of Residences															
60–65	932	7,138	1,014	1,014	1,082	1,130	995	1,020	1,114	999	1,151	1,225	1,662	4,418	4,406
65–70	96	407	128	127	158	173	118	144	181	121	186	230	345	870	869
>70	0	6	0	0	0	0	0	0	0	0	0	1	6	92	92
Number of Residences within the 1985 Santa Ana Heights Acoustical Insulation Program That Received Insulation															
60–65	389	167	379	379	366	355	382	373	350	381	346	315	220	2	2
65–70	38	255	48	48	61	72	45	54	77	46	81	111	203	387	387
>70	0	5	0	0	0	0	0	0	0	0	0	1	4	38	38
Number of Residences within the 1985 Santa Ana Heights Acoustical Insulation Program That Did Not Receive Insulation															
60–65	117	33	96	96	78	73	102	85	71	100	70	56	32	1	1
65–70	58	141	79	79	97	102	73	90	104	75	105	119	141	120	120
>70	0	1	0	0	0	0	0	0	0	0	0	0	2	54	54

TABLE 4.5-9
LAND USES WITHIN COMMUNITY NOISE EQUIVALENT LEVEL CONTOURS

CNEL	2013	Master Plan	No Project	Proposed Project Phases			Alternative A Phases			Alternative B Phases			Alternative C Phases		
				1	2	3	1	2	3	1	2	3	1	2	3
Number of Residences Outside the 1985 Santa Ana Heights Acoustical Insulation Program															
60-65	426	6,938	539	539	638	701	511	562	693	518	735	854	1,410	4,415	4,403
65-70	0	11	1	0	0	0	0	0	0	0	0	0	1	363	362
>70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Schools															
60–65	4	9	5	5	6	7	5	5	6	5	7	8	6	9	9
65–70	0	2	0	0	0	0	0	0	0	0	0	0	3	3	3
>70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Places of Worship															
60–65	5	5	5	5	5	5	5	5	5	5	5	6	8	6	6
65–70	2	2	2	2	2	2	2	2	2	2	2	2	1	3	3
>70	1	3	1	1	1	1	1	1	1	1	1	1	2	3	3

CNEL: Community Noise Equivalent Level; sq. mi.: square mile.
Source: *Noise Analysis Technical Report,* Table 22, Landrum & Brown 2014.

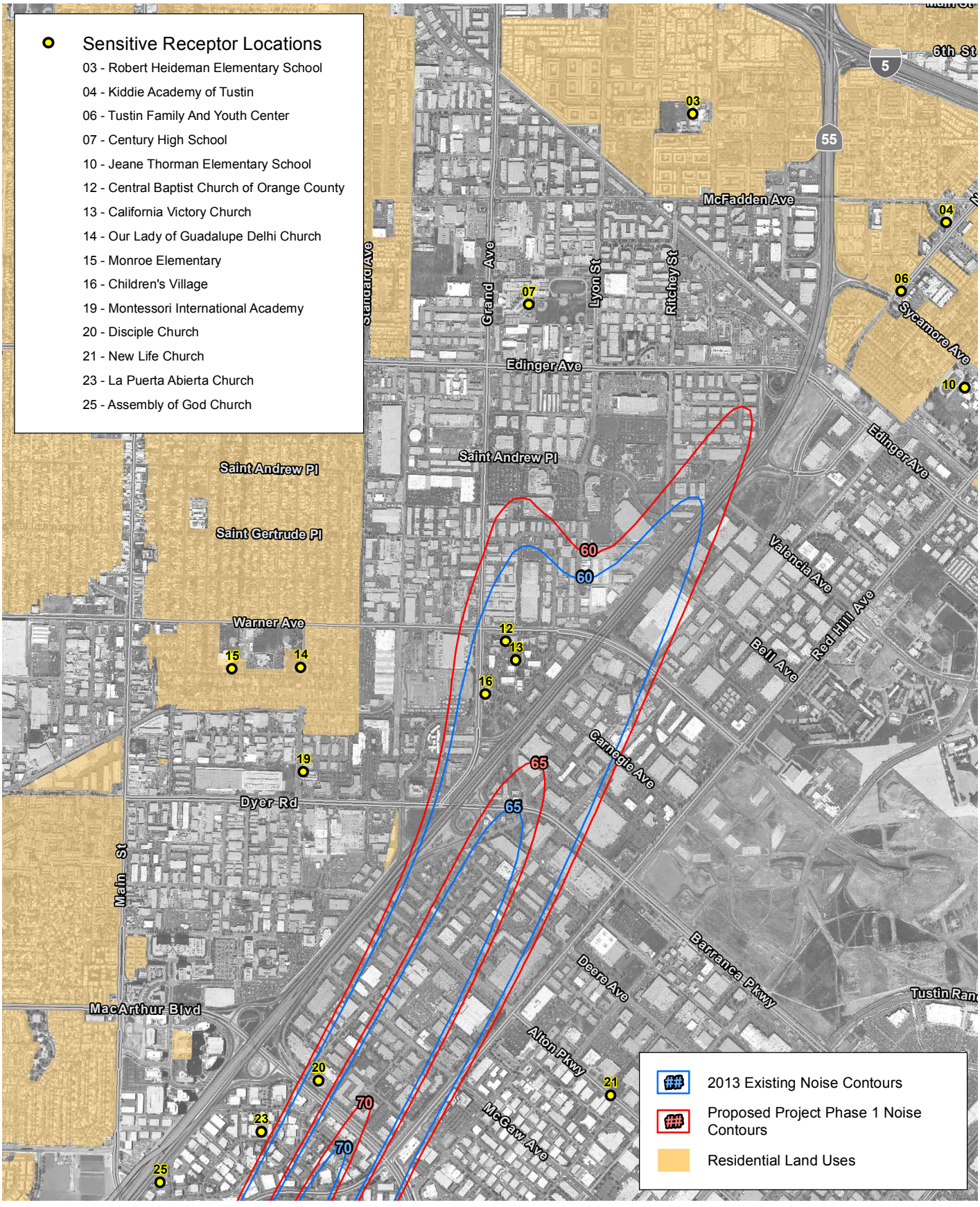


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Comparison of Existing and Proposed Project Phase 1 Noise Contours

Exhibit 4.5-2a

John Wayne Airport Settlement Agreement Amendment



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Existing and Proposed Project, Phase 1 Approach Noise Contours with Sensitive Land Uses

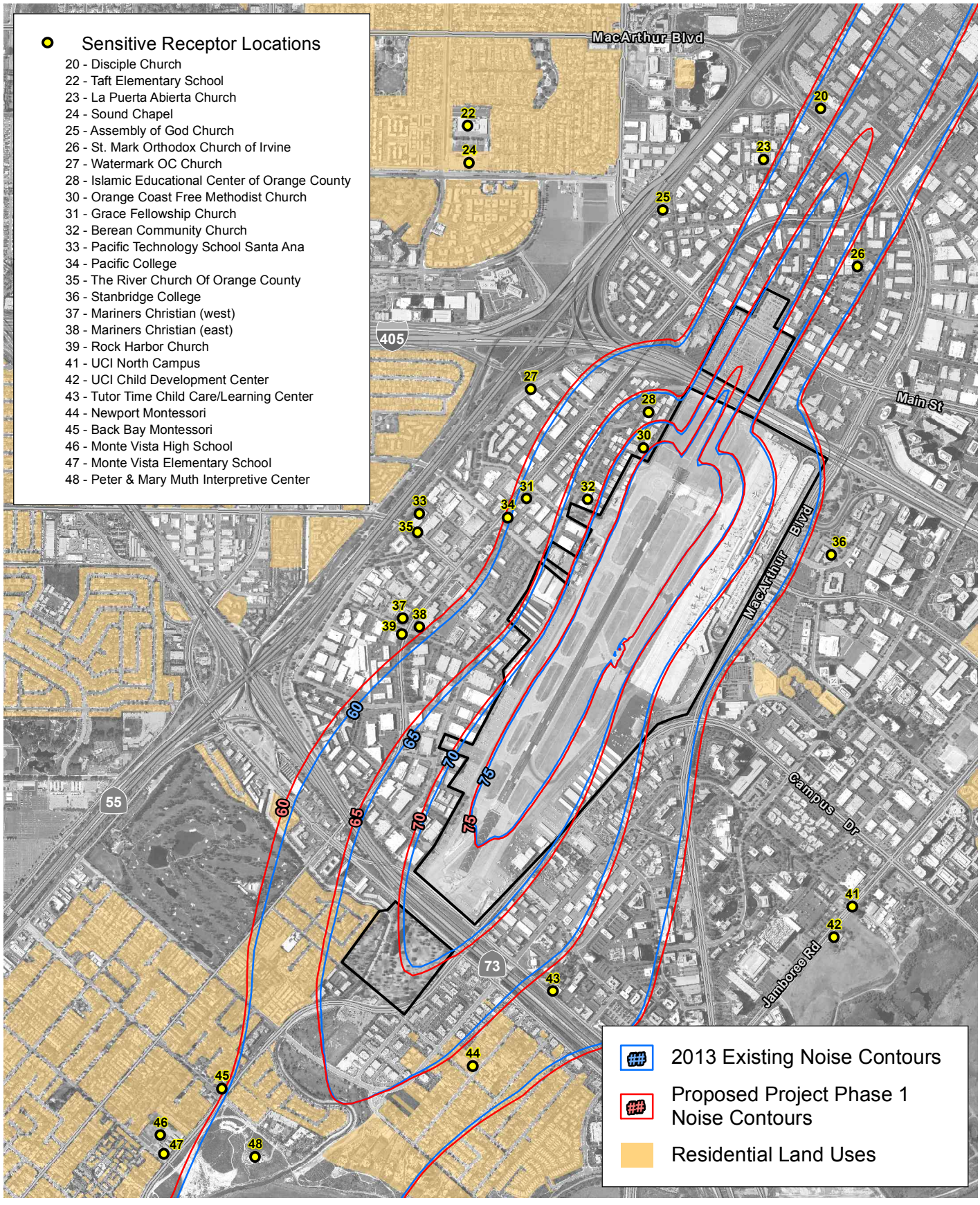
Exhibit 4.5-2b

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Existing and Proposed Project, Phase 1 Airport Area Noise Contours with Sensitive Land Uses

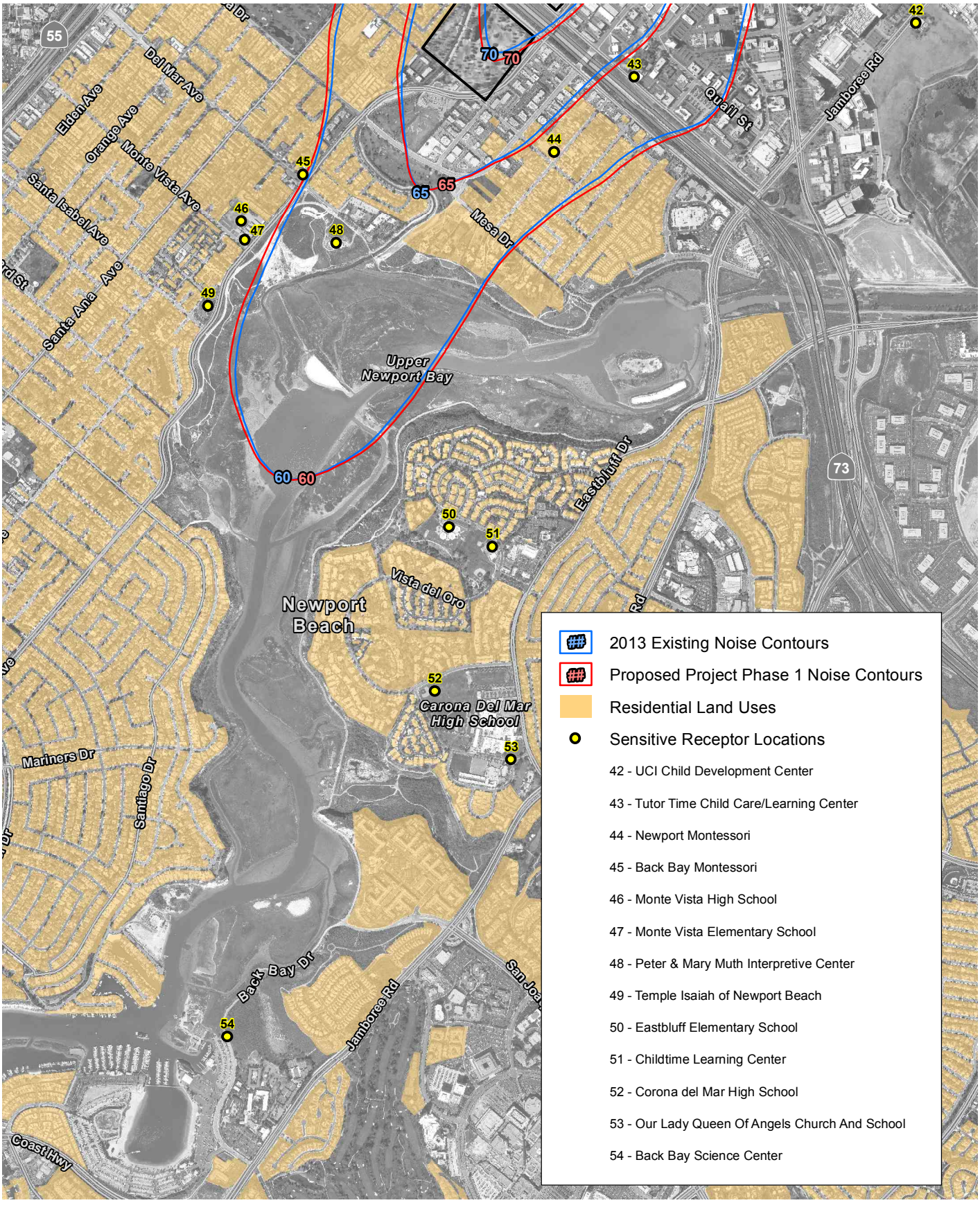
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Existing and Proposed Project, Phase 1 Departure Noise Contours with Sensitive Land Uses

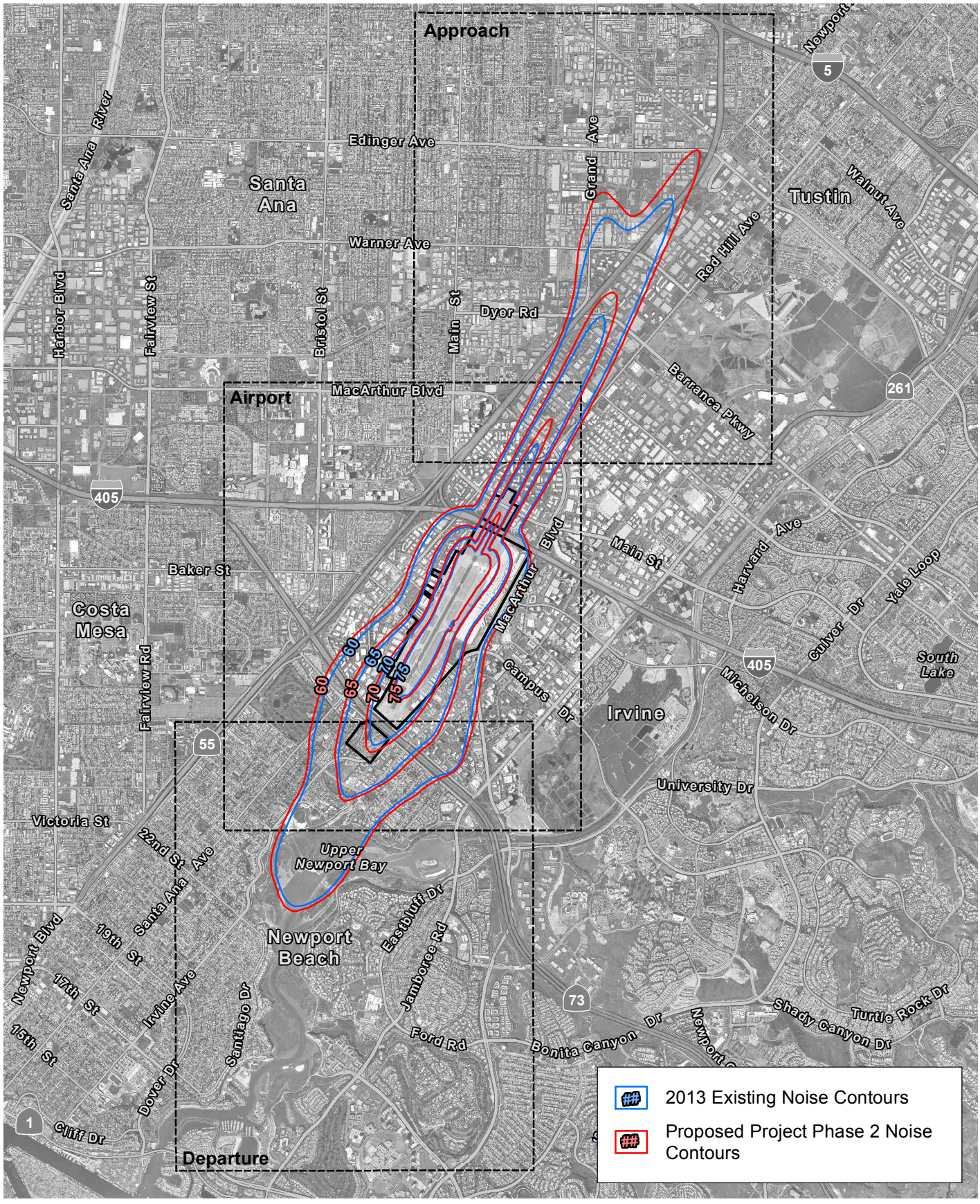
Exhibit 4.5-2d

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Comparison of Existing and Proposed Project Phase 2 Noise Contours

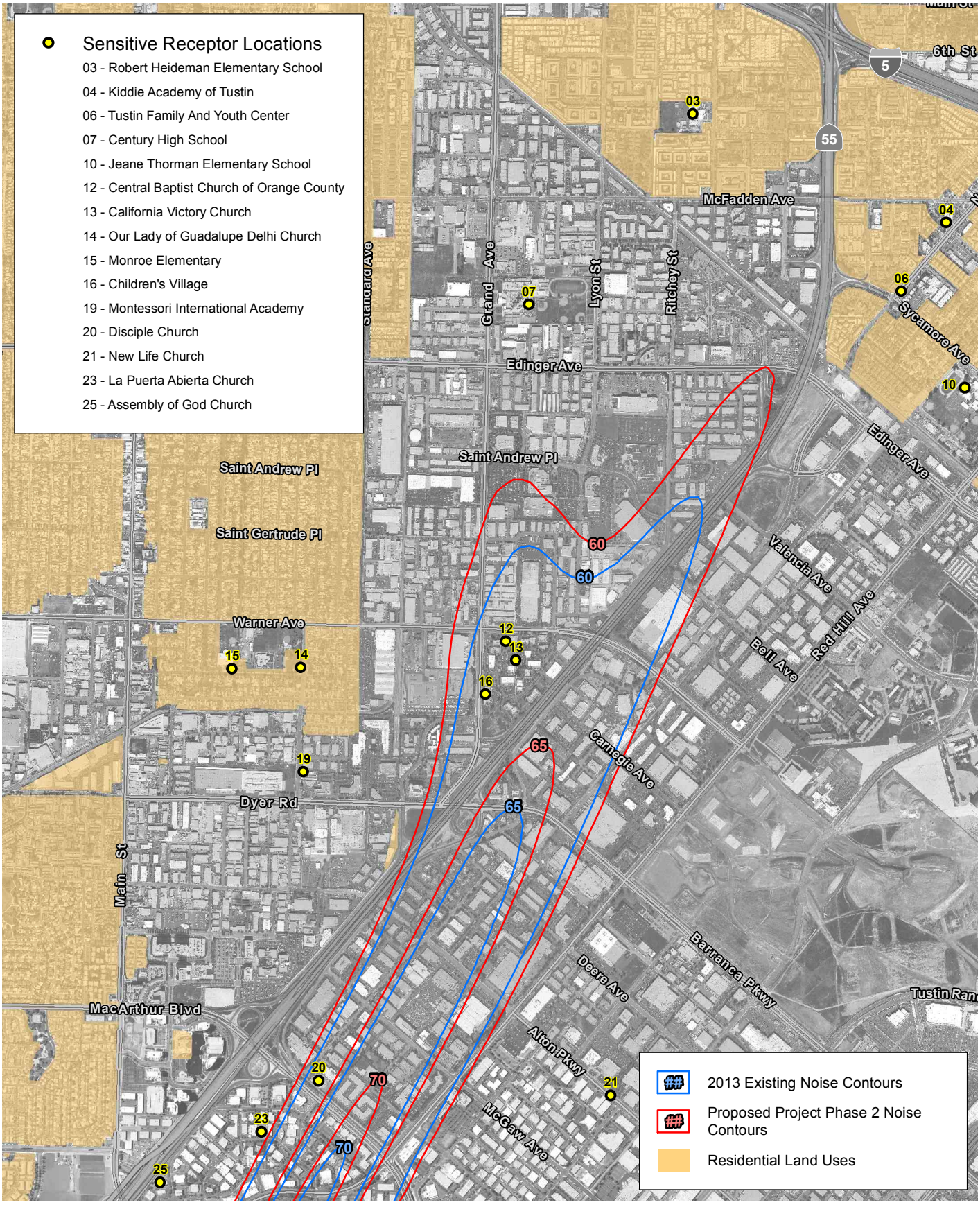
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Existing and Proposed Project, Phase 2 Approach Noise Contours with Sensitive Land Uses

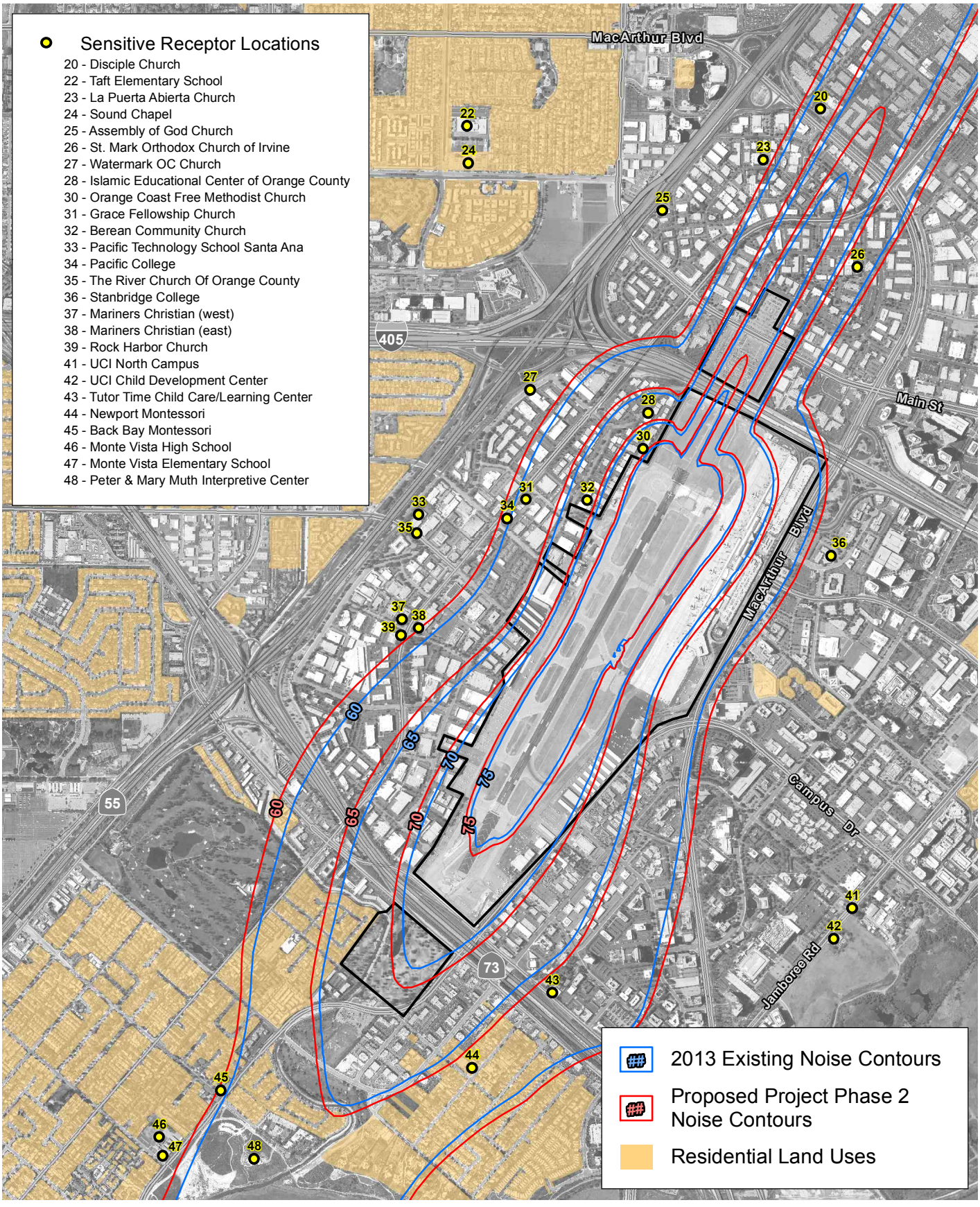
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John Wayne Airport Settlement Agreement Amendment

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Existing and Proposed Project, Phase 2 Airport Area Noise Contours with Sensitive Land Uses

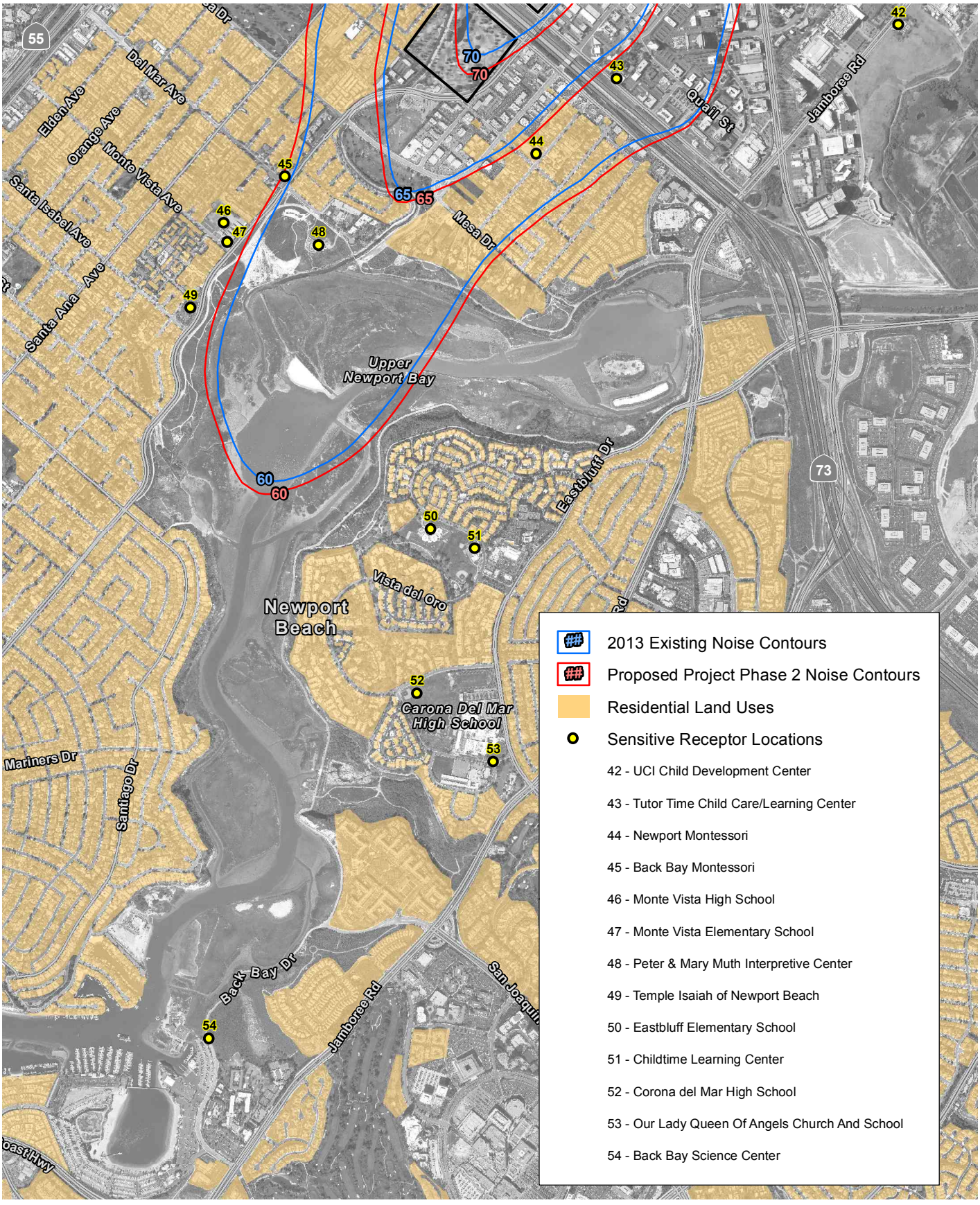
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John Wayne Airport Settlement Agreement Amendment

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Existing and Proposed Project, Phase 2 Departure Noise Contours with Sensitive Land Uses

Exhibit 4.5-3d

John Wayne Airport Settlement Agreement Amendment

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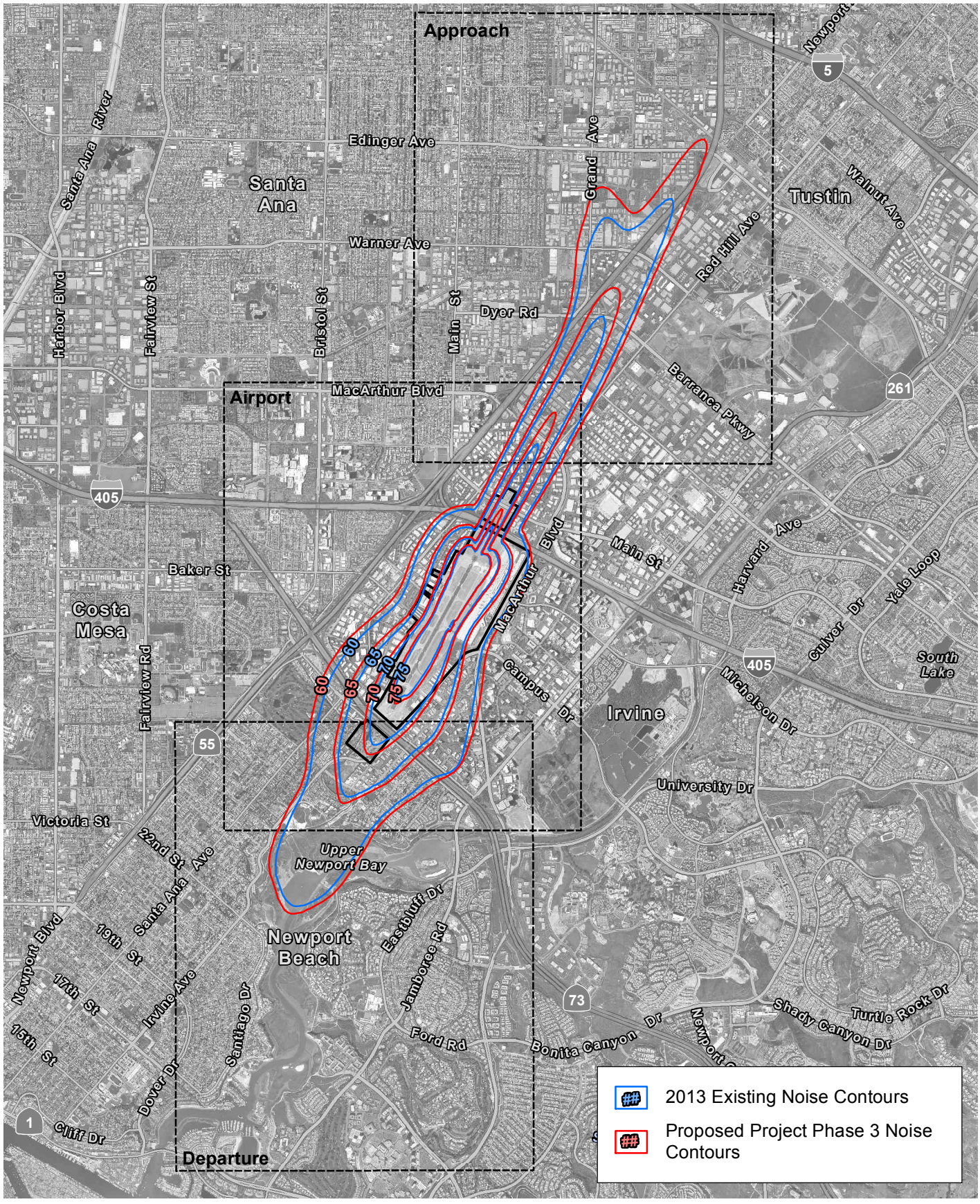
No additional noise-sensitive receptors would be within the greater than 70 CNEL contour when Phase 2 of the Proposed Project is compared to existing conditions. Increased noise levels when compared to the existing conditions would add 62 additional residences to the area within the 65 to 70 CNEL contour, of which 23 were insulated under the AIP and 39 were not. Of the 39 additional residences that have not been insulated 27 residences are located in the area zoned for business park and are non-conforming uses. No other noise sensitive uses would be within the expanded 65 CNEL contour.

As previously indicated, those residences with outdoor living areas exposed to greater than 65 CNEL would be incompatible with the County's exterior noise standard. There is no feasible mitigation for the exterior noise levels. Therefore, as the 65 CNEL contour expands beyond the existing contour and includes additional residences this would be a significant impact. The non-conforming residential uses within the business park are not eligible for future sound attenuation; therefore, from a land use compatibility perspective, these residences are being exposed to exterior and potentially interior noise levels in excess of the County standards, which would be a significant impact and mitigation is not feasible.

Residences that have received insulation would be compatible with the interior noise standards. For the uninsulated residences, however, there is also the potential for incompatibility due to excessive interior noise levels, which would be considered a significant impact. Based on the County standard, an indoor noise impact occurs when the interior noise level exceeds 45 dB 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 dB. If this standard is exceeded, implementation of a SIP would be used to address interior noise impacts. With implementation of the SIP (see Mitigation Measure LU-1), the land use compatibility impact associated with interior noise levels would also be reduced to a less than significant level for those residences with an average noise level in excess of 45 CNEL that are outside of the business park. For those residences within the business park and those residences with a habitable room with noise levels in excess of 45 CNEL but the average noise levels in the habitable rooms is less than 45 CNEL, mitigation would not be feasible; therefore, the impact would be significant and unavoidable. (See discussion in Section 4.5.2, Methodology regarding FAA's noise attenuation requirements.)

Phase 3

The Proposed Project, Phase 3 would increase the total 65 to 70 CNEL contour areas by approximately 0.14 square mile (16 percent) and the greater than 70 CNEL contour by approximately 0.13 square mile (22 percent) compared to existing conditions. Outside the Airport boundaries, there would be an approximate 0.17-square-mile (25 percent) increase in the 65 to 70 CNEL contour and a 0.08-square-mile (89 percent) increase in the greater than 70 CNEL contour compared to existing conditions. Exhibit 4.5-4a provides a comparison of the existing 60, 65, 70, and 75 CNEL contours and the projected contours with the Proposed Project, Phase 3. Exhibits 4.5-4b through 4.5-4d provide larger scale exhibits with the noise-sensitive land uses depicted.



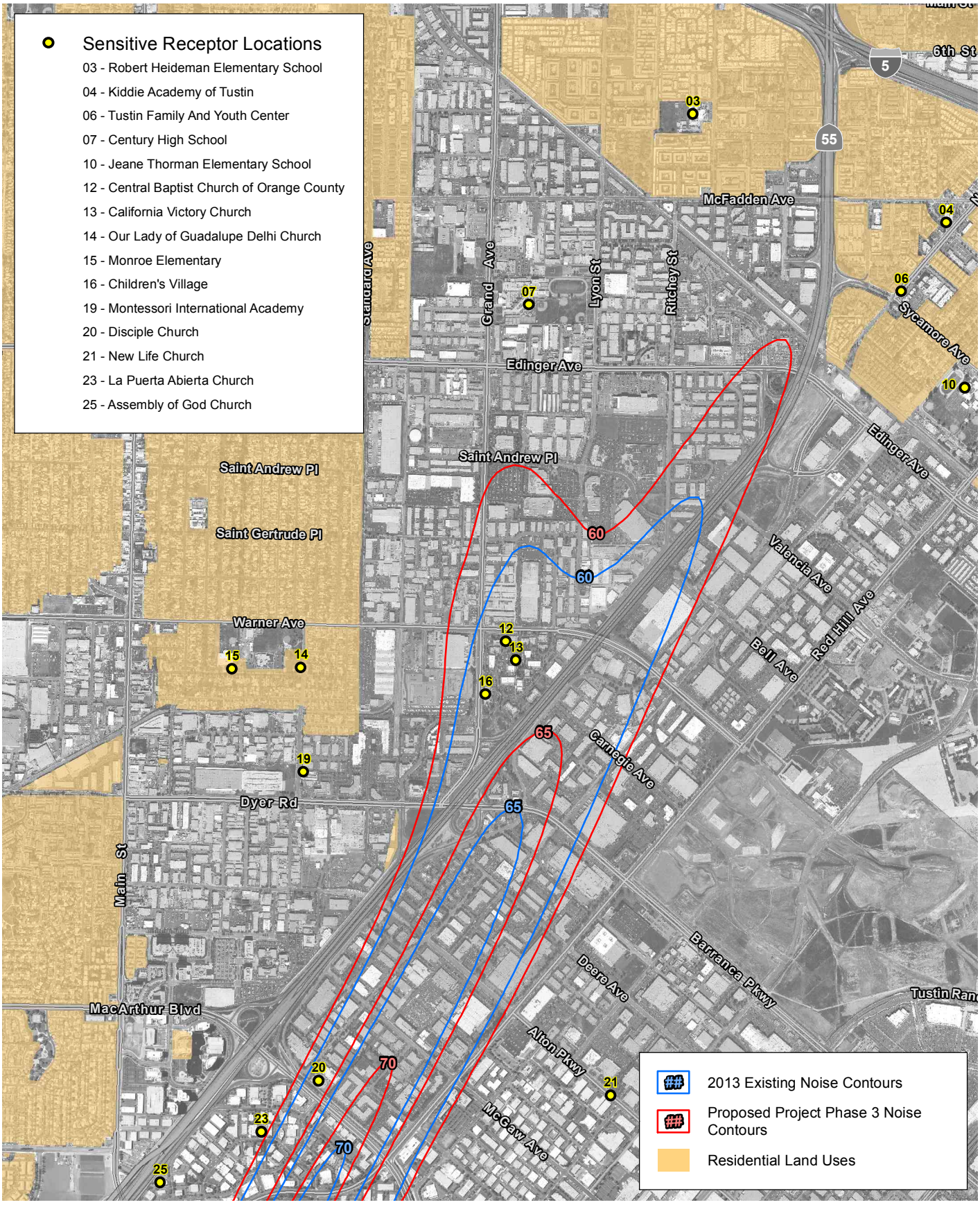
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Comparison of Existing and Proposed Project Phase 3 Noise Contours

Exhibit 4.5-4a

John Wayne Airport Settlement Agreement Amendment

JOHN WAYNE AIRPORT
ORANGE COUNTY

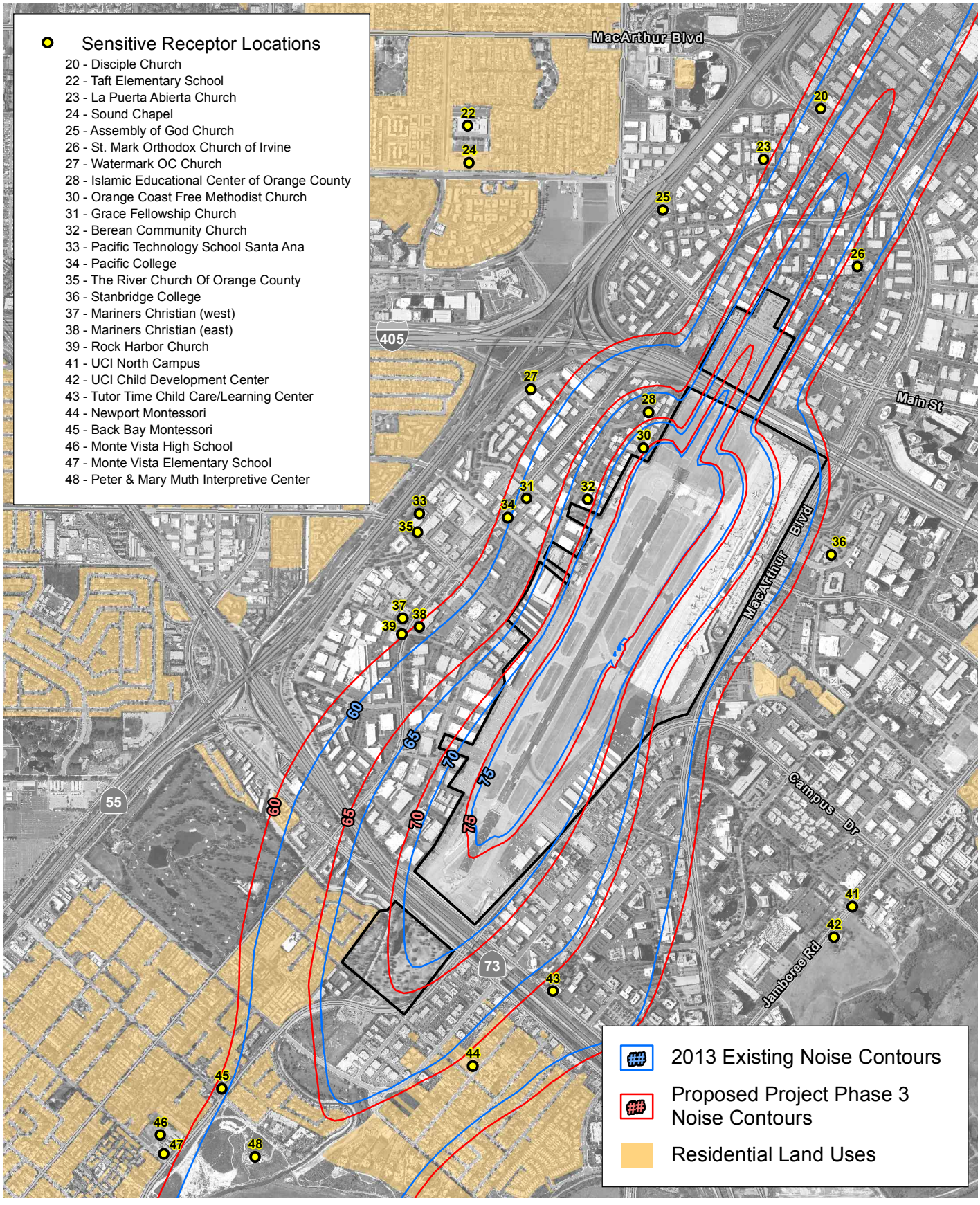


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Existing and Proposed Project, Phase 3 Approach Noise Contours with Sensitive Land Uses

Exhibit 4.5-4b

John Wayne Airport Settlement Agreement Amendment



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Existing and Proposed Project, Phase 3 Airport Area Noise Contours with Sensitive Land Uses

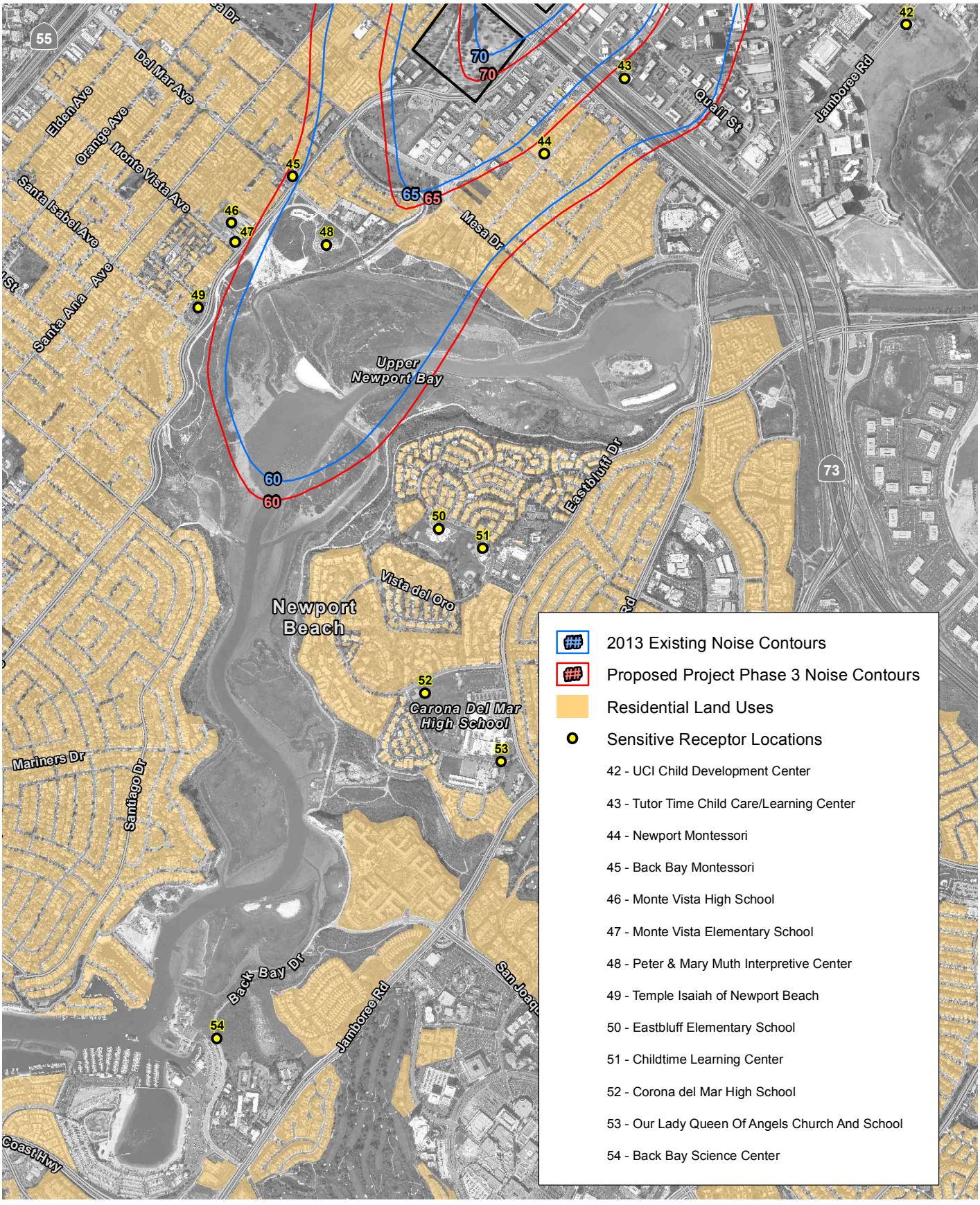
Exhibit 4.5-4c

John Wayne Airport Settlement Agreement Amendment

N W E S

2,000 1,000 0 2,000 Feet

JOHN WAYNE AIRPORT ORANGE COUNTY



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Existing and Proposed Project, Phase 3 Departure Noise Contours with Sensitive Land Uses

Exhibit 4.5-4d

John Wayne Airport Settlement Agreement Amendment

N W E S

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JOHN WAYNE AIRPORT ORANGE COUNTY

No additional sensitive receptors would be within the greater than 70 CNEL contour when Phase 3 of the Proposed Project is compared to existing conditions. Increased noise levels over existing conditions would add 77 additional residences to the area within the 65 CNEL contour, of which 34 were insulation through the AIP and 43 were not. For the 43 additional residences that have not been insulated, 28 residences located in the area zoned for business park and are non-conforming uses. The Orange Coast Free Methodist Church would move from the 70 to 75 CNEL contour to the greater than 75 CNEL contour. No other noise sensitive uses would be within the expanded 65 CNEL contour.

Residences with outdoor living areas exposed to a greater than 65 CNEL would be incompatible with the County's exterior noise standard. There is no feasible mitigation for the exterior noise levels. Therefore, as the 65 CNEL contour expands beyond the existing contour and includes additional residences this would be a significant land use compatibility impact. The non-conforming residential uses within the business park are not eligible for future sound attenuation. Therefore, from a land use compatibility perspective, these residences also are being exposed to exterior and potentially interior noise levels in excess of the County standards, which would be a significant impact and mitigation is not feasible.

Residences that have received insulation would be compatible with the interior noise standards. For the uninsulated residences, however, there is also the potential for incompatibility due to excessive interior noise levels, which would be considered a significant 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. If this standard is exceeded, implementation of a SIP would be used to address interior noise impacts. With implementation of the SIP (see Mitigation Measure LU-1), the land use compatibility impact associated with interior noise levels would also be reduced to a less than significant level for those residences with an average noise level in excess of 45 CNEL that are outside of the business park. For those residences within the business park and those residences with a habitable room with noise levels in excess of 45 CNEL but the average noise levels in the habitable rooms is less than 45 CNEL, mitigation would not be feasible; therefore, the impact would be significant and unavoidable. (See discussion in Section 4.5.2, Methodology regarding FAA's noise attenuation requirements.)

Policy Consistency Analysis

There are a number of regional and local planning programs that are relevant to the Project. Table 4.5-10 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 all the alternatives is also included in Table 4.5-10 to provide easy comparison.

As discussed in Section 4.5.2, Methodology, for this Project, the plans and policies of the County of Orange and the City of Newport Beach have been used as the basis of making a determination of a significant impact because these are the agencies with jurisdiction over the Project. Inconsistency with the policies of an agency that does not have jurisdiction over the Project would be adverse, but not considered a significant impact.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
SCAG 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy					
Goals					
RTP/SCS G1 Align the plan investments and policies with improving regional economic development and competitiveness.	The Proposed Project is consistent with this goal. It would increase air travel opportunities in Orange County. By better meeting the travel demand of the County, the economic benefits associated with air travel (e.g., jobs, taxes, improved service to businesses, and increased tourism) are realized by both the local and regional economy.	Alternative A is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
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.	The Proposed Project is consistent with these goals. As an Airport, there are multiple layers of security to satisfy TSA and ICE requirements. Measures have been incorporated into the Airport design (such as baggage screening and isolation of custom areas for international flights) and into daily operations to ensure JWA meets the required security 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 on-site to serve this need.	In order to operate, Alternative A would need to comply with all applicable safety requirements and would be consistent with these goals. The consistency analysis presented for the Proposed Project would be applicable to Alternative A. However, additional demands are placed on the Airport when existing passenger levels exceed design levels (i.e., gate capacity in Phase 3).	In order to operate, Alternative B would need to comply with all applicable safety requirements and would be consistent with these goals. The consistency analysis presented for the Proposed Project would be applicable to Alternative B. However, additional demands are placed on the Airport when existing passenger levels exceed design levels (i.e., gate capacity, international terminal capacity, and fuel storage capacity in Phase 3).	In order to operate, Alternative C would need to comply with all applicable safety requirements and would be consistent with these goals. The consistency analysis presented for the Proposed Project would be applicable to Alternative C. However, additional demands are placed on the Airport when existing passenger levels exceed design levels (i.e., RON space, gate capacity, international terminal capacity, and fuel storage capacity).	The No Project Alternative is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
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.	The Proposed Project is consistent with these goals. The Proposed Project would increase the accessibility for air travel in Orange County, which would allow JWA to serve a greater portion of the local demand. This increases the productivity of the facilities that have been developed. The RTP/SCS regional air passenger demand forecast is 145.9 MAP for the SCAG region in 2035. .	Alternative A is consistent with these goals. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with these goals. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with these goals. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with these goals. The No Project Alternative would maintain the constrained service levels at JWA provided for in the RTP/SCS. While it would not accommodate any increment of the planned growth in the Orange County population grows, it would be consistent with the assumptions that were used to develop the plan.
RTP/SCS G6 Protect the environment and health for our residents by improving air quality and encouraging active transportation (non-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 is consistent with these goals. JWA does not have land use authority that would allow them to influence land use and growth patterns or control over the transit system. However, the Proposed Project is located in an urban setting and would allow the use of existing infrastructure to be maximized. JWA has incorporated measures to encourage alternatives to automobile travel. The Proposed Project would continue the ongoing effort to encourage use of alternative transportation. JWA	Alternative A is consistent with these goals. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with these goals. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with these goals. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with these goals. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
	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 on JWA's website (www.ocair.com/groundtransportation/default.aspx). To support the use of non-motorized transportation, bicycle racks have been provided at the new maintenance facility. As discussed in Section 4.1, Air Quality, JWA has already implemented improvements and programs that reduce air emissions associated with Airport operations. Additional mitigation measures have been recommended to further reduce the increased emissions associated with the increased operations.				
RTP/SCS G7 Actively encourage and create incentives for energy efficiency, where possible.	The Proposed Project is consistent with this goal. The Proposed Project does not propose any facilities improvements; therefore, the existing facilities will have an increased throughput (increased MAP), resulting in a net increase in efficiency per passenger served at the Airport. JWA's website provides information on the environmental policy and practices in place at the Airport, including energy efficient design and materials in the terminal and on the airfield. The Airport has constructed a cogeneration facility for generation of electricity locally (http://www.ocair.com/aboutjwa/environmental.aspx/).	Alternative A is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
County of Orange General Plan					
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. **Policy 5.1** Establish "traffic impact fees" for application to county development projects with measurable traffic impacts, as defined in the Growth Management Plan Element of the General Plan. These fees may serve as local matching funds for Orange County Measure 'M', state and federal highway funding programs.	The Proposed Project is consistent with these policies. As discussed in Section 4.8, Transportation/Traffic, there would be traffic impacts associated with the Proposed Project on both the arterial highway network and the freeway system. For impacts to the arterial highway network, a limited area is within unincorporated Orange County (Goal 5); however, JWA is not located in an established fee program area However, the County of Orange/JWA shall coordinate with the Cities of Newport Beach and Irvine, once agreements are reached as to the costs and parameters of design, pay to the City the	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
	full cost improvements for the mitigation measures identified in Section 4.8. The freeway is outside of the County and local agencies' jurisdiction; therefore, the County does not have authority to establish traffic impact fees. Improvements are funded through Measure M2 (the ½ cent sales tax measure for transportation), as well as other State and federal funding mechanisms.				
Resources Element					
Goal 1 Protect wildlife and vegetation resources and promote development that preserves these resources.	The Proposed Project is consistent with this goal. The Proposed Project does not propose any physical improvements or require any development of land. As discussed in Section 4.2, Biological Resources, the Proposed Project would not result in significant impacts to biological resources.	Alternative A is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Though Alternative C does not propose any physical improvements that would directly impact plant and wildlife species, it would substantially increase the area contained in the 60 CNEL contour. Alternative C, Phases 2 and 3 would have a potentially significant unavoidable impact to a local population of listed bird species within the Upper Newport Bay. Therefore, Alternative C is inconsistent with this goal.	The No Project Alternative is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
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.	The Proposed Project is consistent with these policies of the General Plan. Although the Proposed Project would increase the number of sensitive uses being exposed to noise levels in excess of 65 CNEL (as compared to existing conditions), the Proposed Project's 65 CNEL contour is smaller than what was allowed as part of the JWA 1985 Master Plan. The County's Noise Element recognizes the 65 CNEL contour established as part of the Master Plan and EIR 508, and the General Plan references the 65 CNEL contour delineated in the 1985 Master Plan as the Project Case approved by the Board of Supervisors (shown as Figure VIII-2 in the General Plan), which - together with implementation of the Santa Ana Heights Land Use Compatibility Plan - is utilized as the "policy implementation line" when determining noise/land use compatibility within the previously unincorporated Santa Ana Heights community. Since no area within the City of Newport Beach beyond the 1985 Master Plan's 65 CNEL contour	Alternative A is consistent with these policies. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with these policies. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is inconsistent with these policies because the 65 CNEL contour associated with Phases 2 and 3 would exceed the "Project Case" identified in the *Noise Element*. There is no feasible mitigation to achieve the exterior noise standard.	The No Project Alternative is consistent with these policies. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
	would be affected, the Proposed Project would be consistent with this policy. However, it should be noted, regardless of the General Plan recognition of the 1985 65 CNEL contour and the implementation of Mitigation Measure LU-1, this EIR has determined there is a significant land use compatibility impact due to exterior noise impacts and a potential significant impact for interior noise impacts when measured against existing conditions.				
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. There are numerous safeguards 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 Best Management Practices associated with the handling of hazardous materials.	Alternative A is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
City of Newport Beach General Plan					
Land Use Element					
Policy 3.8: Project Entitlement Review with Airport Land Use Commission Refer the adoption or amendment of the General Plan, Zoning Code, specific plans, and Planned Community development plans for land within the John Wayne Airport planning area, as established in the JWA Airport Environs Land Use Plan ("AELUP"), to the Airport Land Use Commission ("ALUC") for Orange County for review, as required by Section 21676 of the California Public Utilities Code. In addition, refer all development projects that include buildings with a height greater than 200 feet above ground level to the ALUC for review.	The Proposed Project is consistent with this policy. The Proposed Project does not propose any physical improvements or require any development of land.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
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 is consistent with this policy. Exhibit 4.6-11c in Section 4.6 shows the 1985 Master Plan contours. The Proposed Project is an airport project and does not propose any land use development. No physical improvements would occur with the Proposed Project.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
Circulation Element					
Policy CE 1.1.1: Comprehensive Transportation System Provide a diverse transportation system that provides mobility options for the community. **Policy CE 1.1.2: Integrated System of Multiple Modes** Provide an integrated transportation system that supports the land use plan set forth in the Land Use Element.	The Proposed Project is consistent with these policies. In addition to providing access for private vehicles, multiple public transportation options exist that provide service to the Airport. JWA's website provides information on ground transportation (including public buses and trains) and shuttle services that service to the Airport. Information on bus schedules and regional train service is also provided (www.ocair.com/groundtransportation/default.aspx).	Alternative A is consistent with these policies. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with these policies. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with these policies. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with these policies. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Policy CE 2.1.1: Level of Service Standards Plan the arterial roadway system to accommodate projected traffic at the following level of service standards: A. Level of Service ("LOS") "D" throughout the City, unless otherwise noted B. LOS "E" at any intersection in the Airport Area shared with Irvine C. LOS "E" at Coast Highway (EW) and Dover Drive (NS) due to right-of-way limitations D. LOS "E" at Marguerite Avenue (NS) and Coast Highway (EW) in the pedestrian oriented area of Corona del Mar E. LOS "E" at Goldenrod Avenue (NS) and Coast Highway (EW) in the pedestrian oriented area of in Corona del Mar.	The applicable elements of this policy have been incorporated into the thresholds used for the evaluation of traffic impacts (see Section 4.8, Transportation/Traffic). In Newport Beach, the Proposed Project (All Phases) would impact one intersection (Campus Dr./ Bristol St. North). The County of Orange/JWA shall construct the additional southbound turn required to maintain an acceptable LOS. The Proposed Project is consistent with this policy.	Alternative A is consistent with this policy. Alternative A (All Phases) would have the same impact to the Campus Dr./Bristol St. North intersection as the Proposed Project. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. Alternative B would impact intersections in Newport Beach (Campus Dr./Airport Way [Year 2026]; Campus Dr./Bristol St North [All Phases]) and one intersection in Irvine (MacArthur Blvd/Michelson Dr. [Year 2026]). The County of Orange/JWA would be responsible for constructing the improvements at Campus Dr./ Bristol St. North. In the other locations the County of Orange/ JWA shall fully fund the cost of improvements in order to maintain an acceptable LOS.	Alternative C is consistent with this policy. Alternative C would impact intersections in Newport Beach (Campus Dr./Airport Way and]; Campus Dr./Bristol St North [All Phases]) and one intersection in Irvine (MacArthur Blvd/Michelson Dr. [All Phases]). As with Alternative B, the County of Orange/JWA would be responsible for constructing the improvements at Campus Dr./ Bristol St. North. In the other locations the County of Orange/ JWA shall fully fund the cost of improvements in order to maintain an acceptable LOS.	The No Project Alternative is consistent with this policy. The No Project Alternative (All Phases) would have the same impact to the Campus Dr./Bristol St. North intersection as the Proposed Project. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Policy CE 2.1.5: MacArthur Boulevard Widening Plan the addition of lanes to MacArthur Boulevard between Harbor View Drive and the prolongation of Crown Drive so that more than four lanes are constructed only when the daily volume to capacity ratio equals 1.0 in that section of MacArthur Boulevard, not counting trips generated by the MacArthur Boulevard access drive to Corona del Mar Plaza, and after public hearings before the Planning Commission and City Council, and only by narrowing the median.	The Proposed Project is consistent with this policy. MacArthur Blvd between Harbor View Dr. and the promulgation of Crown Dr is not one the study intersections identified for the Proposed Project due to its distance from JWA; therefore, it was not evaluated. Potential traffic impacts of the Proposed Project are evaluated in Section 4.8, Transportation/Traffic, of the EIR.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
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.	The Proposed Project is consistent with this policy. As part of the scoping process for the EIR, JWA coordinated with surrounding jurisdictions and agencies (including the County of Orange and the cities of Newport Beach, Irvine, Costa Mesa, Santa Ana, Tustin, and Caltrans) requesting input on the Proposed Project. These agencies have been involved in the development of the study area and will be involved, with implementation of mitigation measures, as applicable.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
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.	The operation of the Airport is consistent with this policy. JWA's website provides information on approximately 20 on-call shuttle service companies that provide service to the Airport. The Proposed Project would continue to provide this information to encourage the use of shuttle services and transit. There would be no changes to the facilities that would modify access by these providers.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Policy CE 6.1.3: Coordination with Adjacent Jurisdictions Coordinate operations with adjacent jurisdictions to enhance the efficiency of inter-jurisdictional roadway system operations.	The Proposed Project is consistent with this policy. As part of the scoping process for the EIR, JWA coordinated with surrounding jurisdictions and agencies (including the County of Orange and the cities of Newport Beach, Irvine, Costa Mesa, Santa Ana, Tustin, and Caltrans) requesting input on the Proposed Project and the scope of studies.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
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.	The Proposed Project is consistent with this policy. 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. As indicated above, there would be no changes to the facilities that would modify access by these providers.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
Policy CE 8.1.11: Joint Funding with Adjoining Jurisdictions Pursue joint funding of improvements in areas (such as the Airport Area) where traffic growth and/or needed improvements are demonstrably based upon traffic contributions or improvements that are a joint responsibility of Newport Beach and one or more adjacent jurisdictions/agencies.	The Proposed Project is consistent with this policy. The County of Orange/JWA shall construct the improvements at the Campus Dr./Bristol St. North intersection, the only intersection within the City of Newport Beach with a significant impact as a result of the Proposed Project. The County of Orange and other surrounding local jurisdictions will continue their coordination with OCTA and Caltrans to obtain funding for improvements to the freeway system, which is not within local jurisdiction.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B. In addition, Alternative B would result in impacts to the Campus Dr/Airport Way intersection. Consistent with the mitigation measures presented in Section 4.8, the County of Orange/JWA shall coordinate with the City of Newport Beach and, once agreement is reached as to the costs and parameters of design, pay to the City the full cost of the intersection improvements.	Alternative C is consistent with this policy. The consistency analysis presented for the Alternative B would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
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.	The current operation of the Airport has incorporated various measures to reduce air emissions associated with GSE, including working with the airlines to phase in electrification of the GSE equipment. JWA's website (http://www.ocair.com/aboutjwa/environmental.aspx/) provides information on the Airport's measures to reduce emissions generated by aircraft and by vehicles using the Airport. Measures include the use of low-emission electric vehicles; installation of electric charging stations for ground service equipment and Airport vehicles; and the requirement that fleet vehicles operate clean burning compressed natural gas or other cleaner burning fuel alternatives. The Proposed Project would continue and expand this effort. Therefore, the Proposed Project is consistent with this goal and related policies (See Sections 4.1, Air Quality).	Alternative A is consistent with this goal and related polices. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this goal and related policies. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this goal and related policies. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this goal and related policies. Though JWA will continue to implement measures to improve energy efficiency at the Airport, with the No Project Alternative there would not be a CEQA mitigation requirement to expand the use of electrified GSE.
Goal NR 10 Protection of sensitive and rare terrestrial and marine resources from urban development.	The Proposed Project is consistent with this goal. The Proposed Project does not propose any physical improvements and would not result in significant impacts to biological resources.	Alternative A is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is inconsistent with this goal. Alternative C would result in significant and unavoidable impacts to the local population of listed bird species within the Upper Newport Bay.	The No Project Alternative is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
Policy NR 10.2: Orange County Natural Communities Conservation Plan Comply with the policies contained within the Orange County Natural Communities Conservation Plan.	The Proposed Project is consistent with this policy. The project does not propose any physical improvements. The Project does not interfere with the policies of the Orange County NCCP/HCP because it does not propose to convert any of the Newport Bay Ecological Reserve sensitive habitats to other types of habitat or use. The Proposed Project would slightly increase noise levels and increase areas subject to noise in the NCCP/HCP Reserve area; however, the increase would not be substantial (refer to Section 4.2, Biological Resources, for further discussion).	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C would be inconsistent with this policy. Alternative C would result in significant and unavoidable impacts to the local population of listed bird species within the Upper Newport Bay, which is a component of the NCCP/HCP.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Goal NR 13 Protection, maintenance, and enhancement of Southern California wetlands.	The Proposed Project is consistent with this goal. The Project would not require any physical improvement to the Airport and would not result in impacts to wetlands. The Proposed Project would not interfere with existing efforts for the protection, maintenance, or enhancement of wetlands.	Alternative A is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Goal NR 16 (commensurate with Harbor and Bay Element, Goal 7) Protection and management of Upper Newport Bay commensurate with the standards applicable to our nation's most valuable natural resources.	The Proposed Project is consistent with this goal. The Project does not propose any physical improvements and would not result in significant impacts to biological resources. Although the Proposed Project would slightly increase noise levels in portions of the Upper Newport Bay, the increase would not be substantial (refer to Section 4.2, Biological Resources, for further discussion).	Alternative A is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is inconsistent with this goal. Alternative C would have a significant and unavoidable impact on the use of native wildlife nursery sites, specifically for local and regional populations of sensitive avian species that use the habitat in the Upper Newport Bay.	The No Project Alternative is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Safety Element					
Goal S 8 Residents, property, and the environment are protected from aviation-related hazards.	The Proposed Project would be consistent with this policy. The Proposed Project also does contemplate any modifications to the airfield or air traffic procedures at the Airport and, therefore, would not require amending the existing JWA Clear Zone/Runway Protection Zone, which related to safety concerns.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
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 is consistent with this policy as the Project does not propose any facility expansions. The Proposed Project also would not result in any safety-related impacts because operational procedures at the Airport, including those related to air traffic, would not change. Additionally, within the City of Newport Beach, the noise contours associated with the Proposed Project would not exceed the noise contours contained in the 1985 JWA Master Plan, which was the basis for the Settlement Agreement.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is inconsistent with this policy. While Alternative C does not propose any facility expansions or changes to existing operational procedures at the Airport, the noise contours associated with Alternative C are greater than those in the 1985 JWA Master Plan; therefore, Alternative C does not provide the safeguards envisioned by the Settlement Agreement.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
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 Proposed Project would be consistent with this policy. The JWA AELUP reflects the 1985 JWA Master Plan noise contours. Because within the City of Newport Beach, the Proposed Project's noise contours are contained within the 1985 JWA Master Plan, the Proposed Project would not jeopardize the noise-related safeguards provided in the AELUP. The Proposed Project also does contemplate any modifications to the airfield or air traffic procedures at the Airport and, therefore, would not require amending the existing JWA Clear Zone/Runway Protection Zone, which related to safety concerns.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is inconsistent with this policy. Because the noise contours associated with Alternative C are greater than those in the 1985 JWA Master Plan, Alternative C would be inconsistent with the existing AELUP and would have noise-related impacts on the existing community that are greater than those evaluated as part of the 1985 Master Plan. That being said, Alternative C does not contemplate any modifications to the airfield or air traffic procedures at the Airport and, therefore, would not require amending the existing JWA Clear Zone/Runway Protection Zone, which relate to safety concerns.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
Housing Element					
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.	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 4.6-11c in Section 4.6 shows the 1985 Master Plan 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, it would not further restrict housing in the Airport Area. Additionally, the Proposed Project does not propose any physical improvements or new development.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Though Alternative C does not propose any new development, it would be inconsistent with this policy because the 65 CNEL contour associated with Alternative C is greater than the 65 CNEL contour assumed as part of the 1985 Master Plan. Therefore, Alternative C would restrict the opportunities for additional housing in the Airport Area. This may affect the City's ability to meet the overall housing goals.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Noise Element					
Policy N 1.1 Noise Compatibility of New Development Require that all proposed projects are compatible with the noise environment through use of Table N2, and enforce the interior and exterior noise standards shown in Table N3. **Policy N 1.2 Noise Exposure Verification for New Development** Applicants for proposed projects that require environmental review and are, located in areas projected to be exposed to a CNEL of 60 dBA and higher, as shown on Figure N4, Figure N5, and Figure N6 may conduct a field survey, noise measurements or other modeling in a manner acceptable to the City to provide evidence that the depicted noise contours do not adequately account for local noise exposure circumstances due to such factors as, topography, variation in traffic speeds, and other applicable conditions. These findings shall be used to determine the level of exterior or interior, noise attenuation needed to attain an acceptable noise exposure level and the feasibility of such mitigation when other planning considerations are taken into account. **Policy N 1.4 New Developments in Urban Areas** Require that applicants of residential portions of mixed-use projects and high density residential developments in urban areas (such as the Airport Area and Newport Center) demonstrate that the design of the structure will adequately isolate noise between adjacent uses and units (common floor/ceilings) in accordance with the California Building Code.	The Proposed Project is consistent with this policy. Policies N 1.1, N 1.2, and N 1.4 from the Noise Element pertain to new development projects proposed within the City. Tables N2 and N3 are provided in the General Plan Noise Element on pages 12-23 and 12-24, and Figures N4 through N6 are provided on pages 12-17 through 12-22. Policies N 1.1, N 1.2, and N 1.4 provide for land use protections for future development projects in order to minimize land use compatibility conflicts. The Proposed Project does not propose any physical improvements or new development.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
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. **CNEL (dBA) / dBA increase** 55 / 3 60 / 2 65 / 1 70 / 1 Over 75 / Any increase is considered significant	This policy has been incorporated into the thresholds used to evaluate noise impacts associated with the Proposed Project (see Section 4.6, Noise). As discussed in Section 4.6, Noise, the Proposed Project, Phase 3 would exceed the City of Newport Beach standards at NMS 2S and 8N; however, there are no noise sensitive uses in proximity of NMS 8N. NMS 2S in the Santa Ana Heights area which is located south of the City of Newport Beach Airport Area. NMS locations are shown on Exhibit 4.6-9 in Section 4.6. The noise levels are projected to increase from the existing level of 65.4 CNEL to 66.4 CNEL with Phase 3, which would result in an inconsistency with this General Plan Policy. It should be noted, the analysis presented is a maximum environmental impact because it assumes continuation of the same fleet mix and the full realization of the 12.5 MAP in 2026. Should the newer generation aircraft be introduced at JWA, noise levels would be reduced. At this time, any changes to the fleet mix would be speculation; therefore, mitigation has been developed to avoid this potential impact. With implementation of Mitigation Measure LU-2, this impact could be reduced to less than significant; therefore, the Proposed Project is consistent with this policy.	Similar to the Proposed Project, Alternative A, Phase 3 would result in noise increases that exceed the standards established by this policy. The noise levels are projected to increase by 1 CNEL at NMS 1S, 2S, and 8N. MNS 1S and 2S are located in residential areas. The consistency analysis presented for the Proposed Project would be applicable to Alternative A. With implementation of Mitigation Measure LU-2, this impact could be reduced to less than significant; therefore, Alternative A is consistent with this policy.	Similar to the Proposed Project, Alternative B, Phases 2 and 3 would result in noise increases that exceed the standards established by this policy. As shown in Table 4.6-13 (in Section 4.6), in Phase 2 the noise levels are projected to increase by 1.1 CNEL at NMS 1S and 2S and 1.7 CNEL in Phase 3. Additionally, Phase 3 would result in a 1 CNEL increase at NMS 3S. Similar to Alternative A there would also be increases in excess of the standard at NMS 8N. The consistency analysis presented for the Proposed Project would be applicable to Alternative B. With implementation of Mitigation Measure LU-2, this impact could be reduced to less than significant; therefore, Alternative A is consistent with this policy.	As provided in Table 4.6-15, the noise increases with Alternative C (all phases) would exceed the standards established by this policy. With Phases 2 and 3, the threshold would be exceeded at all NMSs except NMS 9N and 10N. The increases would be by as much as 5 CNEL. Application of Mitigation Measure LU-2 would substantially restrict the basic tenants of this alternative (i.e., maximizing the number of flights and MAP to fully utilize the airfield capacity at JWA). Therefore, is has been determined that Alternative C is inconsistent with this policy.	The No Project Alternative is consistent with this policy because this alternative would not result in noise increases that exceed the standards provided in this policy.
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. **Policy N 3.1** New Development; Ensure new development is compatible with the noise environment by using airport noise contours no larger than those contained in the 1985 JWA Master Plan, as guides to future planning and development decisions. **Policy N 3.2** Residential Development; Require that residential development in the Airport Area be located outside of the 65 dBA CNEL noise contour no larger than shown in the 1985 JWA Master Plan and require residential developers to notify prospective purchasers or tenants of aircraft overflight and noise.	The Proposed Project would be consistent with this goal and related policies. No new development is proposed, and the noise contours associated with the Proposed Project would not exceed the noise contours contained in the 1985 JWA Master Plan. 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. Exhibits 4.6-11b and 4.6-11c in Section 4.6 show the 1985 Master Plan contours. The protections provided for in these policies would not be affected.	Alternative A is consistent with this goal and related policies. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this goal and related policies. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is inconsistent with this goal and related policies. The noise contours associated with Alternative C are greater than those in the 1985 JWA Master Plan. Therefore, the 1985 JWA Master Plan noise contours would not serve as an adequate guide to ensure land use consistency.	In the short-term, the No Project Alternative is consistent with this goal and related policies because this EIR assumes the continuation of the existing provisions of the Settlement Agreement. However, long-term, this cannot be guaranteed since the No Project Alternative would allow the Settlement Agreement to sunset and the current restrictions possibly could be eliminated.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
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 is consistent with this policy. It does not propose to construct noise-sensitive uses within the planning area identified in the JWA AELUP.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
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 is consistent with this policy. The Proposed Project does not modify the curfew and GANO; rather, it is intended to extend the duration of those restrictions. 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 would not modify the curfew.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is inconsistent with this policy as Alternative C, Phases 2 and 3 assume elimination of the curfew.	The No Project Alternative would be inconsistent with this policy. The No Project Alternative would allow the Settlement Agreement to sunset on December 31, 2015, which would eliminate some assurances that the noise restrictions would remain in place. Consistent with CEQA (Section 15126.6[e][3][A]), this EIR evaluates the No Project Alternative as "the continuation of the existing plan, policy or operation into the future"; however, there are no assurances this in fact would be the case. The County Board of Supervisors would be able to consider elimination of restrictions on JWA operations including, but not limited to, the preexisting nighttime flight restrictions (curfew). But none of those things would happen "automatically" without further express action of the Board. Again, any of those actions would be "projects" within the meaning of CEQA and would require CEQA (and perhaps NEPA) compliance before they could be approved and implemented. Therefore, this alternative is not consistent with this policy.
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 is consistent with this policy. The Proposed Project does not assume any modifications to the facilities at the Airport. The limitation on the number of gates would be eliminated after 2020; however, that would not be associated with the construction of a second air carrier runway.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
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.	The Proposed Project is consistent with this policy. The Proposed Project would not modify general aviation operations or FBO operations. There would be sufficient airfield capacity to allow the increased commercial flights and maintain the current level of general aviation activity.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C would be inconsistent with this policy. As discussed below in the evaluation of on-site facilities, under VFR, the airfield capacity is exceeded for Alternative C, Phases 1 and 2 during peak hours. This may have an impact on general aviation because of delays for use of runway facilities.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
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 is consistent with this policy. The Proposed Project would not modify the RMS or reporting mechanisms.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
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 is consistent with this policy. Though the number of flights and MAP would be allowed to increase, the Proposed Project would maintain restrictions on the number of flights and the MAP levels at the Airport. As a result, those Orange County air travelers that are not served at JWA would use alternative airports.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is generally inconsistent with this policy. Even with the number of flights and MAP level permitted, the full Orange County air travel demand would not be accommodated at JWA. Many destinations, including distant international locations, would not be effectively served by JWA with Alternative B. However, the substantial increase allowed with Alternative B would limit the incentive to use alternative airports for most domestic flights.	Alternative C is generally inconsistent with this policy. The consistency analysis presented for Alternative B would be applicable to Alternative C.	In the short-term, the No Project Alternative would be consistent with this policy because, though the Settlement Agreement would expire, there would be a delay in the preparation of a new JWA Master Plan that would permit additional flights and MAP levels. However, long-term, it is unknown whether the No Project Alternative would comply with this policy. Without the Settlement Agreement there would be fewer mechanisms to restrict flights and limit the number of passengers served at JWA.
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 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	The Proposed Project is consistent with this policy. It would extend the Settlement Agreement until 2030. The increased number of flights and MAP would have an incremental increase in the noise contours; however, the noise contours would be less than those provided for in the 1985 JWA Master Plan, which is the basis for the Settlement Agreement.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is inconsistent with this policy. This alternative by in large, eliminates the restrictions of the Settlement Agreement. The number of flights and MAP would increase and the curfew is eliminated. As a result the size of the noise contours would substantially increase. The noise contours associated with Alternative C would be larger than those provided for in the original Settlement Agreement. Therefore, Alternative C would	The No Project Alternative would not be consistent with this policy. The No Project Alternative would allow the Settlement Agreement to sunset on December 31, 2015. As a result, the protections provided in the Settlement Agreement would no longer apply. As indicated above, this EIR evaluates the No Project Alternative as "the continuation of the existing plan, policy or operation into the future"; however, there are no assurances this, in fact, would be the case. The

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
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.				not be considered in best interest of the residents of Newport Beach in the long term.	County Board of Supervisors would be able to consider elimination of restrictions on JWA operations including, but not limited to, the number of flights, passengers served, and the preexisting nighttime flight restrictions (curfew). But none of those things would happen "automatically" without further express action of the Board. Again, any of those actions would be "projects" within the meaning of CEQA and would require CEQA (and perhaps NEPA) compliance before they could be approved and implemented. Therefore, this alternative is not consistent with this policy.
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. • 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.	This objective has been incorporated into the thresholds used for the traffic analysis for the Project (see Section 4.8, Transportation/ Traffic.) The Proposed Project is consistent with this policy. The Proposed Project (Year 2026) would directly impact one intersection (MacArthur Blvd/Michelson Dr.) in the City of Irvine. Since this is a direct project impact, JWA would be responsible for reimbursing the City of Irvine for the cost of improvement in order to maintain an acceptable LOS.	Alternative A is consistent with this objective. Alternative A (Year 2026) would have the same impact to the Campus Dr./N Bristol St intersection as the Proposed Project. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this objective. Alternative B would impact intersections in Newport Beach (Campus Dr./Airport Way [Year 2026]; Campus Dr./N Bristol St [Year 2016]) and one intersection in Irvine (MacArthur Blvd/Michelson Dr. [Year 2026]). The impacts to Campus Dr./Airport Way and MacArthur Blvd/Michelson Dr. are direct project impacts and JWA would be responsible for reimbursing the City of Newport Beach and the City of Irvine for the cost of improvement in order to maintain an acceptable LOS. The impact to Campus Dr./N Bristol St is a cumulative impact and JWA would be responsible for reimbursing the City of Newport Beach the fair share cost of the improvement in order to maintain an acceptable LOS.	Alternative C is consistent with this objective. Alternative C would impact intersections in Newport Beach (Campus Dr./Airport Way [Year 2016]; Campus Dr./N Bristol St [Year 2016]) and one intersection in Irvine (MacArthur Blvd/Michelson Dr. [Year 2016]). The impacts to Campus Dr./Airport Way and MacArthur Blvd/Michelson Dr. are direct project impacts and JWA would be responsible for reimbursing the City of Newport Beach and the City of Irvine for the cost of improvement in order to maintain an acceptable LOS. The impact to Campus Dr./N Bristol St is a cumulative impact and JWA would be responsible for reimbursing the City of Newport Beach the fair share cost of the improvement in order to maintain an acceptable LOS.	The No Project Alternative is consistent with this objective. The No Project Alternative would have the same impact to the Campus Dr./N Bristol St intersection as the Proposed Project. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
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 Proposed Project is consistent with these objectives. The Airport has coordinated with the City of Irvine and other adjacent jurisdictions throughout the development of the technical analyses, including mitigation measures.	Alternative A is consistent with these objectives. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with these objectives. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with these objectives. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with these objectives. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Objective B-1 Policy (i) Actively lobby with appropriate state commissions, committees, and legislators for funding to upgrade the Costa Mesa, San Diego and Santa Ana Freeways.	JWA recognizes and supports the need to upgrade these regional facilities, which are under the jurisdiction of the State. Lobbying for upgrades is outside JWA's mandate; however, the Proposed Project would not preclude actions taken by other jurisdictions.	Alternative A is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Objective B-7 Policy (a) Coordinate public and local transit with planning for air transportation.	The Proposed Project is consistent with this objective. 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. The information can be found at www.ocair.com/groundtransportation/default.aspx.	Alternative A is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
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. There would be environmental impacts that cannot be mitigated to a level considered less than significant.	Alternative A is inconsistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is inconsistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is inconsistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is inconsistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
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 Proposed Project is generally consistent with this objective. The RTP/SCS regional air passenger demand forecast of 145.9 MAP in 2035 is a very conservative forecast; however, it is based on interim forecasts, which show urban capacity-constrained airports, including JWA, reaching their defined legally allowable or physical capacity constraints well before 2035. Therefore, the excess demand not being served by JWA is expected to use other regional airports, consistent with the direction of this policy. Any of the airports in the region that would be serving the growing demand for air travel are located in existing urban communities. Therefore, there needs to be a balance on serving the demand and minimizing the environmental impacts on existing communities. The Proposed Project would result in environmental impacts, but would	Alternative A is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B was found to be inconsistent with this objective. Even with the number of flights and MAP level permitted with Alternative B, the full Orange County air travel demand would not be accommodated at JWA. Many destinations include distant international locations that would not be effectively served by JWA with Alternative B. Therefore, Orange County travelers would still be required to use LAX and Ontario Airports for some their traveling needs. However, the substantial increase allowed with Alternative B would limit the	Alternative C is inconsistent with this objective. Alternative C would not provide a substantial incentive to travelers to use other regional airports. Additionally, Alternative C would have impacts on the existing community that are greater than those evaluated as part of the 1985 Master Plan.	The No Project Alternative is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
	not require physical improvements. The noise footprint within the City of Newport Beach associated with the Proposed Project is less than the projected footprint for the 1985 Master Plan. Therefore, the anticipated adverse impacts associated with noise and land use compatibility with the Proposed Project are reduced compared to what was assumed as part of the County General Plan and the associated SAHSP and LUCP (which were based the 1985 Master Plan). This allows the efficiency of the existing facilities to be maximized and the overall impacts to the region minimized.		incentive to use alternative airports for most domestic flights. The analysis presented for the Proposed Project regarding environmental impacts would be applicable to Alternative B; however, the impacts would be greater with Alternative B than the Proposed Project.		
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 the remote long-term parking lot from JWA to minimize congestion immediately adjacent to the Airport. There are no provisions in the Proposed Project that would preclude a future activity center as a connection point to JWA.	Alternative A is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Objective B-7 Policy (f) Encourage the development of high-speed ground transportation systems to supplement the air system for meeting regional travel needs.	The Proposed Project would not preclude development of a high-speed ground transportation system in Orange County. Currently, there is no such system on the ground or planned to provide access to JWA.	Alternative A is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this objective. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
City of Costa Mesa General Plan					
Land Use Element					
Land Use Compatibility: Policy (a) Ensure, through the discretionary review process, the public health, safety, and welfare of sensitive receptors/land uses when locating such uses in close proximity to the following land uses: • Uses which handle, generate, and/or transport hazardous substances (as defined by federal and state regulations). • Uses which create excessive noise. • Uses which create excessive dust. • Uses which create other land use conflicts. At the same time, ensure that the proposed sensitive receptors/land uses will not have an impact on the continued operation and/or expansion of the following land uses: • Airports. • Surface utilities. • Off-Site hazardous waste facilities. • Solid waste facilities.	The Proposed Project is consistent with this policy. It 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 compatibility with the Airport.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
• Manufacturing uses. • Research and development uses. • Mining and processing uses. Any land use which handles, generates, and/or transports hazardous substances as defined by federal and state regulations.					
Circulation Element					
Policy CIR-1A.11 Attempt to maintain or improve mobility within the City to achieve a standard level of service not worse than Level of Service "D" at all intersections under the sole control of the City. Intersection level of service analyses for General Plan conditions shall be updated periodically and presented to City Council.	The Proposed Project is consistent with this policy. The Proposed Project would not result in any significant impacts to intersections located in Costa Mesa.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. In Year 2026, Alternative C would result in a direct impact to the Santa Ana Ave/Del Mar Ave intersection; however, JWA would fully fund a new traffic signal, which would mitigate the impact.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Policy CIR-1A.12 Cooperate with adjacent jurisdictions to maintain or improve mobility within the City to achieve a standard level of service no worse than "D" at all intersections under State or joint control. Intersection level of service analyses for General Plan conditions for locations under State or joint control shall be updated periodically and presented to City Council.	The Proposed Project is consistent with this policy. As part of the scoping process for the EIR, JWA coordinated with surrounding jurisdictions and agencies (including the County of Orange and the cities of Newport Beach, Irvine, Costa Mesa, Santa Ana, Tustin, and Caltrans) requesting input on the Proposed Project. The Proposed Project would not result in any significant impacts to intersections located in Costa Mesa.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. As part of the scoping process for the EIR, JWA coordinated with surrounding jurisdictions and agencies (including the County of Orange and the cities of Newport Beach, Irvine, Costa Mesa, Santa Ana, Tustin, and Caltrans) requesting input on the Proposed Project. In Year 2026, Alternative C would result in a direct impact to the Santa Ana Ave/Del Mar Ave intersection; however, JWA would fully fund a new traffic signal, which would mitigate the impact.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Policy CIR-1A.15 Prioritize intersection improvements which improve through traffic flow on major, primary, and secondary arterials, and reduce impacts on local neighborhood streets with emphasis on pedestrian safety.	The Proposed Project is consistent with this policy. The Proposed Project would not result in any significant impacts to intersections located in Costa Mesa.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. In Year 2026, Alternative C would result in a direct impact to the Santa Ana Ave/Del Mar Ave intersection; however, JWA would fully fund a new traffic signal, which would mitigate the impact.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
Policy CIR-1A.16 Maintain balance between land use and circulation systems by phasing new development to levels that can be accommodated by roadways existing or planned to exist at the time of completion of each phase of the project.	The Proposed Project is consistent with this policy. The traffic analysis completed for the Proposed Project evaluated each phase of the Project to determine the potential for impact and associated mitigation. The analysis evaluated a maximum environmental impact by assuming the full allocation of new flights and MAP was realized in the first year of each phase.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Policy CIR-1A.17 Work closely with the State of California and other government agencies to control traffic-related impacts of uses on State- or other agency-owned land (i.e., Orange County Fairgrounds, Orange Coast College, etc.).	The Proposed Project is consistent with this policy. As part of the scoping process for the EIR, JWA coordinated with surrounding jurisdictions and agencies including the County of Orange and the cities of Newport Beach, Irvine, Costa Mesa, Santa Ana, Tustin, and Caltrans, requesting input on the Proposed Project. As part of the traffic study appropriate mitigation has been incorporated, as necessary, to minimize potential traffic impacts.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Policy CIR-2A.2 Coordinate with the Orange County Transportation Authority and with adjacent jurisdictions to improve signal timing and coordination along major arterials.	The Proposed Project is consistent with these policies. JWA will coordinate with adjacent cities as mitigation is implemented to ensure the signal improvements installed are compatible with any interconnect or synchronization that has been installed.	Alternative A is consistent with these policies. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with these policies. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with these policies. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with these policies. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Policy CIR-2D.1 Circulation improvements required to provide or attain the minimum traffic level of service standard at an intersection to which a development project contributes measurable traffic shall be completed within three years of issuance of the first building permit for said project, unless additional right-of-way or coordination with other government agencies is required to complete the improvement. Improvements may be required sooner if, because of extraordinary traffic generation characteristics of the project or extraordinary impacts to the surrounding circulation system, such improvements are necessary to prevent significant adverse impacts. **Policy CIR-2D.2** Construction of circulation improvements for phased development projects may be constructed commensurate with the project construction based upon the findings of a traffic study approved by the City of Costa Mesa. **Policy CIR-2D.3** A traffic impact fee shall be maintained for circulation system improvements to the Master Plan of Highways within the community and updated annually.	The Proposed Project is consistent with these policies. Section 4.8, Transportation/Traffic, includes a discussion of the Proposed Project's impacts on traffic and circulation. The Proposed Project would not result in traffic impacts to any intersection in Costa Mesa. The Proposed Project would not preclude the implementation of a traffic impact fee in Costa Mesa for improvements to their Master Plan of Highways.	Alternative A is consistent with these policies. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with these policies. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with these policies. In Year 2026, Alternative C would result in direct impact to the Santa Ana Ave/Del Mar Ave intersection; however, JWA would fully fund a new traffic signal, which would mitigate the impact. This mitigation would be required in Year 2026 and would not be implemented within 3 years after Project approval.	The No Project Alternative is consistent with these policies. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
Policy CIR-2D.4 Require discussion of transit service needs and site design amenities for transit ridership in EIRs for major projects.	The Proposed Project is consistent with this policy. Section 4.8, Transportation/Traffic, includes a discussion of transit and the Proposed Project's impacts on transit, which were determined to be less than significant. Information on ground transportation (including public buses and trains) and shuttle services that provide service to the Airport is provided on JWA's website (www.ocair.com/groundtransportation/default.aspx).	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Noise Element					
Goal N-1: Noise Hazards and Conditions It is the goal of the City of Costa Mesa to protect its citizens 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 Proposed Project is consistent with this goal and objective. The 65 CNEL contour would not result in new off-site incompatible land uses in Costa Mesa that are not already present.	Alternative A is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Policy N-1A.7 Discourage sensitive land uses from locating in the 65 CNEL noise contour of the 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.	The Proposed Project is consistent with this policy. Within the City of Costa Mesa, the Proposed Project would not expand the 65 CNEL contour to include any residential areas. There are currently noise-sensitive uses (schools and places of worship) adjacent to the Airport. This area has been built as office uses and sound attenuation has been incorporated into the design of the buildings. If future noise-sensitive uses are proposed adjacent to the Airport, compliance with this policy would ensure adequate protection.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
Policy N-1A.8 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.	The Proposed Project would not maintain existing limitations on aircraft daily departures; however, it would provide for the continuation of restriction on operations through 2030. Without the Settlement Agreement Amendment, the framework for the continuation of the restrictions would be eliminated. Therefore, the Proposed Project is generally consistent with the intent of this policy. It should be noted, however, that 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 Project.	Alternative A is generally consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is would be marginally consistent with this policy. Though the framework for the Settlement Agreement would remain in place, with Alternative C, in Phases 2 and 3 the curfew would be eliminated. The curfew is a key provision associated with noise control. Alternative C was developed based on maximizing the airfield capacity of the Airport. As a result, there is a substantial increase in the number of flights and passengers allowed providing limited restrictions that would control noise.	The No Project Alternative is inconsistent with this policy. The No Project Alternative would not as fully safeguard all of the current restrictions on operations. With the expiration of the Settlement Agreement on December 31, 2015, the County or the FAA may propose modifications to the number of flights, to passenger levels, and/or to the curfew.
City of Tustin General Plan					
Noise Element					
Policy 1.3 Encourage John Wayne Airport to set up noise control procedures and to consider methods to reduce and minimize noise exposure due to aircraft flyovers within the Tustin Planning Area.	The Proposed Project is consistent with this policy. The *City of Tustin General Plan's* Noise Element establishes the City's noise criteria. The City has adopted noise standards for various land uses, including residential, educational facilities, and hospitals. Though the Proposed Project would increase the number of flights, the 65 CNEL contour would not extend into the Tustin Planning Area. As noted above, 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 Project.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Policy 1.4 Continue to monitor all John Wayne Airport activities to minimize noise impacts within the Tustin Planning Area resulting from airport operations, and oppose legislation promulgated by the FAA that could eliminate local flight restrictions.	The Proposed Project is consistent with the policy. The Proposed Project would extend the Settlement Agreement, which would allow the existing restrictions to be maintained until 2030. The Proposed Project would have a less than significant impact for all phases for noise increases determined by City of Tustin standards.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is inconsistent with this policy. The policy opposes legislation that would eliminate local flight restrictions. Though this alternative would not result in legislation, it would allow the Settlement Agreement to expire, on December 31, 2015, which would eliminate some of the protections that allow the current flight restrictions.

TABLE 4.5-10
GOALS AND POLICIES CONSISTENCY ANALYSIS

	Proposed Project	Alternative A	Alternative B	Alternative C	No Project
Policy 1.5 Work to reduce risks and noise impacts resulting from aircraft operations by (a) participating in and monitoring the planning process for John Wayne Airport and (b) continuing to discourage commercial or general aviation activities which increase noise exposure. **Policy 1.6** Encourage Tustin citizen participation and City involvement on committees that would influence future aircraft operations in Orange County.	The Proposed Project is consistent with these policies. As part of the scoping process for the EIR, JWA coordinated with surrounding jurisdictions and agencies, including the City of Tustin, and requested input on the Proposed Project. Tustin citizens were given the opportunity to participate in a public scoping meeting for the Proposed Project.	Alternative A is consistent with these policies. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with these policies. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with these policies. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with these policies. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
City of Santa Ana General Plan					
Airport Environs Element					
Goal 1 Protect sensitive land uses from airport related noise impacts. **Policy 1.3** Require all residential land uses in 60 dB(A) CNEL or 65 dB(A) CNEL Noise Contours to be sufficiently mitigated so as not to exceed an interior standard of 45 dB(A) CNEL.	The Proposed Project is consistent with this goal and policy. The 65 CNEL contour would not result in any new off-site incompatible land uses in the City of Santa Ana.	Alternative A is consistent with this goal and policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this goal and policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this goal and policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this goal and policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Policy 1.2 Advocate that future flight path selection be directed away from existing noise sensitive land uses.	The Proposed Project is consistent with the policy. The flight path for JWA is determined by the FAA. Therefore, JWA has no authority in determining that the flight path be directed away from noise-sensitive uses.	Alternative A is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this policy. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.
Goal 2 Protect the safety of the general public from aircraft hazards.	The Proposed Project is consistent with the policy. In the JWA AELUP, safety compatibility zones are identified. These safety compatibility zones depict which land uses are acceptable and which are unacceptable in various portions of airport environs. The purpose of these zones is to support the continued use and operation of an airport by establishing safety compatibility standards to promote air navigational safety and to reduce potential safety hazards for persons living, working, or participating in recreational activities near JWA.	Alternative A is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative A.	Alternative B is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative B.	Alternative C is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to Alternative C.	The No Project Alternative is consistent with this goal. The consistency analysis presented for the Proposed Project would be applicable to the No Project Alternative.

TSA: Transportation Security Administration; ICE: U.S. Immigration and Customs Enforcement; JWA: John Wayne Airport; OCFA: Orange County Fire Authority; RON: remain overnight; RTP/SCS: Regional Transportation Plan/Sustainable Communities Strategy; MAP: Million Annual Passengers; SCAG: Southern California Association of Governments; CNEL: Community Noise Equivalent Level; LOS: level of service; EIR: environmental impact report; Caltrans: California Department of Transportation; OCTA: Orange County Transportation Authority; GSE: ground service equipment; NCCP/HCP: Natural Community Conservation Plan/Habitat Conservation Plan; AELUP: Airport Environs Land Use Plan; CEQA: California Environmental Quality Act; FAA: Federal Aviation Administration; ANCA: Airport Noise and Capacity Act; FBOs: fixed based operators; VFR: Visual Flight Rule; RMS: remote monitoring system.

Sources (goals and policies): 2012–2035 RTP/SCS, SCAG 2012; City of Santa Ana General Plan, Santa Ana 2009; General Plan 2005, County of Orange 2005; City of Newport Beach General Plan, Newport Beach 2006; The City of Irvine General Plan, Irvine 1999; Costa Mesa 2002; City of Tustin General Plan, Tustin 2008.

As discussed in Table 4.5-10, the Proposed Project, Phase 3 would exceed the City of Newport Beach standards at NMS 2S and 8N. With implementation of Mitigation Measure LU-2, this impact could be reduced to less than significant. Therefore, the Proposed Project is consistent with the applicable goals and policies of the County and the City of Newport Beach General Plans.

As part of the analysis provided in Table 4.5-10, it was determined that the Proposed Project would be inconsistent with one objective from the *City of Irvine General Plan* (Objective B-7 Policy (b)). Since the City of Irvine is does not have jurisdiction over the Project, the impact would not be significant.

Impact Conclusion: *The Proposed Project would have less than significant impacts on the capacity of on-site facilities.*

With the Proposed Project, there would be an increase in the number of noise-sensitive uses exposed to noise levels in excess of 65 CNEL (a total of 173 residences would be in the 65 or greater CNEL contour, 77 as a result of the Proposed Project in Phase 3), which would result in a land use incompatibility. This would be a significant impact because there are no feasible mitigation measures to reduce exterior noise levels to below 65 CNEL, consistent with the County of Orange standards for noise sensitive uses. There is also a potential that interior noise levels would exceed established standards for land use compatibility for noise sensitive uses (a total of 102 uninsulated residences would be in the 65 or greater CNEL contour, 44 as a result of the Proposed Project in Phase 3). With implementation of mitigation, this impact would be reduced to a less than significant level for all residences, with the exception of the residences within the area zoned for business park that are not eligible for sound insulation (a total of 75 units in Phase 3, 28 as a result of the Proposed Project). These residences would be subject to significant land use impact because interior noise levels would exceed the County standard.

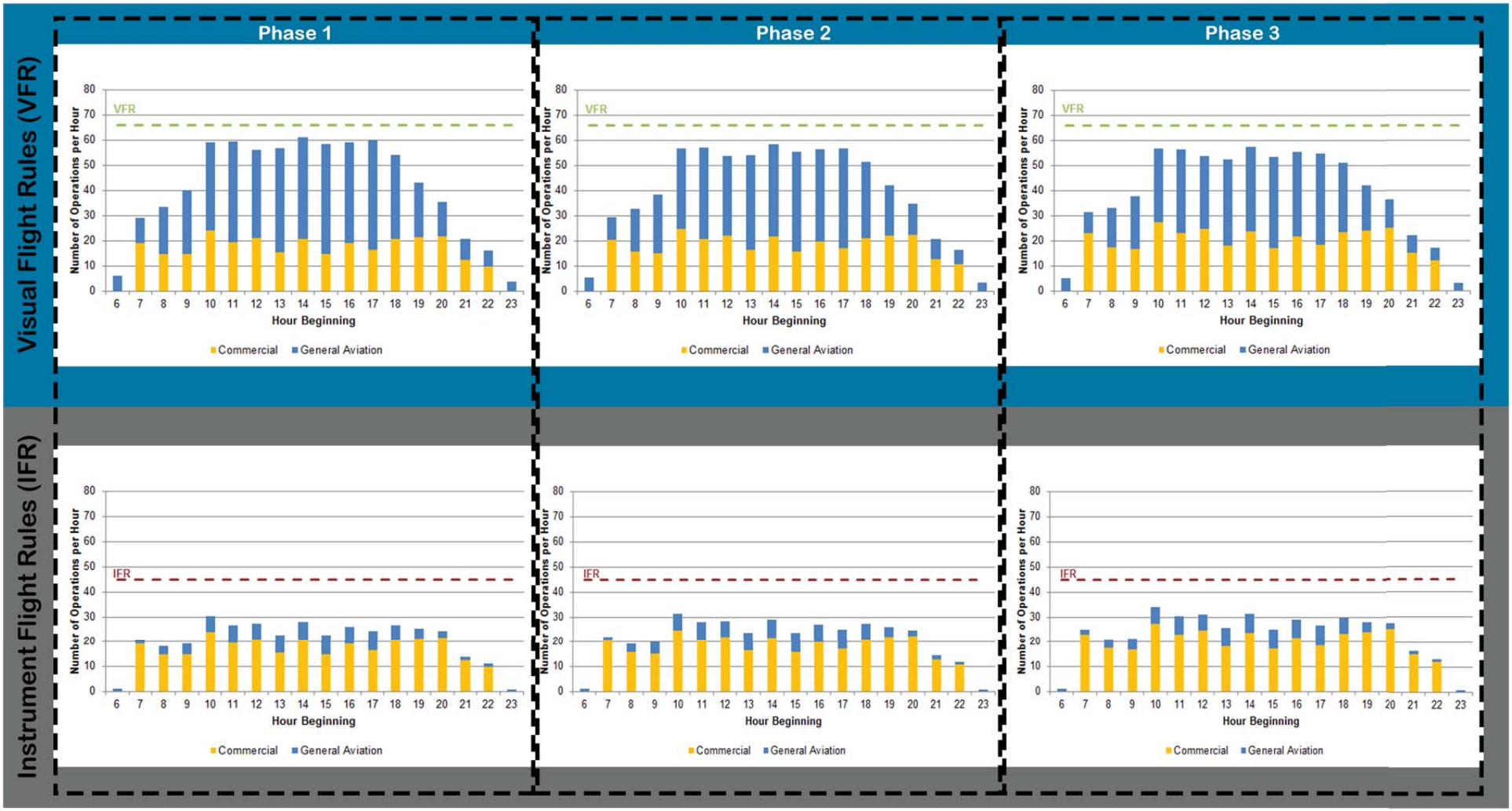
The Proposed Project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project with adoption of the recommended mitigation.

Alternative A

Capacity of On-Site Facilities

Airfield Capacity

Exhibit 4.5-5 presents a comparison of hourly demand (aircraft operations) and runway capacity for Alternative A during VFR and IFR conditions. As seen, the runway capacity is sufficient and capable of accommodating Alternative A in each of the three phases. Therefore, as with the Proposed Project, there would be no impact associated with airfield capacity for Alternative A.



Source: *Aviation Forecasts Technical Report*, AECOM 2014a

Hourly Demand Versus Capacity for Alternative A

Exhibit 4.5-5

John Wayne Airport Settlement Agreement Amendment

JOHN WAYNE AIRPORT ORANGE COUNTY

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Remaining Overnight Capacity

Table 4.5-2, above, presents the available RON capacity and requirements for Alternative A. RON requirements for Alternative A increase slightly with each phase, but in all phases, the demand would not exceed the RON space available. The additional RON spaces would likely be located on the south RON where aircraft being towed to gates with passenger loading bridges would likely involve "head-to-head" operations with the main departure taxi flow on Taxiway A. Though not ideal, this situation would be similar to what was experienced at the Airport prior to the completion of Terminal C and would not be considered a significant environmental impact.

Gate Capacity

The schedule-based analysis (Table 4.5-3) and the turns per gate evaluation (Table 4.5-4) show that Alternative A would not result in any impacts associated with gate capacity Alternative A. However, with the gate throughput analysis (Table 4.5-5), Phase 3 of Alternative A would exceed the available capacity. Table 4.5-5 identifies that Phase 3 of Alternative A would result in 307,500 enplanements per gate. This exceeds 90 percent of the historical peak throughput per gate with a passenger loading bridge (or approximately 306,000 enplanements). Therefore, based on each of these methodologies, it has been determined that Phase 3 of Alternative A would result in an impact to terminal levels of service due to insufficient gate capacity. (Note, that prior to 1985, JWA operated substantially beyond the design capacity of the terminal facilities.)

Terminal Capacity for International Passengers

As shown in Table 4.5-6, above, Alternative A would not result in terminal capacity impacts associated with international flights.

Fuel Storage Capacity

As shown in Table 4.5-7, Phase 1 of Alternative A the additional fuel tanker deliveries can be accommodated with no modifications to the existing fuel farm facilities or hours of operation. Compared to existing conditions, for Phase 2, there would be the need for 5 additional fuel tanker truck delivery for the ADPM (for a total of 33 trucks) and in Phase 3 this would increase to 9 additional fuel truck deliveries, for a total of 37 fuel truck deliveries during the ADPM.

As discussed above for the Proposed Project, due to the requirement to allow the fuel to settle before dispensing and the capacity limitations of the existing tanks, it would not be possible to just have all the additional trucks deliver the fuel during the night time hours. A maximum of 32 fuel trucks can deliver fuel during the night time hours. During peak periods, it would be necessary to modify the operations. Fuel deliveries would need to start earlier in the evening after the first tank is emptied. Since there would not need to be an expansion of the facilities and since the demand can be met with only a minor scheduling modification to the operations, this would not be considered a significant environmental impact.

General Aviation Facilities

None of the phases of the Alternative A would displace any general aviation facilities or have any impact on the operations of the FBOs.

Airport Parking Facilities

As shown in Table 4.5-8, under the existing parking configuration, there would be sufficient parking capacity under Alternative A in Phases 1 and 2; however, Phase 3 would exceed the 90 percent effective capacity threshold. When additional spaces in Parking Structure C2 are constructed, there would be adequate capacity for all phases of the Alternative A. However, since the construction of Parking Structure C2 is not currently programmed for construction, the shortfall in parking would considered to be a potentially significant impact, prior to mitigation.

Summary of Capacity of On-Site Facilities Evaluation

In summary, Alternative A generally could be accommodated by the existing facilities at the Airport. However, based on one of the three methodologies used to assess gate capacity (the gate throughput analysis), there may be insufficient gate capacity and auto parking for Alternative A during Phase 3. With implementation of the mitigation measure requiring the timely construction of Parking Structure C2, the potential impact associated with a shortfall in automobile parking would be reduced to a level of less than significant. The insufficient gate capacity during Phase 3 would be considered a significant, unavoidable impact.

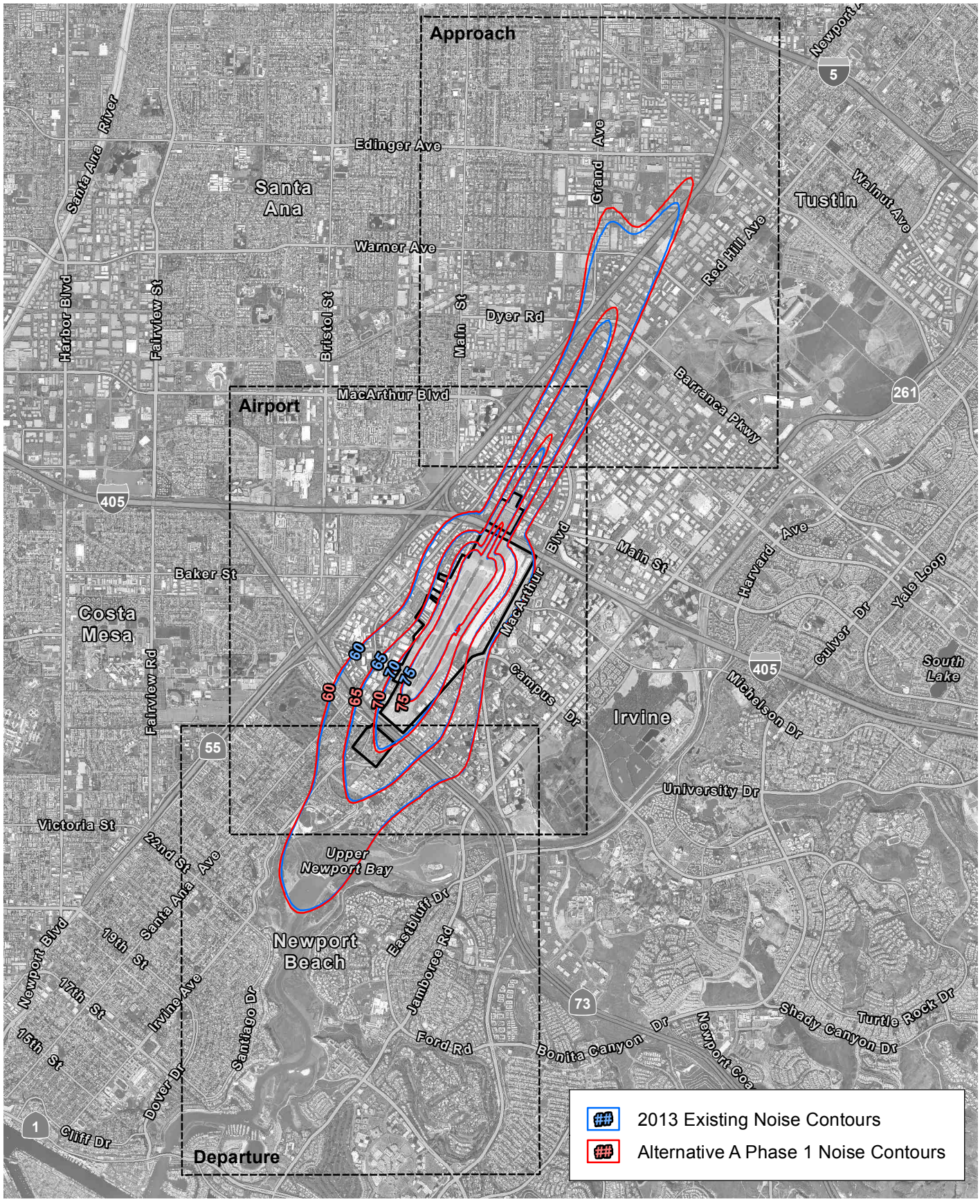
Compatibility with Surrounding Land Uses

Phase 1

As shown in Table 4.5-9, Alternative A, Phase 1 would increase the total 65 to 70 CNEL contour areas by approximately 0.04 square mile (5 percent) and the greater than 70 CNEL contour by approximately 0.05 square mile (8 percent) compared to existing conditions. Outside the Airport boundaries, there would be an increase of 0.04 square mile in both the 65 to 70 CNEL contour and the greater than 70 CNEL contour (6 percent and 44 percent, respectively) compared to existing conditions. Exhibit 4.5-6a provides a comparison of the existing 60, 65, 70, and 75 CNEL contours and the projected contours with the Alternative A, Phase 1. Exhibits 4.5-6b through 4.5-6d provide larger scale exhibits with the noise-sensitive land uses depicted.

No additional sensitive receptors would be within the greater than 70 CNEL contour when Phase 1 of the Alternative A is compared to existing conditions. Increased noise levels over existing conditions would add 22 additional residences to the area within the 65 CNEL contour, of which 7 were insulated under the AIP and 15 were not. For the 22 additional residences that have not been insulated, 14 of them are located in the area zoned for business park; and are non-conforming uses. No other sensitive receptors would be included in the area added to the expanded 65 CNEL contour.

Residences units with outdoor living areas exposed to a greater than 65 CNEL would be incompatible with the County's exterior noise standard. There is no feasible mitigation for the exterior noise levels. Therefore, as the 65 CNEL contour expands beyond the existing contour and includes additional residences this would be a significant land use compatibility impact.



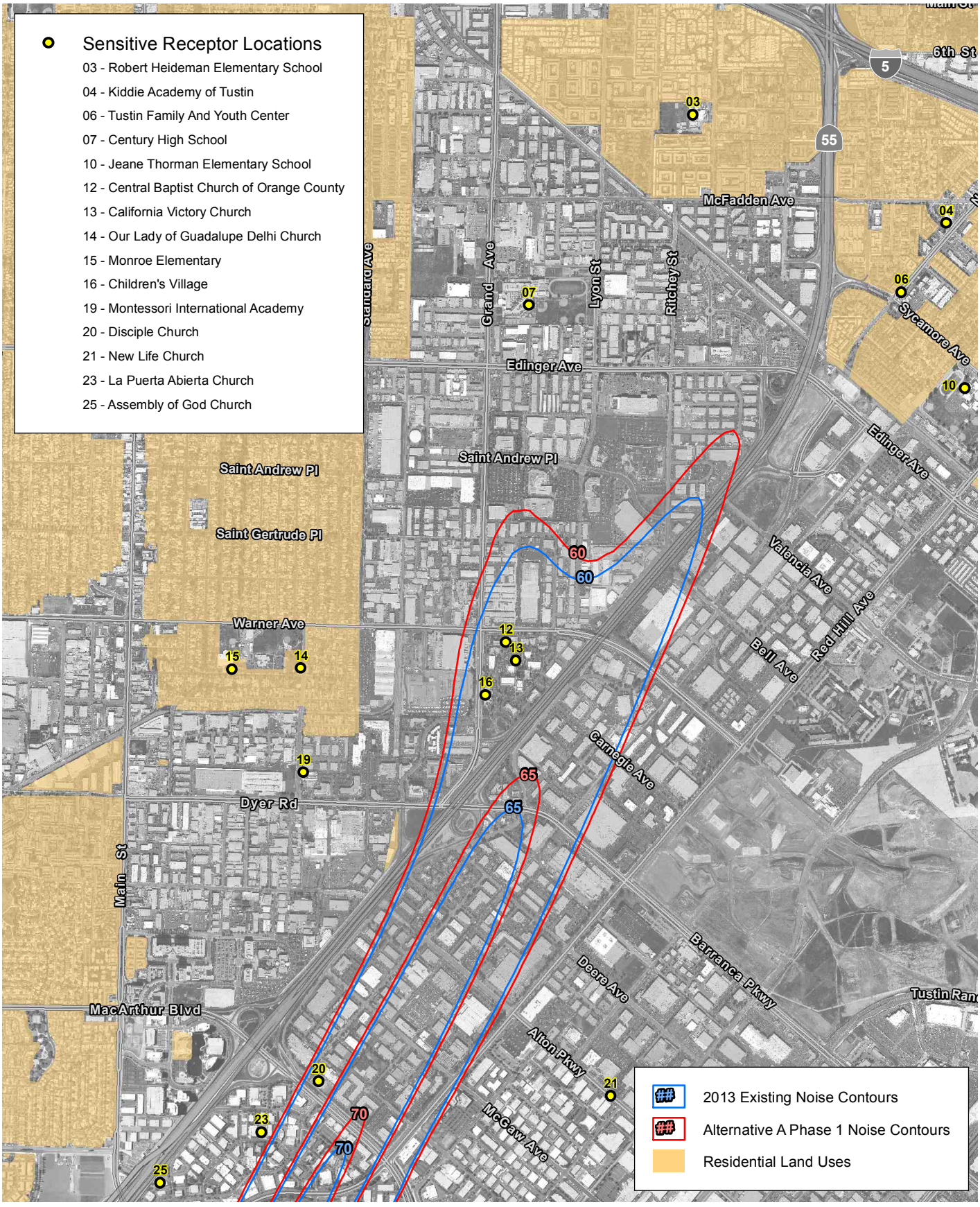
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Comparison of Existing and Alternative A Phase 1 Noise Contours

Exhibit 4.5-6a

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Existing and Alternative A, Phase 1 Approach Noise Contours with Sensitive Land Uses

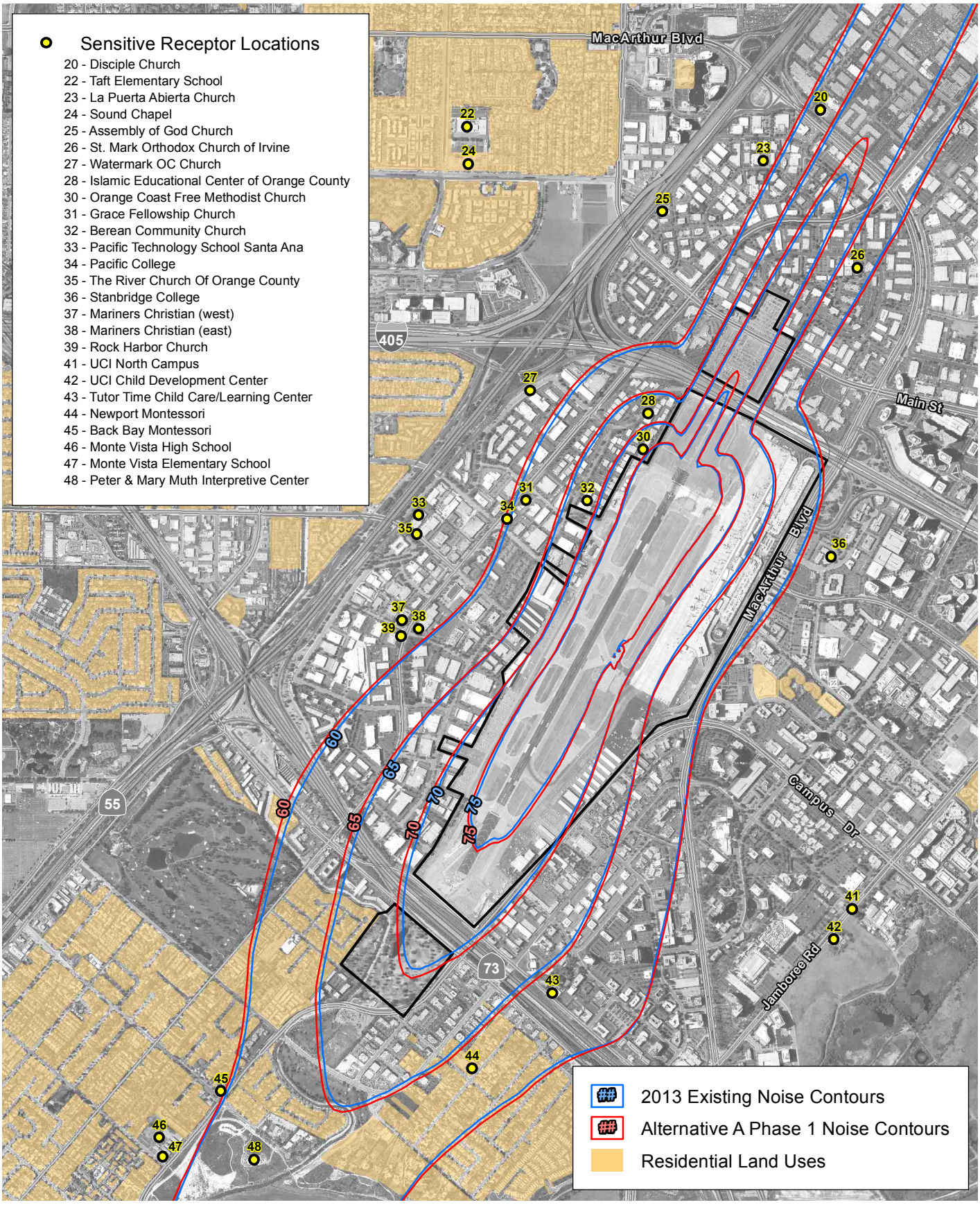
Exhibit 4.5-6b

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Existing and Alternative A, Phase 1 Airport Area Noise Contours with Sensitive Land Uses

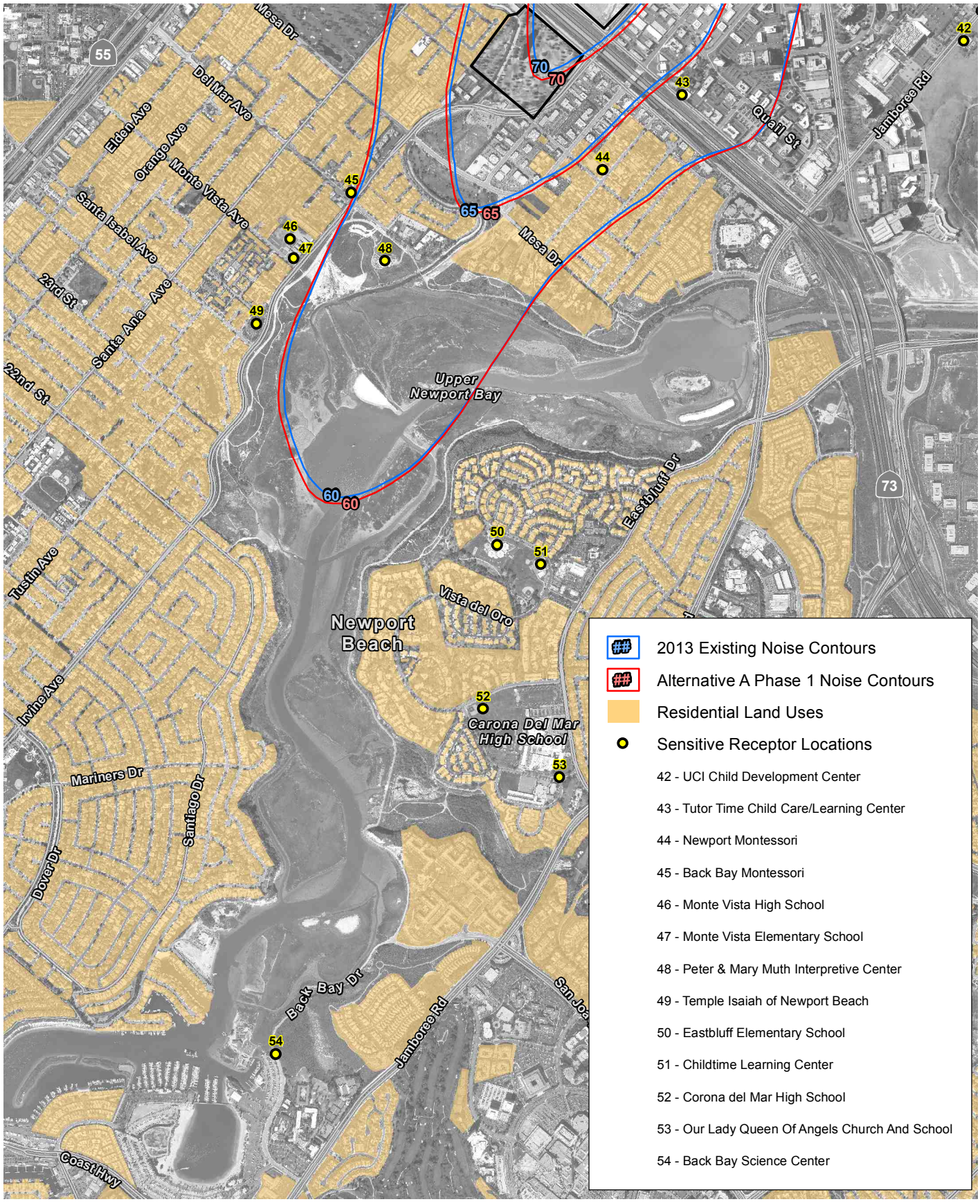
Exhibit 4.5-6c

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Existing and Alternative A, Phase 1 Departure Noise Contours with Sensitive Land Uses

Exhibit 4.5-6d

John Wayne Airport Settlement Agreement Amendment

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The non-conforming residential uses within the business park are not eligible for future sound attenuation. Therefore, from a land use compatibility perspective, these residences are being exposed to exterior and potentially interior noise levels in excess of the County standards, which would be a significant impact and mitigation is not feasible.

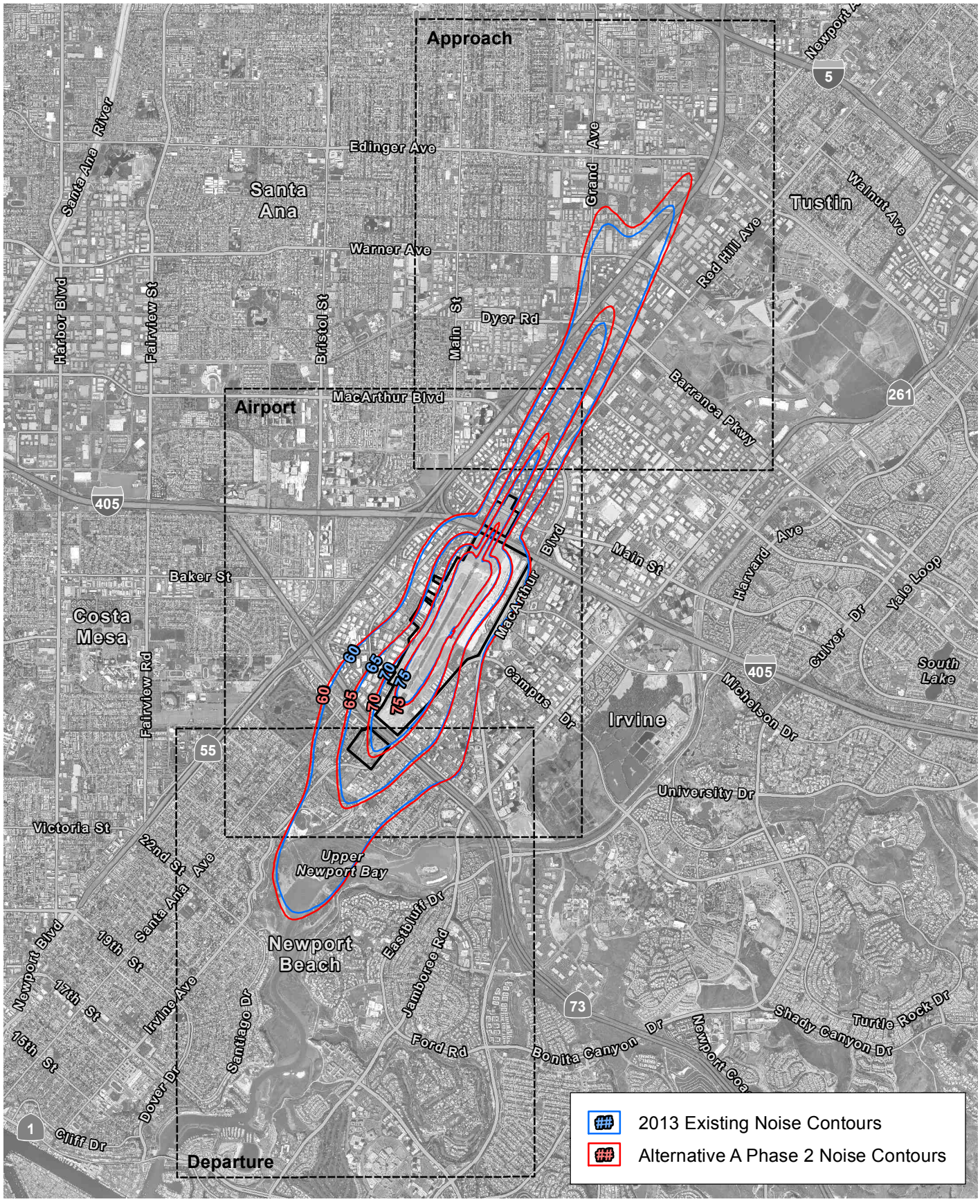
Residences that have received insulation would be compatible with the interior noise standards. For the uninsulated residences, however, there is also the potential for incompatibility due to excessive interior noise levels, which would be considered a significant impact. Based on the County standard, an indoor noise impact occurs when the interior noise level exceeds 45 dB 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 dB. If this standard is exceeded, implementation of a SIP would be used to address interior noise impacts. With implementation of the SIP (see Mitigation Measure LU-1), the land use compatibility impact associated with interior noise levels would also be reduced to a less than significant level for those residences with an average noise level in excess of 45 CNEL that are outside of the business park. For those residences within the business park and those residences with a habitable room with noise levels in excess of 45 CNEL but the average noise levels in the habitable rooms is less than 45 CNEL, mitigation would not be feasible; therefore, the impact would be significant and unavoidable. (See discussion in Section 4.5.2, Methodology regarding FAA's noise attenuation requirements.).

Phase 2

Alternative A, Phase 2 would increase the total 65 to 70 CNEL contour area by approximately 0.06 square mile (7 percent) and the greater than 70 CNEL contour by approximately 0.07 square mile (12 percent) compared to existing conditions. Outside the Airport boundaries, there would be an approximate 0.07-square-mile (10 percent) increase in the 65 to 70 CNEL contour and a 0.05-square-mile (56 percent) increase in the greater than 70 CNEL contour compared to existing conditions. Exhibit 4.5-7a provides a comparison of the existing 60, 65, 70, and 75 CNEL contours and the projected contours with Alternative A, Phase 2. Exhibits 4.5-7b through 4.5-7d provide larger scale exhibits with the noise-sensitive land uses depicted.

No additional sensitive receptors would be within the greater than 70 CNEL contour when Phase 2 of Alternative A is compared to existing conditions. Increased noise levels over existing conditions would add 48 additional residences to the area within the 65 CNEL contour, of which 16 were insulated under the AIP and 32 were not. Twenty-five of the uninsulated residences are located in the area zoned for business park and are non-conforming uses. No other sensitive receptors would be included in the area added to the 65 CNEL contour.

Residences with outdoor living areas exposed to a greater than 65 CNEL would be incompatible with the County's exterior noise standard. There is no feasible mitigation for the exterior noise levels. Therefore, as the 65 CNEL contour expands beyond the existing contour and includes additional residences this would be a significant land use compatibility impact.



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Comparison of Existing and Alternative A Phase 2 Noise Contours

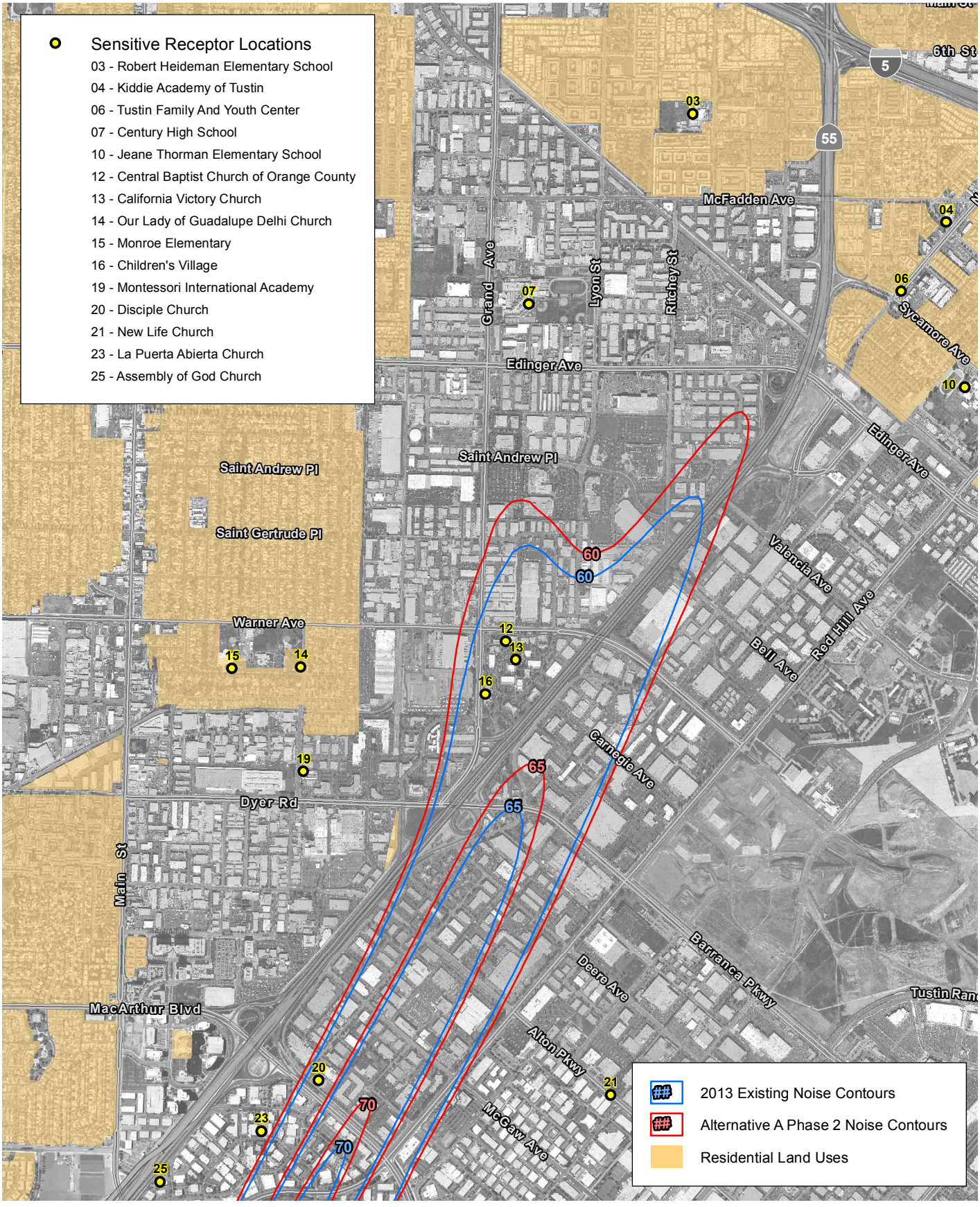
Exhibit 4.5-7a

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Existing and Alternative A, Phase 2 Approach Noise Contours with Sensitive Land Uses

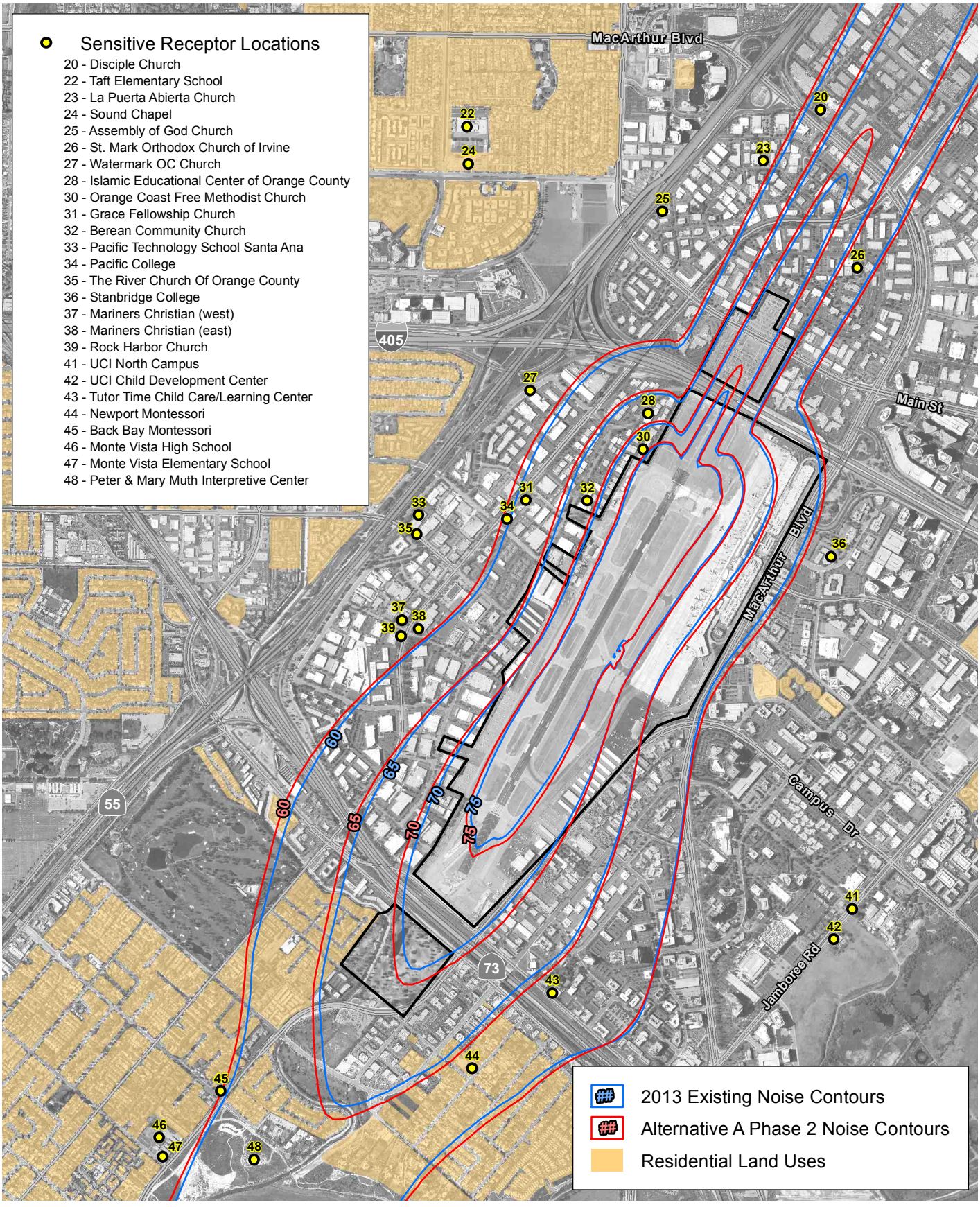
Exhibit 4.5-7b

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Existing and Alternative A, Phase 2 Airport Area Noise Contours with Sensitive Land Uses

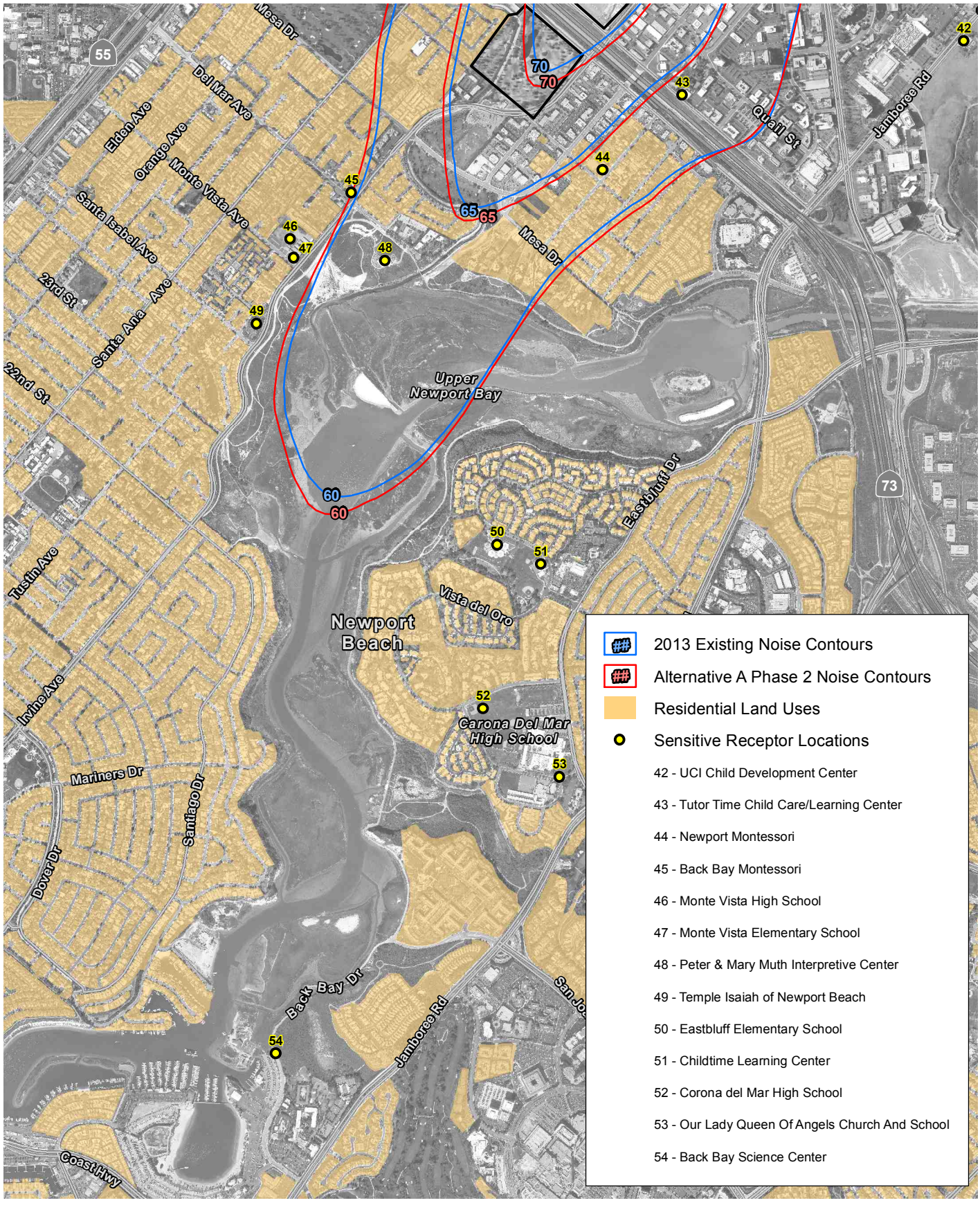
Exhibit 4.5-7c

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Existing and Alternative A, Phase 2 Departure Noise Contours with Sensitive Land Uses

Exhibit 4.5-7d

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The non-conforming residential uses within the business park are not eligible for future sound attenuation. Therefore, from a land use compatibility perspective, these residences are being exposed to exterior and potentially interior noise levels in excess of the County standards, which would be a significant impact and mitigation is not feasible.

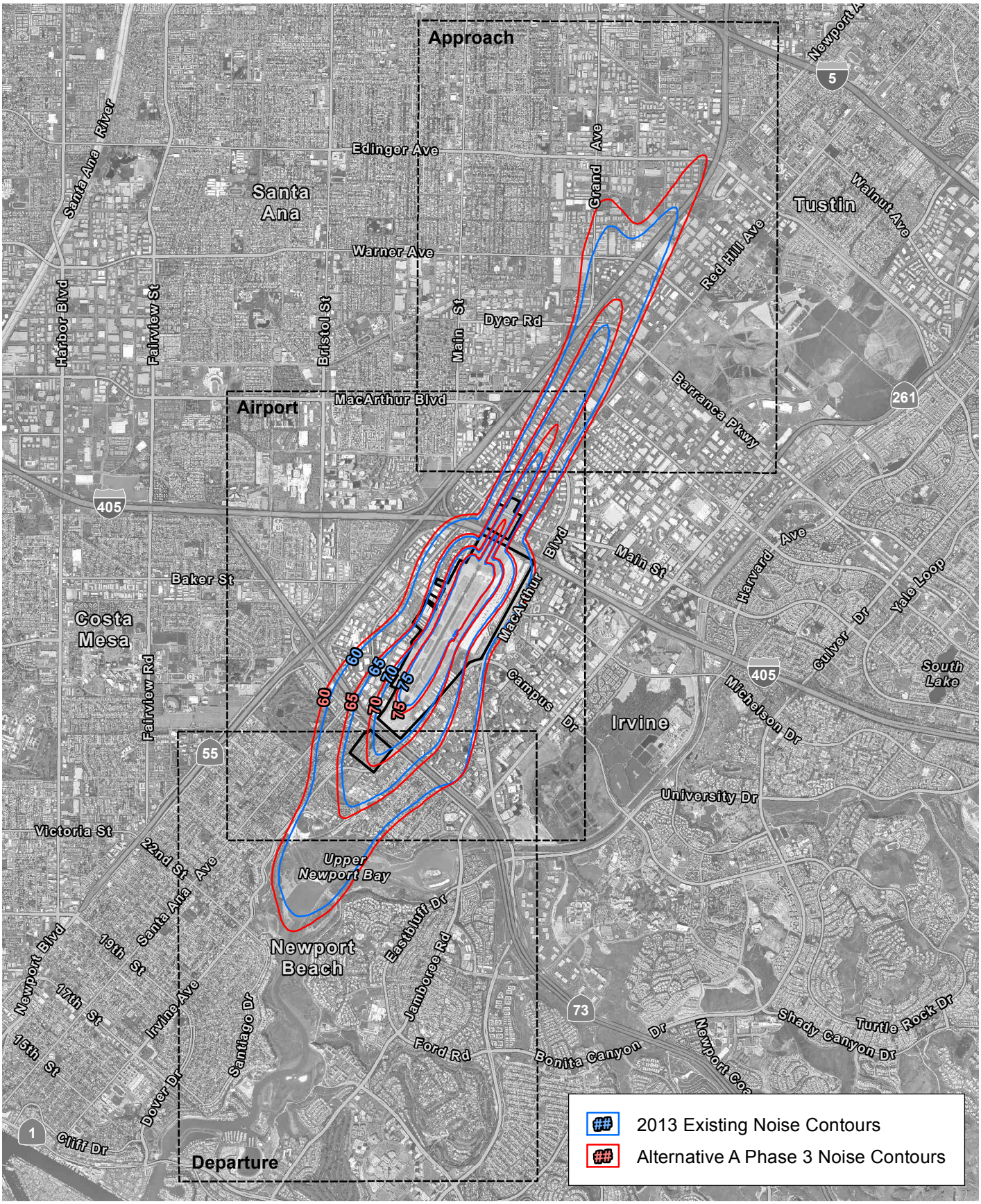
Residences that have received insulation would be compatible with the interior noise standards. For the uninsulated residences, however, there is also the potential for incompatibility due to excessive interior noise levels, which would be considered a significant impact. Based on the County standard, an indoor noise impact occurs when the interior noise level exceeds 45 dB 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 dB. If this standard is exceeded, implementation of a SIP would be used to address interior noise impacts. With implementation of the SIP (see Mitigation Measure LU-1), the land use compatibility impact associated with interior noise levels would also be reduced to a less than significant level for those residences with an average noise level in excess of 45 CNEL that are outside of the business park. For those residences within the business park and those residences with a habitable room with noise levels in excess of 45 CNEL but the average noise levels in the habitable rooms is less than 45 CNEL, mitigation would not be feasible; therefore, the impact would be significant and unavoidable. (See discussion in Section 4.5.2, Methodology regarding FAA's noise attenuation requirements.).

Phase 3

Alternative A, Phase 3 would increase the total 65 to 70 CNEL contour areas by approximately 0.11 square mile (13 percent) and the greater than 70 CNEL contour by approximately 0.13 square mile (22 percent) compared to existing conditions. Outside the Airport boundaries, there would be an approximate 0.13-square-mile (19 percent) increase in the 65 to 70 CNEL contour and a 0.09-square-mile (100 percent) increase in the greater than 70 CNEL contour compared to existing conditions. Exhibit 4.5-8a provides a comparison of the existing 60, 65, 70, and 75 CNEL contours and the projected contours with the Alternative A, Phase 3. Exhibits 4.5-8b through 4.5-8d provide larger scale exhibits with the noise-sensitive land uses depicted.

No additional sensitive receptors would be within the greater than 70 CNEL contour when Phase 3 of Alternative A is compared to existing conditions. Increased noise levels over existing conditions would add 85 additional residences to the area within the 65 to 70 CNEL contour, of which 39 were insulated under the AIP and 46 were not. Twenty-eight of the uninsulated residences are located in the area zoned for business park and are non-conforming uses. The Orange Coast Free Methodist Church would move from the 70 to 75 CNEL contour to the greater than 75 CNEL contour. No other sensitive receptors would be included in the area added to the expanded 65 CNEL contour.

Residences with outdoor living areas exposed to a greater than 65 CNEL would be incompatible with the County's exterior noise standard. There is no feasible mitigation for the exterior noise levels. Therefore, as the 65 CNEL contour expands beyond the existing contour and includes additional residences, this would be a significant land use compatibility impact.



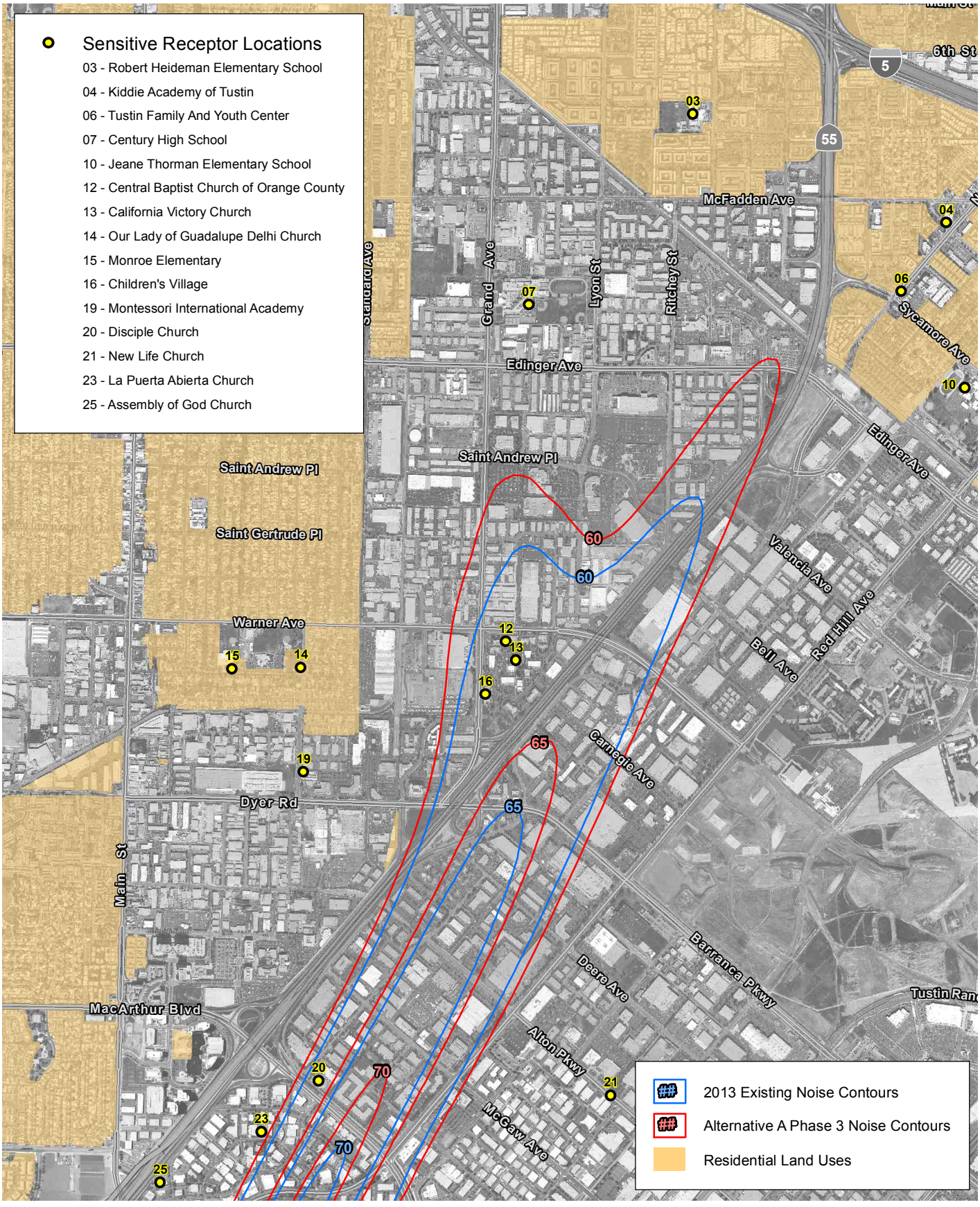
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Comparison of Existing and Alternative A Phase 3 Noise Contours

Exhibit 4.5-8a

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Existing and Alternative A, Phase 3 Approach Noise Contours with Sensitive Land Uses

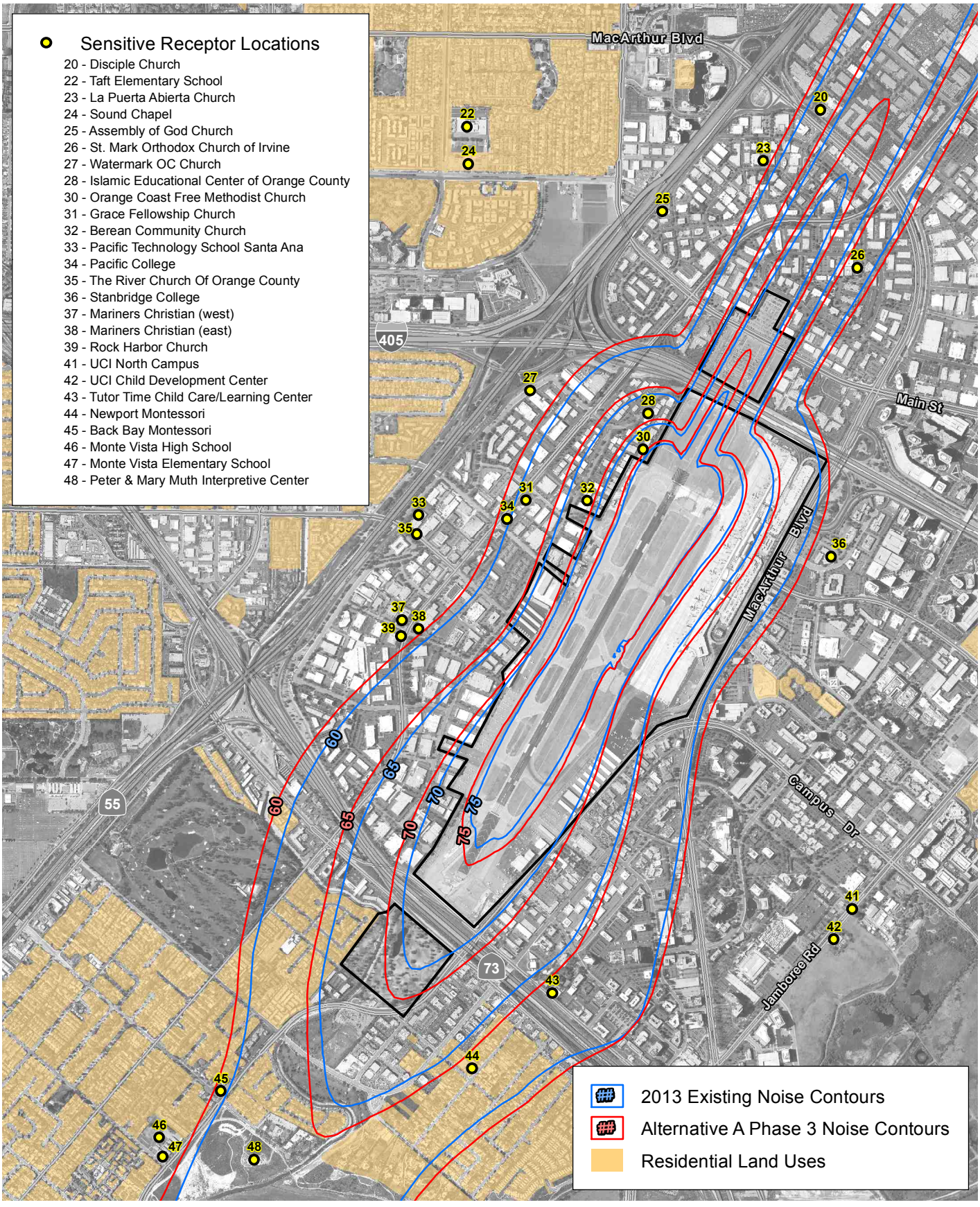
Exhibit 4.5-8b

John Wayne Airport Settlement Agreement Amendment

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Existing and Alternative A, Phase 3 Airport Area Noise Contours with Sensitive Land Uses

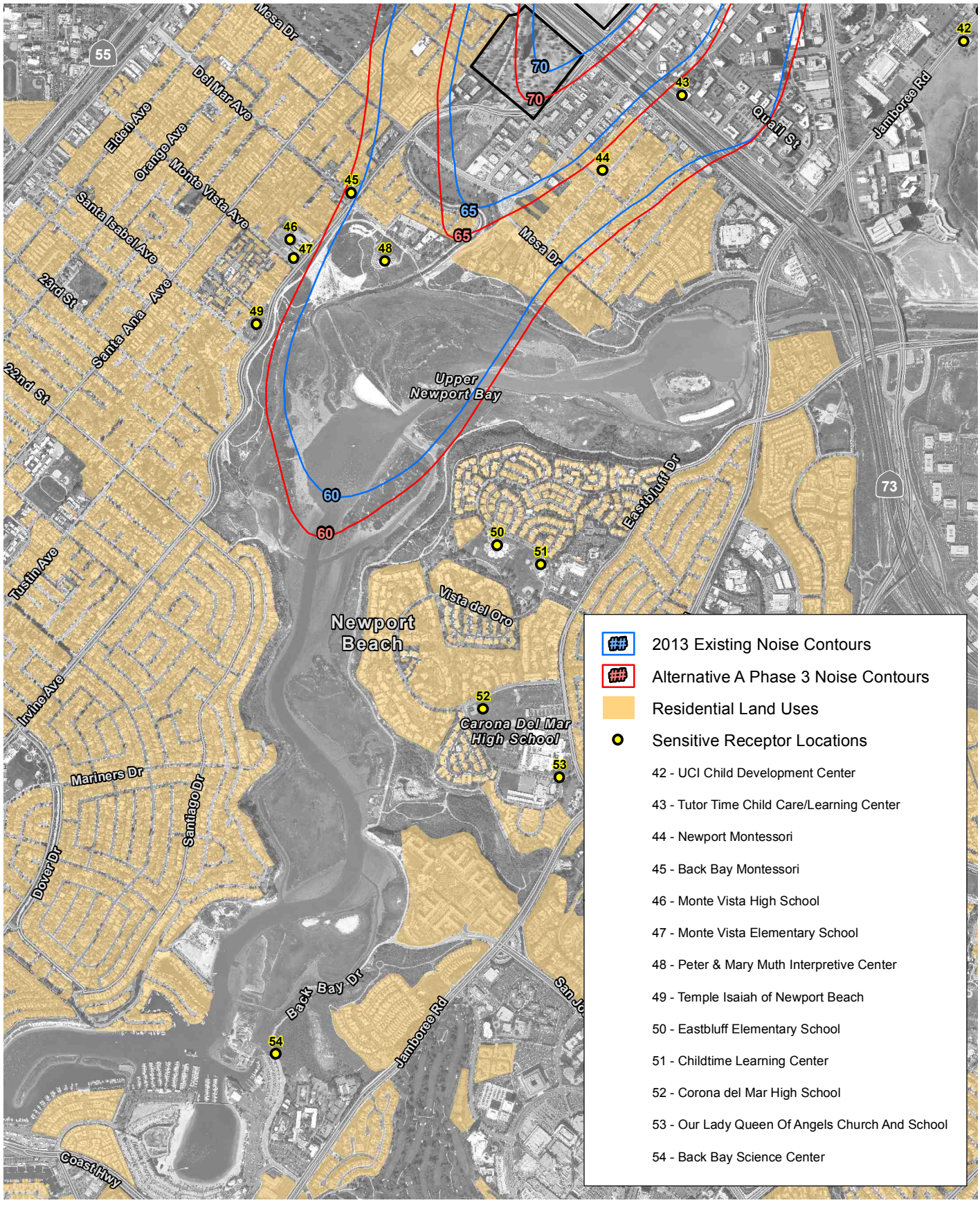
Exhibit 4.5-8c

John Wayne Airport Settlement Agreement Amendment

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Existing and Alternative A, Phase 3 Departure Noise Contours with Sensitive Land Uses

Exhibit 4.5-8d

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The non-conforming residential uses within the business park are not eligible for future sound attenuation. Therefore, from a land use compatibility perspective, these residences are being exposed to exterior and potentially interior noise levels in excess of the County standards, which would be a significant impact and mitigation is not feasible.

Residences that have received insulation would be compatible with the interior noise standards. For the uninsulated residences, however, there is also the potential for incompatibility due to excessive interior noise levels, which would be considered a significant impact. Based on the County standard, an indoor noise impact occurs when the interior noise level exceeds 45 dB 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 dB. If this standard is exceeded, implementation of a SIP would be used to address interior noise impacts. With implementation of the SIP (see Mitigation Measure LU-1), the land use compatibility impact associated with interior noise levels would also be reduced to a less than significant level for those residences with an average noise level in excess of 45 CNEL that are outside of the business park. For those residences within the business park and those residences with a habitable room with noise levels in excess of 45 CNEL but the average noise levels in the habitable rooms is less than 45 CNEL, mitigation would not be feasible; therefore, the impact would be significant and unavoidable. (See discussion in Section 4.5.2, Methodology regarding FAA's noise attenuation requirements.).

Policy Consistency Analysis

As discussed in Table 4.5-10, Alternative A, Phase 3 would exceed the City of Newport Beach standards at NMS 1S, 2S and 8N. With implementation of Mitigation Measure LU-2, this impact could be reduced to less than significant. Therefore, the Proposed Project is consistent with the applicable goals and policies of the County and the City of Newport Beach General Plans.

As part of the analysis provided in Table 4.5-10, it was determined that the Alternative A would be inconsistent with one objective from the *City of Irvine General Plan* (Objective B-7, Policy (b)). Since the City of Irvine does not have jurisdiction over the Project, the impact would not be significant.

Impact Conclusion: *Alternative A, Phase 3 would result in insufficient gate capacity, which would be considered a significant impact.*

With Alternative A, there would be an increase in the number of noise-sensitive uses exposed to noise levels in excess of 65 CNEL (a total of 181 residences would be in the 65 or greater CNEL contour, 85 as a result of the Alternative A in Phase 3), which would result in a land use incompatibility. This would be a significant impact because there are no feasible mitigation measures to reduce exterior noise levels to below 65 CNEL, consistent with the County of Orange standards for noise sensitive uses. There is also a potential that interior noise levels would exceed established standards for land use compatibility for noise sensitive uses (a total of 104 residences uninsulated residences would be within the 65 or greater CNEL contour, 46 as a result of Alternative A in Phase 3). With implementation of mitigation, this impact would be reduced to a less than significant level for all

residences, with the exception of the nine residences within the area zoned for business park that are not eligible for sound insulation (a total of 75 units in Phase 3, 28 as a result of the Alternative A). These residences would have a significant land use impact because interior noise levels would exceed the County standard.

Alternative A would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction with adoption of the recommended mitigation.

Alternative B

Capacity of On-Site Facilities

Airfield Capacity

Exhibit 4.5-9 presents a comparison of hourly demand (aircraft operations) and runway capacity for Alternative B during VFR and IFR conditions. As seen, the runway capacity is sufficient and capable of accommodating Alternative B in each of the three phases. Therefore, as with the Proposed Project, there would be no impact associated with airfield capacity for Alternative B.

Remaining Overnight Capacity

Table 4.5-2, above, presents the available RON capacity and requirements for Alternative B. As shown, the RON requirements for Alternative B increase slightly with each phase, but in all phases the demand would not exceed the RON space available. As with Alternative A, the additional RON spaces would likely be located on the south RON where aircraft being towed to gates with passenger loading bridges would likely involve "head-to-head" operations with the main departure taxi flow on Taxiway A. Though not ideal, this situation would be similar to what was experienced at the Airport prior to the completion of Terminal C and would not be considered a significant environmental impact

Gate Capacity

Alternative B, Phase 1 would not result in any impacts associated with gate capacity. However, in Phases 2 and 3, Alternative B would result in demand for gate capacity that would exceed existing capacity. As shown in Table 4.5-3, the schedule-based analysis indicates there would be a shortage of two gates in the 11:00 AM hour and there would be a shortage of seven gates in the 8:00 PM hour. The turns per gate evaluation identifies the same shortage. As shown in Table 4.5-4, 9.2 turns per gate with a passenger loading bridge is projected for Phase 3 of Alternative B. This slightly exceeds the 2007 peak of 9.1 turns per gate, which is being used as the standard for the maximum number of turns per gate with a passenger loading bridge. The evaluation of gate throughputs also shows a shortage of gates in Phases 2 and 3 of Alternative B. Table 4.5-5 identifies that Phases 2 and 3 of Alternative B would result in 312,500 and 362,500 enplanements per gate, respectively. This exceeds 90 percent of the historical peak throughput per gate with a passenger loading bridge (or approximately 306,000). Therefore, based on each of these methodologies, it has been determined that Phases 2 and 3 of Alternative B would result in a significant impact to terminal levels of service due to insufficient gate capacity.

Terminal Capacity for International Passengers

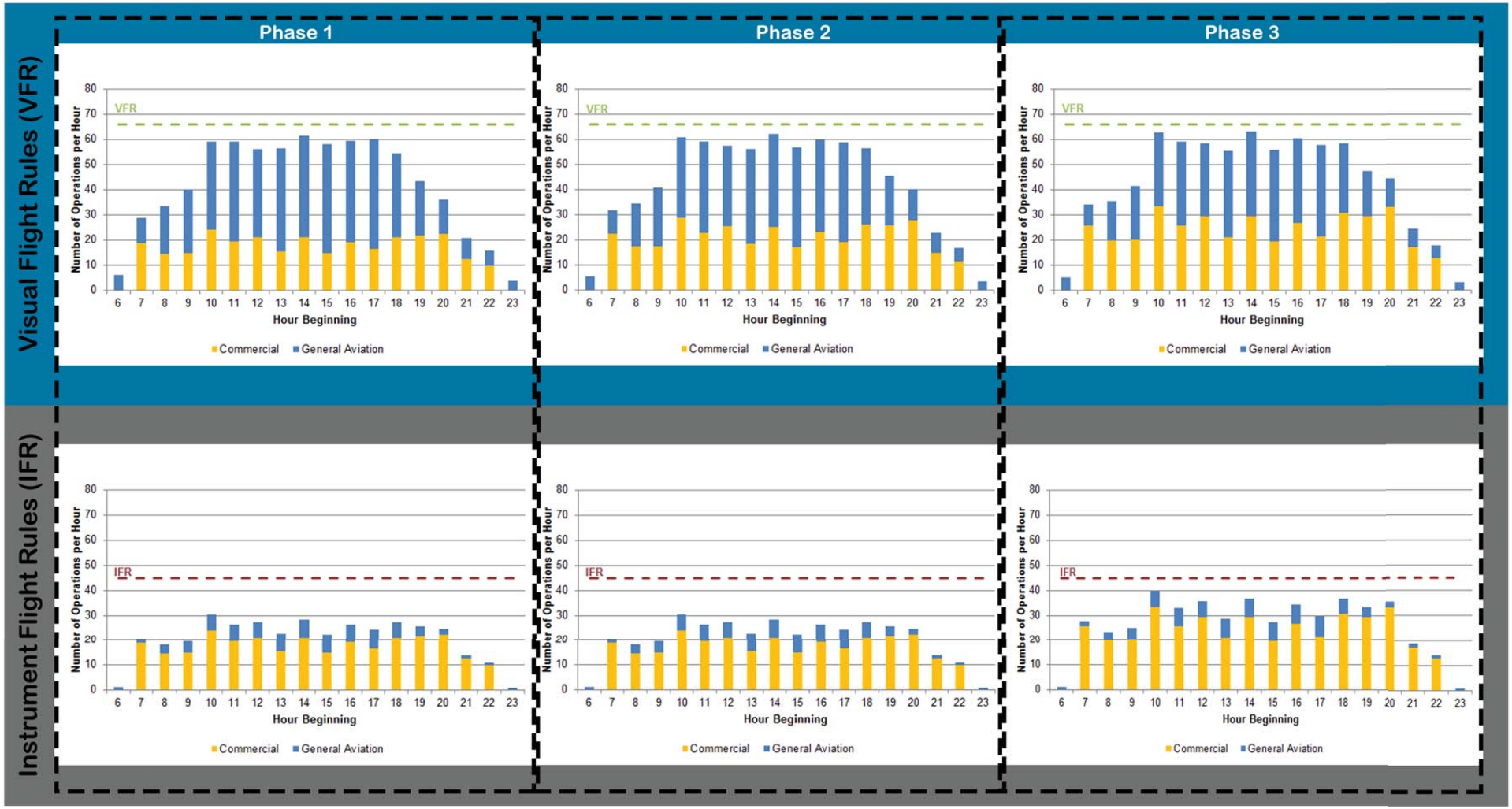
As discussed above, it is estimated that approximately 16 daily international flights could be accommodated using the present FIS facilities. Table 4.5-6, above, summarizes the average daily international flights (departures) and shows in Phase 3 of Alternative B there would be 16.6 daily international departures, which would exceed terminal capacity for international flights. This would result in a potentially significant impact.

Fuel Storage Capacity

As shown in Table 4.5-7, Phase 1 of Alternative B could be accommodated with no modifications to the existing fuel farm facilities or hours of operation. Compared to existing conditions, for Phase 2, there would be the need for 9 additional fuel tanker truck deliveries for the ADPM (for a total of 37 trucks) and in Phase 3 this would increase to 15 additional fuel truck deliveries (for a total of 43 trucks.

Given the number of additional tanker truck delivers that would be required, it is anticipated that the deliveries would need to extend beyond the evening hours and commence in the late afternoon. A total of 11 fuel trucks would need to make daytime deliveries. Daytime fuel delivery operations can present several logistical challenges at the Airport, at the refinery, and transport between the two. The existing fuel farm has physical limitations, with a maximum of four fuel trucks offloading to the fuel farm at any one time. Also, there is limited space adjacent to the facility for tankers to queue. During night time hours, the queuing of trucks on the roadway adjacent to the fuel farms does not interfere with adjacent land uses; however, there would be interference during daytime hours. To avoid this from occurring, detailed scheduling of the fuel delivery would be required, which may not be able to be accommodated at the refineries. Given the extent of the operational changes that would be required to ensure adequate fuel supply and the inability to control the schedule for fueling of trucks at the refinery, the demand associated with Alternative B would exceed the fuel storage capacity, which would be a significant impact.[13]

[13] The delivery of the additional fuel is not anticipated to be a safety hazard (see Section 4.4) because the transport of fuel is heavily regulated and all regulations and safety procedures would continue to be complied with. For land use, the incompatibility is associated with potential conflicts with adjacent land uses for the day time deliveries and uncertainty if the refineries could accommodate the schedule required for fuel delivery.



Source: *Aviation Forecasts Technical Report*, AECOM 2014a

Hourly Demand Versus Capacity for Alternative B

Exhibit 4.5-9

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General Aviation Facilities

None of the phases of Alternative B would displace any general aviation facilities or have any impact on the FBO operations.

Airport Parking Facilities

As shown in Table 4.5-8, under the existing parking configuration, there would be sufficient parking capacity for Alternative B in Phase 1; however, Phases 2 and 3 would exceed the 90 percent effective capacity threshold. The planned additional parking in Parking Structure C2 would provide adequate capacity for Phase 2, though would not be sufficient to meet the demand of Alternative B, Phase 3 using the effective capacity threshold. This would be a significant impact.

Summary of Capacity of On-Site Facilities Evaluation

Alternative B would exceed the automobile parking capacity for Phases 2 and 3. The planned additional parking in Parking Structure C2 would avoid the impact for Phase 2, though the impact would remain significant for Phase 3. In addition, with Alternative B, Phase 3 the projected operations would exceed the capacity of other on-site facilities; specifically, there would be an insufficient number of gates, international terminal capacity, fuel storage capacity, and automobile parking. These would be significant impacts and mitigation is not feasible; therefore, these impacts are identified as significant, unavoidable impacts associated with Alternative B.

Compatibility with Surrounding Land Uses

Phase 1

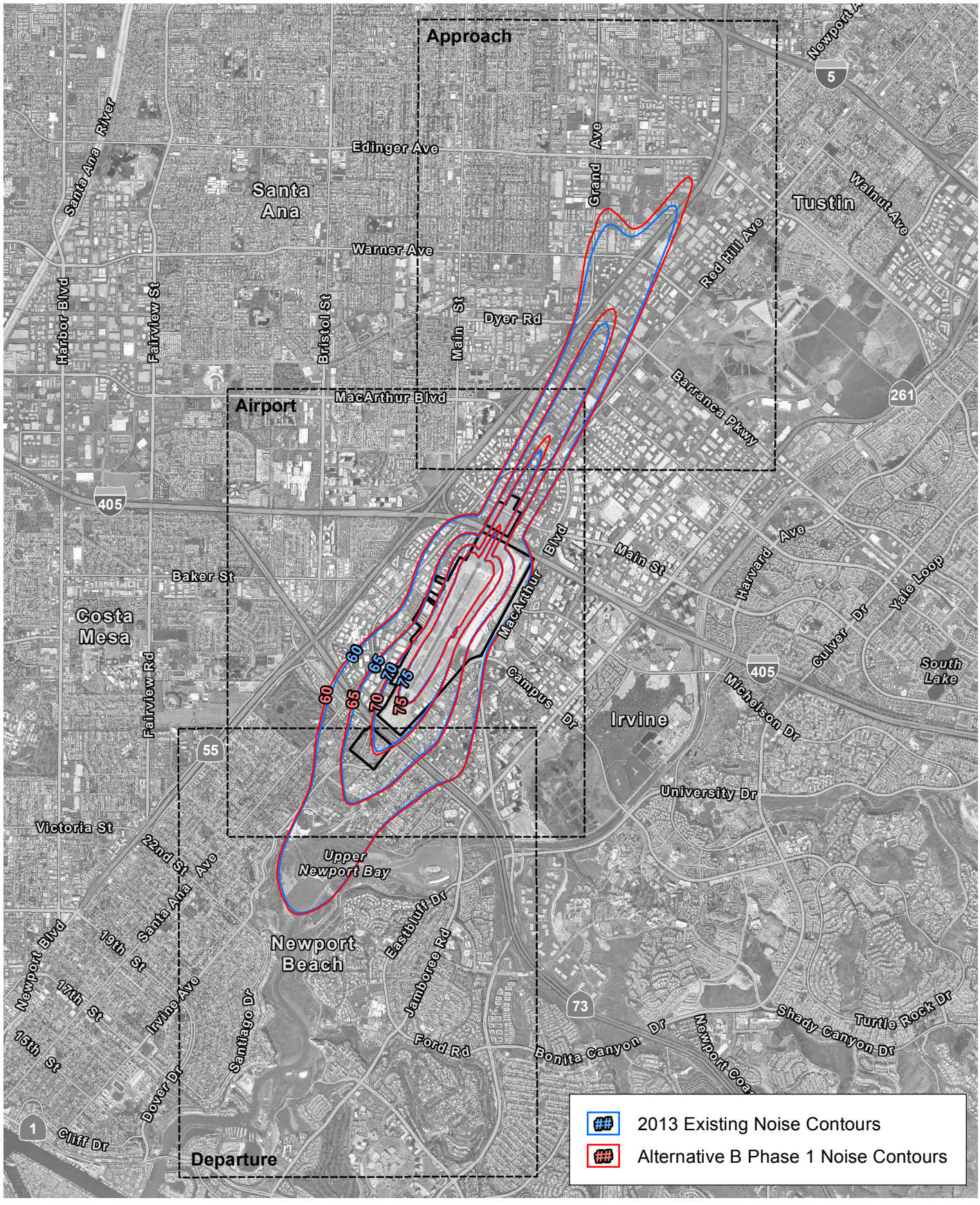
As shown in Table 4.5-9, Alternative B, Phase 1 would increase both the total 65 to 70 CNEL contour areas and the greater than 70 CNEL contour by approximately 0.05 square mile (6 percent and 8 percent, respectively) compared to existing conditions. Outside the Airport boundaries, the 65 to 70 CNEL contour would increase by 0.05 square mile (7 percent), and the greater than 70 CNEL contour would increase by 0.04 square mile (44 percent) when compared to existing conditions. Exhibit 4.5-10a provides a comparison of the existing 60, 65, 70, and 75 CNEL contours and the projected contours with the Alternative B, Phase 1. Exhibits 4.5-10b through 4.5-10d provide larger scale exhibits with the noise-sensitive land uses depicted.

No additional noise-sensitive receptors would be within the greater than 70 CNEL contour when Phase 1 of Alternative B is compared to existing conditions. Increased noise levels over existing conditions would add 25 additional residences to the area within the 65 to 70 CNEL contour, of which 23 were insulated under the AIP and 17 were not. Of the 17 additional residences that have not been insulated, 15 residences are located in the area zoned for business park and are non-conforming uses. No other noise sensitive uses would be within the expanded 65 CNEL contour.

Residences with outdoor living areas exposed to a greater than 65 CNEL would be incompatible with the County's exterior noise standard. There is no feasible mitigation for the exterior noise levels. Therefore, as the 65 CNEL contour expands beyond the existing contour and includes additional residences this would be a significant land use compatibility impact.

The non-conforming residential uses within the business park are not eligible for future sound attenuation. Therefore, from a land use compatibility perspective, these residences are being exposed to exterior and potentially interior noise levels in excess of the County standards, which would be a significant impact and mitigation is not feasible.

Residences that have received insulation would be compatible with the interior noise standards. For the uninsulated residences, however, there is also the potential for incompatibility due to excessive interior noise levels, which would be considered a significant impact. Based on the County standard, an indoor noise impact occurs when the interior noise level exceeds 45 dB 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 dB. If this standard is exceeded, implementation of a SIP would be used to address interior noise impacts. With implementation of the SIP (see Mitigation Measure LU-1), the land use compatibility impact associated with interior noise levels would also be reduced to a less than significant level for those residences with an average noise level in excess of 45 CNEL that are outside of the business park. For those residences within the business park and those residences with a habitable room with noise levels in excess of 45 CNEL but the average noise levels in the habitable rooms is less than 45 CNEL, mitigation would not be feasible; therefore, the impact would be significant and unavoidable. (See discussion in Section 4.5.2, Methodology regarding FAA's noise attenuation requirements.)



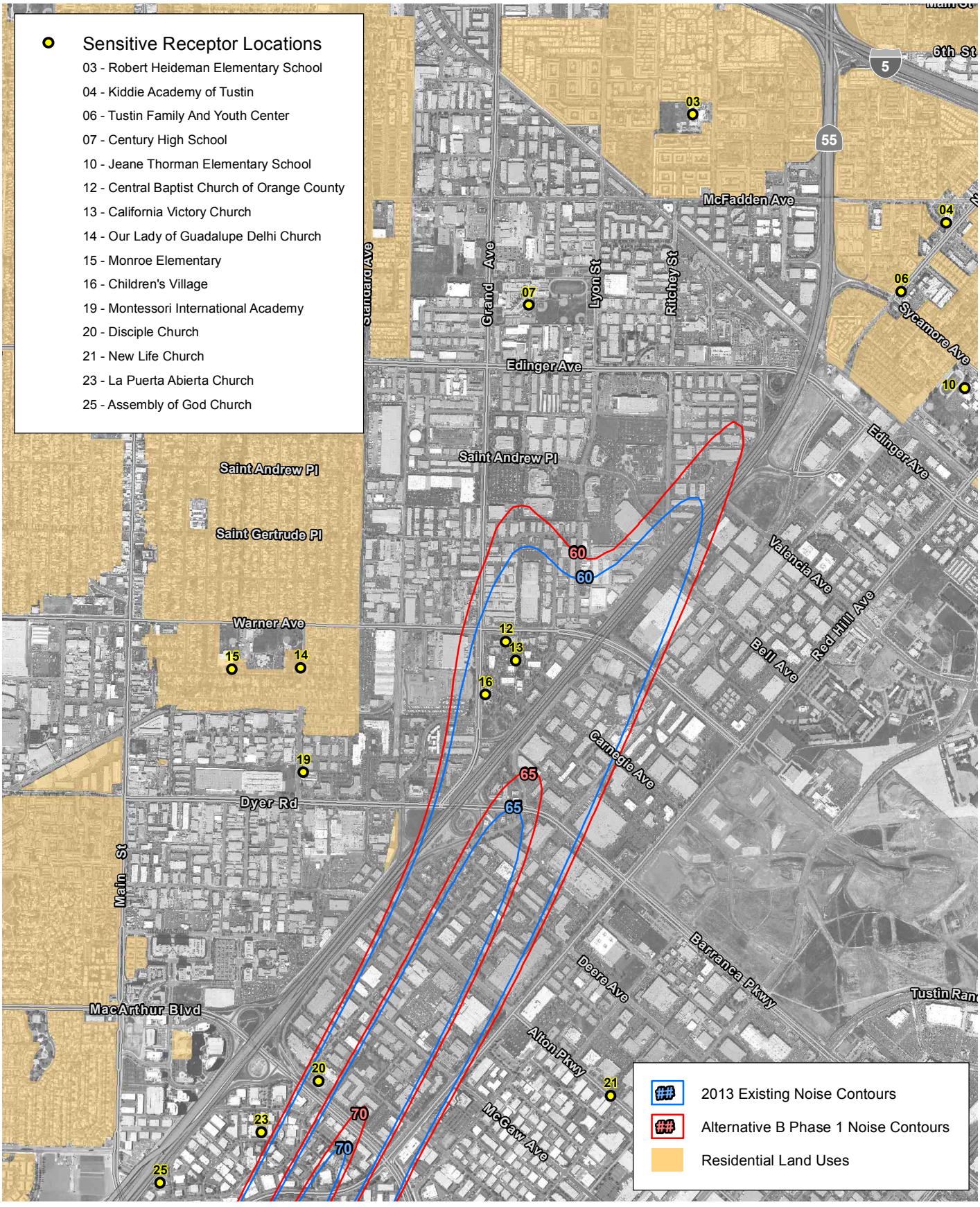
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Comparison of Existing and Alternative B Phase 1 Noise Contours

Exhibit 4.5-10a

John Wayne Airport Settlement Agreement Amendment

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ORANGE COUNTY



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Existing and Alternative B, Phase 1 Approach Noise Contours with Sensitive Land Uses

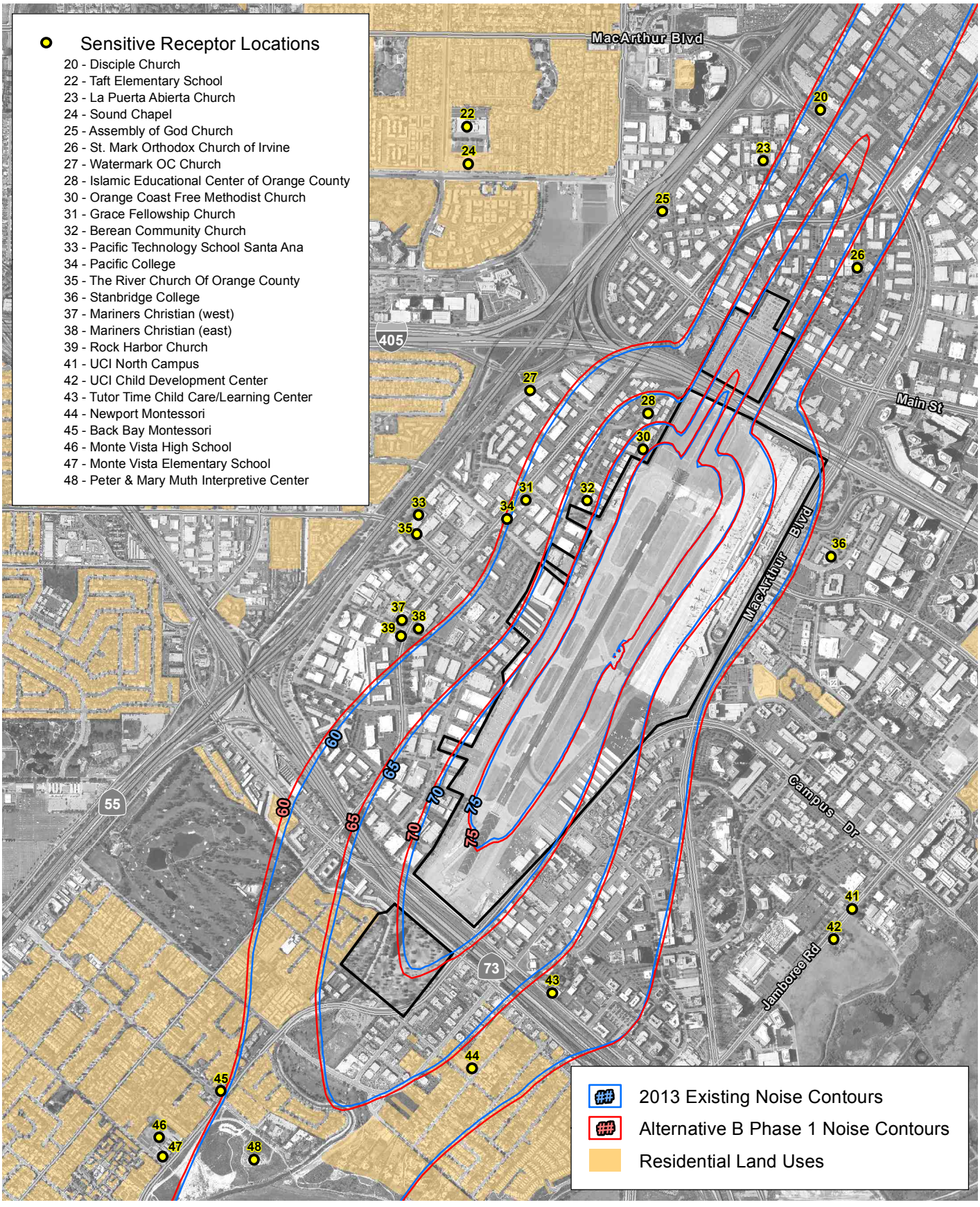
Exhibit 4.5-10b

John Wayne Airport Settlement Agreement Amendment

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Existing and Alternative B, Phase 1 Airport Area Noise Contours with Sensitive Land Uses

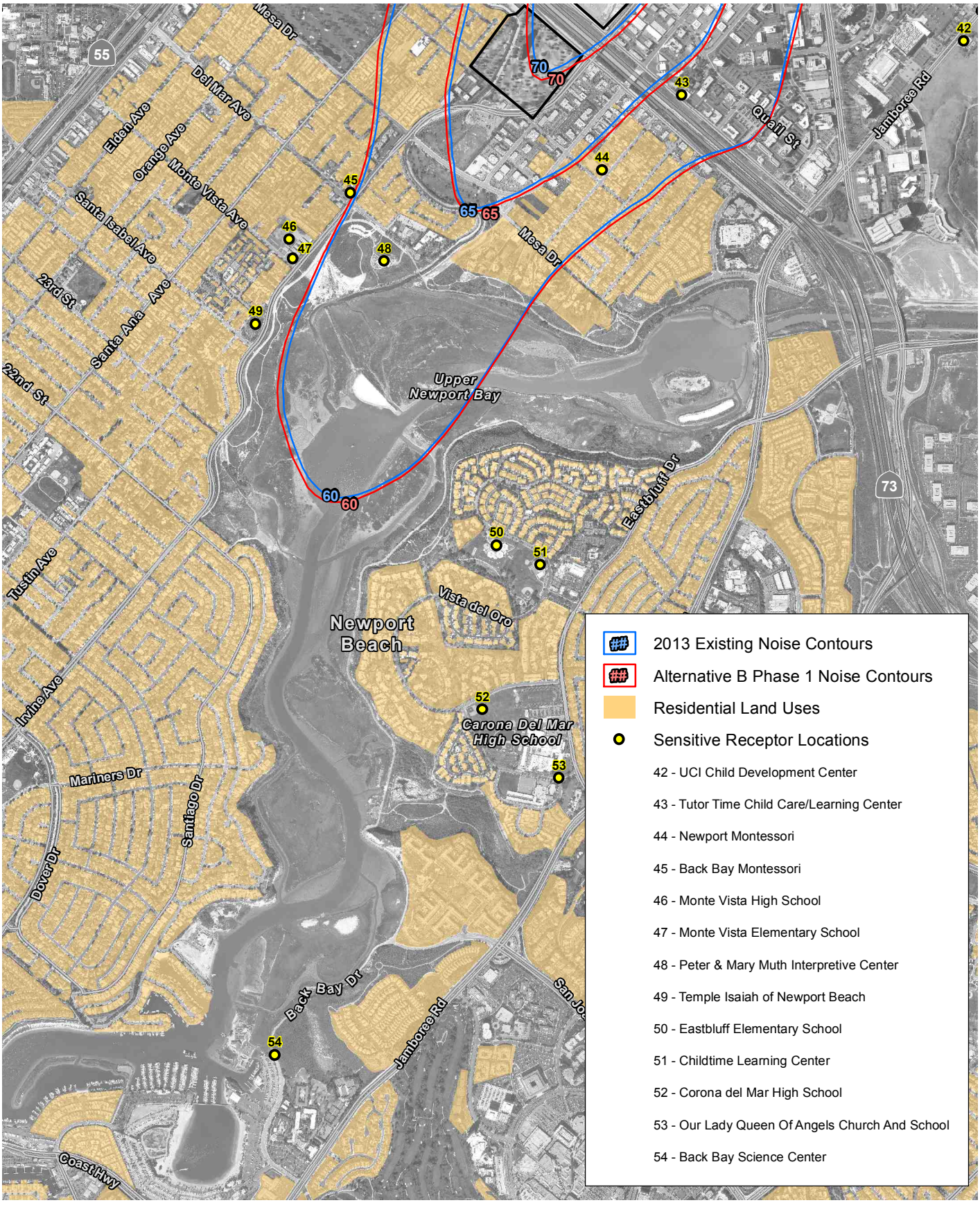
Exhibit 4.5-10c

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Existing and Alternative B, Phase 1 Departure Noise Contours with Sensitive Land Uses

Exhibit 4.5-10d

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Phase 2

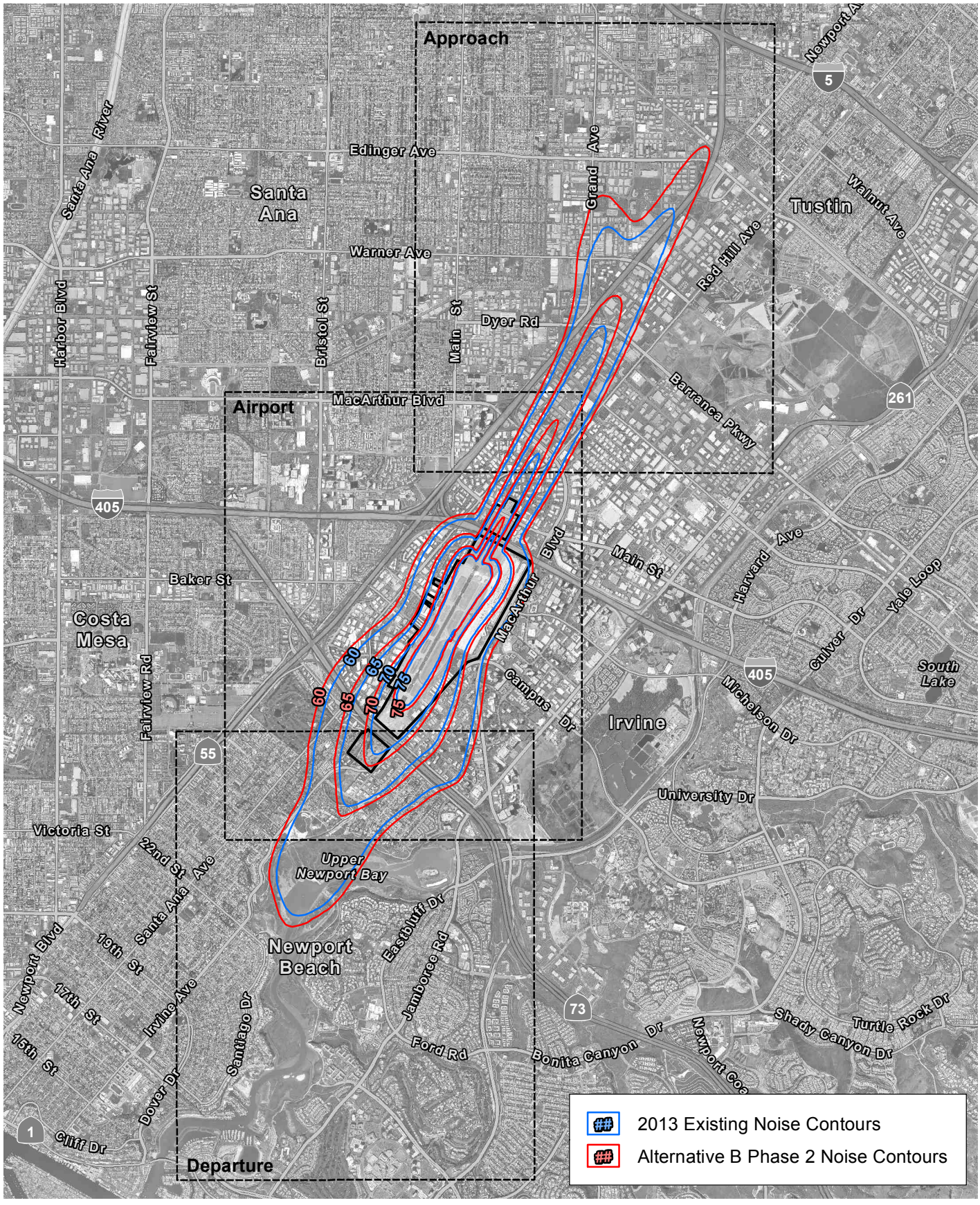
Alternative B, Phase 2 would increase both the total 65 to 70 CNEL contour area and the greater than 70 CNEL contour area by approximately 0.15 square mile (17 percent and 25 percent, respectively) compared to existing conditions. Outside the Airport boundaries, the 65 to 70 CNEL contour would increase by 0.17 square mile (25 percent), and the greater than 70 CNEL contour would increase by 0.10 square mile (111 percent) when compared to existing conditions. Exhibit 4.5-11a provides a comparison of the existing 60, 65, 70, and 75 CNEL contours and the projected contours with Alternative B, Phase 2. Exhibits 4.5-11b through 4.5-11d provide larger scale exhibits with the noise-sensitive land uses depicted.

No additional sensitive receptors would be within the greater than 70 CNEL contour when Phase 2 of Alternative B is compared to existing conditions. Increased noise levels would add 90 additional residences to the area within the 65 CNEL contour, of which 43 were insulation through the AIP and 47 were not. Of the 47 additional residences that have not been insulated, 28 residences are located in the area zoned for business park and are non-conforming uses. The Orange Coast Free Methodist Church would move from the 70 to 75 CNEL contour to the greater than 75 CNEL contour. No other noise sensitive use would be within the expanded 65 CNEL contour.

Residences with outdoor living areas exposed to greater than 65 CNEL would be incompatible with the County's exterior noise standard. There is no feasible mitigation for the exterior noise levels. Therefore, as the 65 CNEL contour expands beyond the existing contour and includes additional residences this would be a significant land use compatibility impact.

The non-conforming residential uses within the business park are not eligible for future sound attenuation. Therefore, from a land use compatibility perspective, these residences are being exposed to exterior and potentially interior noise levels in excess of the County standards, which would be a significant impact and mitigation is not feasible.

Residences that have received insulation would be compatible with the interior noise standards. For the uninsulated residences, however, there is also the potential for incompatibility due to excessive interior noise levels, which would be considered a significant impact. Based on the County standard, an indoor noise impact occurs when the interior noise level exceeds 45 dB 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 dB. If this standard is exceeded, implementation of a SIP would be used to address interior noise impacts. With implementation of the SIP (see Mitigation Measure LU-1), the land use compatibility impact associated with interior noise levels would also be reduced to a less than significant level for those residences with an average noise level in excess of 45 CNEL that are outside of the business park. For those residences within the business park and those residences with a habitable room with noise levels in excess of 45 CNEL but the average noise levels in the habitable rooms is less than 45 CNEL, mitigation would not be feasible; therefore, the impact would be significant and unavoidable. (See discussion in Section 4.5.2, Methodology regarding FAA's noise attenuation requirements.).



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Comparison of Existing and Alternative B Phase 2 Noise Contours

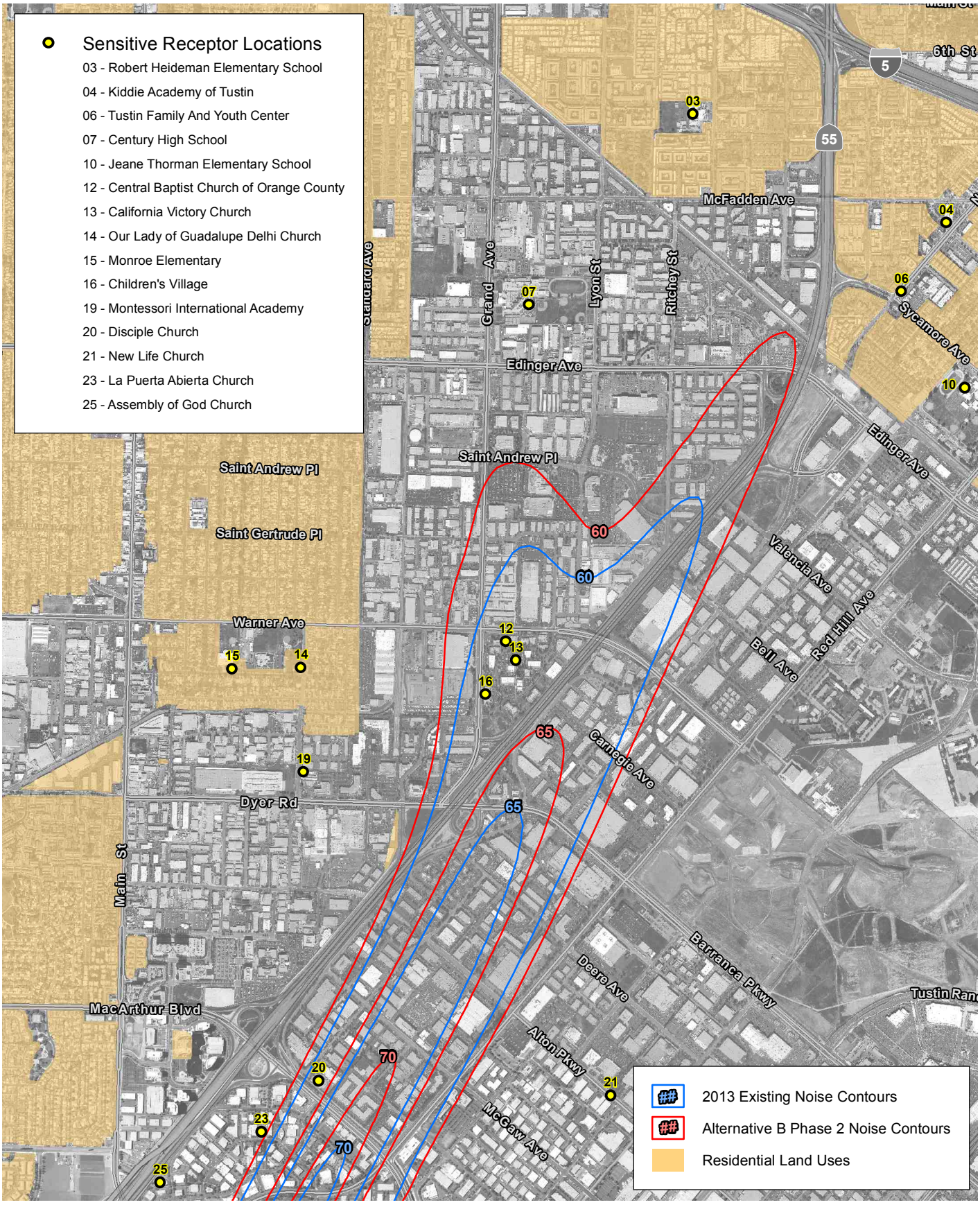
Exhibit 4.5-11a

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Existing and Alternative B, Phase 2 Approach Noise Contours with Sensitive Land Uses

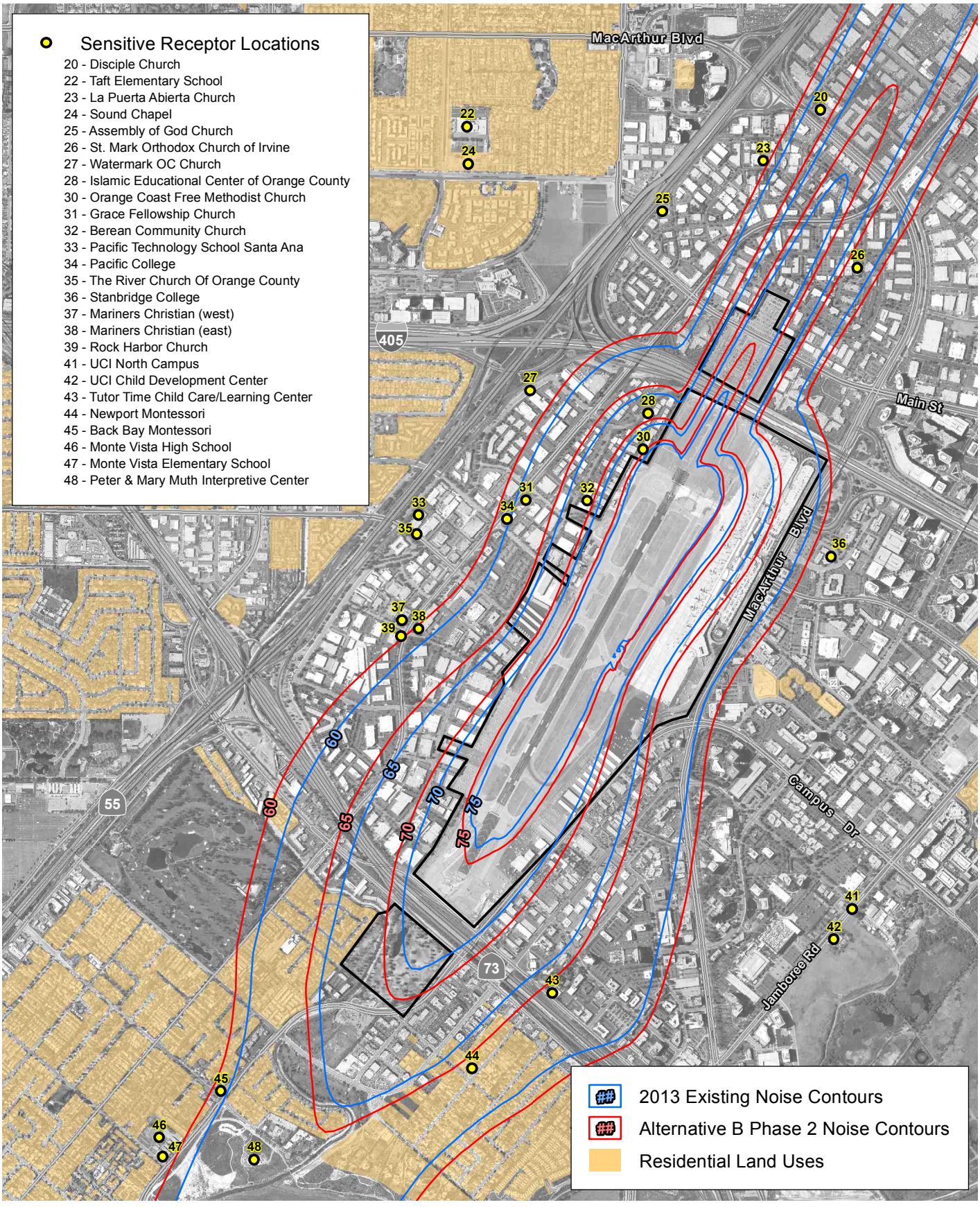
Exhibit 4.5-11b

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Existing and Alternative B, Phase 2 Airport Area Noise Contours with Sensitive Land Uses

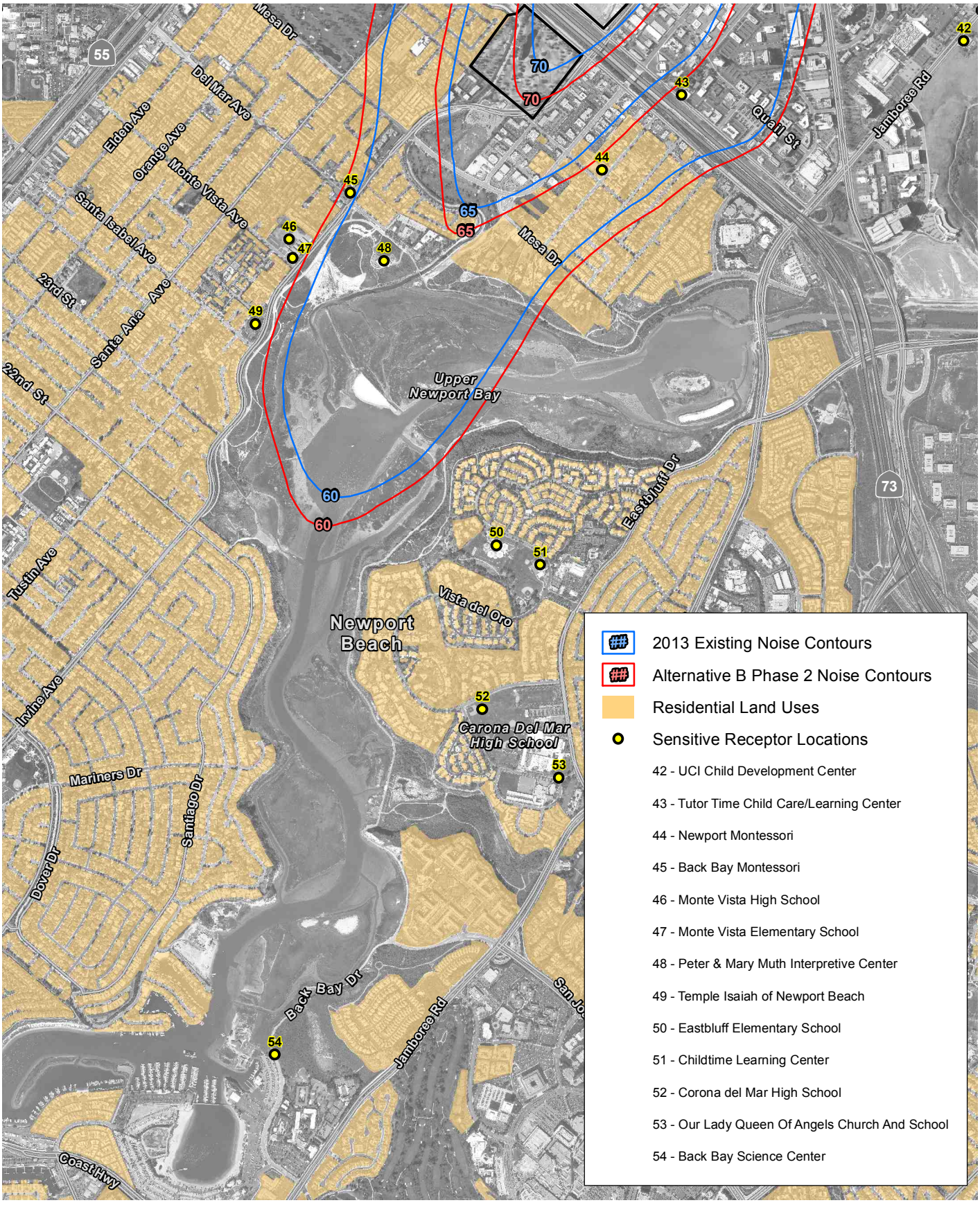
Exhibit 4.5-11c

John Wayne Airport Settlement Agreement Amendment

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Existing and Alternative B, Phase 2 Departure Noise Contours with Sensitive Land Uses

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John Wayne Airport Settlement Agreement Amendment

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Phase 3

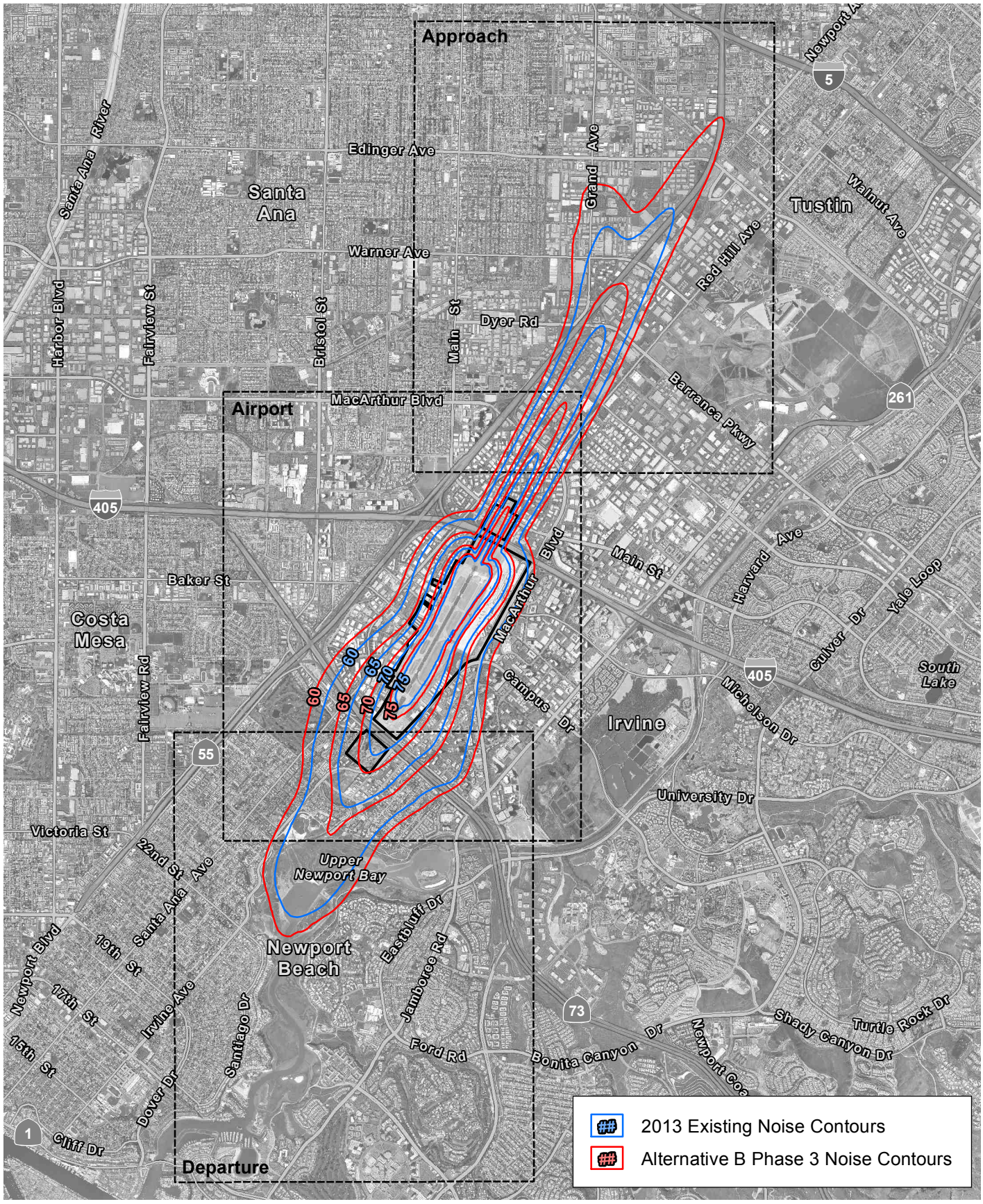
Alternative B, Phase 3 would increase both the total 65 to 70 CNEL contour area and the greater than 70 CNEL contour area by approximately 0.24 square mile (27 percent and 41 percent, respectively) compared to existing conditions. Outside the Airport boundaries, the 65 to 70 CNEL contour would increase by 0.28 square mile (41 percent), and the greater than 70 CNEL contour would increase by 0.16 square mile (178 percent) when compared to existing conditions. Exhibit 4.5-12a provides a comparison of the existing 60, 65, 70, and 75 CNEL contours and the projected contours with the Alternative B, Phase 3. Exhibits 4.5-12b through 4.5-12d provide larger scale exhibits with noise-sensitive land uses depicted.

There would be one additional residential unit within the greater than 70 CNEL contour when Phase 3 of Alternative B is compared to existing conditions. This residence was insulated under the AIP. Increased noise levels over existing conditions would add 134 additional residences to the area within the 65 to 70 CNEL contour, of which 73 were insulated under the AIP and 61 were not. Of the 61 additional residences that have not been insulated 29 residences are located in the area zoned for business park and are non-conforming uses. The Orange Coast Free Methodist Church would move from the 70 to 75 CNEL contour to the greater than 75 CNEL contour. No other sensitive uses are located within the expanded 65 to 70 CNEL contour.

Residences with outdoor living areas exposed to greater than 65 CNEL would be incompatible with the County's exterior noise standard. There is no feasible mitigation for the exterior noise levels. Therefore, as the 65 CNEL contour expands beyond the existing contour and includes additional residences this would be a significant land use compatibility impact.

The non-conforming residential uses within the business park are not eligible for future sound attenuation. Therefore, from a land use compatibility perspective, these residences are being exposed to exterior and potentially interior noise levels in excess of the County standards, which would be a significant impact and mitigation is not feasible.

Residences that have received insulation would be compatible with the interior noise standards. For the uninsulated residences, however, there is also the potential for incompatibility due to excessive interior noise levels, which would be considered a significant impact. Based on the County standard, an indoor noise impact occurs when the interior noise level exceeds 45 dB 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 dB. If this standard is exceeded, implementation of a SIP would be used to address interior noise impacts. With implementation of the SIP (see Mitigation Measure LU-1), the land use compatibility impact associated with interior noise levels would also be reduced to a less than significant level for those residences with an average noise level in excess of 45 CNEL that are outside of the business park. For those residences within the business park and those residences with a habitable room with noise levels in excess of 45 CNEL but the average noise levels in the habitable rooms is less than 45 CNEL, mitigation would not be feasible; therefore, the impact would be significant and unavoidable. (See discussion in Section 4.5.2, Methodology regarding FAA's noise attenuation requirements.)



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Comparison of Existing and Alternative B Phase 3 Noise Contours

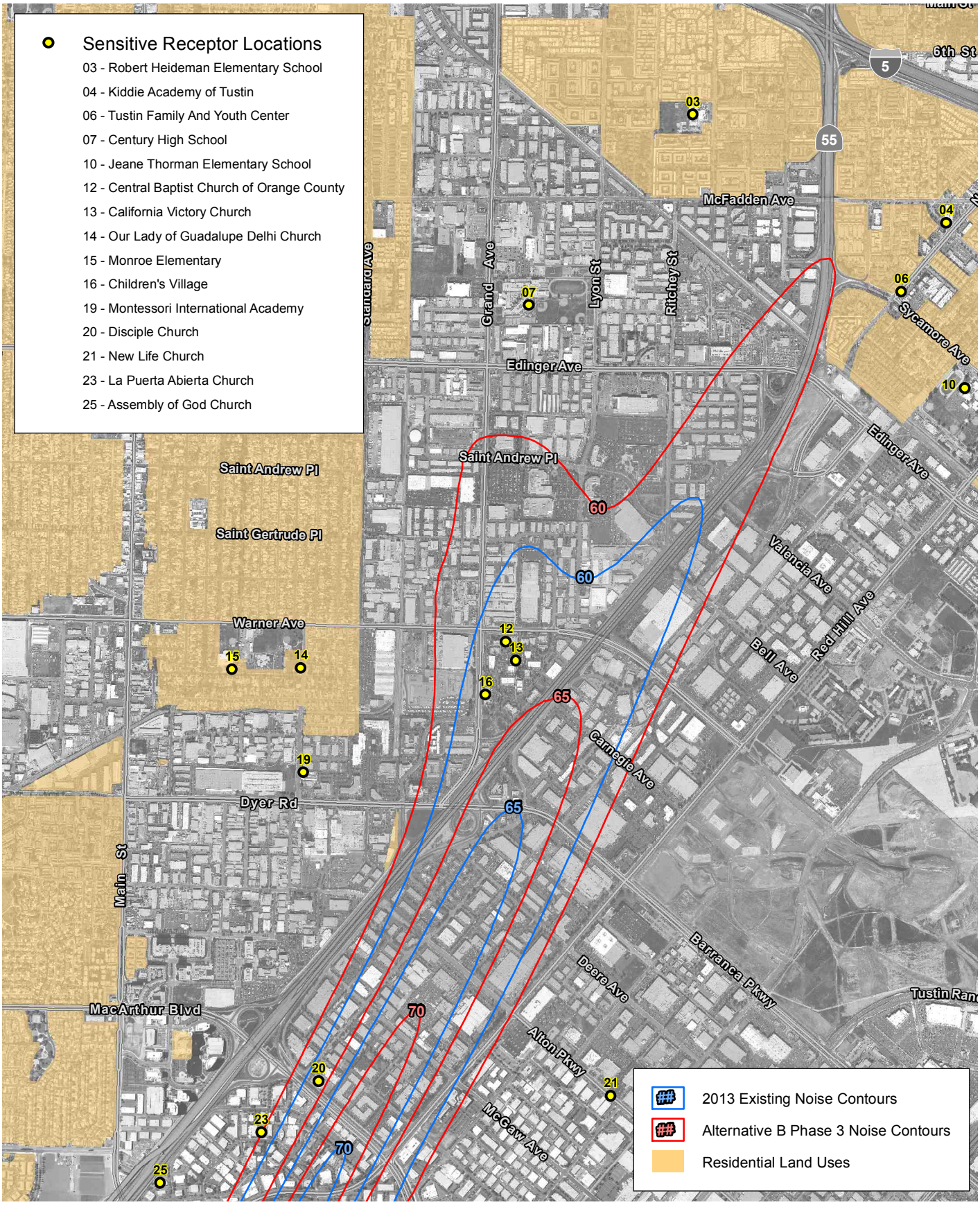
Exhibit 4.5-12a

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Existing and Alternative B, Phase 3 Approach Noise Contours with Sensitive Land Uses

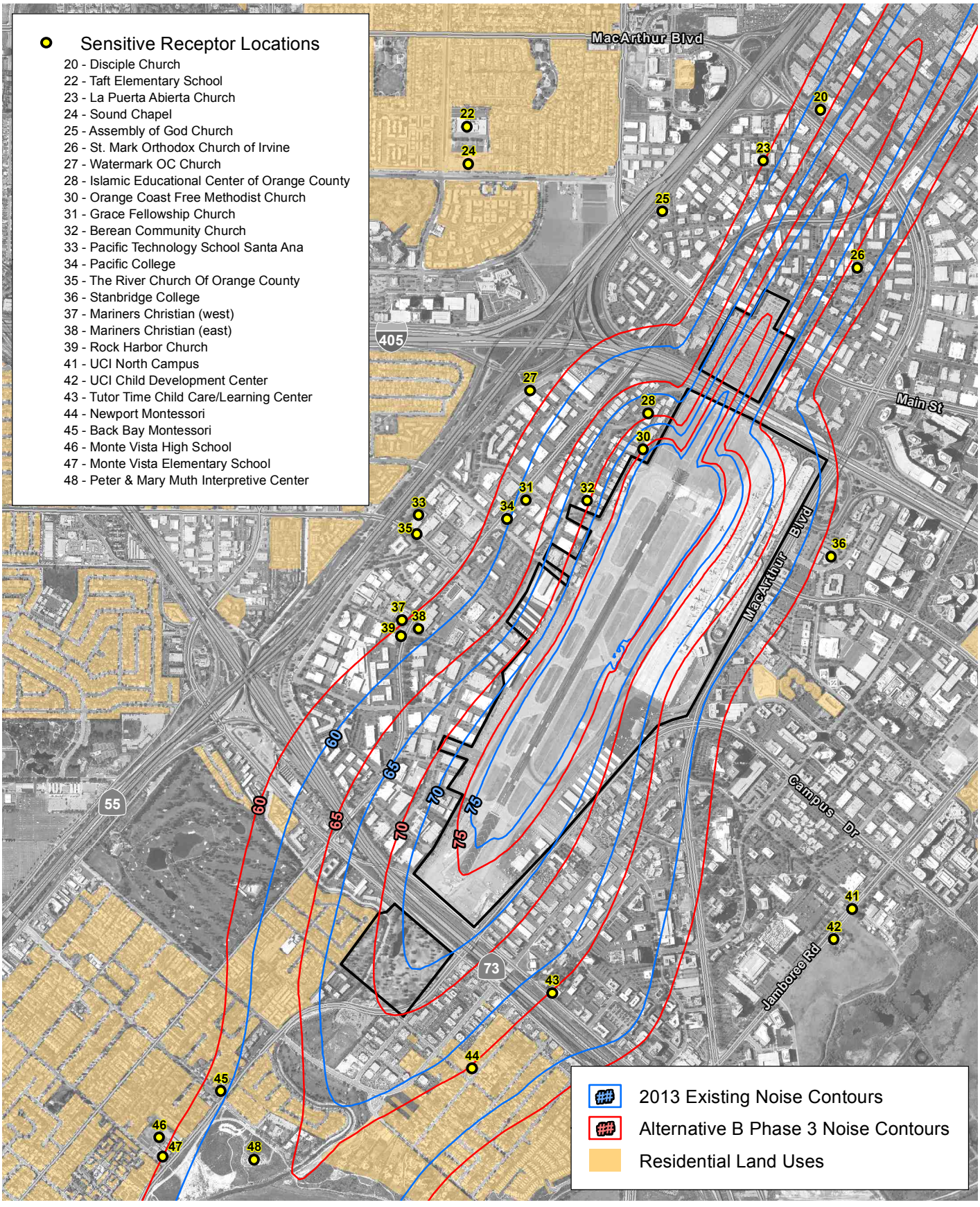
Exhibit 4.5-12b

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Existing and Alternative B, Phase 3 Airport Area Noise Contours with Sensitive Land Uses

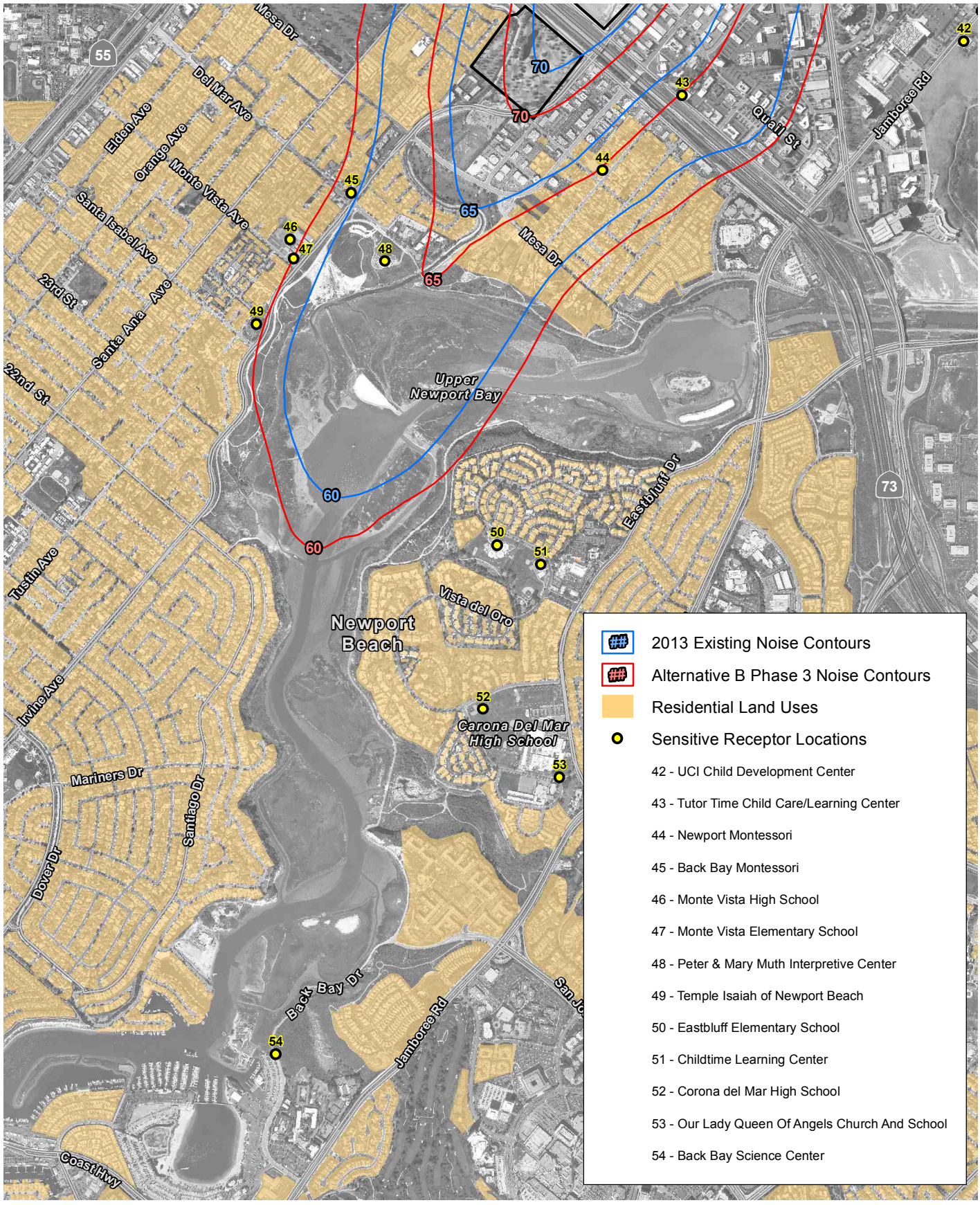
Exhibit 4.5-12c

John Wayne Airport Settlement Agreement Amendment

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ORANGE COUNTY



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Existing and Alternative B, Phase 3 Departure Noise Contours with Sensitive Land Uses

Exhibit 4.5-12d

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Policy Consistency Analysis

Refer to Table 4.5-10, which provides an evaluation of Alternative B in relation to the goals and policies addressed in the relevant documents previously discussed.

As discussed in Table 4.5-11, Alternative B is consistent with the applicable goals and policies of the County General Plan. Phase 2 would exceed the City of Newport Beach standards at NMS 1S, 2S and 8N and Phase 3 would exceed the standards at 1S, 2S, 3S, and 8N. With implementation of Mitigation Measure LU-2, this impact would be reduced to less than significant. However, Alternative B also is inconsistent with one policy in the *City of Newport Beach General Plan* (Policy N 3.8). This would be a significant impact since the City of Newport Beach has jurisdiction over the Project.

In addition, Alternative B is inconsistent with two objectives in the *City of Irvine General Plan* (Objective B-7, Policies (b) and (d)). Since the City of Irvine does not have jurisdiction over the Project, this conflict would not be a significant environmental impact.

Impact Conclusion: *With Alternative B, Phase 3, the projected operations would exceed the existing capacity of number of gates, international terminal capacity, fuel storage capacity, and automobile parking. These would be significant impacts.*

With Alternative B, there would be an increase in the number of noise-sensitive uses exposed to noise levels in excess of 65 CNEL (a total of 230 residences would be in the 65 or greater CNEL contour, 134 as a result of Alternative B in Phase 3), which would result in a land use incompatibility. This would be a significant impact because there are no feasible mitigation measures to reduce exterior noise levels to below 65 CNEL, consistent with the County of Orange standards for noise sensitive uses. There is also a potential that interior noise levels would exceed established standards for land use compatibility for noise sensitive uses (a total of 119 uninsulated residences would be within the 65 or greater CNEL contour, 61 as a result of Alternative B in Phase 3). With implementation of mitigation, this impact would be reduced to a less than significant level for all residences, with the exception of the residences within the area zoned for business park that are not eligible for sound insulation (a total of 76 units in Phase 3, 29 as a result of the Alternative B). These residences would be subject to a significant land use impact because interior noise levels would exceed the County standard.

Alternative B would conflict with a land use policy from the City of Newport Beach. Since the City of Newport Beach is a Responsible Agency for purposes of CEQA and required to approve the Settlement Agreement extension, this was found to be a significant impact and no mitigation is feasible.

Alternative C

Capacity of On-Site Facilities

Airfield Capacity

Exhibit 4.5-13 presents a comparison of hourly demand (aircraft operations) and runway capacity for Alternative C during VFR and IFR conditions. As shown, under VFR the runway capacity is exceeded for Alternative C, Phases 1 and 2 during peak hours. Phases 1 and 2 are affected because general aviation activity is projected to be higher during these time periods than in Phase 3. If these conditions existed for the peak hours of Alternative C, general aviation operations may move to non-peak times when there would be less air traffic and delays at the Airport. However, JWA does not have the ability to mandate the general aviation to specific hours of operation; therefore, with Alternative C there would be insufficient airfield capacity.[14]

Remaining Overnight Capacity

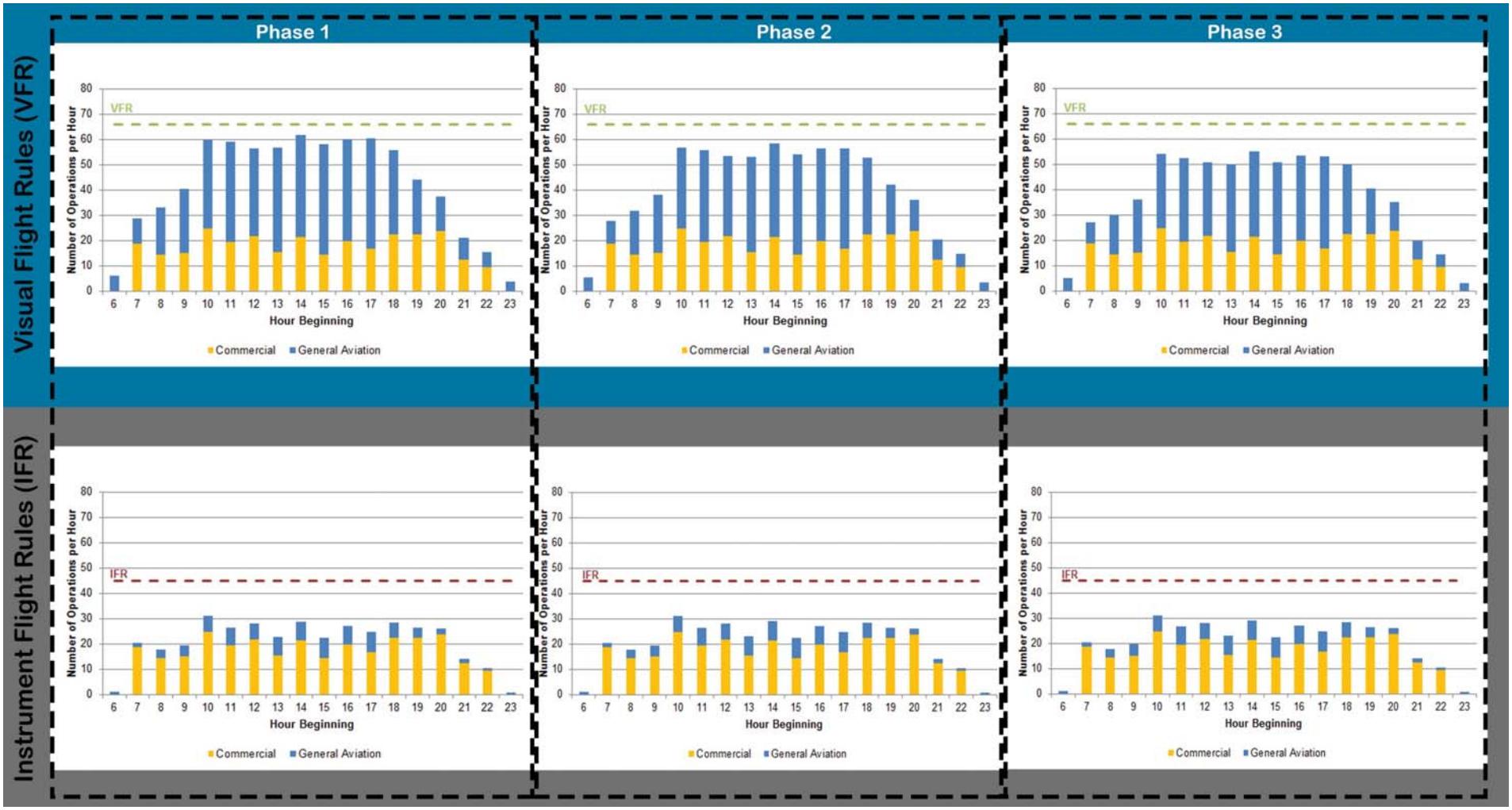
For Alternative C, Phase 1, it is assumed that the departures in the 7:00 AM and 8:00 AM hours represent the total number of aircraft stored overnight. However, for Alternative C, Phases 2 and 3, in which the curfew is removed, it is assumed that departures in the 6:00 AM and 7:00 AM hours represent the total number of aircraft stored overnight. Table 4.5-2, above, presents the available RON capacity and requirements for Alternative C. Phase 1 of Alternative C has a very high RON requirement in comparison to Phases 2 and 3 because the daily schedule is more compressed. As shown, the RON requirements for Alternative C exceed the existing capacity for all three phases.

Gate Capacity

Alternative C would exceed the existing gate capacity during all phases. As shown in Table 4.5-3, the schedule-based analysis indicates that in Phase 1 there would be shortages from 10:00 AM through noon; 2:00 PM; and 6:00 PM through 8:00 PM. During Phase 1, the greatest impact would occur during the 11:00 AM hour when there would be a shortage of 11 gates. In Phases 2 and 3, there would be insufficient gate capacity from 10:00 AM through noon and the 2:00 PM hour. Gate availability is exceeded by as little as 2 gates during 6:00 PM hour and as many as 11 gates during the 11:00 AM hour.

The turns per gate evaluation also identifies a shortage for all phases of Alternative C. As shown in Table 4.5-4, all phases would have an average 11.2 turns per gate. This exceeds the 2007 peak of 9.1 turns per gate, which is being used as the standard for the maximum number of turns per gate with a passenger loading bridge.

[14] Alternative C was developed based on maximizing the airfield capacity for commercial operations. In developing the number of ADD and MAP, it did not allocate any airfield capacity for general aviation. However, this results in potential conflicts with general aviation activities.



Source: *Aviation Forecasts Technical Report*, AECOM 2014a

Hourly Demand Versus Capacity for Alternative C

Exhibit 4.5-13

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The evaluation of gate throughputs also shows a shortage of gates for all phases of Alternative C. Table 4.5-5 identifies that Alternative C would result in 422,500 enplanements per gate for each of the phases, which exceeds 90 percent of the historical peak throughput per gate with a passenger loading bridge (or approximately 306,000). Therefore, based on each of these methodologies, it has been determined that Alternative C would result in a significant impact to terminal levels of service due to insufficient gate capacity.

Terminal Capacity for International Passengers

As discussed above, it is estimated that approximately 16 daily international flights could be accommodated using the present FIS facilities. Table 4.5-6, above, summarizes the average daily international flights (arrivals) and shows that, with Alternative C, Phase 2, there would be 16.8 daily international arrivals and 18.6 daily international arrivals with Phase 3. Both Phases 2 and 3 would exceed terminal capacity for international flights, which is a significant impact.

Fuel Storage Capacity

As shown in Table 4.5-7, all phases of Alternative C would exceed the capacity of the existing fuel system. There would be a need for an additional 20 fuel tanker deliveries (total 48 tankers) during the ADMP to accommodate the fuel demand generated by the 16.9 MAP. Similar to Alternative B, the deliveries would extend beyond the evening hours. However, based on the overall demand and the limitations of the existing facilities, near continuous fuel delivery throughout the day would be required. The same physical limitations identified for Alternative B (i.e., the number of offloading stations at the fuel farms, limited queuing space, and potential limitations at the refinery) would apply to Alternative C, but the demand would be even greater. During the ADPM, 16 day time fuel truck deliveries would be required. Given the extent of the operational changes that would be required to ensure adequate fuel supply, the demand associated with Alternative C would exceed the fuel storage capacity, which would be a significant impact.

General Aviation Facilities

Though Alternative C would not displace any general aviation facilities, it has the potential to significantly impact general aviation activity at the Airport because the airfield capacity would be exceeded during peak hours. This would restrict airfield availability for both commercial and general aviation flights.

Airport Parking Facilities

As shown in Table 4.5-8, all phases of Alternative C would exceed the automobile parking capacity under both the existing parking configuration, as well as when the planned additional parking in Parking Structure C2.

Summary of Capacity of On-Site Facilities Evaluation

With Alternative C, projected operations would result in significant impacts to on-site facilities; specifically, this alternative would exceed airfield capacity (for both commercial and general aviation); the spaces required for aircraft remaining overnight; capacity for loading bridges; international terminal capacity; fuel storage capacity; and automobile parking capacity. These would be a significant impact, and mitigation is not feasible; therefore, these are significant, unavoidable impacts associated with Alternative C.

Compatibility with Surrounding Land Uses

Phase 1

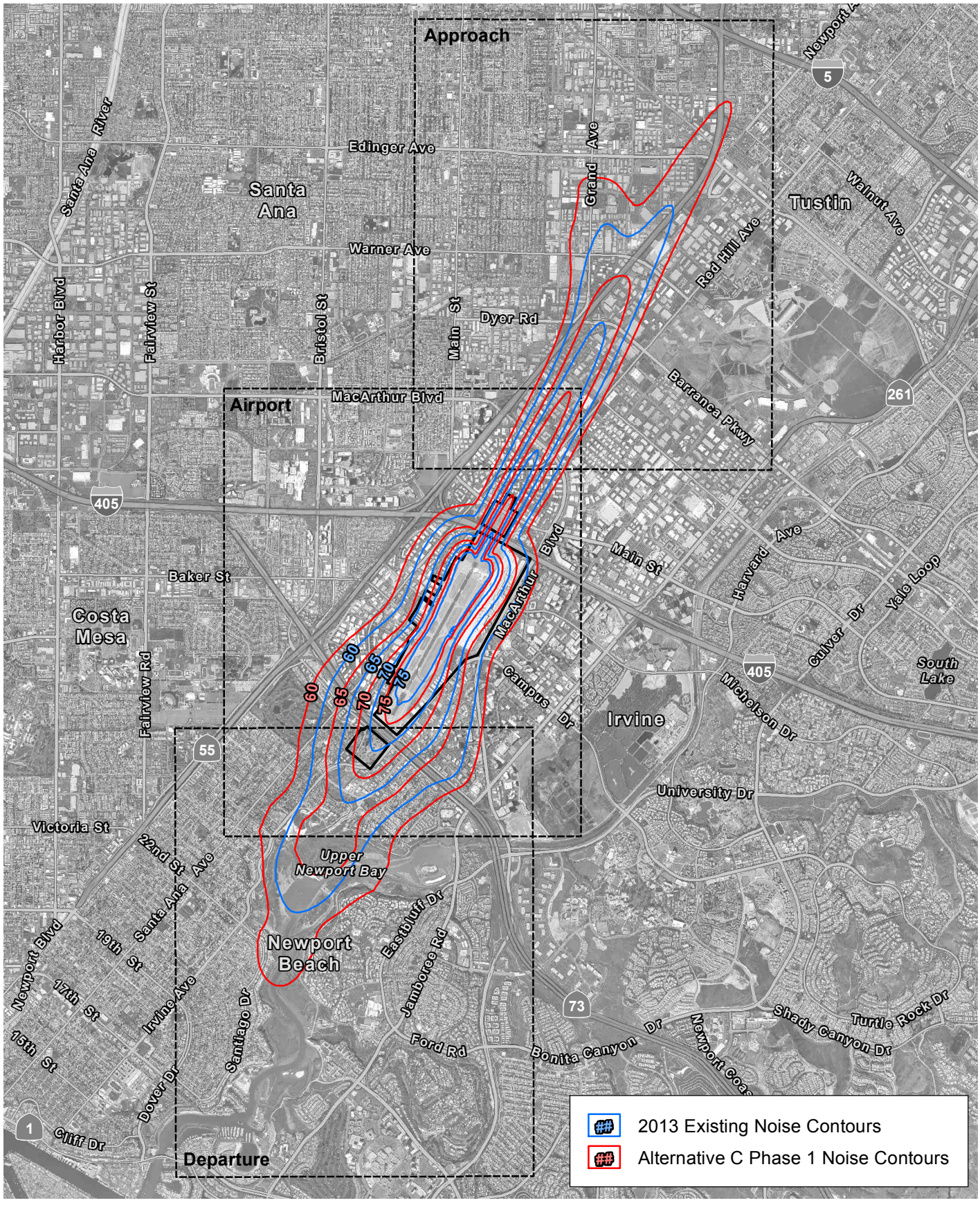
As shown in Table 4.5-9, Alternative C, Phase 1 would increase the total 65 to 70 CNEL contour area by approximately 0.46 square mile (52 percent) and the greater than 70 CNEL contour area by approximately 0.33 square mile (56 percent) compared to existing conditions. Outside the Airport boundaries, there would be an approximate 0.51-square-mile (75 percent) increase in the 65 to 70 CNEL contour and a 0.23-square-mile (256 percent) increase in the greater than 70 CNEL contour compared to existing conditions. Exhibit 4.5-14a provides a comparison of the existing 60, 65, 70, and 75 CNEL contours and the projected contours with Alternative C, Phase 1. Exhibits 4.5-14b through 4.5-14d provide larger scale exhibits with the noise-sensitive land uses depicted.

Six residences would be located in the 70 CNEL contour with implementation of Phase 1 of Alternative C, of which four were insulated under the AIP. Two residences within the AIP area are not insulated, one of which is in the business park and is a non-conforming use. Compared to existing conditions, increased noise levels under Alternative C, Phase 1 would add 249 additional residences to the area within the 65 to 70 CNEL contour, of which 165 were insulated and 84 were not. Of the 84 additional residences that have not been insulated, 28 residences are located in the area zoned for business park and are non-conforming uses.

Residences with outdoor living areas exposed to a greater than 65 CNEL would be incompatible with the County's exterior noise standard. There is no feasible mitigation for the exterior noise levels. Therefore, as the 65 CNEL contour expands beyond the existing contour and includes additional residences, this would be a significant land use compatibility impact.

The non-conforming residential uses within the business park are not eligible for future sound attenuation. Therefore, from a land use compatibility perspective, these residences are being exposed to exterior and potentially interior noise levels in excess of the County standards, which would be a significant impact and mitigation is not feasible.

Residences that have received insulation would be compatible with the interior noise standards. For the uninsulated residences, however, there is also the potential for incompatibility due to excessive interior noise levels, which would be considered a significant impact. Based on the County standard, an indoor noise impact occurs when the interior noise level exceeds 45 dB 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 dB. If this standard is exceeded, implementation of a SIP would be used to address interior noise impacts. With implementation of the SIP (see Mitigation Measure LU-1), the land use compatibility impact associated with interior noise levels would also be reduced to a less than significant level for those residences with an average noise level in excess of 45 CNEL that are outside of the business park. For those residences within the business park and those residences with a habitable room with noise levels in excess of 45 CNEL but the average noise levels in the habitable rooms is less than 45 CNEL, mitigation would not be feasible; therefore, the impact would be significant and unavoidable.



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Comparison of Existing and Alternative C Phase 1 Noise Contours

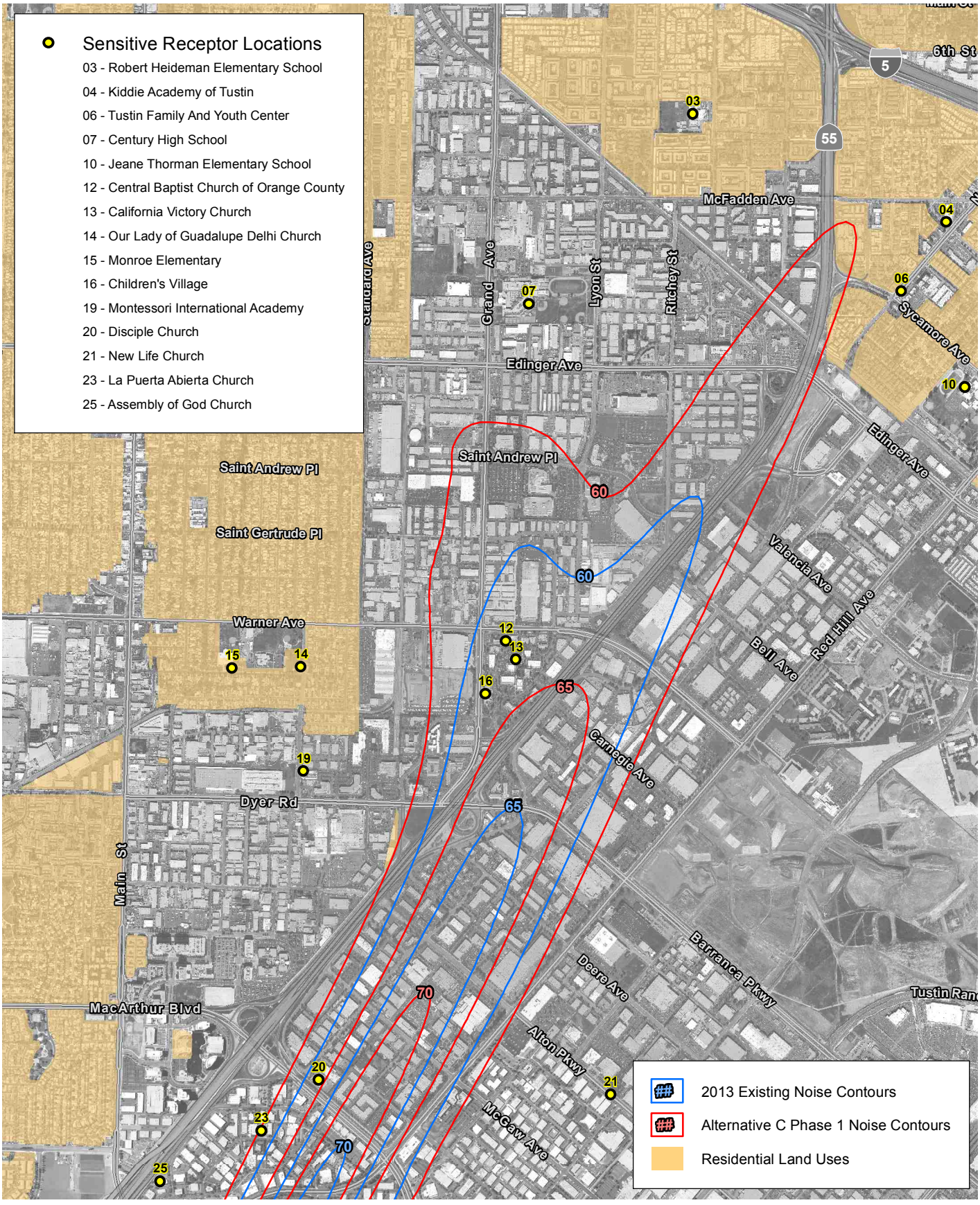
Exhibit 4.5-14a

John Wayne Airport Settlement Agreement Amendment

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JOHN WAYNE AIRPORT ORANGE COUNTY



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Existing and Alternative C, Phase 1 Approach Noise Contours with Sensitive Land Uses

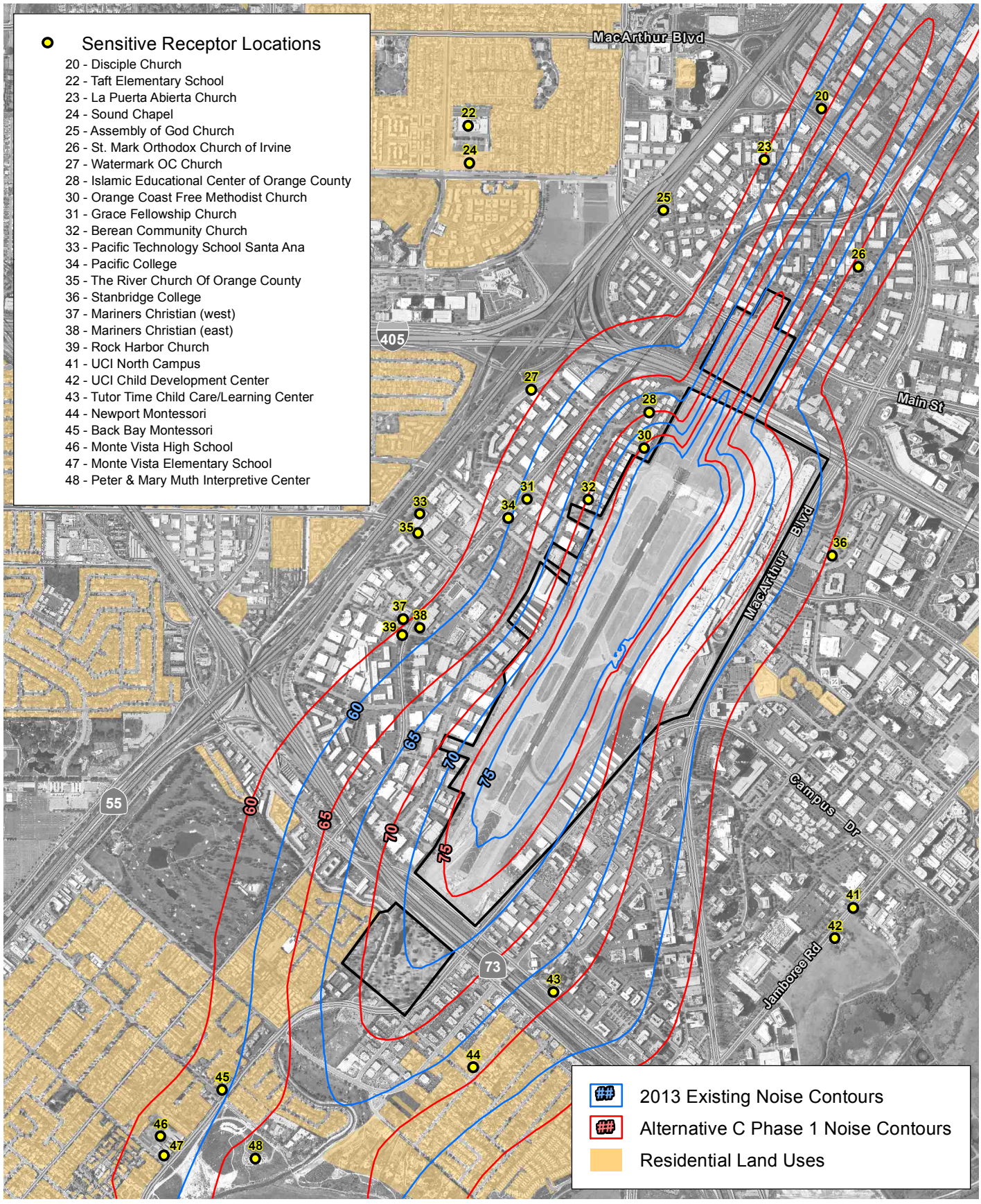
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John Wayne Airport Settlement Agreement Amendment

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Existing and Alternative C, Phase 1 Airport Area Noise Contours with Sensitive Land Uses

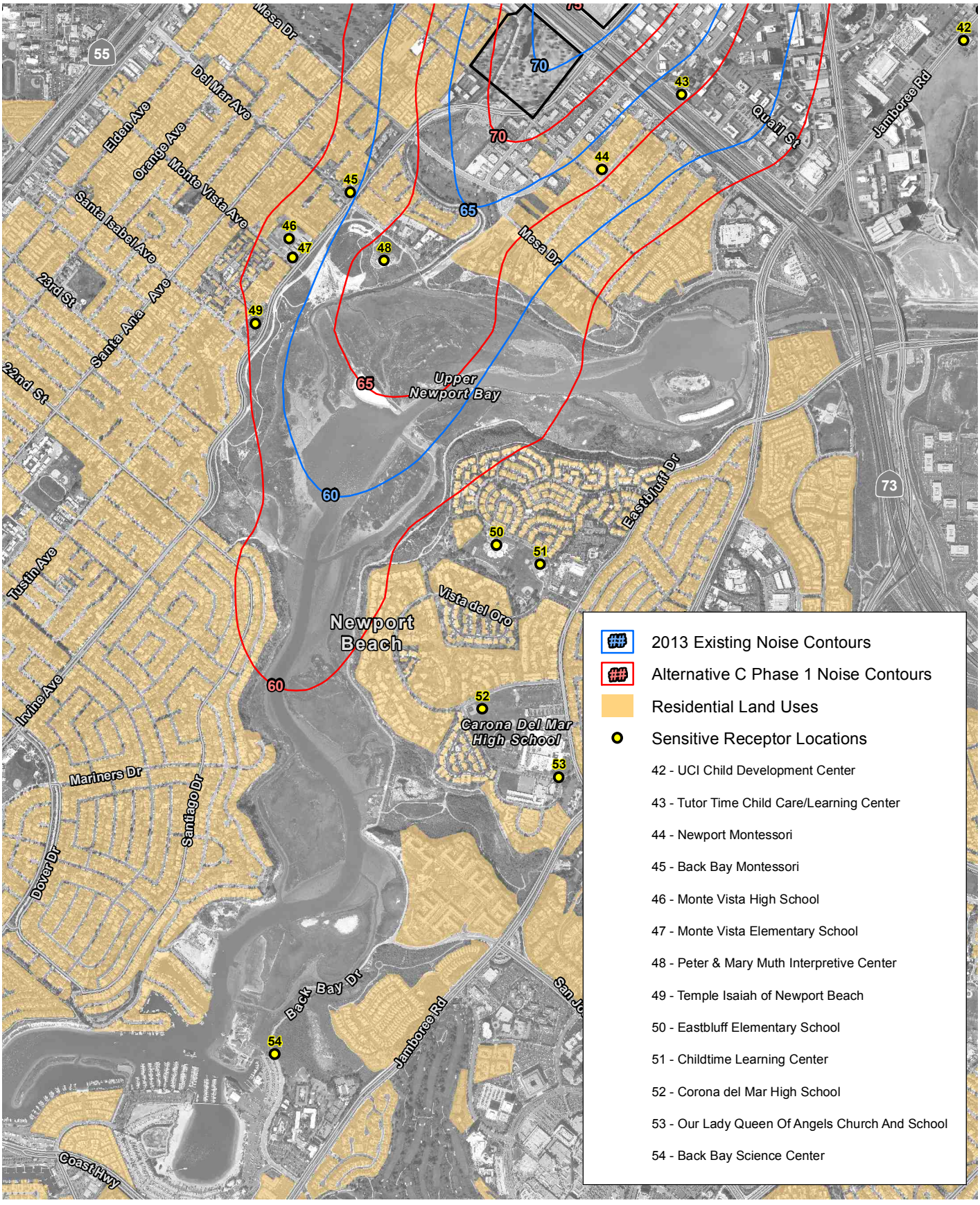
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John Wayne Airport Settlement Agreement Amendment

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Existing and Alternative C, Phase 1 Departure Noise Contours with Sensitive Land Uses

Exhibit 4.5-14d

John Wayne Airport Settlement Agreement Amendment

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JOHN WAYNE AIRPORT ORANGE COUNTY

Two schools (Newport Montessori, and Tutor Time Child Care/Learning Center) and the Peter & Mary Muth Interpretive Center would be within the expanded 65 to 70 CNEL contour. The Berean Community Church, which is currently in the 65 to 70 CNEL contour, would be within the expanded greater than 70 CNEL contour. Additionally, with all phases of Alternative C, the Orange Coast Free Methodist Church moves from the 70 to the 75 CNEL contour. These are considered noise sensitive uses. Playgrounds are specifically not identified as an "outdoor living area" where an exterior noise level of less than 65 dB standard is recommended. Therefore, Alternative C would not result in a land use compatibility impact based on the exterior noise standard for the schools.

The County General Plan land use and noise compatibility standards (see Table 4.5-1), specify that a school can be determined to be compatible if the interior noise standard can be achieved. As shown in Table 4.5-1, this is identified as being between 45 to 65 dB, depending on interior use. Due to the exterior noise levels with Alternative C, there is the potential that interior noise levels may be exceeded at the Newport Montessori and Tutor Time Child Care/Learning Center. Mitigation Measure LU-1 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. However, similar to the residential uses, 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 schools with noise levels in excess of 45 CNEL but if the average noise levels rooms is less than 45 CNEL, mitigation would not be feasible; therefore, the impact would be significant and unavoidable.

The Peter and Mary Muth Interpretive Center is an educational facility located in the Upper Newport Bay area. The Center offers education programs for school children, and is open to the public. The education programs are run in collaboration with OC Parks, the California Department of Fish and Game, the City of Newport Beach, the California Coastal Commission, and the Newport Aquatic Center. The Center utilizes the outdoor setting for portions of their educational programs. As such, the exterior standard of less than 65 dB for "outdoor living areas" would apply because it is associated with the educational uses. This would be a significant impact and mitigation would not be feasible. Though the implementation of Mitigation Measure LU-1would apply and may achieve interior noise levels consistent with County standards, the restrictions discussed above for the residential uses and schools would also apply to the Interpretive Center. As such, it is uncertain if mitigation would be feasible; therefore, compatibility impacts based on interior noise levels would be significant and unavoidable.

The Berean Community Church, which is currently in the 65 to 70 CNEL contour, would be within the expanded greater than 70 CNEL contour. Additionally, with all phases of Alternative C, the Orange Coast Free Methodist Church moves from the 70 to the 75 CNEL contour. For places of worship, the same criteria used for schools applies. As indicated in Table 4.5-1, the 65 dB for an outdoor living area does not apply to areas principally used for short-term social gatherings. All of the places of worship affected by Alternative C, Phase 1 are located in business complex constructed between Red Hill Avenue and the Airport. These facilities do not have areas that would be considered outside living areas; so, based on the exterior noise standard, the land uses are compatible. It should also be noted that these places of worship are located in the office/industrial buildings located adjacent to the Airport, which were designed to meet the noise standards.

Similar to the discussion for residential uses and schools, as the 65 CNEL expands beyond the existing contour and includes additional places of worship, there is the potential for land use incompatibility impacts associated with interior noise levels. This would be a potentially significant impact. Mitigation Measure LU-1 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. However, the average interior noise level must exceed 45 CNEL or insulation would not be allowed by the FAA. As result, there may be some portions of the places of worship with noise levels in excess of 45 CNEL but if the average noise levels rooms is less than 45 CNEL, mitigation would not be feasible; therefore, the impact would be significant and unavoidable.

Phase 2

Alternative C, Phase 2 would increase the total 65 to 70 CNEL contour area by approximately 0.83 square mile (94 percent) and the greater than 70 CNEL contour by approximately 0.70 square mile (119 percent) compared to existing conditions. Outside the Airport boundaries, there would be an approximate 0.92-square-mile (135 percent) increase in the 65 to 70 CNEL contour and a 0.51-square-mile (567 percent) increase in the greater than 70 CNEL contour compared to existing conditions. Exhibit 4.5-15a provides a comparison of the existing 60, 65, 70, and 75 CNEL contours and the projected contours with the Alternative C, Phase 2. Exhibits 4.5-15b through 4.5-15d provide larger scale exhibits with noise-sensitive land uses depicted.

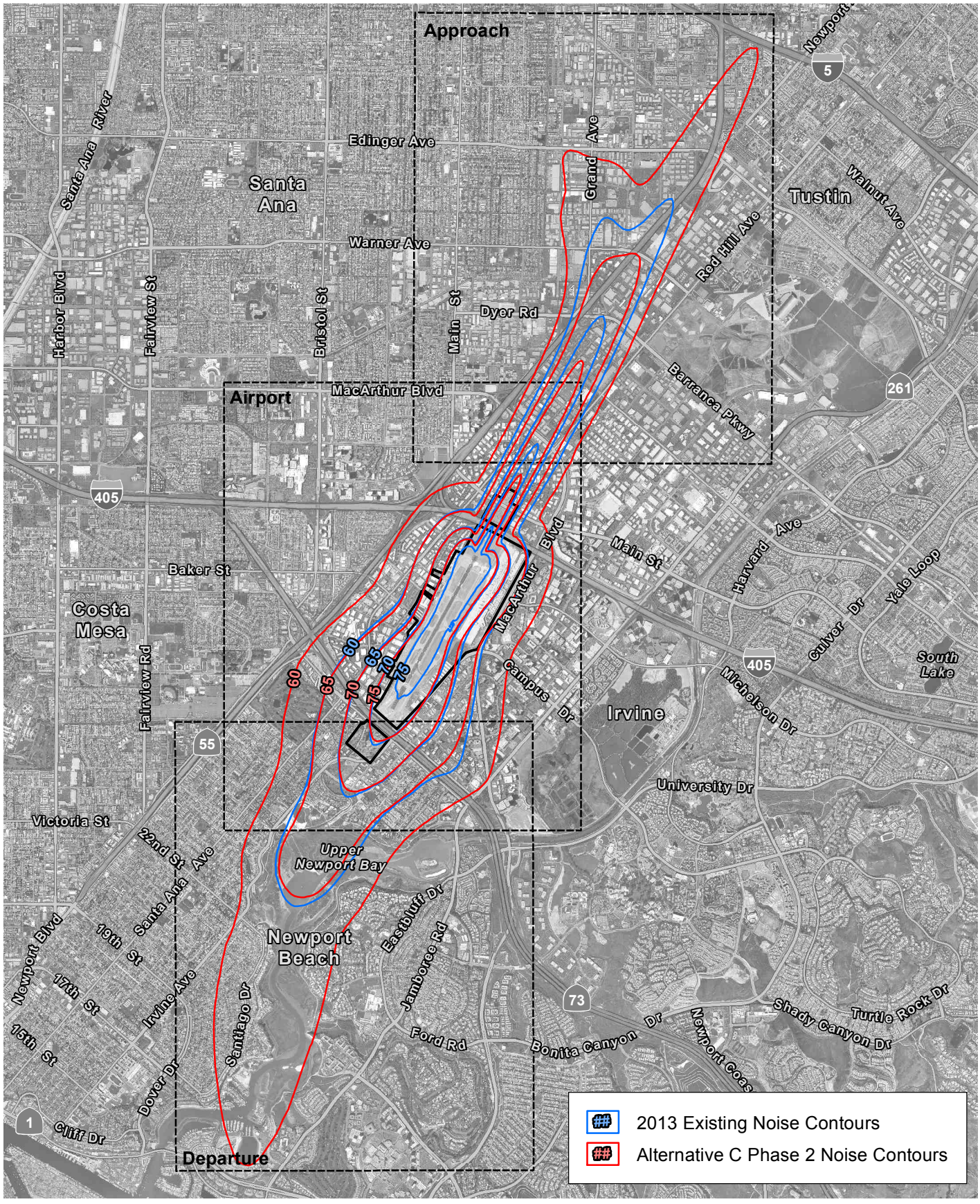
In Phase 2 of Alternative C, 92 residences would be located in the 70 CNEL contour, of which 38 residences were insulated under the AIP. Compared to existing conditions, Phase 2 of Alternative C would add 774 additional residences to the area within the 65 to 70 CNEL contour, of which 349 residences were insulated under the AIP. Within the AIP area, there are 62 uninsulated residences; and, an additional 363 uninsulated residences are located outside the AIP area, for a total of 425 uninsulated residences being added to the 65 to 70 CNEL contour area. There are a total of 479 uninsulated residences within the combined greater than 70 CNEL and the 65 to 70 CNEL contour areas. Of the uninsulated residences added to the greater than 65 CNEL contour as a result of Alternative C, Phase 2, 29 units are located in the area zoned for business park and are non-conforming uses.

Residences that have received insulation would be compatible with the interior noise standards. For the uninsulated residences, however, there is also the potential for incompatibility due to excessive interior noise levels, which would be considered a significant impact. Based on the County standard, an indoor noise impact occurs when the interior noise level exceeds 45 dB 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 dB. If this standard is exceeded, implementation of a SIP would be used to address interior noise impacts. With implementation of the SIP (see Mitigation Measure LU-1), the land use compatibility impact associated with interior noise levels would also be reduced to a less than significant level for those residences with an average noise level in excess of 45 CNEL that are outside of the business park. For those residences within the business park and those residences with a habitable room with noise levels in excess of 45 CNEL but the average noise levels in the habitable rooms is less than 45 CNEL, mitigation would not be feasible; therefore, the impact would be significant and unavoidable.

As with Phase 1, two schools (Newport Montessori, and Tutor Time Child Care/Learning Center) and the Peter & Mary Muth Interpretive Center would be in the expanded 65 CNEL contour. With Phase 2, there are three places of worship within the 65 CNEL contour (Disciple Church, Grace Fellowship Church, and St. Mark Orthodox Church of Irvine) and two places of worship within the expanded 70 CNEL contour (Berean Community Church and Islamic Educational Center of Orange County). As previously mentioned, the Orange Coast Free Methodist Church would move from the 70 to the 75 CNEL contour.

The analysis provided for Alternative C, Phase 1 would also apply to Phase 2. Significant impacts without feasible mitigation would include the exterior noise levels for residences within the greater than 65 CNEL contour and the Peter and Mary Muth Interpretive Center. The schools and places of worship do not have exterior living areas that would constitute an incompatible land use due to exterior noise levels. Interior noise impacts may be significant at the schools, Interpretive Center, and places of worship if noise levels are excess of 45 CNEL but if the average noise levels rooms is less than 45 CNEL because mitigation would not be feasible.

Under Alternative C, Phase 2, the expanded 65 CNEL contour would also extend into areas currently designed for mixed-use development in the Airport Area of the City of Newport Beach. The MU-H2 (Mixed Use Horizontal) provides for a horizontal intermixing of uses that may include regional commercial office, multifamily residential, vertical mixed-use buildings, industrial, hotel rooms, and ancillary neighborhood commercial uses. However, no residential development currently exists or is proposed for the MU-H2 areas within the expanded 65 CNEL contour.



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Comparison of Existing and Alternative C Phase 2 Noise Contours

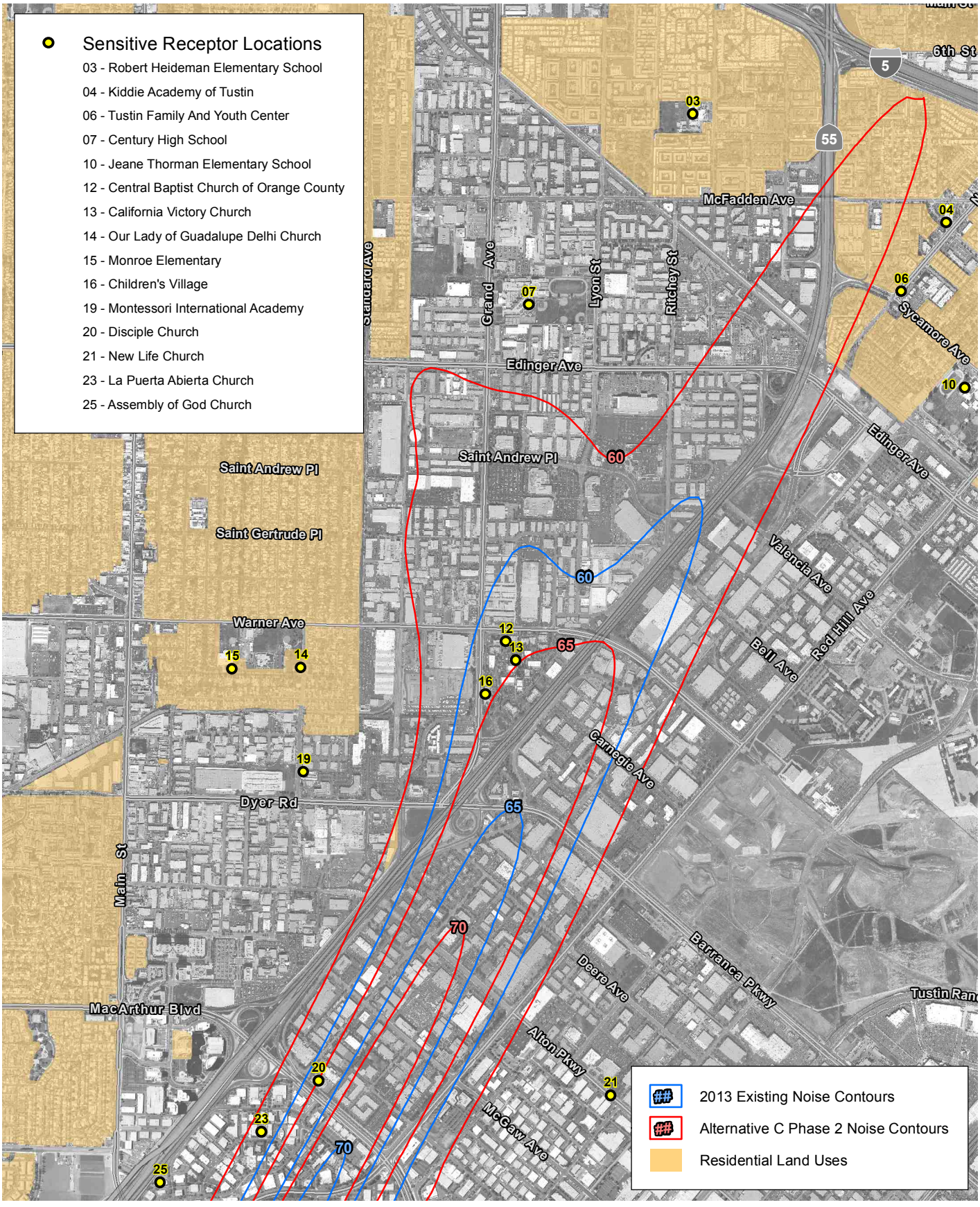
Exhibit 4.5-15a

John Wayne Airport Settlement Agreement Amendment

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Existing and Alternative C, Phase 2 Approach Noise Contours with Sensitive Land Uses

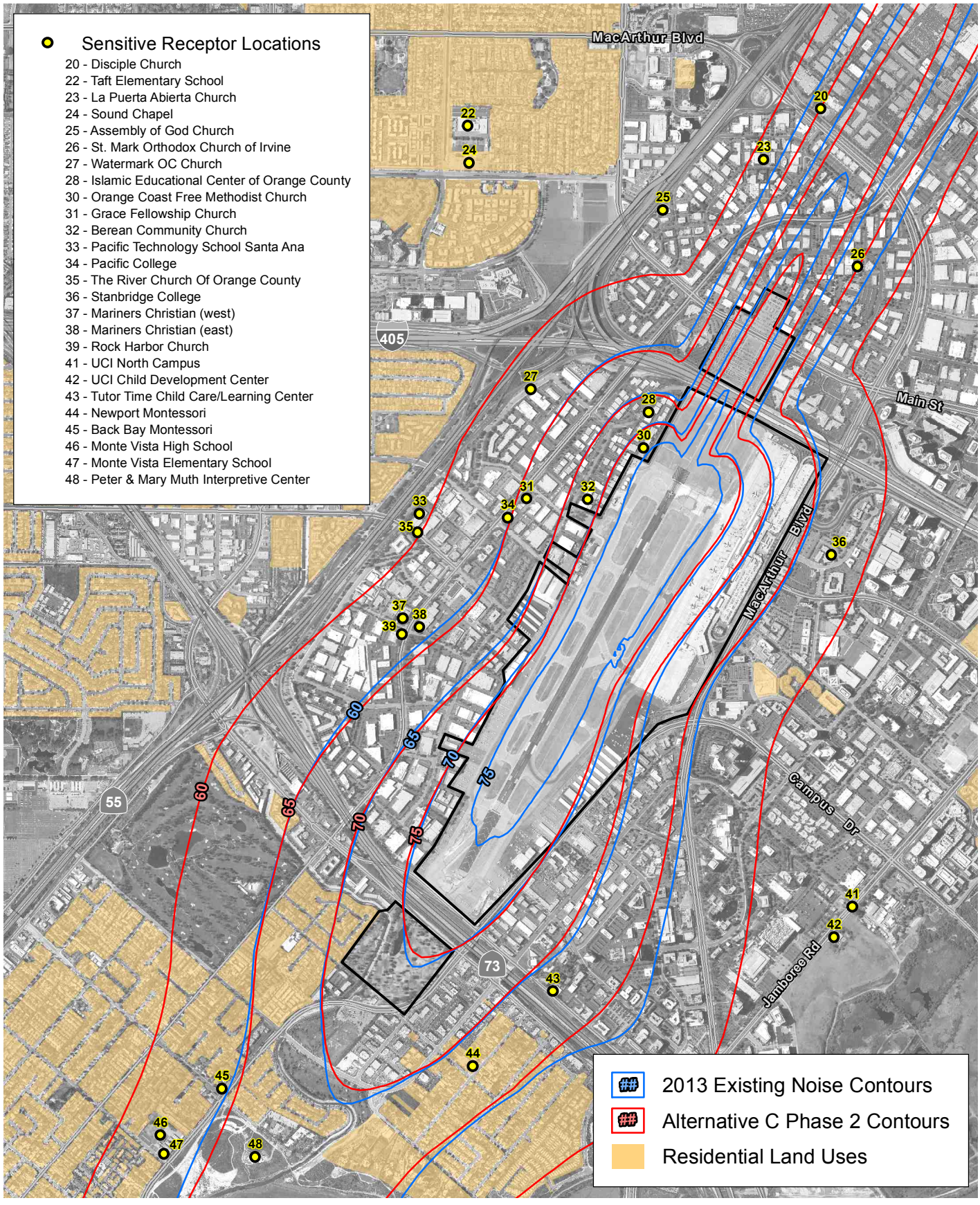
Exhibit 4.5-15b

John Wayne Airport Settlement Agreement Amendment

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Existing and Alternative C, Phase 2 Airport Area Noise Contours with Sensitive Land Uses

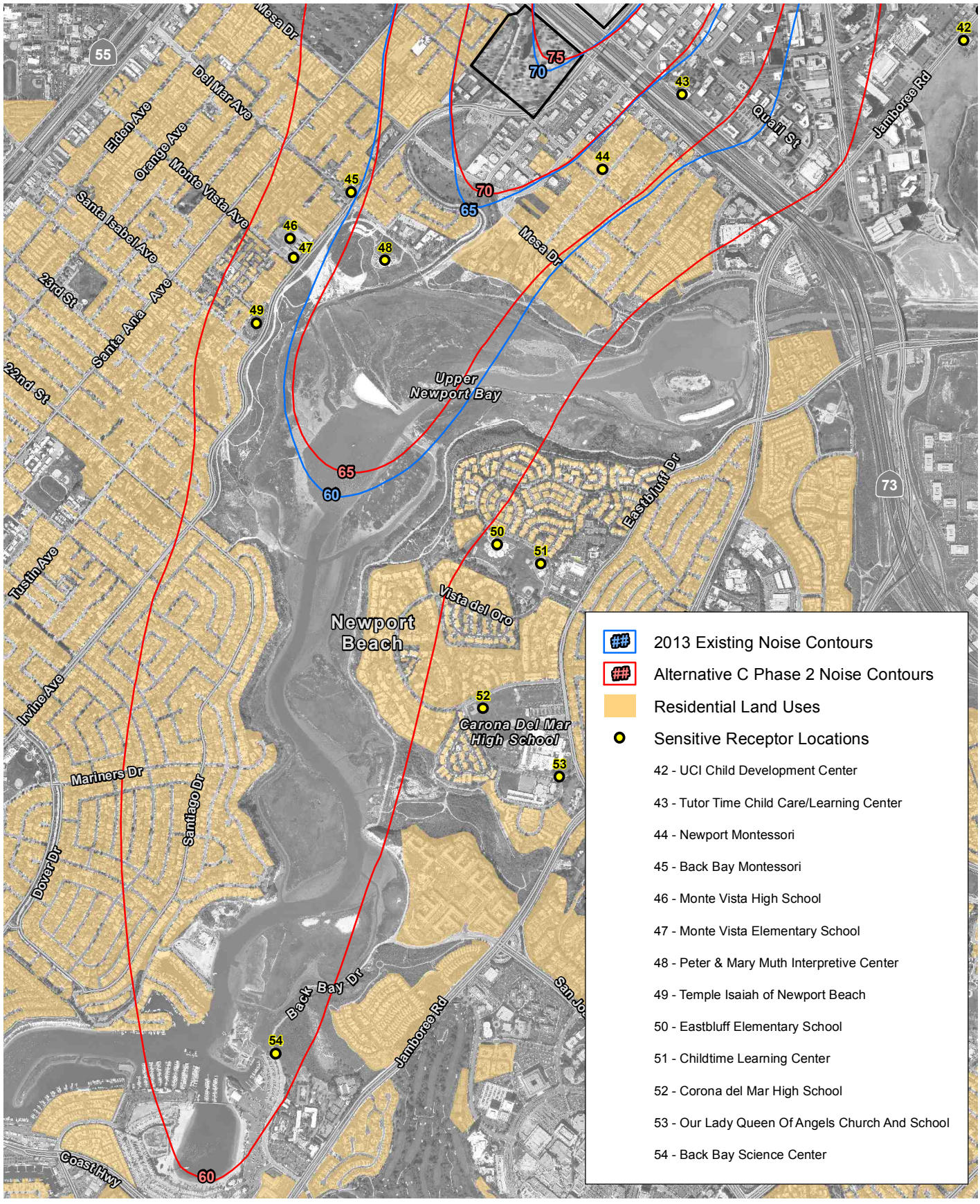
Exhibit 4.5-15c

John Wayne Airport Settlement Agreement Amendment

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Existing and Alternative C, Phase 2 Departure Noise Contours with Sensitive Land Uses

Exhibit 4.5-15d

John Wayne Airport Settlement Agreement Amendment

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JOHN WAYNE AIRPORT ORANGE COUNTY

Phase 3

Alternative C, Phase 3 would increase the total 65 to 70 CNEL contour area by approximately 0.82 square mile (93 percent) and the greater than 70 CNEL contour by approximately 0.70 square mile (119 percent) compared to existing conditions. Outside the Airport boundaries, there would be an approximate 0.90-square-mile (132 percent) increase in the 65 to 70 CNEL contour and a 0.52-square-mile (578 percent) increase in the greater than 70 CNEL contour compared to existing conditions. Exhibit 4.5-16a provides a comparison of the existing 60, 65, 70, and 75 CNEL contours and the projected contours with the Alternative C, Phase 3. Exhibits 4.5-16b through 4.5-16d provide larger scale exhibits with noise-sensitive land uses depicted.

With Alternative C, Phase 3, 92 residences would be located in the 70 CNEL contour, of which 38 residences were insulated under the AIP. Compared to existing conditions, Phase 3 of Alternative C would add 773 additional residences to the area within the 65 to 70 CNEL contour, of which 349 residences were insulated under the AIP. Within the AIP area, there are 62 uninsulated residences and an additional 362 uninsulated residences outside the AIP area, for a total of 424 uninsulated residences being added to the 65 to 70 CNEL contour area. There are a total of 478 uninsulated residences within the combined greater than 70 CNEL and the 65 to 70 CNEL contour areas. This is one less unit than with Alternative C, Phase 2. Of the uninsulated residences, 29 residences are located in the area zoned for business park and are non-conforming uses.

The analysis provided for Alternative C, Phases 1 and 2 would also apply to Phase 3. Significant impacts without feasible mitigation would include the exterior noise levels for residences within the greater than 65 CNEL contours.

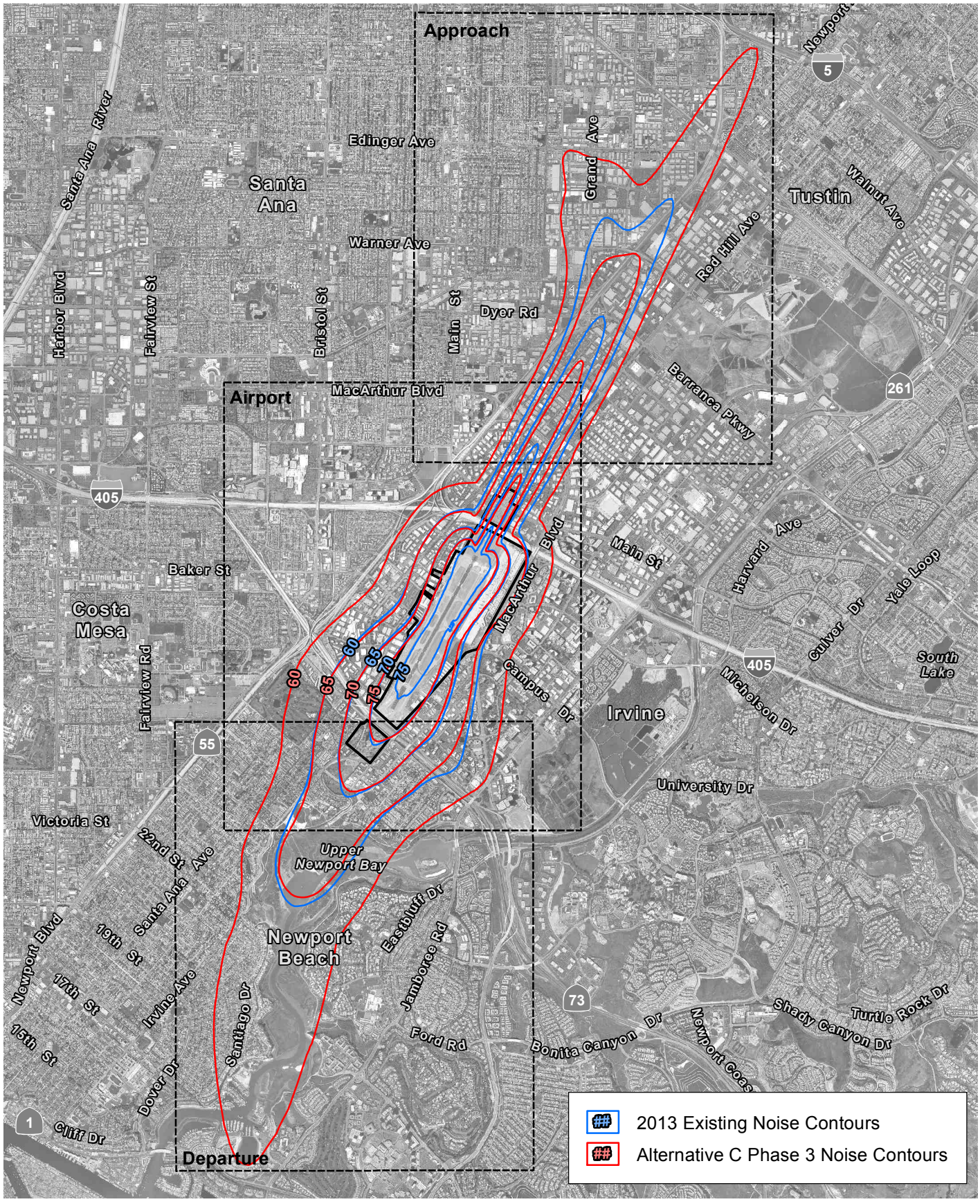
Residences that have received insulation would be compatible with the interior noise standards. For the uninsulated residences, however, there is also the potential for incompatibility due to excessive interior noise levels, which would be considered a significant impact. Based on the County standard, an indoor noise impact occurs when the interior noise level exceeds 45 dB 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 dB. If this standard is exceeded, implementation of a SIP would be used to address interior noise impacts. With implementation of the SIP (see Mitigation Measure LU-1), the land use compatibility impact associated with interior noise levels would also be reduced to a less than significant level for those residences with an average noise level in excess of 45 CNEL that are outside of the business park. For those residences within the business park and those residences with a habitable room with noise levels in excess of 45 CNEL but the average noise levels in the habitable rooms is less than 45 CNEL, mitigation would not be feasible; therefore, the impact would be significant and unavoidable.

As with Phase 2 of Alternative C, there would be two additional schools (Newport Montessori and Tutor Time Child Care/Learning Center) and the Peter & Mary Muth Interpretive Center (an educational facility). Phase 2 would include three places of worship within the 65 to 70 CNEL contour (Disciple Church, Grace Fellowship Church, and St. Mark Orthodox Church of Irvine,) and two places of worship within the expanded 70 CNEL contour (Berean Community Church and Islamic Educational Center of Orange County). As previously mentioned, the Orange Coast Free Methodist Church would move from the 70 to the 75 CNEL contour.

The analysis provided for Alternative C, Phases 1 and 2 would also apply to Phase 3. Significant impacts without feasible mitigation would include the exterior noise levels for the Peter and Mary Muth Interpretive Center. The schools and places of worship do not have exterior living areas that would constitute an incompatible land use due to exterior noise levels.

As the 65 CNEL expands beyond the existing contour and includes the schools, the Interpretive Center, and places of worship, there is the potential for land use incompatibility impacts associated with interior noise levels. This would be a potentially significant impact. Mitigation Measure LU-1 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. However, the average interior noise level must exceed 45 CNEL or insulation would not be allowed by the FAA. As result, there may be some portions of the schools and places of worship with noise levels in excess of 45 CNEL but if the average noise levels rooms is less than 45 CNEL, mitigation would not be feasible; therefore, the impact would be significant and unavoidable.

Under the Alternative C, Phase 3, scenario, the expanded 65 CNEL contour would also extend into areas designed for mixed-use development in the Airport Area of the City of Newport Beach. The MU-H2 (Mixed Use Horizontal) provides for a horizontal intermixing of uses that may include regional commercial office, multifamily residential, vertical mixed-use buildings, industrial, hotel rooms, and ancillary neighborhood commercial uses. However, no residential development currently exists or is proposed for the MU-H2 areas within the expanded 65 CNEL contour.



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Comparison of Existing and Alternative C Phase 3 Noise Contours

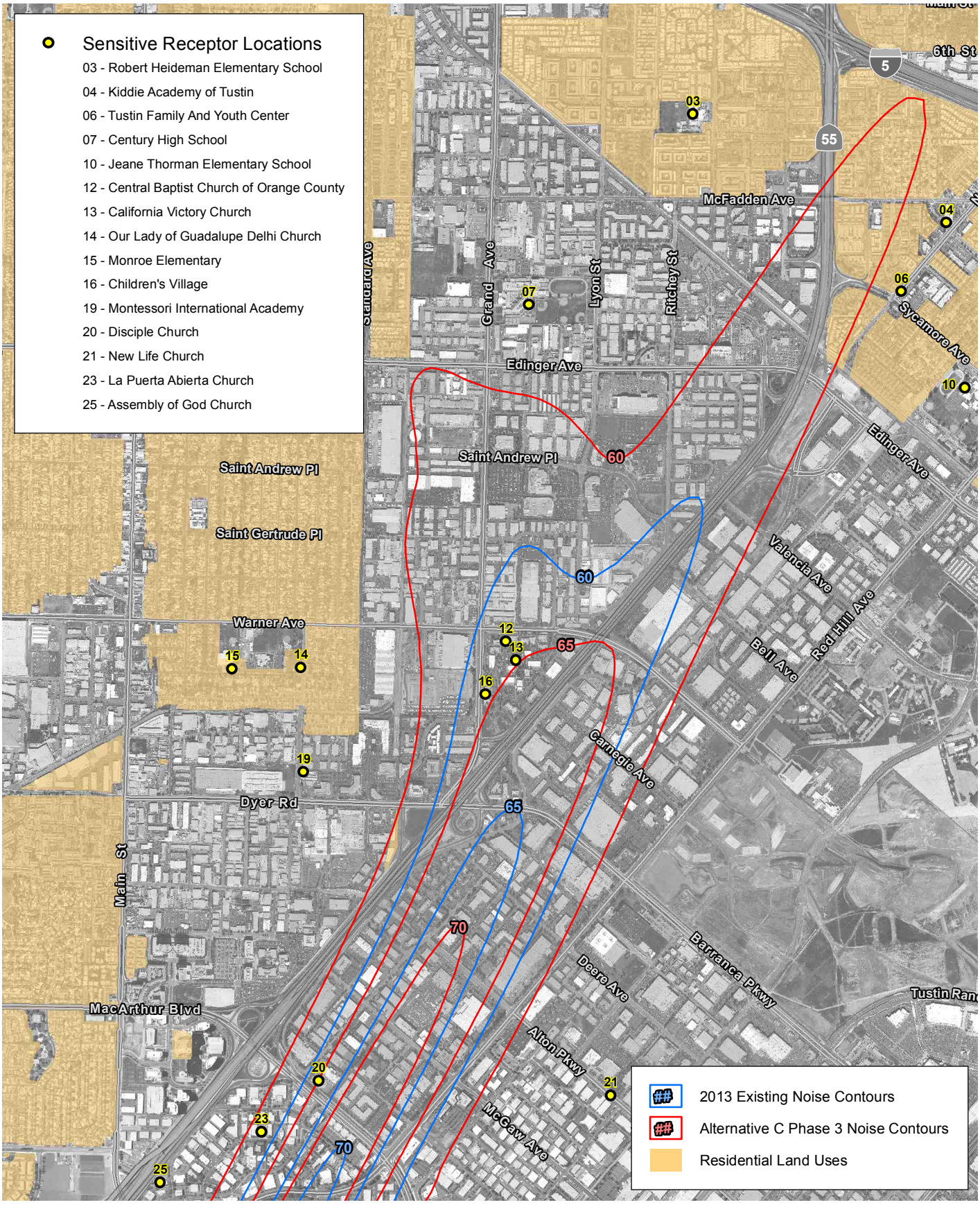
Exhibit 4.5-16a

John Wayne Airport Settlement Agreement Amendment

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Existing and Alternative C, Phase 3 Approach Noise Contours with Sensitive Land Uses

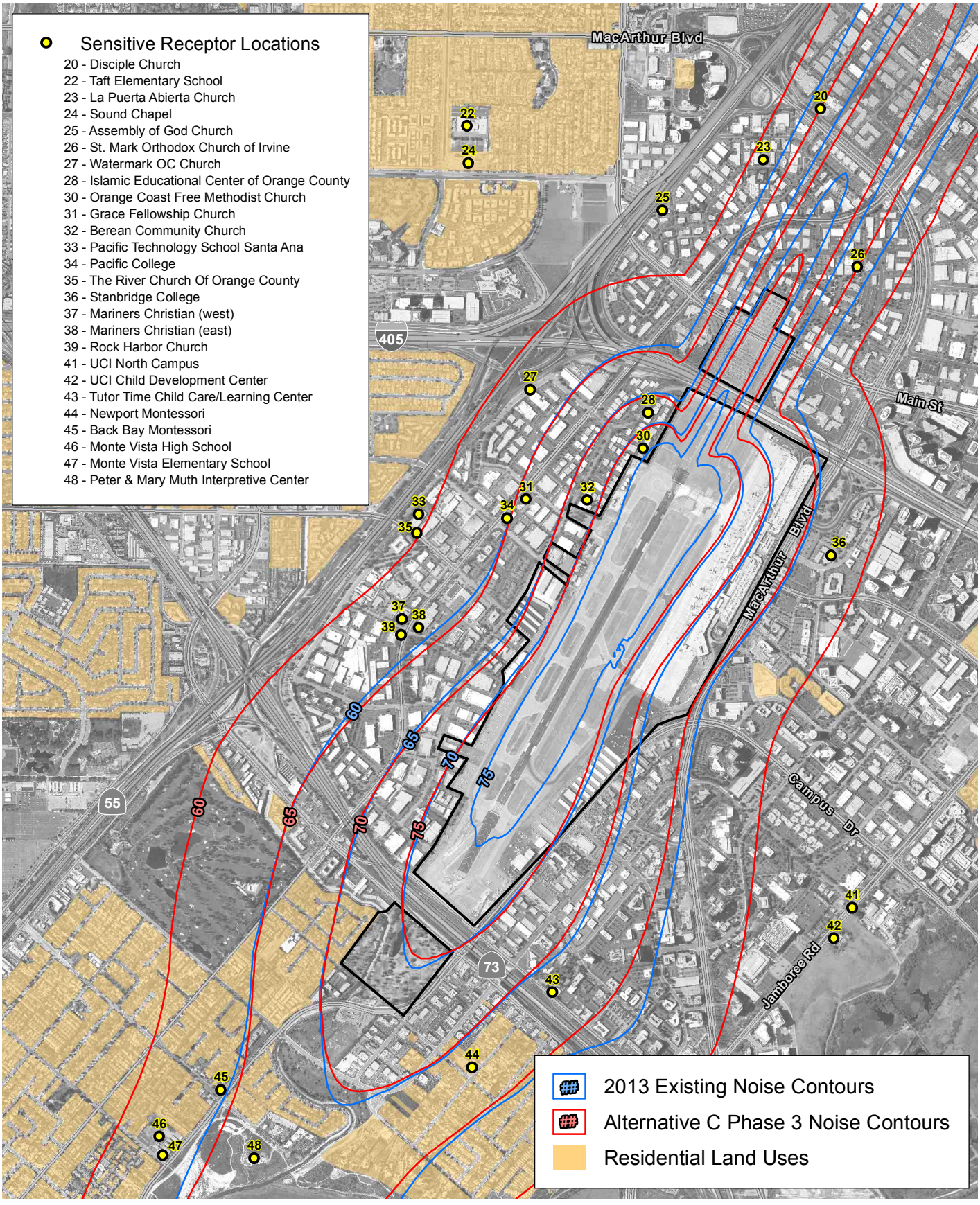
Exhibit 4.5-16b

John Wayne Airport Settlement Agreement Amendment

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Existing and Alternative C, Phase 3 Airport Area Noise Contours with Sensitive Land Uses

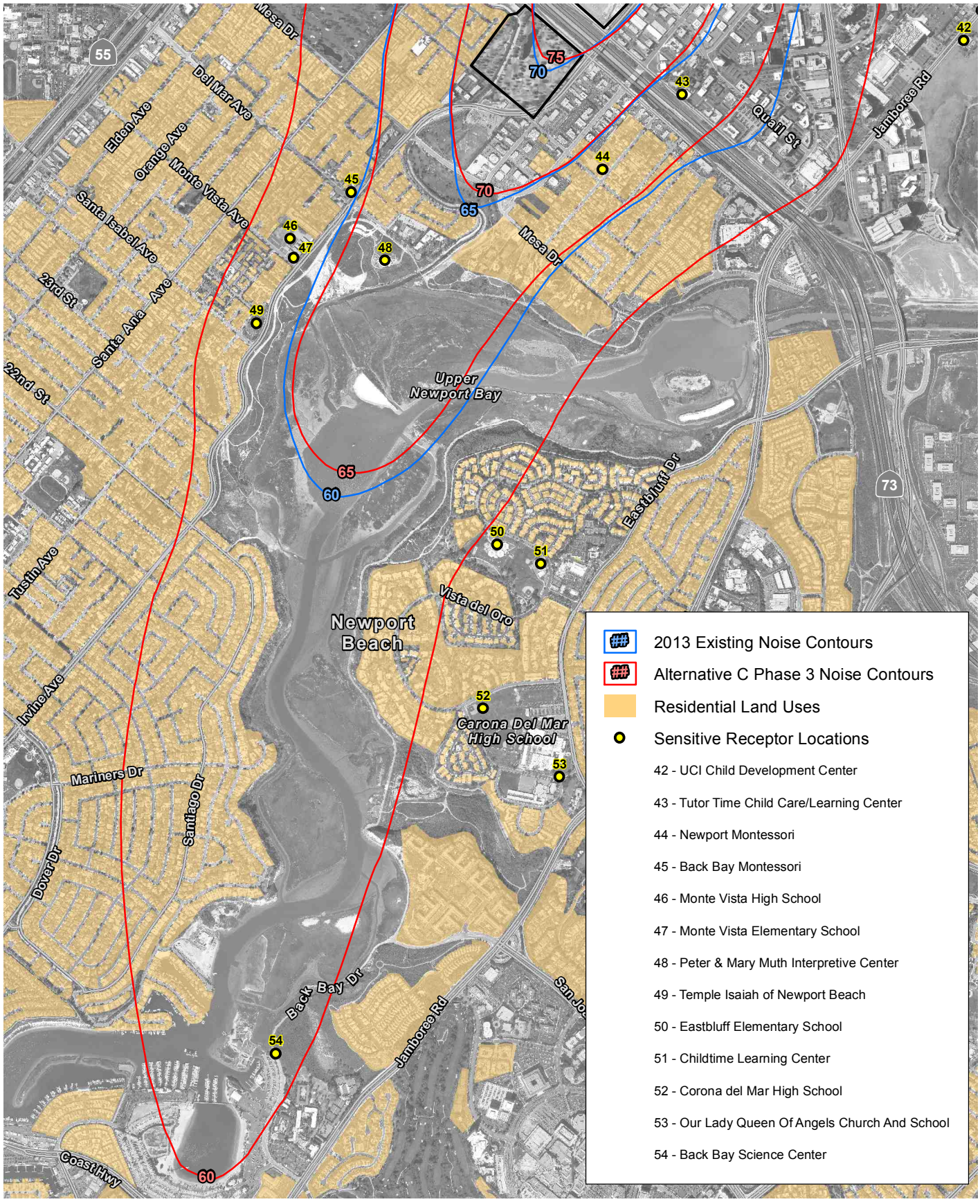
Exhibit 4.5-16c

John Wayne Airport Settlement Agreement Amendment

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Existing and Alternative C, Phase 3 Departure Noise Contours with Sensitive Land Uses

Exhibit 4.5-16d

John Wayne Airport Settlement Agreement Amendment

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Policy Consistency Analysis

Refer to Table 4.5-10, which provides an evaluation of Alternative C in relation to the applicable goals and policies addressed in the relevant documents previously discussed.

As discussed in Table 4.5-10, Alternative C is inconsistent with the applicable goals and policies of the *Orange County General Plan*, specifically, Resources Element Goal 1 and Noise Element Policies 5 and 6. In addition, it is inconsistent with a goal and several policies in the *City of Newport Beach General Plan* (Goals NR 10, NR 16, and N 3; Policies NR 10.2, N 1.8, N. 3.1, N 3.2, N 3.4, N 3.8, N 3.9, S 8.5, S 8.6, and H 3.2). This would be a significant impact since the City of Newport Beach has jurisdiction over the Project.

In addition, Alternative C is inconsistent with two objectives in the *City of Irvine General Plan* (Objective B-7, Policies (b) and (d)). Since the City of Irvine does not have jurisdiction over the Project, this conflict would not be a significant environmental impact.

Impact Conclusion: *With Alternative C, projected operations would exceed airfield capacity (for both commercial and general aviation); the spaces required for aircraft remaining overnight; capacity for loading bridges; international terminal capacity; fuel storage capacity; and automobile parking capacity. These would be significant impacts.*

With Alternative C, there would be an increase in the number of noise-sensitive uses (a total of 962 residences would be in the 65 or greater CNEL contour, 865 as a result of Alternative C in Phase 2, and the Peter and Mary Muth Interpretive Center) exposed to noise levels in excess of 65 CNEL, which would result in a land use incompatibility. This would be a significant impact. There are no feasible mitigation measures to reduce exterior noise levels to below 65 CNEL, consistent with the County of Orange standards for noise sensitive uses. There is also a potential that interior noise levels would exceed established standards for land use compatibility for noise sensitive uses (a total of 537 uninsulated residences within the 65 or greater CNEL contour, 479 as a result of Alternative C in Phase 2; 2 schools; an educational facility; and 6 places of worship). With implementation of mitigation, this impact would be reduced to a less than significant level for all residences, with the exception of the residences within the area zoned for business park that are not eligible for the sound insulation. (a total of 76 units in Phase 3, 29 as a result of Alternative C). These residences would have a significant land use impact because interior noise levels would exceed the County standard.

Alternative C would also extend the 65 CNEL contour into areas designed for mixed-use development in the Airport Area of the City of Newport Beach. The City of Newport Beach General Plan Noise Element noise/land use compatibility matrix (Table N2) lists land uses within the 65 CNEL contour as "normally incompatible;" and provides that new construction or development, including residential and mixed land uses, should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise

insulation features included in the design and approval of the project. Increasing the area considered unsuitable for residential development presents a conflict with the City's General Plan Land Use Element policies that call for a mix of housing types and buildings that integrate housing with ground-level convenience retail uses and would be developed at a sufficient scale to achieve a "complete" neighborhood.

Alternative C would conflict with the City of Newport Beach General Plan. Since the City of Newport Beach is a Responsible Agency for purposes of CEQA and required to approve the Settlement Agreement Amendment, this was found to be a significant impact and no mitigation is feasible.

No Project Alternative

Capacity of On-Site Facilities

Airfield Capacity

Exhibit 4.5-17 presents a comparison of hourly demand (aircraft operations) and runway capacity for the No Project Alternative during VFR and IFR conditions. As seen, the runway capacity is sufficient and capable of accommodating the No Project Alternative in each of the three phases. Therefore, there would be no impact associated with airfield capacity with the No Project Alternative.

Remaining Overnight Capacity

Table 4.5-2, above, presents the available RON capacity and requirements for the No Project Alternative. The RON requirements are the same for all three phases of the No Project Alternative, and the demand would not exceed the RON space available. RON requirements for the No Project Alternative are similar to existing conditions. While MAP levels increase, the peak morning departures, which drives the RON requirements, would be unchanged.

Gate Capacity

The No Project Alternative would not result in any impacts associated with gate capacity. Table 4.5-3 provides the data for the schedule-based analysis; Table 4.5-4 presents the turns per gate evaluation; and Table 4.5-5 provides an evaluation of the gate throughputs for the No Project Alternative. With each of these methodologies, the No Project Alternative does not exceed the existing gate capacity.

Terminal Capacity for International Passengers

As shown in Table 4.5-6, above, with the No Project Alternative, there would be no terminal capacity impacts associated with international flights.

Fuel Storage Capacity

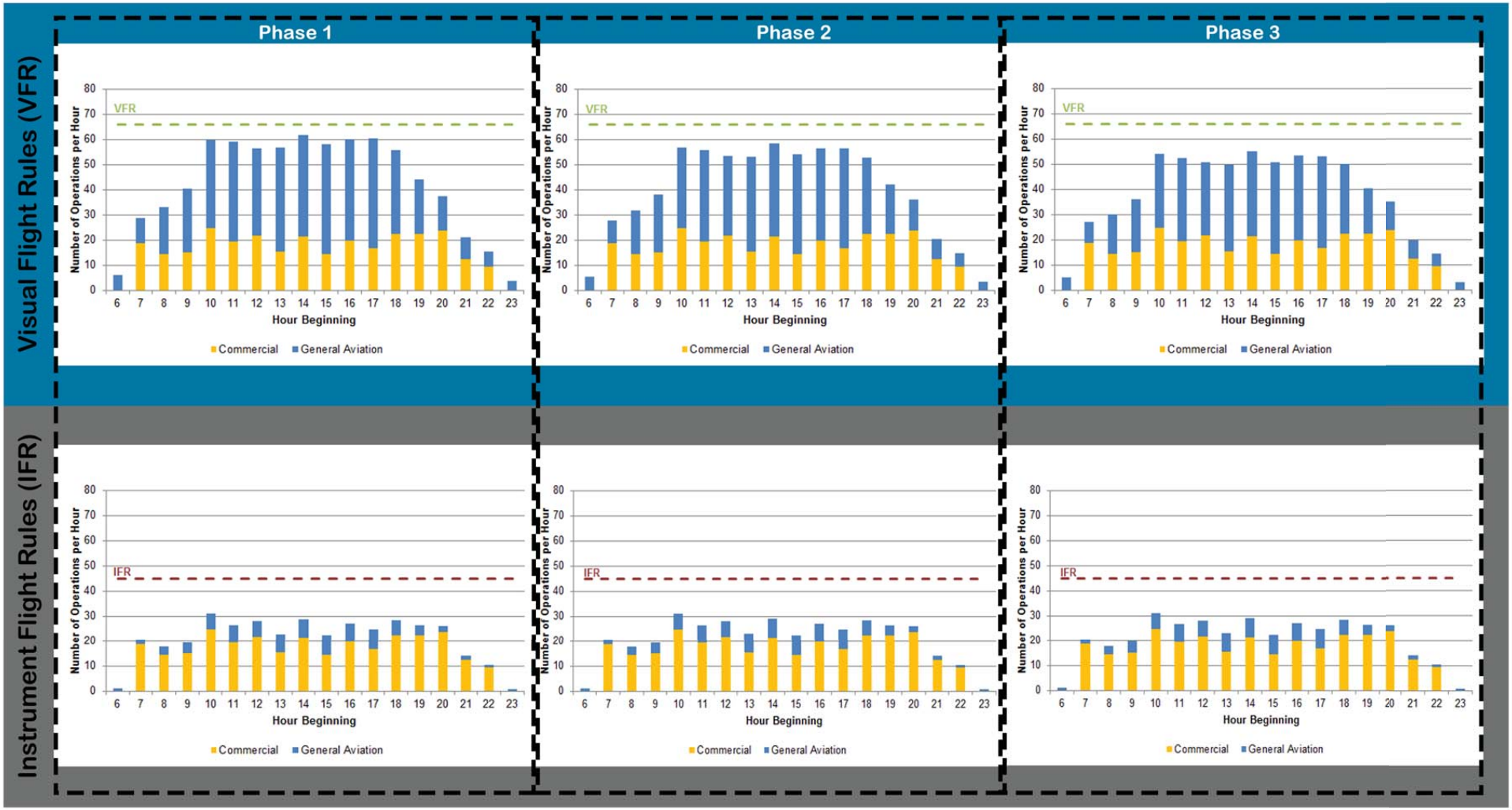
As shown in Table 4.5-7, the No Project Alternative would have an increase in demand for fuel compared to existing conditions; however, it would not exceed the fuel storage capacity or require any modifications to operational procedures.

General Aviation Facilities

The No Project Alternative would not displace any general aviation facilities or have any impact on FBO operations.

Airport Parking Facilities

As shown in Table 4.5-8, the No Project Alternative would not exceed the automobile parking capacity at the Airport.



Source: *Aviation Forecasts Technical Report*, AECOM 2014a

Hourly Demand Versus Capacity for the No Project Alternative

Exhibit 4.5-17

John Wayne Airport Settlement Agreement Amendment

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Summary of Capacity of On-Site Facilities Evaluation

In summary, the No Project Alternative would not result in any impacts to on-site facilities, assuming the capacity remained at 10.8 MAP.

Compatibility with Surrounding Land Uses

Phases 1 through 3

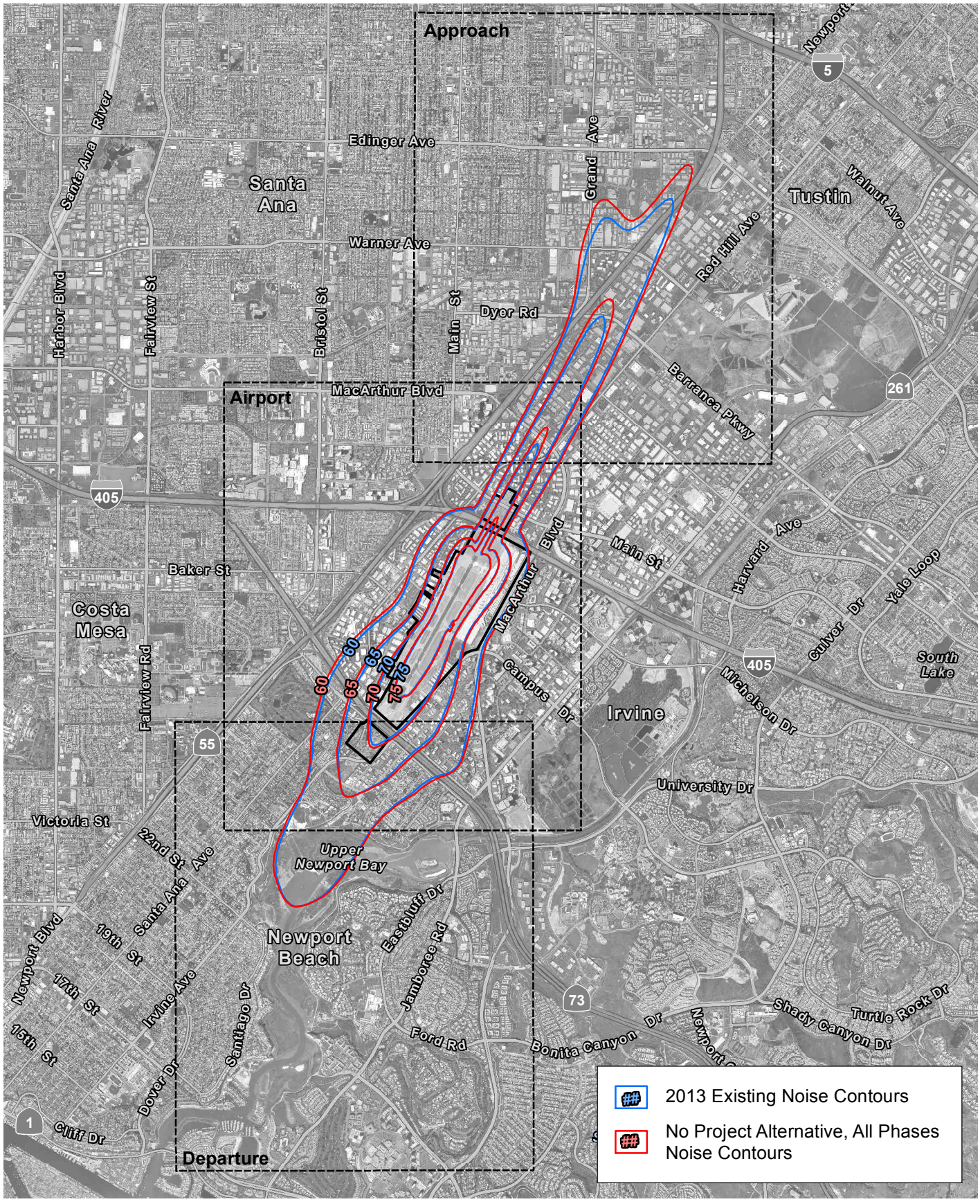
As shown in Table 4.5-9, the No Project Alternative would increase both the total 65 to 70 CNEL contour areas and the greater than 70 CNEL contour by approximately 0.06 square mile (7 percent and 10 percent, respectively) compared to existing conditions. Outside the Airport boundaries, the 65 to 70 CNEL contour would increase by 0.07 square mile (10 percent) and the greater than 70 CNEL contour would increase by 0.04 mile (44 percent) when compared to existing conditions. Exhibit 4.5-18a provides a comparison of the existing 60, 65, 70, and 75 CNEL contours and the projected contours for all phases of the No Project Alternative. Exhibits 4.5-18b through 4.5-18d provide larger scale exhibits with noise-sensitive land uses depicted.

No additional noise-sensitive land uses would be within the greater than 70 CNEL contour when the No Project Alternative is compared to existing conditions. Increased noise levels would add 32 additional residences to the area within the 65 CNEL contour, of which 10 were insulated under the AIP and 22 are not insulated. No other sensitive receptors would be included in the area added to the 65 CNEL contour. Of the uninsulated homes, 17 are located in the business park and are non-conforming uses.

As previously indicated, those residences with outdoor living areas exposed to a greater than 65 CNEL would be incompatible with the County's exterior noise standard. There is no feasible mitigation for the exterior noise levels. Therefore, as the 65 CNEL contour expands beyond the existing contour and includes additional residences this would be a significant impact.

The non-conforming residential uses within the business park are not eligible for future sound attenuation; therefore, from a land use compatibility perspective, these residences would be exposed to exterior and potentially interior noise levels in excess of the County standards, which would be a significant impact and mitigation is not feasible.

Residences that have received insulation would be compatible with the interior noise standards. For the uninsulated residences, however, there is also the potential for incompatibility due to excessive interior noise levels, which would be considered a significant impact. As the No Project Alternative, there would not be a commitment to provide mitigation measures; therefore, the impact would be significant and unavoidable.

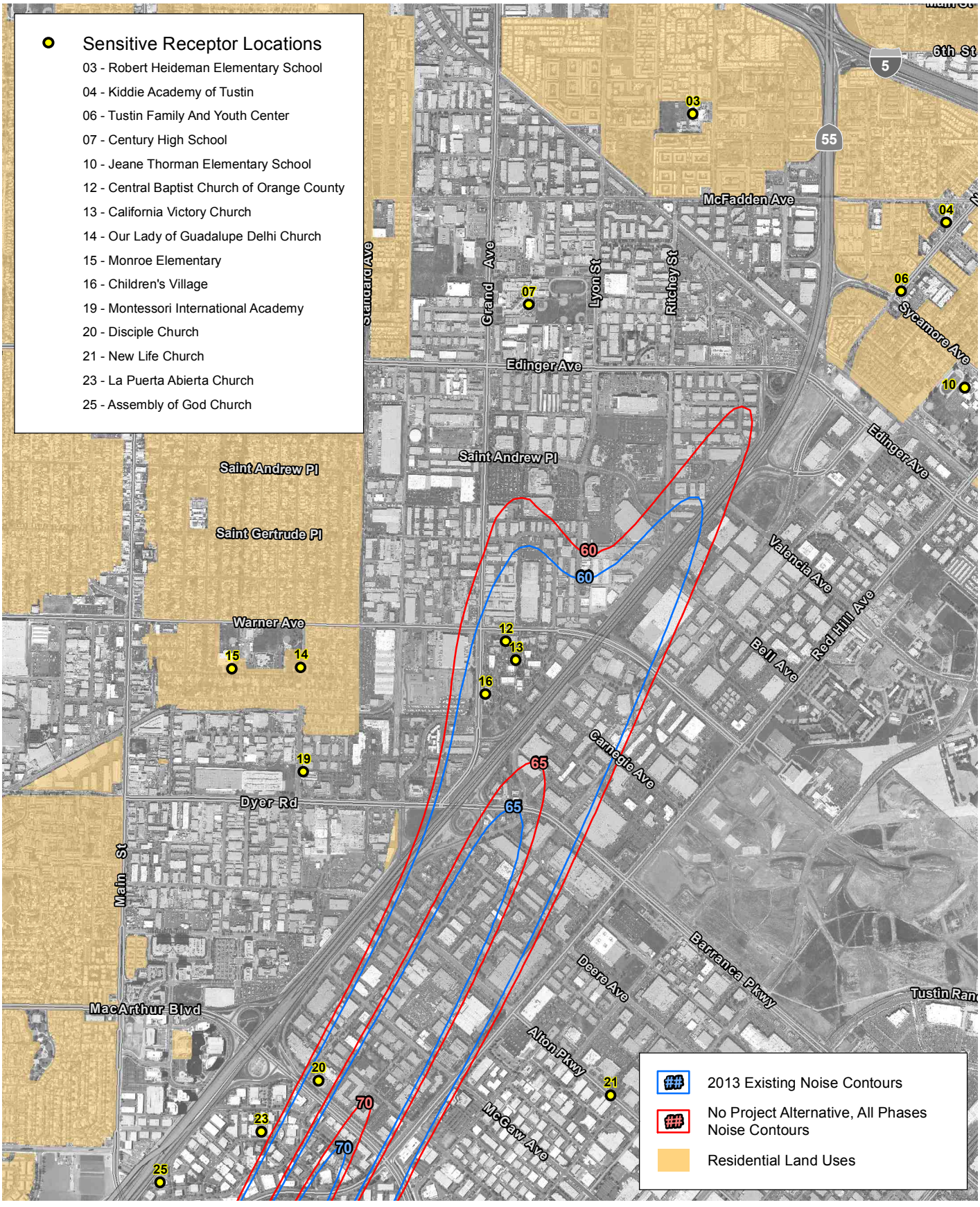


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Comparison of Existing and No Project Alternative Noise Contours, All Phases

Exhibit 4.5-18a

John Wayne Airport Settlement Agreement Amendment



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Existing and No Project Alternative, All Phases Approach Noise Contours with Sensitive Land Uses

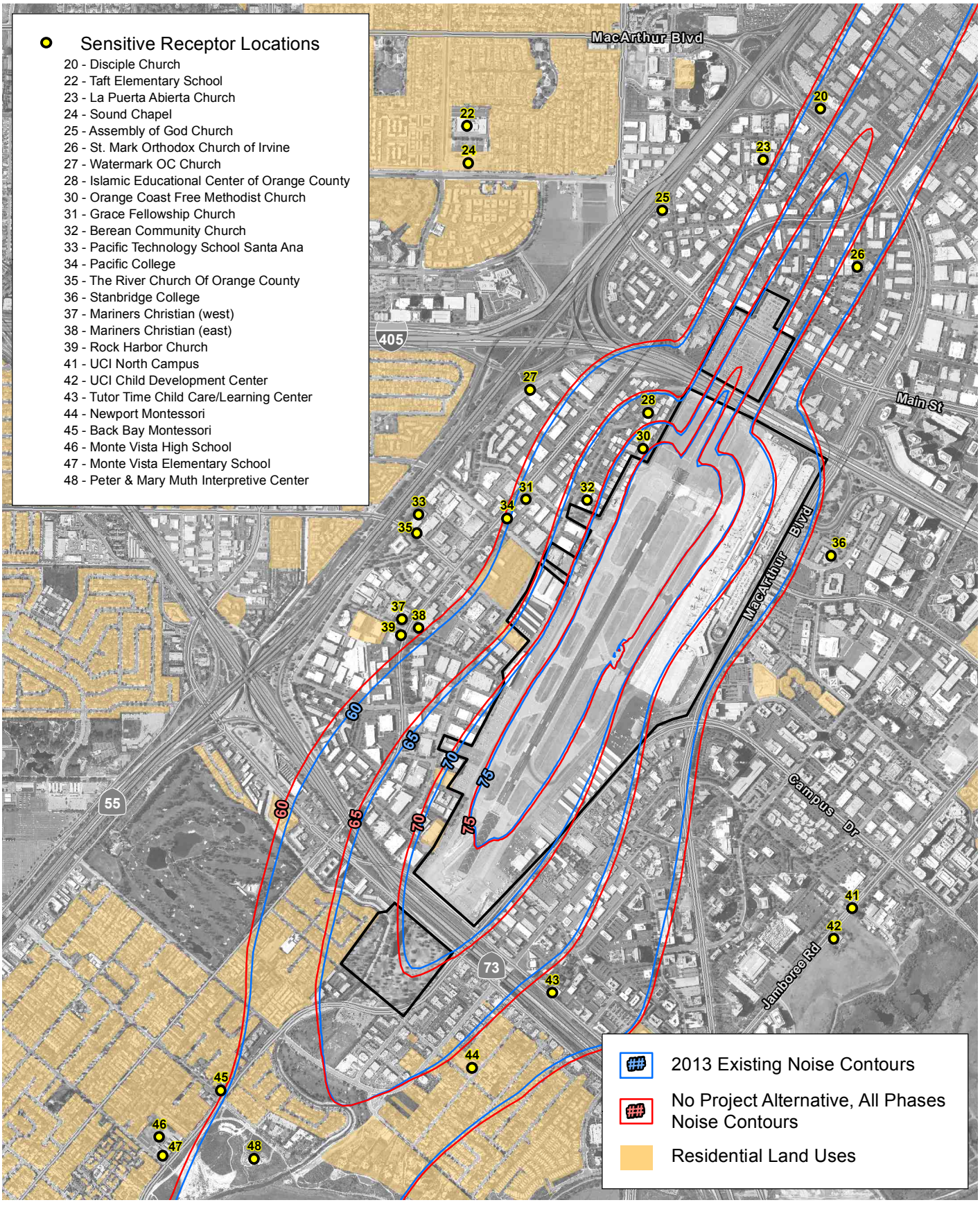
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John Wayne Airport Settlement Agreement Amendment

N W E S

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JOHN WAYNE AIRPORT ORANGE COUNTY



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Existing and No Project Alternative, All Phases Airport Area Noise Contours with Sensitive Land Uses

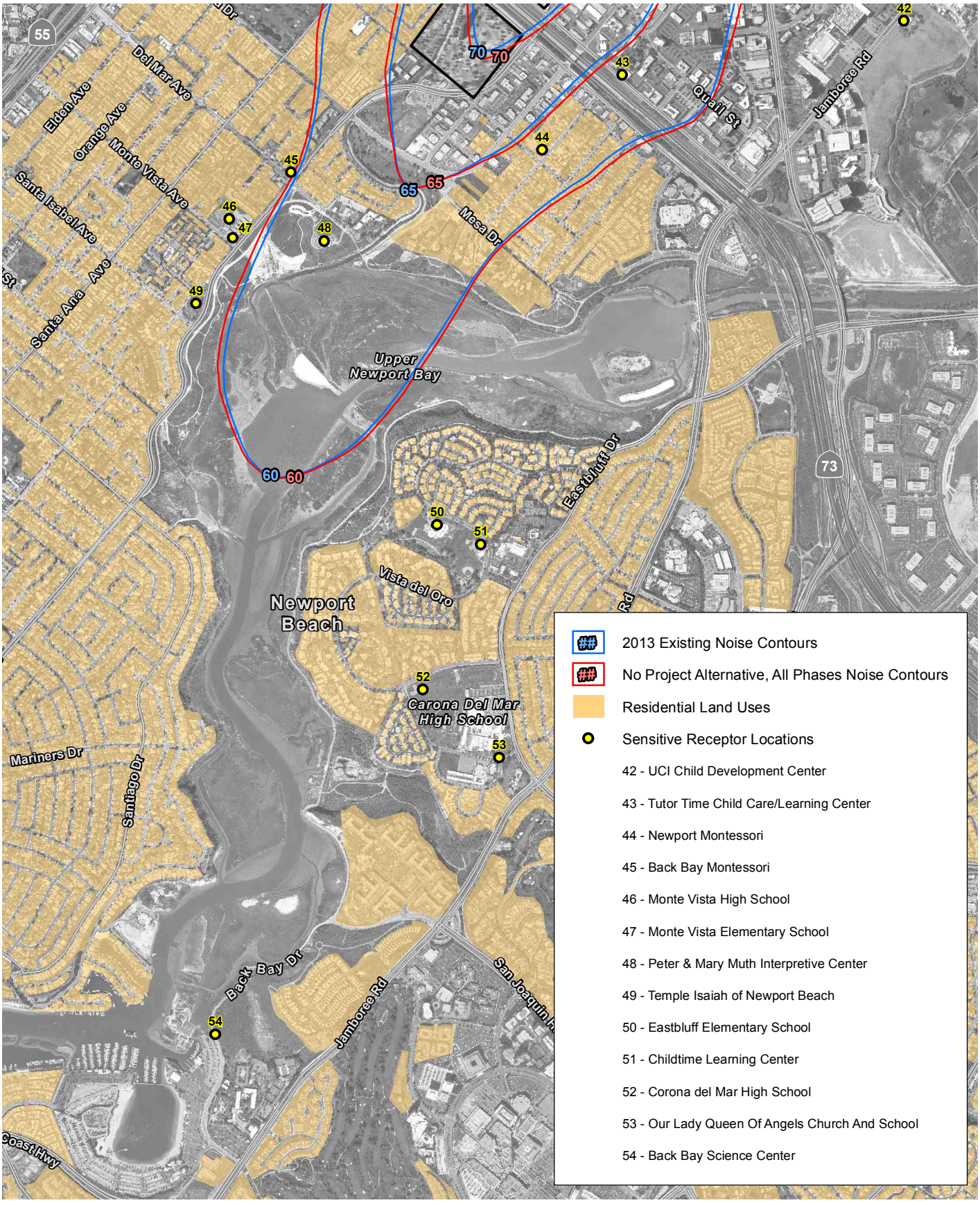
Exhibit 4.5-18c

John Wayne Airport Settlement Agreement Amendment

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JOHN WAYNE AIRPORT ORANGE COUNTY



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Existing and No Project Alternative, All Phases Departure Noise Contours with Sensitive Land Uses

Exhibit 4.5-18d

John Wayne Airport Settlement Agreement Amendment

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JOHN WAYNE AIRPORT ORANGE COUNTY

Policy Consistency Analysis

Refer to Table 4.5-10 which provides an evaluation of the No Project Alternative in relation to the applicable goals and policies addressed in the relevant documents previously discussed.

The No Project Alternative is consistent with the applicable goals and policies of the *County of Orange General Plan*. As part of the analysis provided in Table 4.5-10, it was determined that the No Project Alternative would be inconsistent with a goal and several policies of the *City of Newport Beach General Plan,* as well as policies from General Plans of Irvine, Costa Mesa, and Tustin. Inconsistency with the *City of Newport Beach General Plan* (Goal N 3; Policies N 3.1, N 3.2, N 3.4, N 3.8, N 3.9), as well as policies from General Plans of Irvine (Objective B-7, Policy (b)), Costa Mesa (Policy N-1A.8), and Tustin (Policy 1.4). Inconsistency with the *County of Orange General Plan* and *City of Newport Beach General Plan* would be considered a significant impact. Since the cities of Irvine, Costa Mesa and Tustin do not have jurisdiction over the Project, these conflicts would not be a significant environmental impact.

Impact Conclusion: *With the No Project Alternative, operations would not result in significant impacts to on-site facilities.*

With the No Project Alternative there would be an increase in the number of noise-sensitive uses exposed to noise levels in excess of 65 CNEL (a total of 128 units would be in the 65 or greater CNEL contour, 32 as a result of the No Project Alternative), which would result in a land use incompatibility. This would be a significant impact. There are no feasible mitigation measures to reduce exterior noise levels to below 65 CNEL, consistent with the County of Orange standards for noise sensitive uses. There is also a potential that interior noise levels would exceed established standards for land use compatibility for noise sensitive uses (a total of 79 units uninsulated units within the 65 or greater CNEL contour, 21 as a result of the No Project Alternative). With implementation of mitigation, this impact would be reduced to a less than significant level for all units, with the exception of the 17 residential units within the area zoned for business park that are not eligible for the sound insulation plan. These units would have a significant land use impact because interior noise levels would exceed the County standard use impact because interior noise levels would exceed the County standard.

The No Project Alternative would conflict with the City of Newport Beach General Plan. Since the City of Newport Beach is required to approve the Settlement Agreement Amendment, this was found to be a significant impact and no mitigation is feasible.

4.5.6 MITIGATION PROGRAM

As discussed above, Mitigation Measure LU-1, would serve to mitigate land use compatibility impacts associated with noise for the Proposed Project and all the alternatives, other than the No Project Alternative. However, until interior noise measurements are taken, 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.

Proposed Project and Alternatives A through C

LU-1 Starting with the 2015 Annual Noise Report, the annual noise contours presented in the report will be used by the County of Orange/JWA to identify parcels with noise sensitive uses (i.e., residences, schools or churches) that are newly located either partially or completely within the 65 CNEL contour as compared to their location relative to the 65 CNEL contour in the 2013Annual Contours, which will serve as the baseline condition. All uses that were established before 1985 and have not been insulated under the previous AIP will be eligible for evaluation under the SIP described in Mitigation Measure N-3. Those uses with an average interior noise levels exceeding 45 CNEL will be eligible for insulation under the SIP described in Mitigation Measure N-3.

For those uses with interior noise levels less than 45 CNEL, the amount of outdoor-to-indoor noise reduction for each habitable room will be recorded. In each subsequent Annual Noise Report, 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 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 45 CNEL, then the use will be eligible for the SIP described in Mitigation Measure N-3.

Proposed Project and Alternatives A and B

LU-2 Prior to authorizing the allowed Phase 3 increases for the Proposed Project and Alternative A, the 2025 Annual Noise Report shall be evaluated by the County of Orange/JWA to determine if increased operations would result in a change in the annual 65 CNEL contour as compared to their location relative to the 65 CNEL contour in the 2013 annual contours. If the increase would result in a greater than a 1 CNEL change at NMS 1S or 2S, the allowed increases in MAP and/or ADD shall be restricted to ensure the increase would be less than 1 CNEL difference at these locations. This shall be done annually to ensure the increase in CNEL as compared to the 2013 annual contours, do not exceed the City of Newport Beach threshold provided for in General Plan Policy N 1.8.

For Alternative B, these same provision will apply, but will be initiated prior to allowing the increase in operations for Phase 2. For Alternative B, the 2020 Annual Noise Report shall be evaluated by the County of Orange/JWA to determine if increased operations would result in a change in the annual 65 CNEL contour as compared to their location relative to the 65 CNEL contour in the 2013 annual contours. If the increase would result in a greater than 1 CNEL change at NMS 1S or 2S, the allowed increases in MAP and/or ADD shall be restricted to ensure the increase would be less than a 1 CNEL difference at these locations. This shall be done annually to ensure the increase in CNEL, as compared to the 2013 annual contours, do not exceed the City of Newport Beach threshold provided for in General Plan Policy N 1.8.

4.5.7 LEVEL OF SIGNIFICANCE AFTER MITIGATION

PROPOSED PROJECT

The Proposed Project would have less than significant land use impacts to on-site facilities. No mitigation measures are required.

With all phases of the Proposed Project, there would be a significant, unavoidable impact due to an increase in the number of noise-sensitive uses exposed to noise levels in excess of the 65 CNEL exterior noise standard. There are no feasible mitigation measures for exterior noise levels. Implementation of Mitigation Measure LU-1 would potentially reduce impacts associated with excess interior noise levels to less than significant levels. However, until interior noise measurements are taken, 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 residences, the impact has been determined to be significant and unavoidable.

Prior to implementation of mitigation measures, the Proposed Project, Phase 3 would have a significant impact pertaining to consistency with applicable land use plan, policies, and regulations because the City of Newport Beach's noise thresholds would be exceeded. However, with implementation of Mitigation Measure LU-2, this impact would be reduced to a less than significant level.

ALTERNATIVE A

Alternative A, Phases 1 and 2 would have less than significant impacts to on-site facilities. Phase 3 would result in a significant, unavoidable impact to gate capacity when evaluated with the enplanements per gates with loading bridges methodology.

With all phases of Alternative A, there would be a significant, unavoidable impact due to an increase in the number of noise-sensitive uses exposed to noise levels in excess of the 65 CNEL exterior noise standard. There are no feasible mitigation measures for exterior noise levels. Implementation of Mitigation Measure LU-1 would potentially reduce impacts associated with excess interior noise levels to less than significant levels. However, until interior noise measurements are taken, 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 residences, the impact has been determined to be significant and unavoidable.

Prior to implementation of mitigation measures, Alternative A, Phase 3 would have a significant impact pertaining to consistency with applicable land use plan, policies, and regulations because the City of Newport Beach's noise thresholds would be exceeded. However, with implementation of Mitigation Measure LU-2, this impact would be reduced to a less than significant level.

ALTERNATIVE B

Alternative B, Phase 1 would have less than significant impacts to on-site facilities. Alternative B would exceed the automobile parking capacity for Phases 2 and 3. The planned additional

parking in Parking Structure C2 would avoid the impact for Phase 2, though the impact would remain significant for Phase 3. With Alternative B, Phase 3, there would also be significant unavoidable impacts to gate capacity, international terminal capacity, fuel storage capacity, and automobile parking.

With all phases of Alternative B, there would be a significant, unavoidable impact due to an increase in the number of noise-sensitive uses exposed to noise levels in excess of the 65 CNEL exterior noise standard. There are no feasible mitigation measures for exterior noise levels. Implementation of Mitigation Measure LU-1 would potentially reduce impacts associated with excess interior noise levels to less than significant levels. However, until interior noise measurements are taken, 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 residences, the impact has been determined to be significant and unavoidable.

Alternative B, Phases 2 and 3 would be inconsistent with the applicable goals and policies of the *City of Newport Beach General Plan*. Specifically, both Phases 2 and 3 would be inconsistent with the noise threshold and Phase 3 is inconsistent with the policy pertaining to meeting some of Orange County's air transportation demand though the use of other airports. As with the Proposed Project, with implementation of Mitigation Measure LU-2, the inconsistency with the noise threshold could be reduced to a less than significant level. However, consistency with the policy regarding use of other airports cannot be mitigated to a less than significant level based on the number of ADD and MAP proposed in Alternative B, Phase 3. This would be a significant, unavoidable impact since the City of Newport Beach has jurisdiction over the Project

ALTERNATIVE C

Phases 1 and 2 of Alternative C would exceed airfield capacity. All phases of Alternative C would exceed the RON spaces; capacity for loading bridges; international terminal capacity; fuel storage capacity; and automobile parking capacity. These would be significant, unavoidable impacts.

With all phases of Alternative C there would be a significant, unavoidable impact due to an increase in the number of noise-sensitive uses (both residences and an educational facility) exposed to noise levels in excess of the 65 CNEL exterior noise standard. Implementation of Mitigation Measure LU-1 would potentially reduce impacts associated with excess interior noise levels to less than significant levels at the noise sensitive uses. However, until interior noise measurements are taken, 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 residences, effected schools, and places of worship, the impact has been determined to be significant and unavoidable.

Alternative C would be inconsistent with applicable goals and policies of the *City of Newport Beach General Plan*. Specifically, it would be inconsistent with the noise threshold and the policy pertaining to meeting some of Orange County's air transportation demand though the use of other airports. This would be a significant, unavoidable impact since the City of Newport Beach has jurisdiction over the Project

NO PROJECT ALTERNATIVE

The No Project Alternative would not result in any impacts to on-site facilities. However, the No Project Alternative would result in an increase in the number of noise-sensitive uses exposed to exterior noise levels in outdoor living areas in excess of 65 CNEL and potentially indoor habitable rooms in excess of 45 decibels ("dB"). With the No Project Alternative, new mitigation would not be provided; therefore, these land uses would remain as potentially incompatible land uses, which would be a significant impact. The No Project Alternative would conflict with goals and policies from the *City of Newport Beach General Plan*.

The land use impact findings are summarized in Table 4.5-11.

TABLE 4.5-11
SUMMARY OF LAND USE IMPACTS

Threshold	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Threshold 4.5-1	*On-site facilities* Less than significant impacts (All phases)	*On-site facilities* Less than significant impacts (Phases 1 and 2) Significant, unavoidable impact (Phase 3)	*On-site facilities* Less than significant impacts (Phase 1) Significant, unavoidable impacts (Phases 2 and 3)	*On-site facilities* Significant, unavoidable impacts (All phases)	*On-site facilities* Less than significant impacts (All phases)
	Off-site facilities Exterior Noise: Significant, unavoidable impact (All phases). Interior Noise: Potentially significant, unavoidable impact (All phases)	*Off-site facilities* Exterior Noise: Significant, unavoidable impact (All phases). Interior Noise: Potentially significant, unavoidable impact (All phases)	*Off-site facilities* Exterior Noise: Significant, unavoidable impact (All phases). Interior Noise: Potentially significant, unavoidable impact (All phases)	*Off-site facilities* Exterior Noise: Significant, unavoidable impact (All phases). Interior Noise: Potentially significant, unavoidable impact (All phases)	*Off-site facilities* Exterior Noise: Significant, unavoidable impact (All phases). Interior Noise: Potentially significant, unavoidable impact (All phases)
	Plan Consistency Less than significant impacts (Phases 1 and 2) Less than significant impact after mitigation (Phase 3)	*Plan Consistency* Less than significant impacts (Phases 1 and 2) Less than significant impact after mitigation (Phase 3)	*Plan Consistency* Less than significant impact with mitigation (Phases 1 and 2) Significant, unavoidable impact (Phase 3)	*Plan Consistency* Significant, unavoidable impact (All phases)	*Plan Consistency* Less than significant impacts (All phases)

4.5.8 REFERENCES

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4.6 NOISE

This section discusses Project-related impacts to the human noise environment in the vicinity of John Wayne Airport ("JWA" or "the Airport").[1] The noise analysis in this section is based on the *Noise Analysis Technical Report* prepared by Landrum & Brown and included in this EIR as Appendix C (Landrum & Brown 2014). The Technical Report includes definitions, acronyms, and large data tables that are not repeated in this section. The Technical Report also includes a discussion of the development a future air traffic control system ("NextGen"); however, that discussion is not relevant to the noise impact analysis in this section because this document conservatively assumes no change to the nature of the operations. At this point in time, it would be speculative to assume changes that have not been approved or fully reviewed by the Federal Aviation Administration ("FAA").

The Project does not propose any physical construction or change to the nature of the Airport's ground operations. Therefore, the Project would not: (1) generate temporary or periodic increases in ambient noise levels, or (2) generate excessive groundborne vibration or groundborne noise levels. Further, as there are no private airstrips in the vicinity of JWA, the Project would not expose persons to noise from private airstrips. Therefore, these topics are not discussed in this section (refer to the Notice of Preparation ["NOP"]/Initial Study in Appendix A).

4.6.1 BACKGROUND INFORMATION

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 4.6-1.

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

[1] Noise impacts to wildlife are addressed in Section 4.2, Biological Resources.

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 one decibel for sounds in the mid-frequency region. When ordinary noises are heard, a young healthy ear can detect changes of two to three 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.

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

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 4.6-2. 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 4.6-2, 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.[2] 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.

[2] The SENEL value is not shown in Exhibit 4.6-2. The energy represented by the shaded area is "squeezed" into a one-second interval to determine the SENEL value.

SOUND LEVELS AND LOUDNESS OF ILLUSTRATIVE NOISES IN INDOOR AND OUTDOOR ENVIRONMENTS

Numbers in Parentheses are the A-Scale Weighted Sound Levels for that Noise Event

dB(A)	OVER-ALL LEVEL	COMMUNITY (Outdoor)	HOME OR INDUSTRY	LOUDNESS Human Judgement of Different Sound Levels
120		Military Jet Aircraft Take-Off With After-Burner From Aircraft Carrier @ 50 Ft. (130)	Oxygen Torch (121)	120 dB(A) 32 Times as Loud
110	UNCOMFORTABLY LOUD	Concord Takeoff (113)*	Riveting Machine (110) Rock-N-Roll Band (108-114)	110 dB(A) 16 Times as Loud
100		Boeing 747-200 Takeoff (101)*		100 dB(A) 8 Times as Loud
90	VERY LOUD	Power Mower (96) DC-10-30 Takeoff (96)* Motorcycle @25 Ft. (90)	Newspaper Press (97)	90 dB(A) 4 Times as Loud
80		Car Wash @ 20 Ft. (89) Boeing 727 w/ Hushkit Takeoff (96)* Diesel Truck, 40 MPH @ 50 Ft. (84) Diesel Train, 45 MPH @ 100 Ft. (83)	Food Blender (88) Milling Machine (85) Garbage Disposal (80)	80 dB(A) 2 Times as Loud
70	MODERATELY LOUD	High Urban Ambient Sound (80) Passenger Car, 65 MPH @ 25 Ft. (77) Freeway @ 50 Ft. From Pavement Edge, 10:00 AM (76 +or- 6) Boeing 757 Takeoff (76)*	Living Room Music (76) TV-Audio, Vacuum Cleaner	70 dB(A)
60		Propeller Airplane Takeoff (67)* Air Conditioning Unit @ 100 Ft. (60)	Cash Register @ 10 Ft. (65-70) Electric Typewriter @ 10 Ft. (64) Dishwasher (Rinse) @ 10 Ft. (60) Conversation (60)	60 dB(A) 1/2 as Loud
50	QUIET	Large Transformers @ 100 Ft. (50)		50 dB(A) 1/4 as Loud
40		Bird Calls (44) Lower Limit Urban Ambient Sound (40)		40 dB(A) 1/8 as Loud
20	JUST AUDIBLE	(dB[A] Scale Interrupted) Desert at Night		
10	THRESHOLD OF HEARING			

*Aircraft takeoff noise measured 6,500 meters from beginning of takeoff roll

Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

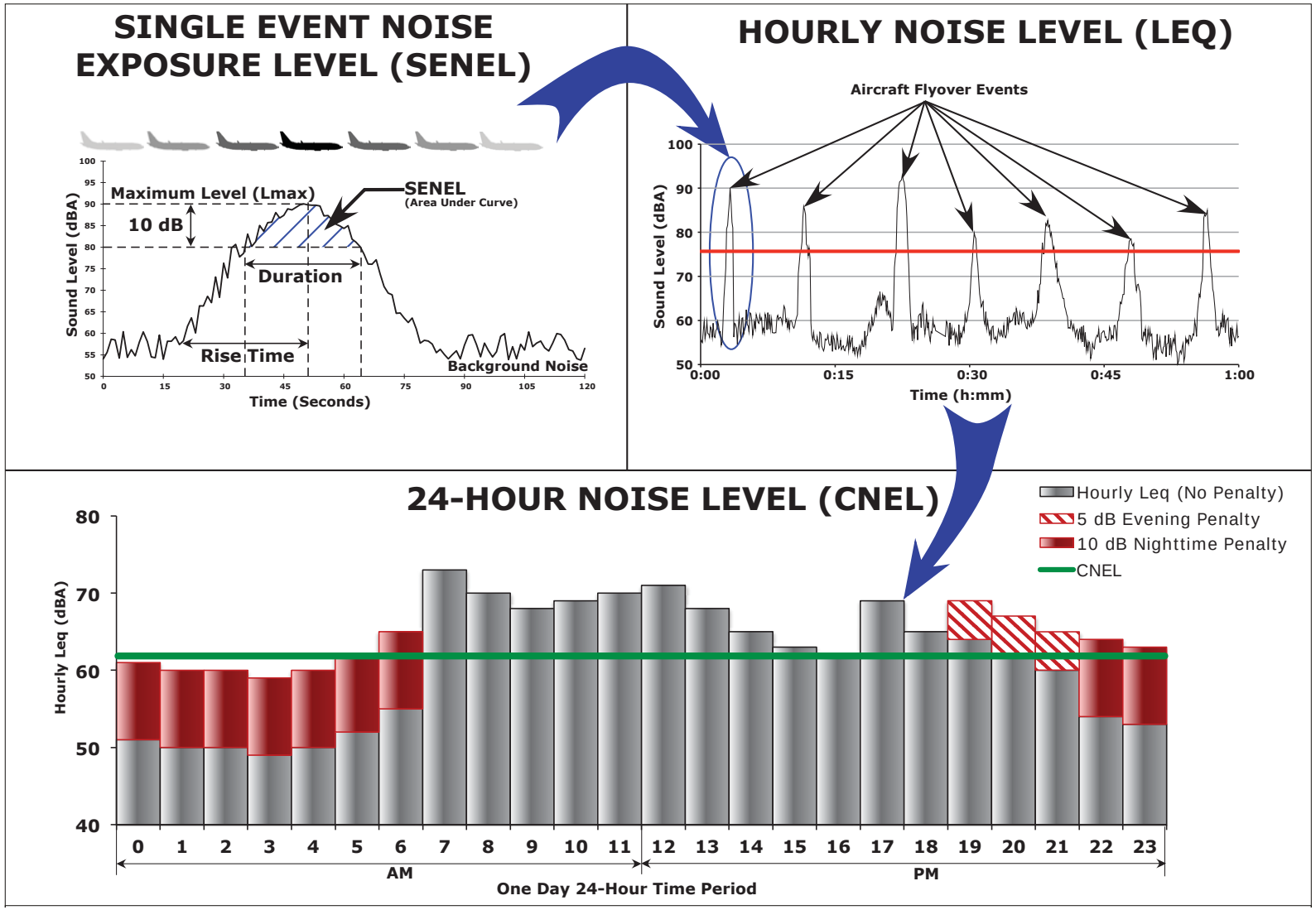
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Typical A-Weighted Noise Levels — Exhibit 4.6-1

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Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

Single & Cumulative Noise Metric Definitions

Exhibit 4.6-2

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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 4.6-2. 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.

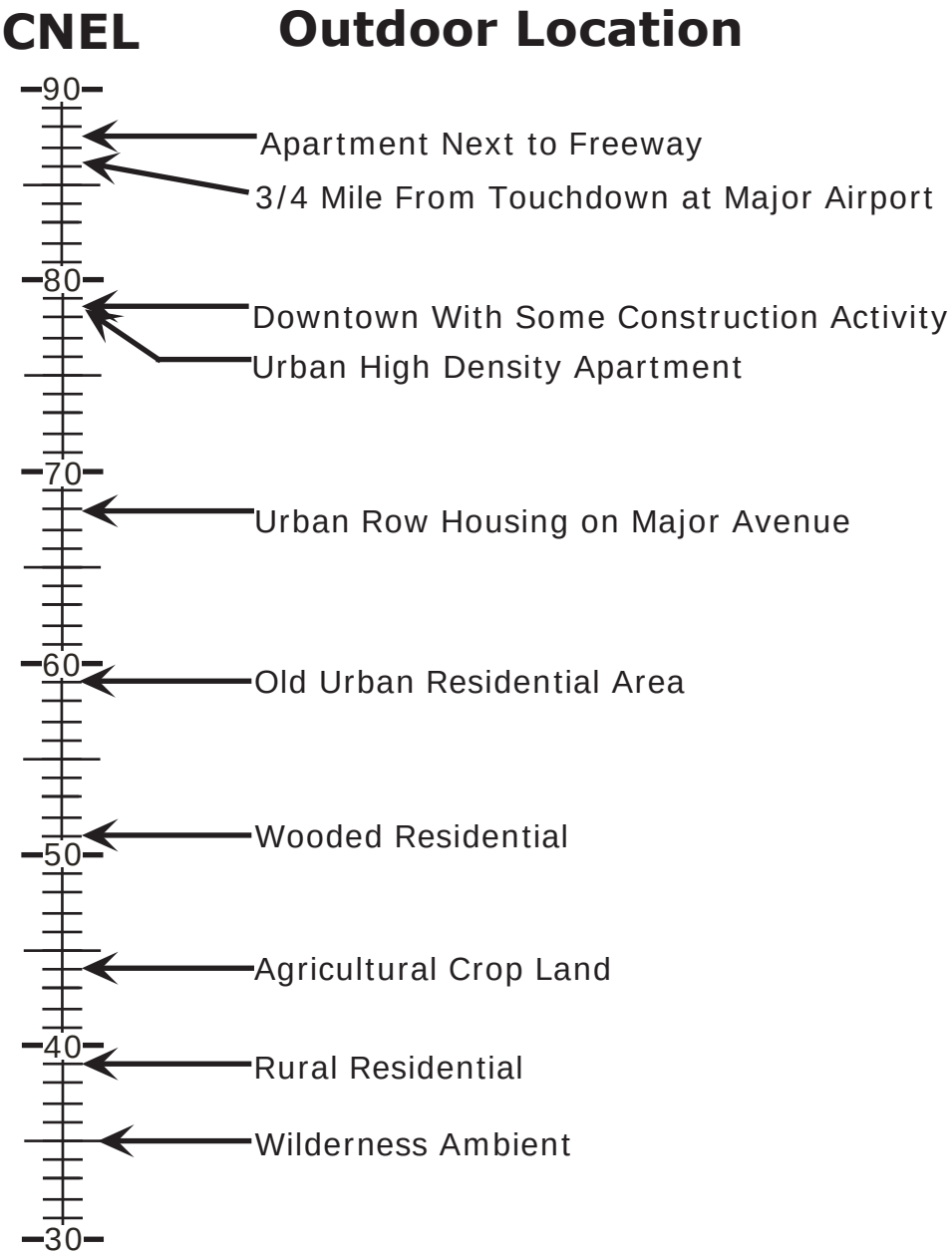
Community Noise Equivalent Level. CNEL is a 24-hour, time-weighted energy average noise level based on the A-weighted decibel. It is a measure of the overall noise experienced during an entire day. The term "time-weighted" refers to the penalties attached to noise events occurring during certain sensitive 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 4.6-2. Examples of various noise environments in terms of CNEL are presented in Exhibit 4.6-3. 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.

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; it does include the nighttime (10:00 PM to 7:00 AM) penalty, however. 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 (FAA 2006).

Noise Contour. A noise contour is a line on a map that represents equal levels of noise exposure.

Supplementary Metrics

Time Above. The FAA developed the Time Above ("TA") metric as a secondary metric for assessing impacts of aircraft noise around airports. There are no existing, formal noise/land use compatibility standards defined in terms of TA; however, Orange County has presented a TA analysis in environmental assessments and studies of Airport projects since at least 1985.



Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

Typical Outdoor Noise Levels

Exhibit 4.6-3

John Wayne Airport Settlement Agreement Amendment

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The TA index refers to the total time in seconds or minutes that aircraft noise exceeds certain dBA noise levels in a 24-hour period. It is typically expressed as time above the 65 and 85 dBA sound levels. While this index is not widely used, it may be used by the FAA in environmental assessments of airport projects that show a significant increase in noise levels. The computer noise model developed by the FAA, the Integrated Noise Model, computes TA.

An analysis of this metric is provided in this Section as an additional description of the noise exposure because of its ready quantification of the amount of time that specific noise levels would be exceeded. This may be useful in terms of judging this exposure, as well as comparing alternatives or comparing the Project to existing conditions. It also provides some quantification of the potential for speech interference.

For purposes of this analysis, three noise level thresholds were used for the TA analysis based on known speech interference levels. In general, speech interference effects start when interfering noise exceeds 65 dBA for normal face-to-face conversation. The three thresholds correspond to outdoor exposure to aircraft noise; indoor exposure with windows open; and indoor exposure with windows closed. Given that outdoor to indoor noise reduction achieved by typical Southern California wood frame residences is 12 dBA with windows open and 20 dBA with windows closed, the three thresholds selected were 65 dBA, 77 dBA, and 85 dBA. These correspond directly to the beginning of speech interference outdoors, indoors with windows open, and indoors with windows closed, respectively. Residences constructed more recently could warrant the use of higher thresholds, but this analysis uses the more conservative values specified above.

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; create momentary disturbances of natural sleep patterns by causing shifts from deep to lighter stages; and cause 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 4.6-4 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 4.6-4. 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. (This is of importance for Alternative C of this EIR, where Phases 2 and 3 consider the removal of the nighttime curfew at JWA.[3])

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 2.4.4, 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."

[3] Should the County desire to modify the General Aviation Noise Ordinance **(**"GANO") after December 31, 2020, it would be considered a project pursuant to CEQA, and separate environmental documentation would be required to address the potential impacts associated with that action.



Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

Sleep Disturbance vs. Noise Level FICAN vs. ANSI

Exhibit 4.6-4

John Wayne Airport Settlement Agreement Amendment

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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 U.S. as part of a multi-airport retrospective study lead 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 C, Pages 19 and 20.)

The U.S. study concluded:

> **Conclusions and future research.** We found that aircraft noise, particularly characterized by the 90th percentile of noise exposure among census blocks within zip codes, is statistically significantly associated with higher relative rate of hospitalization for cardiovascular disease among older people residing near airports. This relation remained after controlling for individual data, zip code level socioeconomic status and demographics, air pollution, and roadway proximity variables. Our results provide evidence of a statistically significant association between exposure to aircraft noise and cardiovascular health, particularly at higher exposure levels. Further research should refine these associations and strengthen causal interpretation by investigating modifying factors at the airport or individual level.
>
> **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 C, Pages 20 and 21.)

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 that are 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 either are already underway at JWA or included as part of mitigation measures under this EIR. 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.

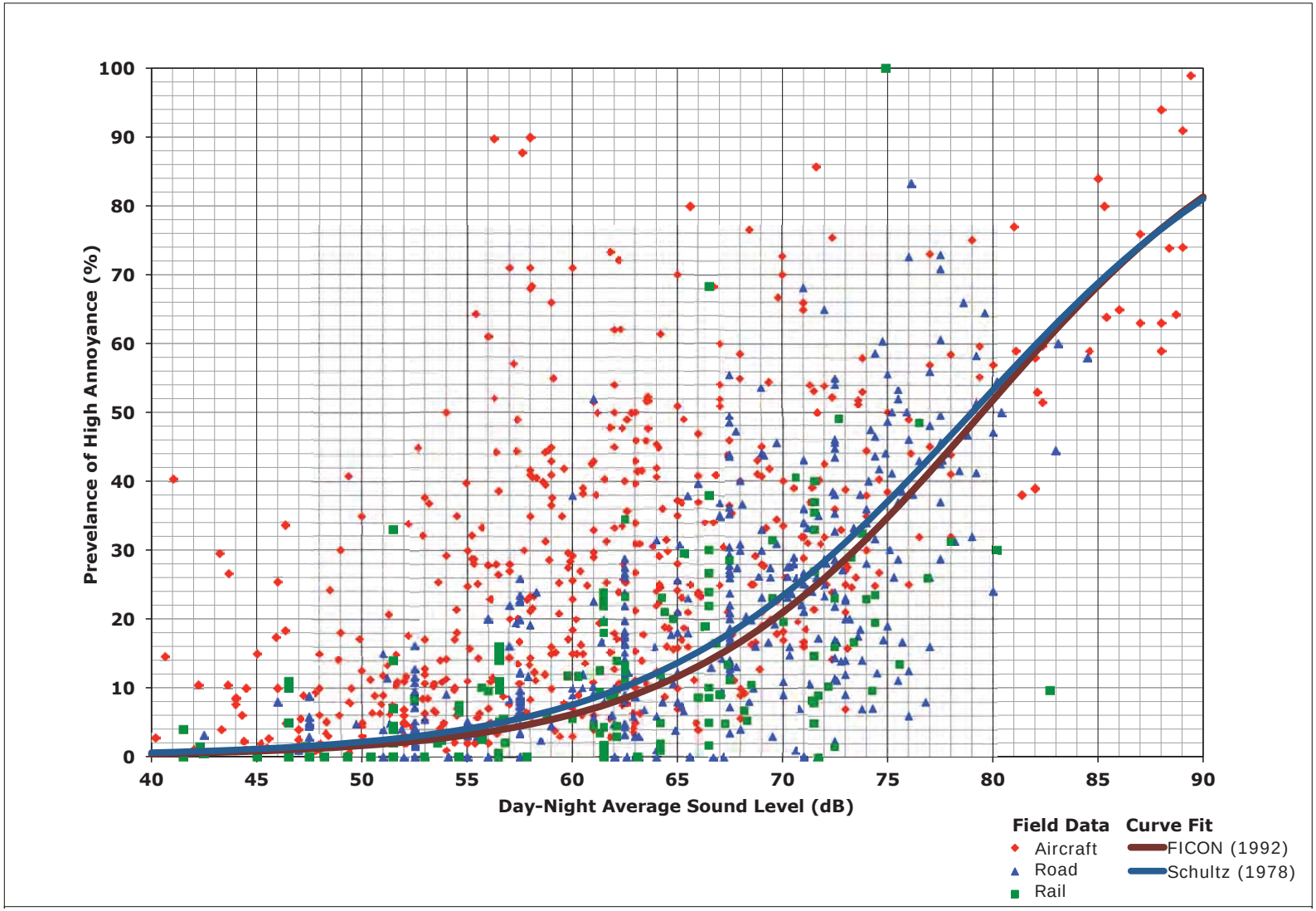
Annoyance levels have been correlated to CNEL levels. Exhibit 4.6-5 relates DNL noise levels to community response from two of these surveys. The curves display the percent of a population that can be expected to be annoyed by various DNL (CNEL in California) values for residential land use with outdoor activity areas. One of the survey curves presented in Exhibit 4.6-5 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 4.6-5 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. Annoyance levels have never been correlated statistically to SENEL exposure levels in airport-related studies.

In recent years, researchers have suggested that the noise dose and response curve for annoyance from aircraft noise is different for aviation noise 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 as suggested by the Schultz curve. Some studies go on further to describe that communities form unique attitudes about noise and that differing 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, which are the criteria used for the TA analysis presented in this section.



Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

Percent of Population Highly Annoyed as a Function of DNL

Exhibit 4.6-5

John Wayne Airport Settlement Agreement Amendment

JOHN WAYNE AIRPORT ORANGE COUNTY

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4.6.2 REGULATORY SETTING

FEDERAL

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. Aircraft may be certificated as Stage 1, Stage 2, or Stage 3 aircraft based on their noise level, weight, number of engines, and, in some cases, number of passengers. Stage 1 aircraft, which are the noisiest aircraft, are no longer permitted to operate in the U.S., and Stage 2 aircraft have been phased out of the U.S. fleet (with an exception for Hawaii and Alaska and limited applicability to certain lighter aircrafts, discussed below). Although aircraft meeting Part 36 standards are noticeably quieter 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 (FAA 2006). 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 4.6-1 includes relevant data from the FAR Part 150, Appendix A guidelines (See the *Noise Analysis Technical Report*, Appendix C,, Section 5.2.1, page 26).

TABLE 4.6-1
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 4.6-1
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: *Noise Analysis Technical Report,* Table 2, Landrum & Brown 2014.

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 1050.1E and 5050.4

FAA Order 1050.1E, Environmental Impacts: Policies and Procedures, addresses compliance with NEPA and regulations issued by the Council on Environmental Quality ("CEQ")(40 CFR 1500 et seq.). FAA Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects, supplements Order 1050.1E, and provides information to FAA airport personnel and others interested in fulfilling NEPA requirements for airport actions under FAA's authority. Although this Project is not subject to NEPA or CEQ requirements, the FAA standards and guidance are an appropriate point of reference for this CEQA analysis.

Specific policies and procedures for evaluating environmental impacts are described in Order 1050.1E, which includes the following significant impact definitions:

> 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.

For potential impacts to receptors with noise exposures between 60 and 65 DNL:

> 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.

Airport Noise and Capacity Act of 1990

Subsequent to the 1985 Settlement Agreement, the U.S. Congress enacted the Airport Noise and Capacity Act of 1990 ("ANCA" or "the Noise Act") (49 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 been all Stage 3 aircraft.

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 there is a locally adopted standard that 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 2 restrictions are more difficult because one of the major reasons for ANCA was to discourage local restrictions more stringent than the 1999 phase-out already contained in ANCA. To comply with the regulation and institute a new Stage 2 restriction, the proprietor must generally do two things: It must prepare a cost/benefit analysis of the proposed restriction and give proper notice. The cost/benefit analysis is extensive and entails considerable evaluation. Stage 2 restrictions do not require approval by the FAA.

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 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)). ANCA also provides that a "subsequent amendment" to the 1985 Settlement Agreement is not subject to ANCA provided that amendment does not reduce or limit aircraft operations or affect aircraft safety." (49 U.S.C. 47524(d)(4)). In the event that the Settlement Agreement expires, other interested entities – including, but not limited to, the FAA and commercial air carriers – could initiate legal action challenging the maintenance of any noise and access restriction at JWA on the basis that such restrictions violate ANCA.

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, Deivision 2.5, Chapter 6) are enforced by the Aeronautics Division of the California State Department of Transportation ("Caltrans") (State of California 1970). 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 (State of California 2010). 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. Although the building code does not apply the CNEL 45 dB interior noise level standard to detached single-family residences, the Division of Aeronautics encourages communities to adopt this standard for these uses. The County and City of Newport Beach have done so as part of their general plan noise element policies.

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 Orange County Airport Land Use Commission 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 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 4.6-2. 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 4.6-2
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:

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.

TABLE 4.6-2
COUNTY OF ORANGE COMPATIBILITY MATRIX FOR LAND USE AND COMMUNITY NOISE EQUIVALENT LEVELS

Type of Use	65+ decibels CNEL	60 to 65 decibels CNEL

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: *Noise Analysis Technical Report,* Tables 3 and 4, Landrum & Brown 2014.

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 at JWA was adopted in response to a court-stipulated settlement agreement and contains the rules for airline and cargo aircraft operations at the Airport.

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.

CITY OF NEWPORT BEACH

The City of Newport Beach adopted their current General Plan on July 25, 2006 and is in the process of updating the Land Use Element. The City has established 65 and 45 CNEL as the outdoor and indoor noise compatibility criteria for residential land uses. The Noise Element, Chapter 12 of the General Plan includes noise land use compatibility guidelines and noise standards for a variety of land use types.

Policy N 1.8 establishes criteria for significant noise impacts to existing sensitive uses (listed below), and the CNEL increase described in this policy is shown in Table 4.6-3 below.

> **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.

TABLE 4.6-3
NEWPORT BEACH GENERAL PLAN POLICY N1.8
SIGNIFICANT NOISE IMPACT CRITERIA FOR NEW DEVELOPMENT IMPACTING EXISTING SENSITIVE USES

CNEL (dBA)	dBA Increase
55–60	3
60–65	2
65–70	1
70–75	1
Over 75	Any increase is considered significant

CNEL: community noise equivalent level; dBA: A-weighted decibel.
Source: *Noise Analysis Technical Report,* Section 2.6.2, Landrum & Brown 2014.

Goal N 3 of the City's Noise Element is, "Protection of Newport Beach residents from the adverse noise impacts of commercial air carrier operations at JWA as provided in the City Council Airport Policy." Goal N 3 includes ten policies that are addressed in Section 4.5, Land Use and Planning.

Additional Newport Beach General Plan Noise Element policies are addressed in Section 4.5, Land Use, Table 4.5-10.

CITY OF COSTA MESA

The Noise Element of the 2000 General Plan establishes 65 and 45 CNEL as the outdoor and interior noise compatibility for residential uses. The Noise Element also includes two policies related to JWA, which are addressed in Section 4.5, Land Use and Planning.

CITY OF IRVINE

The General Plan Noise Element of the City of Irvine contains noise/land use compatibility guidelines consistent with those in use by the County of Orange (i.e., 65 dB CNEL for noise-sensitive outdoor areas and 45 dB CNEL for indoor areas of residential uses). The City of Irvine has also adopted a single event noise standard that applies to the interior of residences located within a 60 dB CNEL contour. That requirement is that the Maximum Noise Level for the 10th percentile of the noise events shall not exceed 55 dBA (i.e., only the loudest 10 percent may exceed 55 dBA).

The City also adopted The City of Irvine CEQA Manual, which provides guidance in preparing CEQA documents for the City, including guidance on significance thresholds. The manual's guidance for determining the significance of traffic noise increases is as follows (Irvine 2012):

> Consequently, the noise threshold for increase in traffic noise levels is based on the potential for traffic noise to become considerably louder than the ambient noise level. In general, noise levels must increase by 10 dBA in order to double ambient noise levels. An increase of 5 dBA is readily perceptible to the public and a 3 dBA increase is barely perceivable to the average healthy human ear.

CITY OF LAGUNA BEACH

The City of Laguna Beach noise/land use compatibility guidelines presented in the City's General Plan Noise Element are consistent with those in use by the County of Orange (i.e., 65 dB CNEL for noise sensitive outdoor areas and 45 dB CNEL for indoor areas of residential uses). The Noise Element identifies aircraft overflights from JWA as one of the noise sources impacting the City, along with banner and other aircraft traveling along the coast. There are no goals, policies or actions related to aircraft noise presented in the Noise Element.

CITY OF TUSTIN

The City of Tustin's Noise Element contains noise/land use compatibility guidelines that are consistent with those in use by the County of Orange (i.e., 65 dB CNEL for noise-sensitive outdoor areas and 45 dB CNEL for indoor areas of residential uses). Aircraft noise is identified as a noise-related issue with three bullet points:

- Noise from JWA, while generally below accepted CNEL guidelines for residential uses, produces annoyance among Tustin residents due to repetitive occurrence.
- The activities and opportunities at JWA should be monitored as needed to protect the planning area from unwanted aircraft noise.
- Citizen involvement in committees that will influence future aircraft operations at JWA needs to be encouraged.

The Noise Element contains four policies and two implementation action items related to aircraft noise under Goal 1, "Use noise control measures to reduce the impact from transportation noise sources". These policies and implementation action items are addressed in Section 4.5, Land Use and Planning.

4.6.3 METHODOLOGY

AIRCRAFT NOISE

Aircraft noise modeling is a key element of this noise analysis. Generating accurate noise contours (i.e., lines of equal noise levels) is largely dependent on the use of a reliable, validated, and updated noise model. It is imperative that these contours be accurate for the meaningful analysis of airport noise impacts.

The FAA's Integrated Noise Model ("INM") Version 7.0d, released in May 2013, was used to model aircraft operations. The INM is a large computer program developed to plot noise contours for airports. The program is provided with standard aircraft noise and performance data for over 100 civilian aircraft types that can be tailored to the characteristics of the airport in question, as well as a database of military aircraft types. Version 7.0d includes an updated database that includes some newer aircraft; the ability to include run-ups in the computations; the ability to include topography in the computations; and the ability to vary aircraft altitude profiles in an automated fashion. Noise contour files from the INM were loaded into the ArcView™ Geographic Information System ("GIS") software for plotting and land use analysis.

One of the most important factors in generating accurate noise contours is the collection of accurate operational data. INM 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. Aircraft data needed to generate noise contours included the following:

- Number of aircraft operations by type
- Types of aircraft
- Day/Evening/Night time distribution by type
- Flight tracks
- Flight track utilization by type
- Flight profiles
- Typical operational procedures
- Average meteorological conditions

The INM model was calibrated by comparing the results of the existing conditions model to the measurements from ten JWA noise monitoring stations ("NMS"). Note that the INM computes the

noise level to tenths 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.

Noise impacts for the Proposed Project, Alternatives A, B, and C, and the No Project Alternative were calculated using the INM modeling. It was assumed that the day/evening/night mix for existing operations would not change for any of the phases of the Proposed Project or alternatives, except for Phases 2 and 3 of Alternative C. Under Phases 2 and 3 of Alternative C, it was assumed for the INM modeling that the curfew at the Airport would be removed. Note however that adoption of Alternative C, Phases 2 and 3, and the removal of the current curfew would require further discretionary action by the County's Board of Supervisors and additional environmental documentation.

In order to evaluate the reasonably foreseeable ramifications of the curfew's elimination on operations at the Airport, a survey of airports similar to JWA was conducted to estimate what the day/evening/night mix for the Airport would be if the curfew were not in place. Details of the survey are discussed in the *Noise Analysis Technical Report*, (Appendix C, Section 6.1.1). Based on the survey data, a mix of 75 percent day, 14 percent evening, and 11 percent night operations was determined to be realistic for Alternative C, Phases 2 and 3.

The flight tracks and runway use developed for the existing condition (2013) case were used for all future scenarios. Runway use at the Airport is based on aircraft size, with commercial aircraft and large jets using Runway 19R and smaller general aviation aircraft using runway 19L. There is no reason to believe that this will change in the future as it is primarily driven by the relative size of the two runways. Flight tracks into and out of JWA are well established, particularly with the Airport's noise-abatement procedures. There also is no reason to believe that the flight paths will change substantially in the future.

TRAFFIC NOISE

The analysis of traffic noise impacts is evaluated based on two criteria:

1. the change in traffic noise (increase or decrease) attributable to traffic generated by the Project; and,
2. the absolute traffic noise level that results with inclusion of traffic from the Project being evaluated in combination with other vehicle traffic.

Both criteria must be exceeded for a significant impact to occur. With respect to Criterion 1, changes in traffic noise levels were calculated based on the changes in traffic volumes.[4] Traffic volumes used to calculate traffic noise level changes for the Project are included in the Project's traffic study described in Section 4.8 of this EIR and in Appendix C, Section 3.2.

The calculation of relative noise levels contains an inherent assumption that the mix of traffic (i.e., autos and trucks) is the same in the without-Project and with-Project scenarios being compared. Here, there is no reason to believe that future changes in the traffic mix would considerably affect the calculated traffic noise level changes in the Project area. This is because automobiles dominate the traffic noise along arterials when calculated using the standard

[4] Changes in traffic noise are calculated by taking ten times the base 10 logarithm of the ratio of the two traffic volumes of interest. These may be the future and existing traffic volumes or the future traffic volumes with and without the Project/Alternative.

vehicle mix developed by the County (which is based on traffic surveys at 22 arterial intersections). Relative truck volumes would need to change by more than a factor of 2 for the noise level change to vary by 0.4 dB over the assumption that they remain constant. There is no evidence that relative truck volumes would change by even this amount within the project area and even with the addition of truck deliveries.

As discussed below, the calculations of noise level changes determined that there are no road segments that would have noise level increases with the Proposed Project or any of its alternatives that would exceed the applicable thresholds. Therefore, there was no requirement to address criterion (2) and calculate absolute traffic noise levels.

4.6.4 EXISTING CONDITIONS

AIRCRAFT OPERATIONS

2013 Aircraft Operations

JWA serves both general aviation and scheduled commercial passenger airline and cargo operations. The 2013 level of service at JWA, which is based on operations through September of 2013, was estimated at 9.17 Million Annual Passengers ("MAP").[5] Under the Phase 2 Commercial Airline Access Plan, the Airport is authorized to serve up to 10.8 MAP. In 2013, there were 263,490 aircraft operations at JWA. Of this, 85,010 were jet air carriers, 5,300 were commercial propeller aircraft, and 22,040 were general aviation jets. The remaining 151,150 were propeller driven general aviation aircraft.

The number of Average Daily Departures ("ADDs") (i.e., the number of daily departures averaged over an entire year) has been the long-standing manner of tabulating jet air carrier operations at JWA. The number of ADDs is the number of annual departures divided by 365 (366 in a leap year). The total number of annual operations (i.e., arrivals and departures) is the ADD multiplied by 2 operations per departure and 365 days per year. The number of air carrier ADDs for 2013 was just over 116. The number of business jet departures was just over 30, and the number of propeller aircraft departures was just over 221 with 214 of these being general aviation aircraft ADDs.

The 116 ADDs include 80 Class A (regulated) and 36 Class E ADDs. The 80 Class A ADDs are 5 fewer than the 85 ADDs allowed by the Settlement Agreement. The average daily departures by airline and aircraft type (fleet mix) using JWA during 2013 is provided in Appendix C (Chapter 4, Existing Noise Environment).

Runway and Flight Track Utilization

The flight tracks at JWA are well established to take advantage of the runway configuration and prevailing wind conditions. Runway 19R/01L is approximately 5,700 feet long and is the only runway suitable for larger aircraft. With winds predominantly coming from the ocean, aircraft depart to the south and arrive from the north about 95 percent of the time with slight variations from year to year. Only during Santa Ana wind conditions does the flow reverse with departures

[5] The estimate of 9.17 MAP was developed as part of the Technical Report: Aviation Forecasts (Appendix B) prepared for this Project. This projection used actual passenger data through August as the basis for projecting passenger levels through the end of 2013. The 9.17 MAP was used as the basis for the technical studies in this EIR since they were initiated prior to the end of 2013. The actual number of passengers served in 2013 was 9.2 MAP.

to the north. During the first 9 months of 2013, the Airport operated in south flow 95.7 percent of the time.

Departures to the south proceed 1 nautical mile and turn left approximately 15 degrees to generally follow Newport Bay. Arrivals use a straight-in approach from the north to Runway 19R, generally lining up with the runway centerline over Anaheim Hills. Additionally, aircraft arriving from the north arrive from the ocean over Huntington Beach on a path that is parallel to JWA, after which a right turn to Runway 19R is commenced. This turn can begin anywhere over a wide area starting at an area near South Coast Plaza all the way to State Route 91 (the Riverside Freeway).

Exhibit 4.6-6 shows the flight tracks used approximately 95 percent of the time by air carrier and other jet aircraft at JWA. Exhibit 4.6-7 shows the combined flight tracks for general aviation and air carrier aircraft.

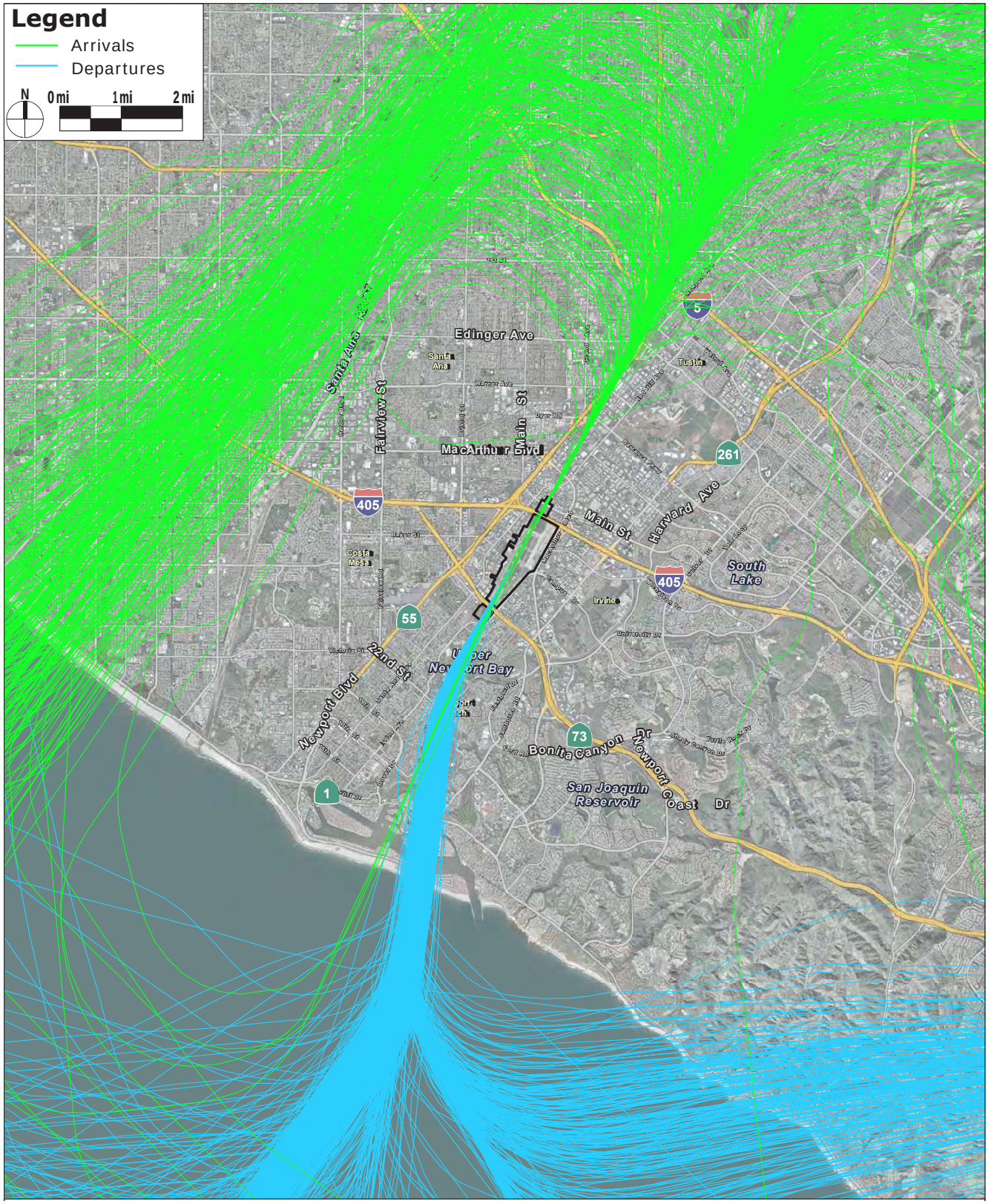
Exhibit 4.6-8 shows the radar altitude profiles for both departures and arrivals. The range in altitudes is due to varying aircraft weights, wind, temperature, and aircraft types.

Time of Day of Operations

The Airport operates under a nighttime restriction. That restriction prohibits air carrier operations before 7:00 AM Monday through Saturday and before 8:00 AM on Sundays. The restrictions also prohibit air carrier departures after 10:00 PM and air carrier arrivals after 11:00 PM (subject to exceptions permitted by the Airport Director). General aviation aircraft may operate at night provided that they meet an 86 dB SENEL noise limit at the noise monitors.

The Airport Director or senior operations staff may authorize a departure or arrival outside of the permitted operations hours only under certain conditions and limitations, including that the flight was scheduled to arrive or depart during the permitted operations hours and was delayed by not more than one-half hour beyond the permitted operations hours by emergency, mechanical, air traffic control, or weather delays substantially beyond the control of the air carrier. (See Access Plan Sections 2.34 and 8.5.2).

Operations data for the year 2013 were examined to determine the number of air carrier operations that occur during the day, evening, and night periods (see Appendix C, Table 8 for the detail on the number of operations by aircraft type in each of the time periods). It should be noted that the air carrier night departures are greater than zero due to aircraft departing just prior to 7:00 AM or just after 10:00 PM. An examination of the database shows that most occurred between 10:00 and 10:01 PM. The rules at JWA use the time of the noise event measured at the NMS to determine compliance with the nighttime prohibitions, not the time of the runway departure. For example, an aircraft may depart the Airport a few seconds before 10:00 PM and generate a noise event after 10:00 PM. That is a violation of the Airport's nighttime restriction and the airline would be subject to sanctions if the operation had not been previously authorized by the Airport.



Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

Typical Air Carrier Flight Tracks

Exhibit 4.6-6

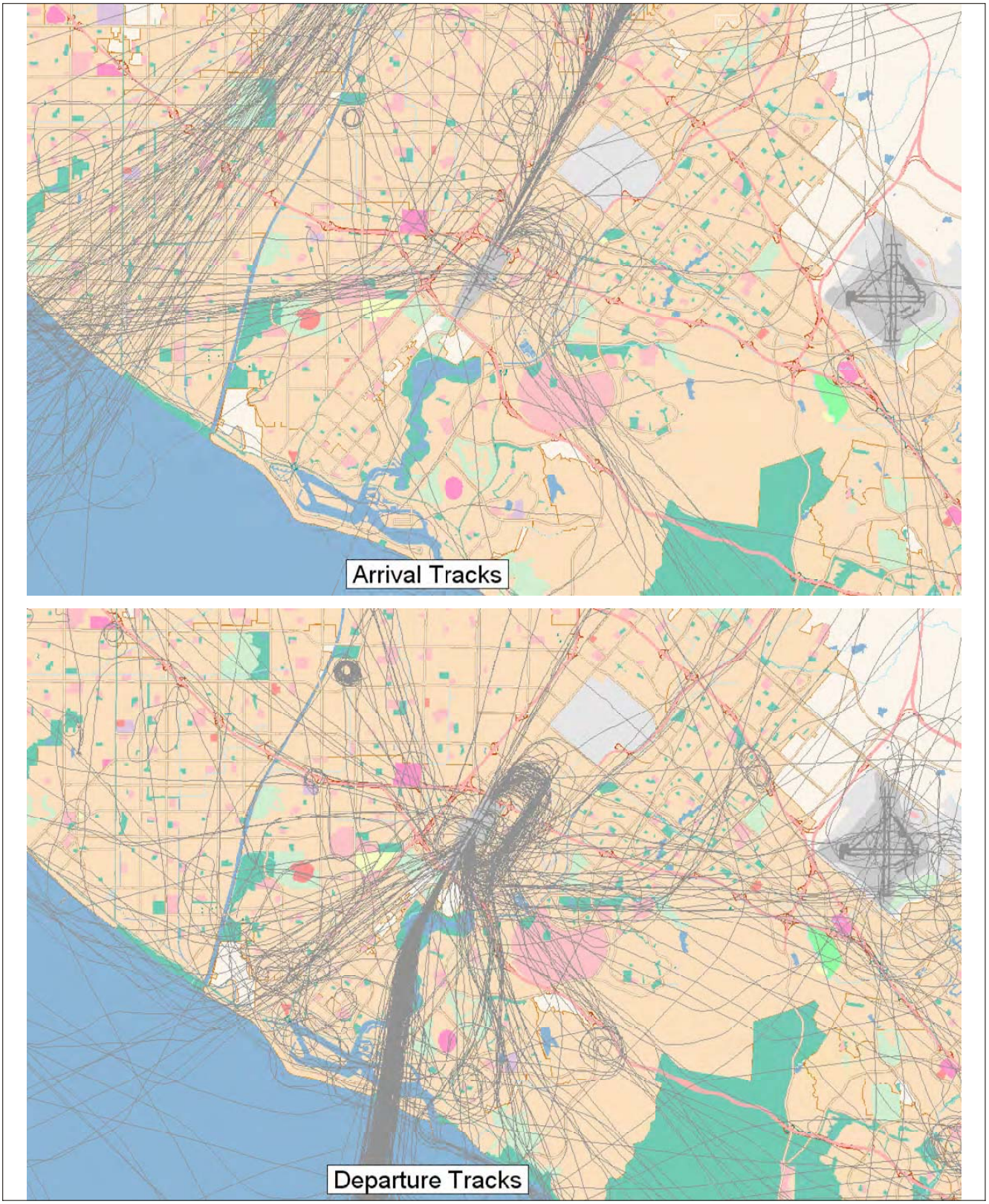
John Wayne Airport Settlement Agreement Amendment

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Map not to scale

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Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

Radar Tracks for Air Carrier & General Aviation Aircraft

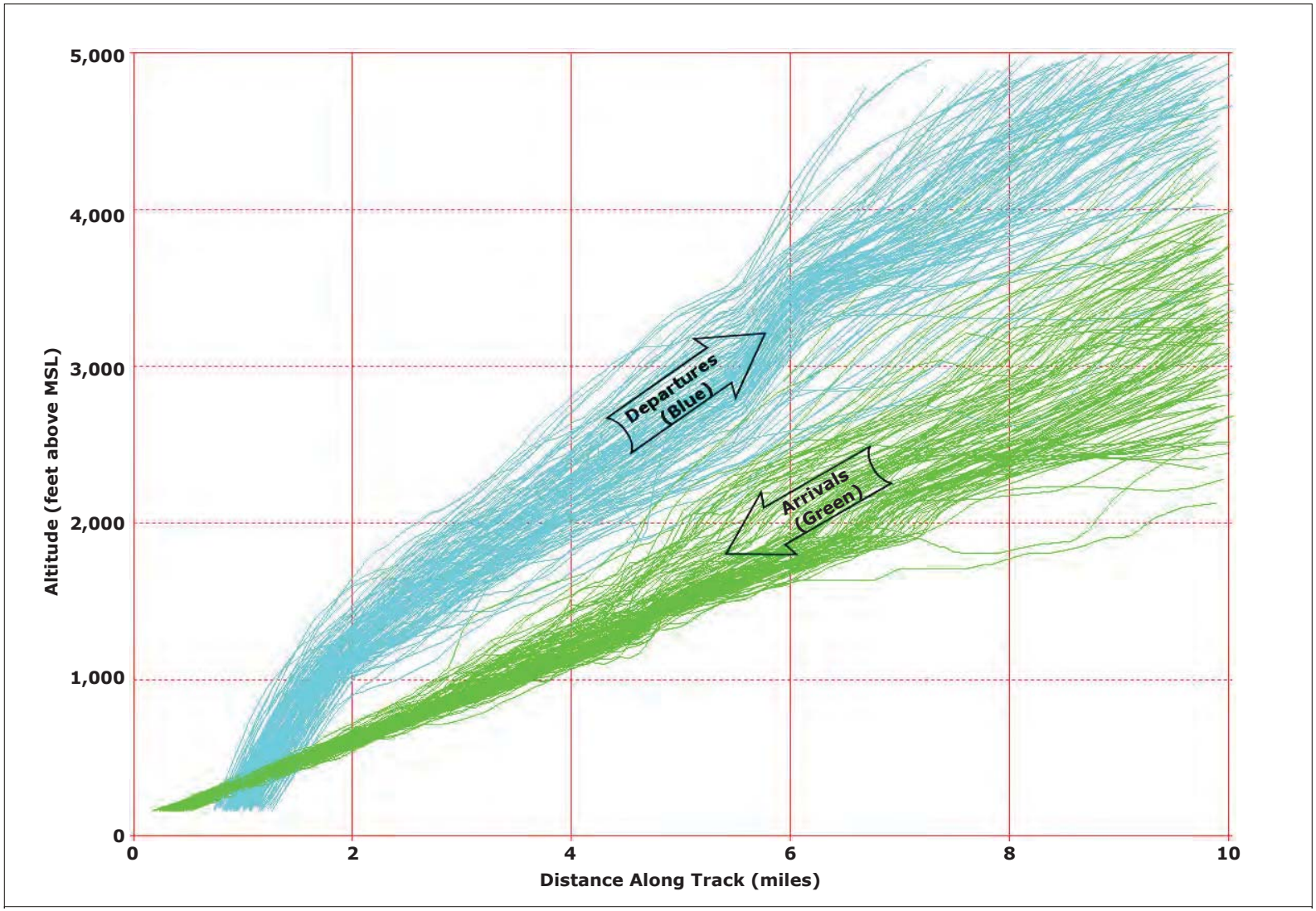
Exhibit 4.6-7

John Wayne Airport Settlement Agreement Amendment

JOHN WAYNE AIRPORT ORANGE COUNTY

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Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

Typical Aircraft Arrival and Departure Altitudes

Exhibit 4.6-8

John Wayne Airport Settlement Agreement Amendment

JOHN WAYNE AIRPORT ORANGE COUNTY

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AIRCRAFT NOISE

Noise Monitoring Stations

The noise levels of all commercial aircraft operations and many general aviation operations are recorded at ten permanent noise monitoring stations ("NMS") 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 locations are shown in Exhibit 4.6-9. This exhibit also shows the boundaries of the local jurisdictions. Three of the NMS are located in Santa Ana Heights (1S, 2S, and 3S), which has been annexed by the City of Newport Beach; four are located in the City of Newport Beach (4S, 5S, 6S, and 7S); one is in Irvine (8N); one is in Santa Ana (9N); and one is in Tustin (10N).

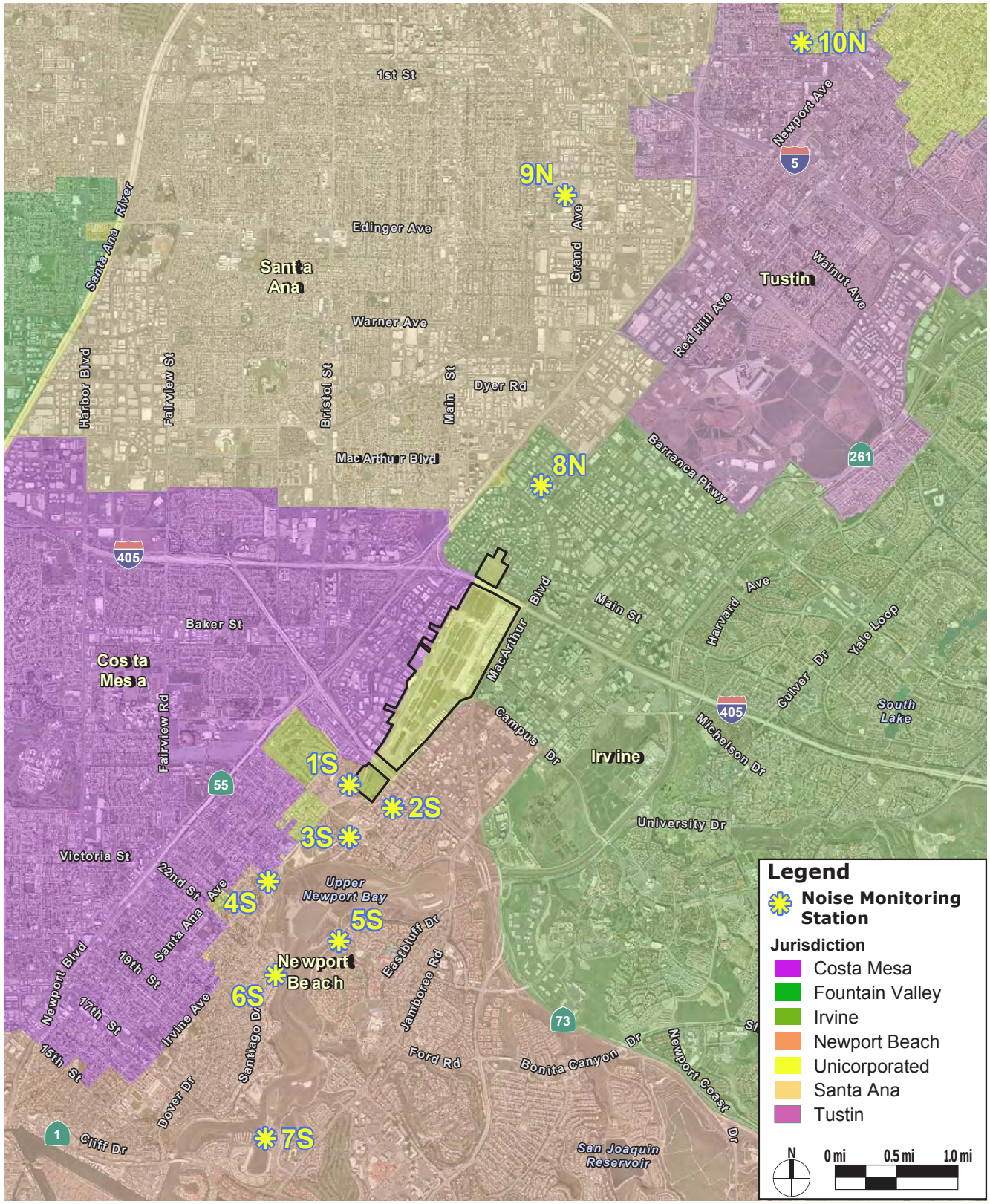
Community Noise Equivalent Level Contours and Land Use Impacts

2013 Baseline

The CNEL contours used to depict existing noise exposure at JWA are derived from the 2013 baseline conditions. They are depicted on Exhibit 4.6-10. The contours were developed by calibrating the results of noise modeling to the measurements from the ten permanent NMS. A description of the geographic parameters of the 2013 baseline contours, as well as their inclusion of any noise sensitive land uses, follows:

- **70 CNEL contour:** 379 acres/0.59 square mile; it includes 1 place of worship, but no other noise-sensitive land uses.
- **65 to 70 CNEL contour:** 561 acres/0.88 square mile; it includes 86 residential dwellings with approximately 215 residents and 2 places of worship, but no other noise-sensitive land uses.
- **60 to 65 CNEL contour:** 1,313 acres/2.05 square miles; it includes 907 residences with approximately 2,628 residents, 6 places of worship, and 6 schools.

In addition to the CNEL contours, specific CNEL values are calculated for each permanent NMS. Table 4.6-4 displays CNEL values at each of the NMS from the noise modeling of existing conditions.



Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

Permanent Noise Monitoring Stations

Exhibit 4.6-9

John Wayne Airport Settlement Agreement Amendment

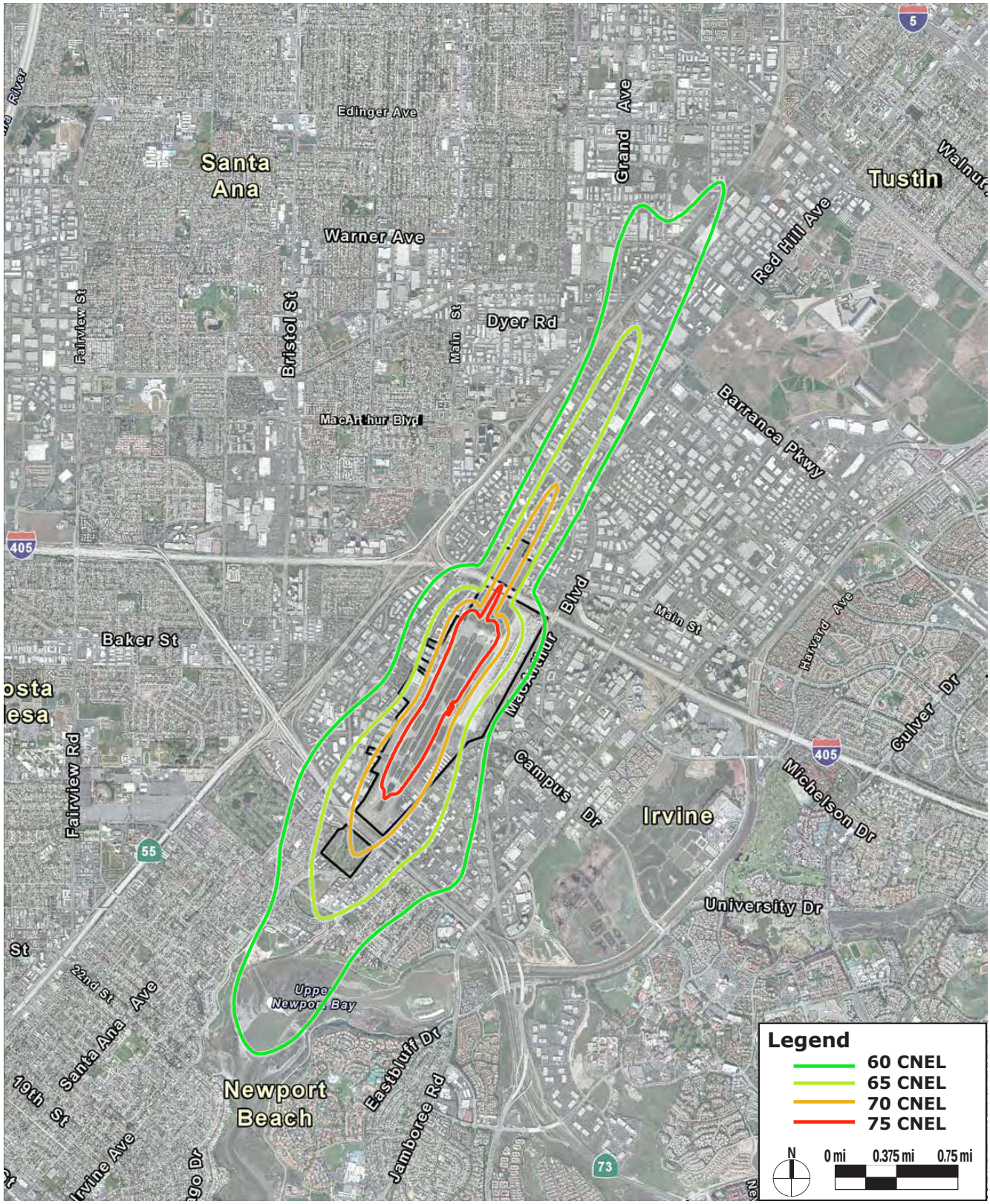
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JOHN WAYNE AIRPORT ORANGE COUNTY

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Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

CNEL Contours – Existing Conditions

Exhibit 4.6-10

John Wayne Airport Settlement Agreement Amendment

N W E S

Map not to scale

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TABLE 4.6-4
2013 CNEL AT NOISE MONITORING STATIONS

NMS*	1S	2S	3S	4S	5S	6S	7S	8N	9N	10N
CNEL:	66.2	65.4	64.7	57.5	57.3	58.2	55.8	68.8	51.5	54.1

NMS: Noise Monitoring Stations; CNEL: Community Noise Equivalent Level.

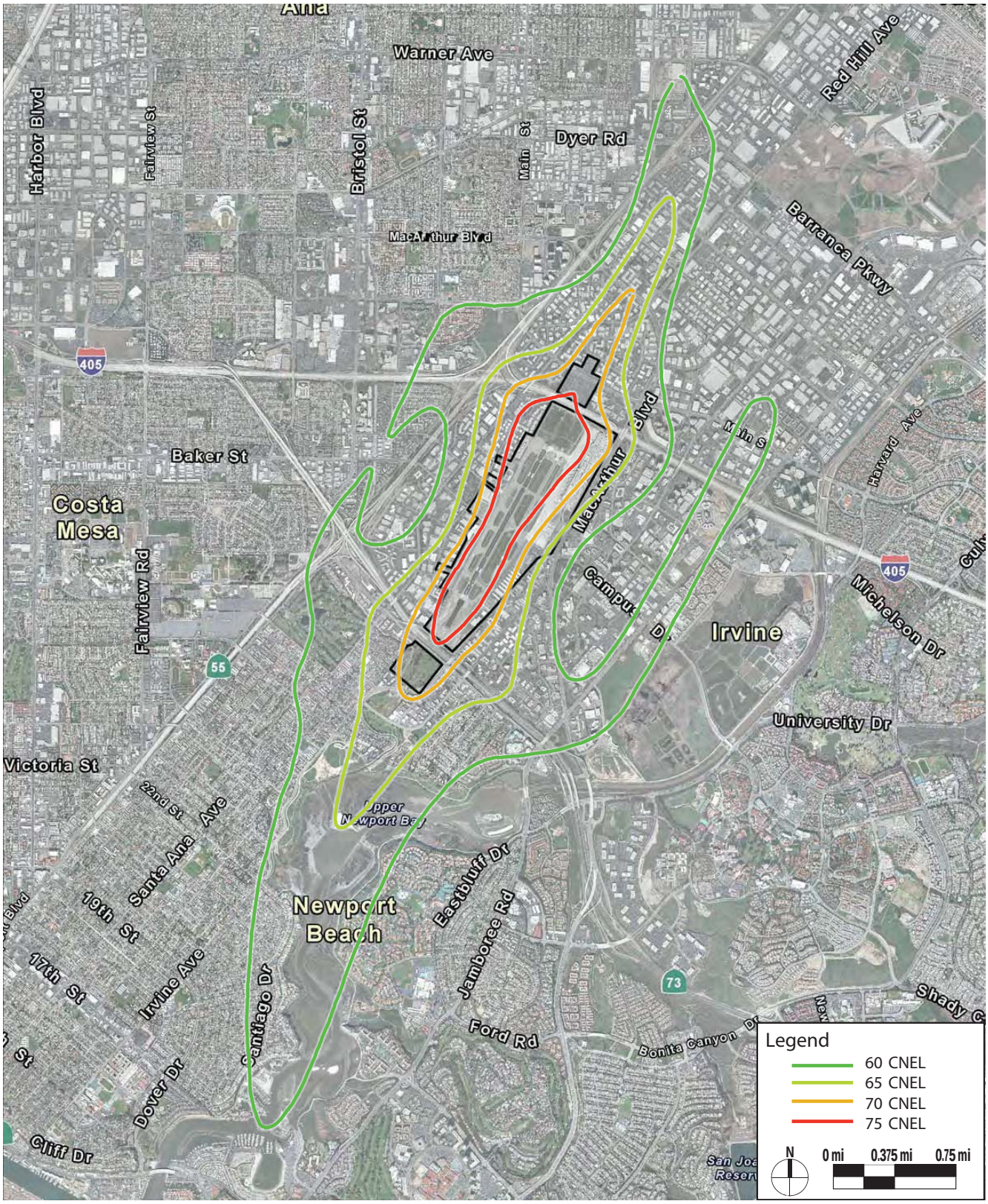
* NMS 1S, 2S, and 3S are located in the Santa Ana Heights Community of the City of Newport Beach; NMS 4S, 5S, 6S and 7S are located in the City of Newport Beach; NMS 8N is located in the City of Irvine; NMS 9N is located in the City of Santa Ana; and NMS 10N is located in the City of Tustin.

Source: *Noise Analysis Technical Report,* Table 6, Landrum & Brown 2014.

1985 Master Plan

The current plan for use of the Airport is the 1985 Master Plan and Compatible Land Use Plan. The Compatible Land Use Plan set forth zoning controls and other mechanisms to make the land uses south of the Airport compatible with the 65 CNEL contour for the Master Plan Project. The CNEL contours contained in EIR 508 and which reflect the impact from the Master Plan Project are displayed on Exhibit 4.6-11a.

The Master Plan noise contours are considerably larger than the existing noise contours presented previously in Exhibit 4.6-10. This is due to a quieter fleet of existing commercial aircraft and a dramatic reduction in the number of general aviation operations. The existing condition contours are contained wholly within the Master Plan contours except for the 65 and 60 CNEL contours to the north, below the primary approach corridor, as shown in Exhibit 4.6-11b. The reason the approach noise contours did not shrink as much as the departure noise (shown in Exhibit 4.6-11c) is due to new technology aircraft engines being much quieter and departure noise dominated by engine noise. Approach noise is a combination of engine noise and airframe aerodynamic noise. The airframe noise (i.e., the noise of air flowing over the body of the aircraft and extended flaps, landing gear, and speed brakes) has not been reduced as much as engine noise.



Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

CNEL Contours – Airport Master Plan (EIR 508)

Exhibit 4.6-11a

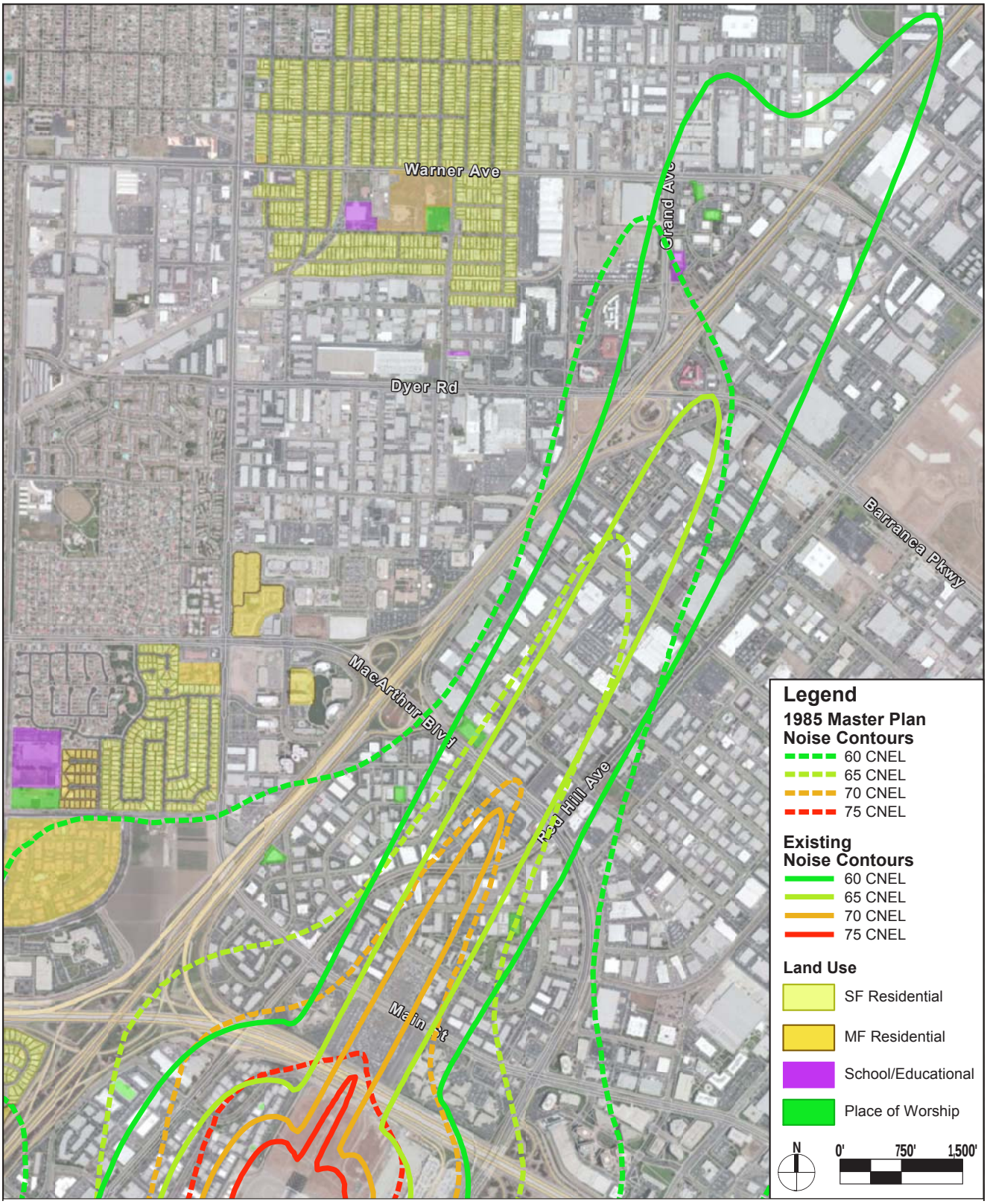
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Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

Comparison of 1985 Master Plan and Existing Approach Noise Contours

Exhibit 4.6-11b

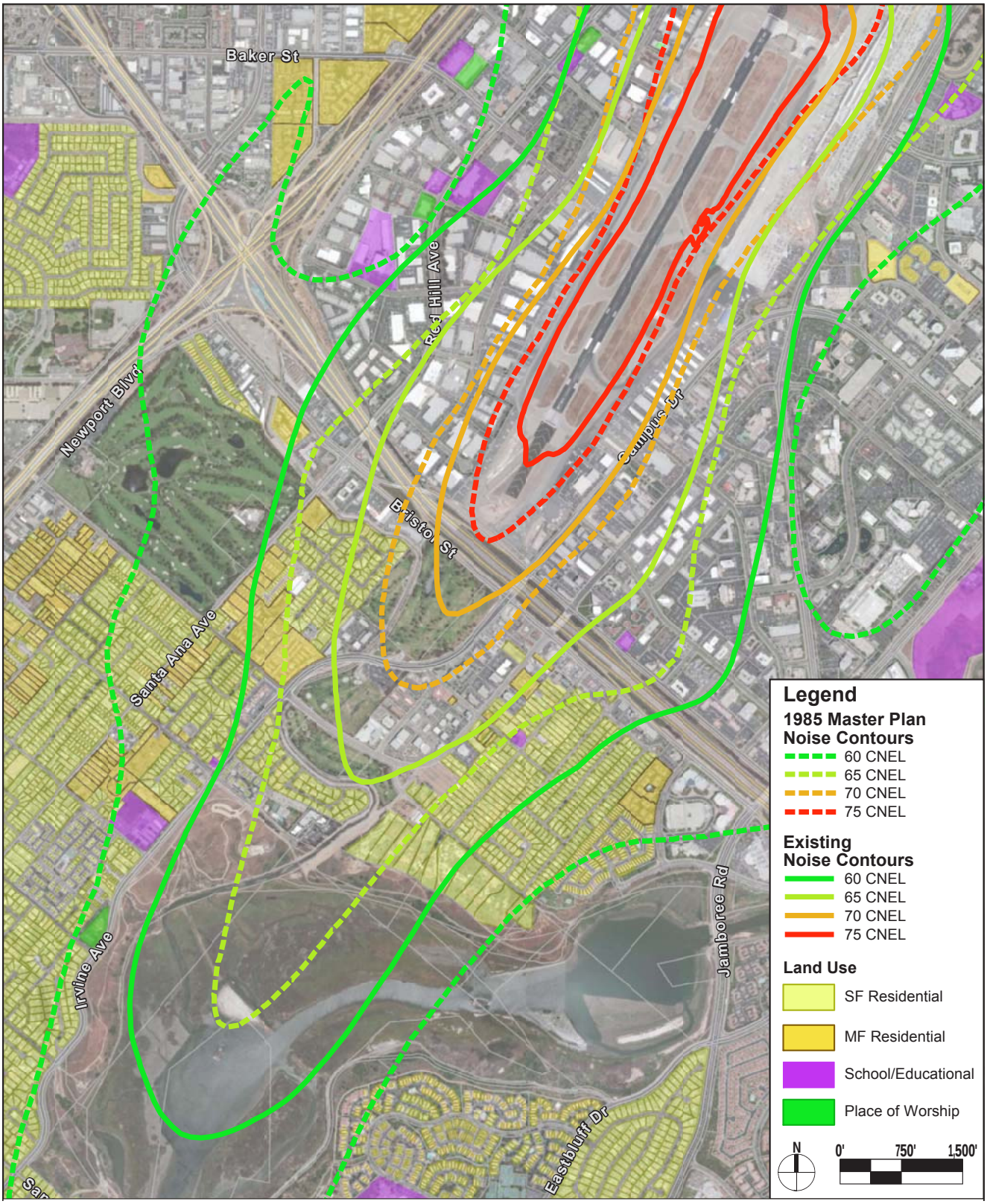
John Wayne Airport Settlement Agreement Amendment

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Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

Comparison of 1985 Master Plan and Existing Departure Noise Contours

Exhibit 4.6-11c

John Wayne Airport Settlement Agreement Amendment

Map not to scale

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For purposes of comparison, the Master Plan and Existing Condition contours compare as follows:

- **60 and 65 CNEL contour:** Master Plan contours are 114 percent larger than the Existing Condition contours. As allowed by the Master Plan, the area outside the Airport boundaries that would be exposed to noise levels in the 60 to 65 dB CNEL range is 125 percent larger than the currently exposed area.

- **65 and 70 CNEL contour:** Master Plan contours are almost 50 percent larger than the Existing Condition contours. As allowed by the Master Plan, the area outside the Airport boundaries that would be exposed to the 65 to 70 dB CNEL noise levels is 80 percent larger than the currently exposed area.

- **70+ CNEL contour:** Master Plan contours are 80 percent larger than the Existing Condition contours. As allowed by the Master Plan, the area outside the Airport boundaries that would be exposed to noise levels that exceed 70 dB CNEL is 311 percent larger than the currently exposed area.

Measured Noise Levels 2001-2012

Table 4.6-5 shows measured noise levels at noise monitoring stations for each year from 2001 through 2012. Noise levels over the period generally were unchanged or showed a slight decreasing trend.

TABLE 4.6-5
LONG TERM MEASURED AIRCRAFT NOISE LEVELS 2001-2012
VALUES IN dB CNEL AT EACH STATION

Q-1 thru Q-4	Noise Monitoring Stations									
	1S	**2S**	**3S**	**4S**	**5S**	**6S**	**7S**	**8N**	**9N**	**10N**
2012	66.2	65.4	64.6	57.7	57.0	58.6	54.6	67.0	44.7	55.3
2011	66.5	65.3	64.1	57.2	56.8	58.4	54.0	67.2	44.0	55.3
2010	66.6	65.4	64.3	57.1	57.4	58.3	54.1	67.4	43.0	55.8
2009	66.4	65.1	64.2	57.3	56.5	58.3	52.6	67.2	42.7	55.7
2008	67.0	65.5	65.0	57.9	57.1	59.2	55.1	68.0	43.8	56.5
2007	67.6	66.0	65.6	58.4	57.7	59.8	55.6	68.7	45.0	57.1
2006	67.5	66.0	65.6	58.4	57.7	59.7	55.9	68.7	45.8	57.1
2005	67.8	66.8	66.0	59.1	58.9	60.6	57.9	68.7	49.9	57.3
2004	67.9	66.8	66.0	59.5	59.9	60.5	57.7	68.4	51.8	57.1
2003	66.9	65.8	64.9	58.7	58.7	59.8	57.8	68.4	52.6	57.1
2002	66.7	66.0	64.7	58.9	58.3	59.3	58.0	68.4	53.2	57.1
2001	66.5	66.5	64.7	59.2	58.2	59.3	58.0	68.4	51.4	57.0

Source: Access & Noise, Noise Levels 2001-2012, JWA 2013

Single Event Noise

SENEL data for JWA varies by aircraft type and noise class (i.e., Class A or Class E). Within each class, airlines operate at different weights depending on destination and load factor. The Airport collects SENEL data for each operation and these data are stored in the noise monitoring system. Table 4.6-6 presents the average number of daily air carrier noise events in 2013 with SENEL levels greater than 85 dBA. This equates to a maximum noise level of approximately 75 dBA. The table shows that the NMS closest to the Airport, 1S, 2S, 3S, and 8N experience considerably more of these events than at the more distant monitoring stations.

TABLE 4.6-6
DAILY AIR CARRIER EVENTS WITH SENEL GREATER THAN 85 dBA

NMS*	1S	2S	3S	4S	5S	6S	7S	8N	9N	10N
Events:	111	109	111	43	36	55	13	114	0	3

SENEL: Single Event Noise Exposure Level; dBA: A-weighted decibel; NMS: noise monitoring station

* 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: *Noise Analysis Technical Report,* Table 7,Landrum & Brown 2014.

Additional SENEL data in Appendix A of Appendix C includes: (1) average SENEL for each year from 2003 to 2013 for each airline and aircraft type, and (2) histograms of SENEL data for the ten NMS that were developed to show the distribution of noise levels at each station.

Exhibit 4.6-12 displays typical 85 dB SENEL departure contours for the 6 aircraft most common to JWA: Airbus A300-600 (FedEx), Boeing 737-700, Boeing 737-800, Boeing 757, Airbus A320, and CRJ9 (the largest regional jet). Exhibit 4.6-13 shows the 85 dB SENEL contours for arrivals of these same aircraft.

Time Above Values

TA values were computed for year 2013 at each of the NMS as shown in Table 4.6-7. The values of 65 dBA, 77 dBA, and 85 dBA correlate respectively to speech interference outdoors, indoors with windows open, and indoors with windows closed.

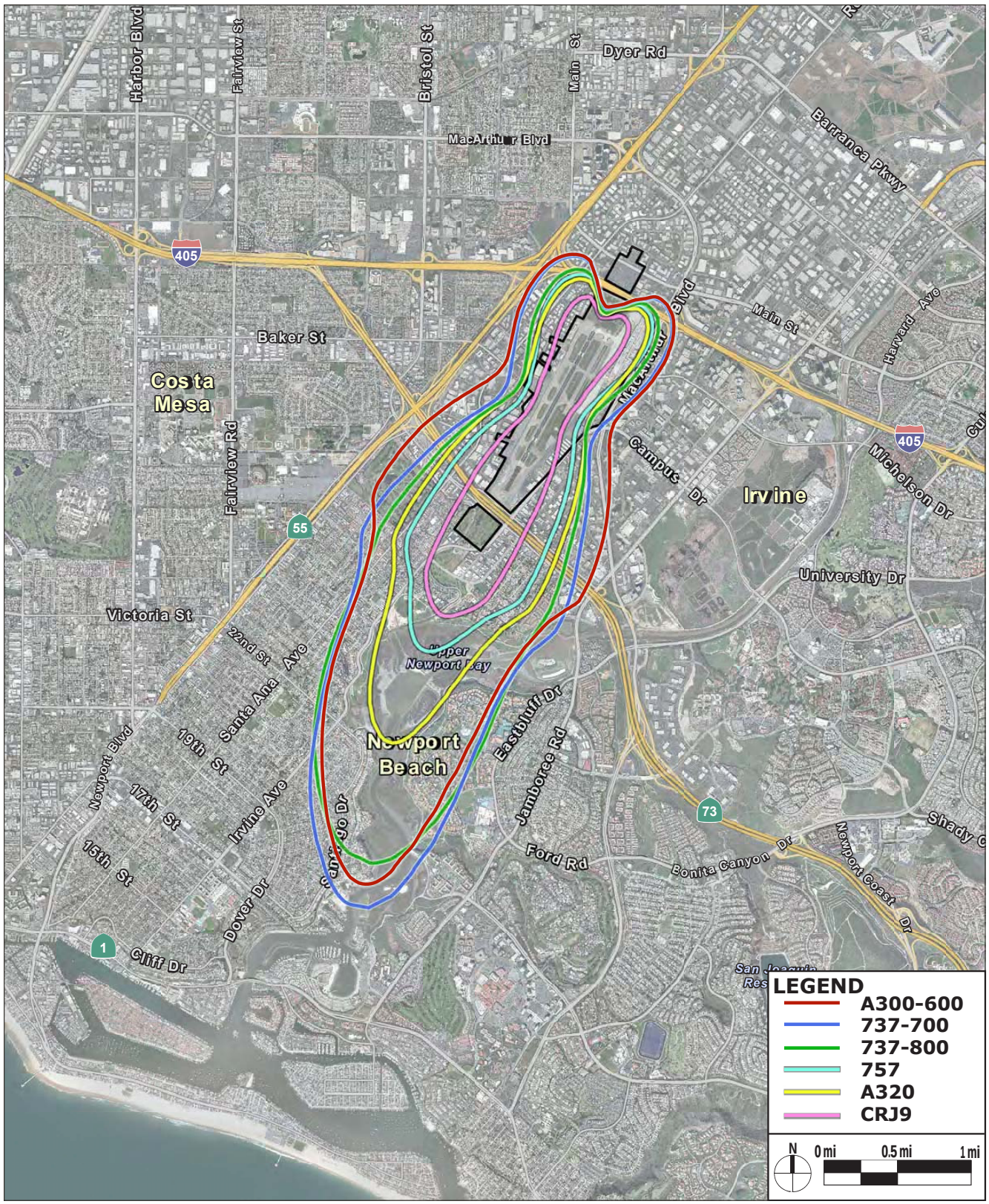
TABLE 4.6-7
TIME ABOVE VALUES FOR EXISTING YEAR 2013 JWA AIRCRAFT OPERATIONS IN AVERAGE MINUTES PER DAY

NMS*	1S	2S	3S	4S	5S	6S	7S	8N	9N	10N
>65 dBA	91.2	87.3	78.5	42.4	44.6	41.7	37.7	58.3	7.6	17.1
>77 dBA	22.5	19.9	17.5	0.0	0.0	0.7	0.1	19.4	0.0	0.0
>85 dBA	2.1	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0

JWA: John Wayne Airport; NMS: Noise Monitoring Station; dBA: A-weighted decibel

* 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: *Noise Analysis Technical Report,* Table 9, Landrum & Brown 2014.



Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

Typical 85 dB SENEL Departure Contour

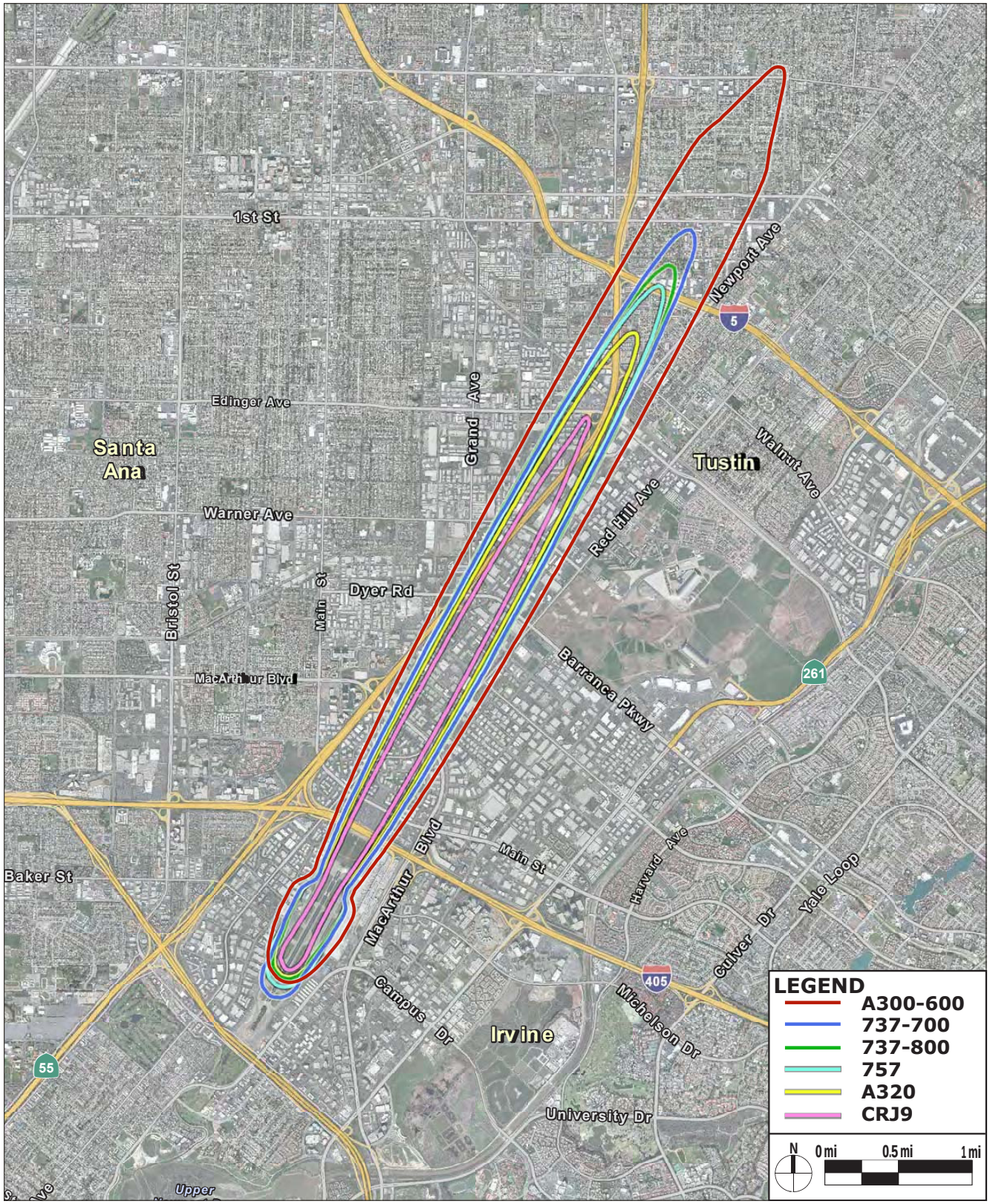
Exhibit 4.6-12

John Wayne Airport Settlement Agreement Amendment

Map not to scale

(02/18/14 KFD) R:\Projects\JWA\J003\Graphics\EIR\Ex4.6-12_Typ85dB.pdf

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Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

Typical 85 dB SENEL Arrival Contours

Exhibit 4.6-13

John Wayne Airport Settlement Agreement Amendment

N W E S

Map not to scale

(02/18/14 KFD) R:\Projects\JWA\J003\Graphics\EIR\Ex4.6-13_Typ85dBArrival.pdf

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Table 4.6-7 shows that the NMS nearest the departure end of the runway (NMS 1, 2, and 3) are exposed to the highest noise levels for the longest periods of time. These are the only NMS where 85 dBA is exceeded and where aircraft noise could interfere with indoor speech communication in a building with closed windows. The table shows that this occurs for 36 seconds each day at NMS 2 and 3 and for 2.1 minutes each day at NMS 1.

The table also shows that aircraft noise does not exceed 77 dBA at NMS 4, 5, 9, or 10. Aircraft noise exceeds 77 dBA for less than a minute at NMS 6 and 7 and between 17 and 23 minutes per day at NMS 1, 2 and 3, and 8. This is the amount of time that aircraft noise could interfere with indoor speech communication in a building with open windows. Note that NMS 8 is located in a commercial/light industrial area with buildings that typically do not include operable windows.

Aircraft noise exceeding 65 dBA potentially interferes with outdoor speech communication. Table 4.6-7 shows that this occurs for between 78 and 91 minutes per day at NMS 1, 2 and 3; 58 minutes per day at NMS 8; between 37 and 45 minutes at NMS 4, 5, 6, and 7; and between 7 and 17 minutes per day at NMS 9 and 10.

4.6.5 THRESHOLDS OF SIGNIFICANCE

The NOP (provided in Appendix A) identified three checklist questions pertaining to noise that needed to be addressed in the EIR. The questions as set forth in CEQA Appendix G, does not identify specific quantitative values for determining an impact. Therefore, to facilitate the evaluation of the impact, the thresholds have been supplemented with applicable quantitative policies used to define when an impact would be considered to be significant.

Based on that effort, the Proposed Project or Alternative would result in a significant noise impact if it would:

Threshold 4.6-1 Generate aircraft noise that would cause any one of the following noise increases:

- 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.
- A noise increase at a sensitive receptor in the City of Newport Beach exceeding the values in Newport Beach General Plan Policy N1.8 (see Table 4.6-3).

Threshold 4.6-2 Generate aircraft noise that would increase noise levels at exterior use areas of residences, schools, or places of worship to noise levels of 65 CNEL or above or interior areas of residences, schools, or places of worship to noise levels of 45 CNEL or above.

Threshold 4.6-3 Generate traffic noise that would cause any one of the following noise increases:

- 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.
- A noise increase of any magnitude at a sensitive receptor in the City of Newport Beach if the noise level is 75 CNEL or greater.
- A noise increase at a sensitive receptor in the City of Newport Beach of 1.0 dB or greater where the noise level is less than 75 CNEL, which is the most restrictive noise increase threshold applied by the City of Newport Beach (see Table 4.6-3).

Threshold 4.6-4 Expose persons to or generate excessive groundborne vibration or groundborne noise levels.

4.6.6 IMPACT ANALYSIS

As indicated in Section 1.7, Areas of Controversy, the analyses in this EIR assume the continuation of the existing fleet mix. Given the length of the planning timeframe for the proposed Settlement Agreement extension (through 2030), it is reasonable to assume that there will be interest in introducing newer and next generation aircraft. These newer aircraft may generate less noise than the current fleet at JWA. In addition, since these aircraft accommodate more passengers than aircraft in the current fleet, it may be possible to serve more passengers (within the MAP cap) with fewer operations. Nonetheless, to evaluate the maximum environmental impact, the assumption of no improvement in fleet noise characteristics has been made for this study.

THRESHOLD EVALUATION

Threshold 4.6-1 Would the project generate aircraft noise that would result in:

- **A noise increase of 1.5 CNEL or more at a sensitive receptor where the existing exposure is 65 CNEL or above, or**
- **A noise increase of 3.0 CNEL or more at a sensitive receptor where the existing exposure is between 60 and 65 CNEL, or**
- **A noise increase of 5.0 CNEL or more at a sensitive receptor where the existing exposure is between 45 and 60 CNEL, or**
- **A noise increase at a sensitive receptor in the City of Newport Beach existing exceeding the values in Newport Beach General Plan Policy N1.8?[6]**

[6] As shown in Table 4.6-3, the City of Newport Beach policy establishes the following threshold for determining the significance of noise increases: a 3 dBA increase within the 55-60 CNEL contour; a 2 dBA increase within the 60-65 CNEL contour; a 1 dBA increase within the 65-75 CNEL contour; and any increase over 75 CNEL.

Note that both the County of Orange and the City of Newport Beach standards are applicable to the assessment of impacts within the City of Newport Beach. However, the City of Newport Beach standards are more restrictive and therefore determine the significance of the noise impact.

Proposed Project

Noise impacts for the Proposed Project were calculated using the INM modeling as described in Section 4.6.3, Methods. The numbers of Class A and Class E ADDs for each phase are shown in Table 4.6-8. The departures by aircraft type (fleet mix) are tabulated in Appendix C (Section 6.1.1, Operations, Fleet Mix, Stage Length and Load Factors). The results of the modeling are shown in Table 4.6-9. In the "CNEL Levels" columns, **bold** indicates the CNEL level is equal to or greater than 65, which is used as the noise level when assessing potential impacts. In the "Change in CNEL" columns of the table, a **bold** entry indicates an noise level increase exceeding a significance threshold.

TABLE 4.6-8
PROPOSED PROJECT MILLION ANNUAL PASSENGERS
AND AVERAGE DAILY DEPARTURES

		Proposed Project Phase		
	Existing	**1**	**2**	**3**
MAP	9.17	10.8	11.8	12.5
Average Daily Departures				
Class A	80	85	95	95
Class E	36	60.8	63	72.8
Total	**116**	**145.8**	**158**	**167.8**

MAP: Million Annual Passengers.
Source: *Noise Analysis Technical Report,* Table 19, Landrum & Brown 2014.

TABLE 4.6-9
PROPOSED PROJECT COMMUNITY NOISE EQUIVALENT LEVELS
AND CHANGES IN COMMUNITY NOISE EQUIVALENT LEVELS

CNEL Levels					Change in CNEL Over Existing Conditions			
		Proposed Project Phase				Proposed Project Phase		
NMS*	Existing	1	2	3	NMS*	1	2	3
1S	66.2	**66.6**	**66.9**	**67.1**	1S	0.4	0.7	0.9
2S	65.4	**65.8**	**66.1**	**66.4**	2S	0.4	0.7	**1.0**
3S	64.7	64.7	**65.0**	**65.1**	3S	0	0.3	0.4
4S	57.5	57.8	58.1	58.4	4S	0.3	0.6	0.9
5S	57.3	57.4	57.7	57.9	5S	0.1	0.4	0.6
6S	58.2	58.2	58.5	58.6	6S	0	0.3	0.4
7S	55.8	55.9	56.2	56.4	7S	0.1	0.4	0.6
8N	68.8	**69.5**	**69.9**	**70.1**	8N	0.7	1.1	1.3
9N	51.5	52.3	52.6	52.9	9N	0.8	1.1	1.4
10N	54.1	54.8	55.1	55.3	10N	0.7	1	1.2

CNEL: Community noise Equivalent Level; NMS: Noise monitoring stations.

Bold: In the "CNEL Levels" columns, **bold** indicates the CNEL level is equal to or greater than 65, which is used as the noise level when assessing potential impacts. In the "Change in CNEL" columns, **bold** indicates an increase exceeding a significance threshold.

* 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.

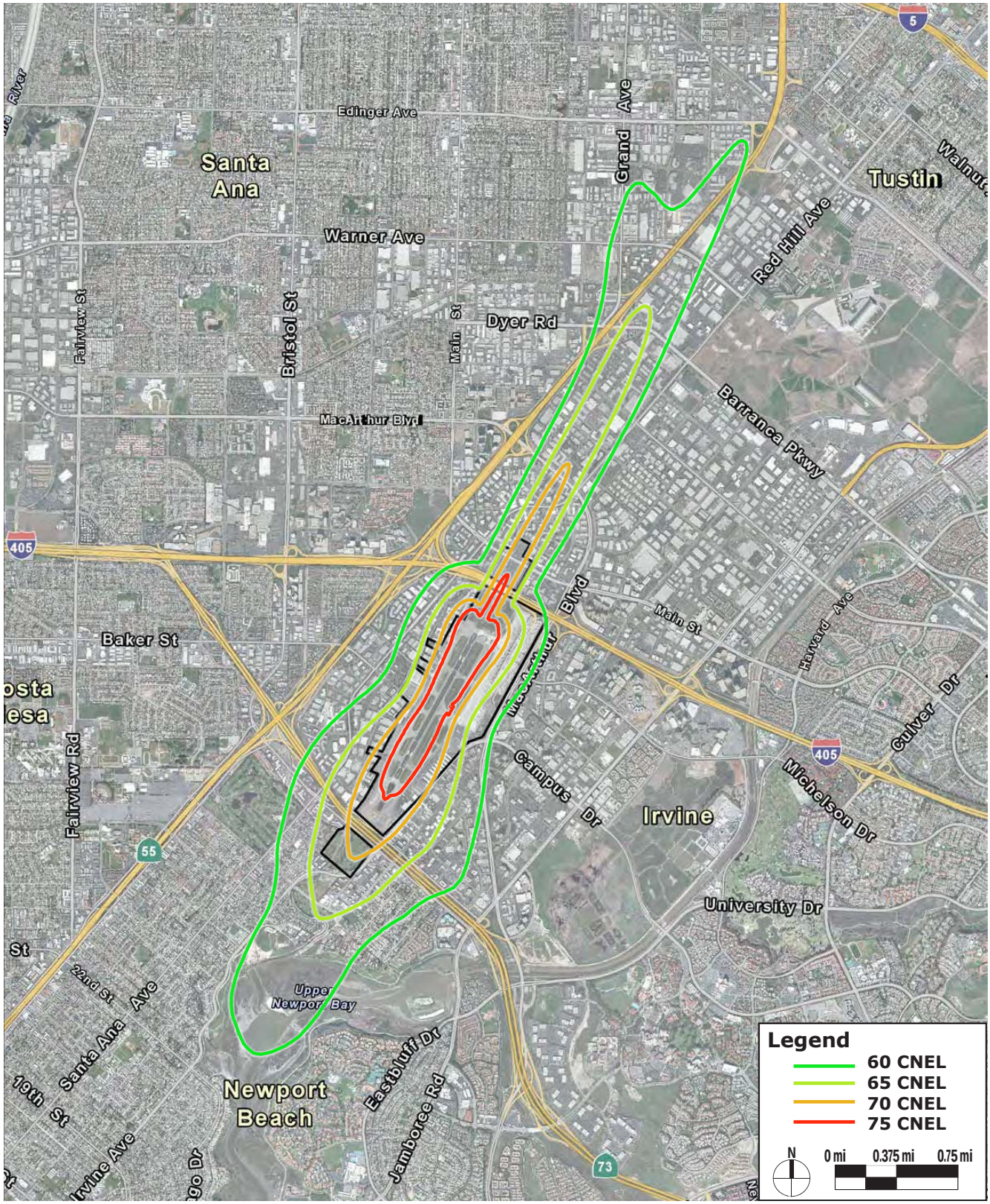
Source: *Noise Analysis Technical Report,* Tables 20 and 21, Landrum & Brown 2014.

Phase 1

The calculated CNEL levels for Phase 1 of the Proposed Project and the change in CNEL compared to the existing conditions are shown in Table 4.6-9. The CNEL contours for Phase 1 are shown in Exhibit 4.6-14. Under Phase 1 conditions, all noise level increases would be less than 1.0 CNEL and there are no NMS in Newport Beach where the noise level would be 75 CNEL or greater. Therefore, there would be no exceedance of the FAA, County of Orange, or City of Newport Beach thresholds.

Phase 2

The calculated CNEL levels for Phase 2 of the Proposed Project and the change in CNEL compared to the existing conditions are shown in Table 4.6-9. The CNEL contours for Phase 2 are shown on Exhibit 4.6-15. Under Phase 2 conditions, all noise level increases would be less than 1.0 CNEL and there are no NMS in Newport Beach where the noise level would be 75 CNEL or greater. Therefore, there would be no exceedance of the FAA, County of Orange, or City of Newport Beach thresholds.



Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

CNEL Contours – Proposed Project Phase 1

Exhibit 4.6-14

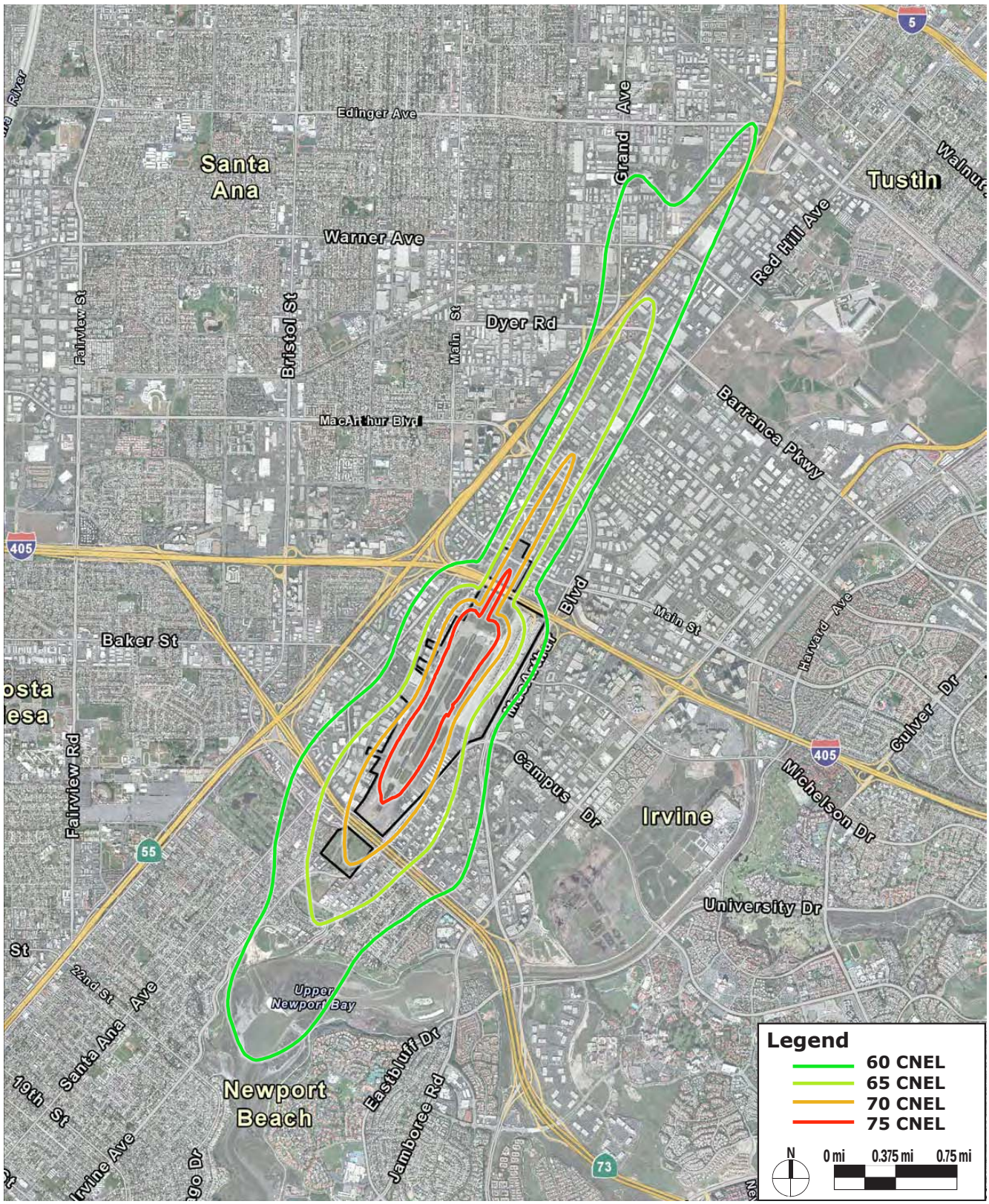
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Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

CNEL Contours – Proposed Project Phase 2

Exhibit 4.6-15

John Wayne Airport Settlement Agreement Amendment

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Phase 3

The calculated CNEL levels for Phase 3 of the Proposed Project and the change in CNEL compared to the existing conditions are shown in Table 4.6-9. The CNEL contours for Phase 3 are shown on Exhibit 4.6-16. Under Phase 3 conditions, all noise level increases would be less than 1.5 CNEL. Therefore, there would be no exceedance of the FAA or County of Orange standards. There would be an increase of 1.0 CNEL at NMS 2S in the Santa Ana Heights community of Newport Beach where the forecasted noise level is 66.4 CNEL. This increase equals the City of Newport Beach significance threshold and would be a significant impact.

Impact Conclusion: *The Proposed Project would have a less than significant impact for all phases for noise increases determined by FAA and County of Orange standards. In accordance with Newport Beach Standards, Phase 3 of the Proposed Project would result in a significant noise impact at NMS 2S in the City of Newport Beach.*

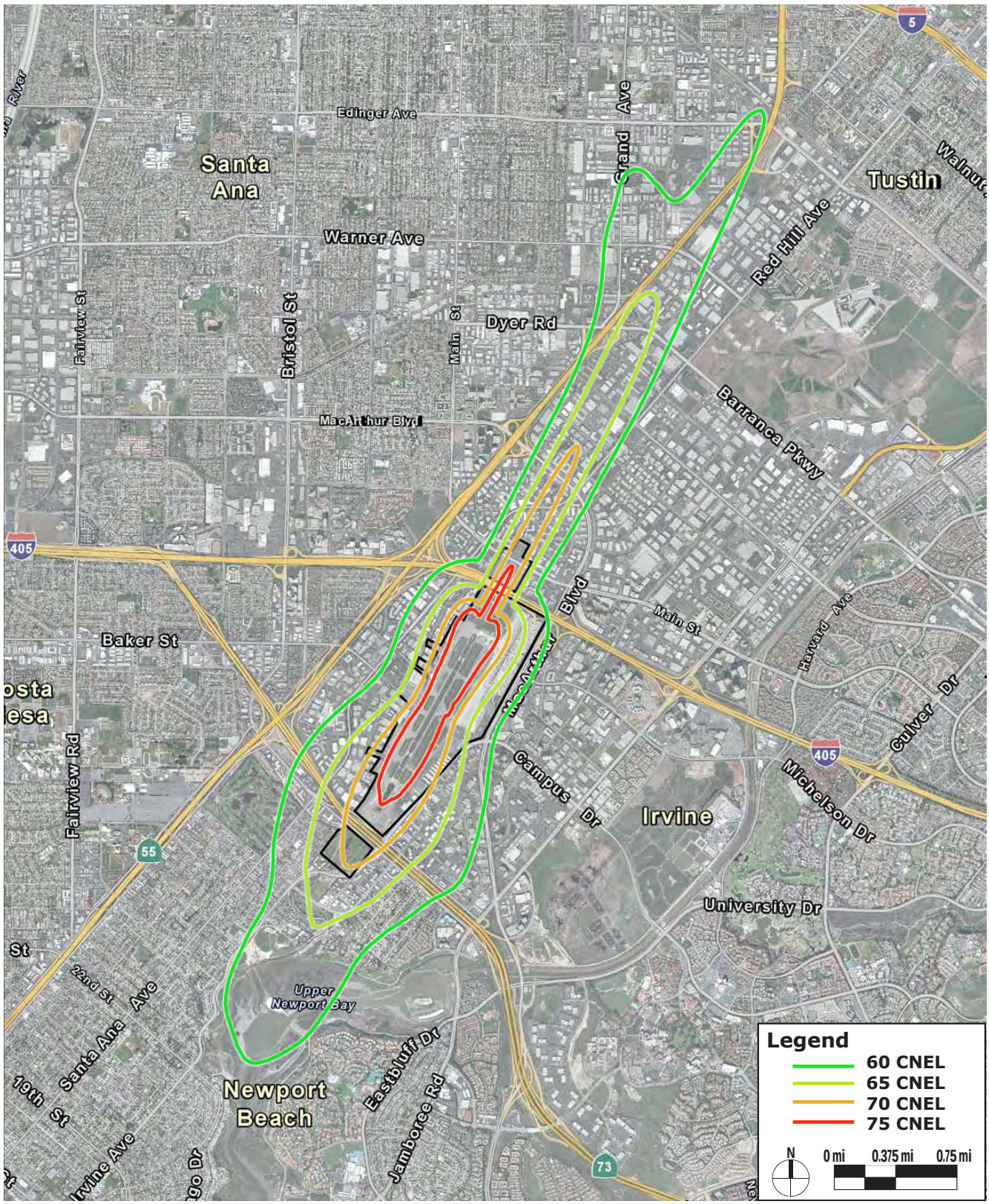
Alternative A

Noise impacts for Alternative A were calculated using the INM modeling as described in Section 4.6.3, Methods. The numbers of Class A and Class E ADDs for each phase are shown in Table 4.6-10. The departures by aircraft type (fleet mix) are tabulated in Appendix C, Table 16. The results of the modeling are shown in Table 4.6-11.

TABLE 4.6-10
ALTERNATIVE A MILLION ANNUAL PASSENGERS
AND AVERAGE DAILY DEPARTURES

	Existing	Alternative A Phase		
		1	2	3
MAP	9.17	10.8	11.4	12.8
Average Daily Departures				
Class A	80	107	120	135
Class E	36	34.9	28.1	30
Total	**116**	**141.9**	**148.1**	**165**

MAP: Million annual passengers.
Source: *Noise Analysis Technical Report,* Table 19, Landrum & Brown 2014.



Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

CNEL Contours – Proposed Project Phase 3

Exhibit 4.6-16

John Wayne Airport Settlement Agreement Amendment

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TABLE 4.6-11
ALTERNATIVE A COMMUNITY NOISE EQUIVALENT LEVELS
AND CHANGES IN COMMUNITY NOISE EQUIVALENT LEVELS

CNEL Levels					Change in CNEL Over Existing Conditions			
NMS*	Existing	Alternative A Phase			NMS*	Alternative A Phase		
		1	2	3		1	2	3
1S	66.2	**66.5**	**66.7**	**67.2**	1S	0.3	0.5	**1**
2S	65.4	**65.7**	**65.9**	**66.4**	2S	0.3	0.5	**1**
3S	64.7	64.8	**65.1**	**65.4**	3S	0.1	0.4	0.7
4S	57.5	57.6	57.8	58.2	4S	0.1	0.3	0.7
5S	57.3	57.4	57.6	58	5S	0.1	0.3	0.7
6S	58.2	58.6	58.9	59.2	6S	0.4	0.7	1
7S	55.8	56.1	56.3	56.7	7S	0.3	0.5	0.9
8N	68.8	**69.4**	**69.5**	**70**	8N	0.6	0.7	1.2
9N	51.5	52.1	52.3	52.7	9N	0.6	0.8	1.2
10N	54.1	54.7	54.9	55.3	10N	0.6	0.8	1.2

CNEL: Community Noise Equivalent Levels; NMS: Noise monitoring stations.

Bold: : In the "CNEL Levels" columns, **bold** indicates the CNEL level is equal to or greater than 65, which is used as the noise level when assessing potential impacts. In the "Change in CNEL" columns, **bold** indicates an increase exceeding a significance threshold.

* 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.

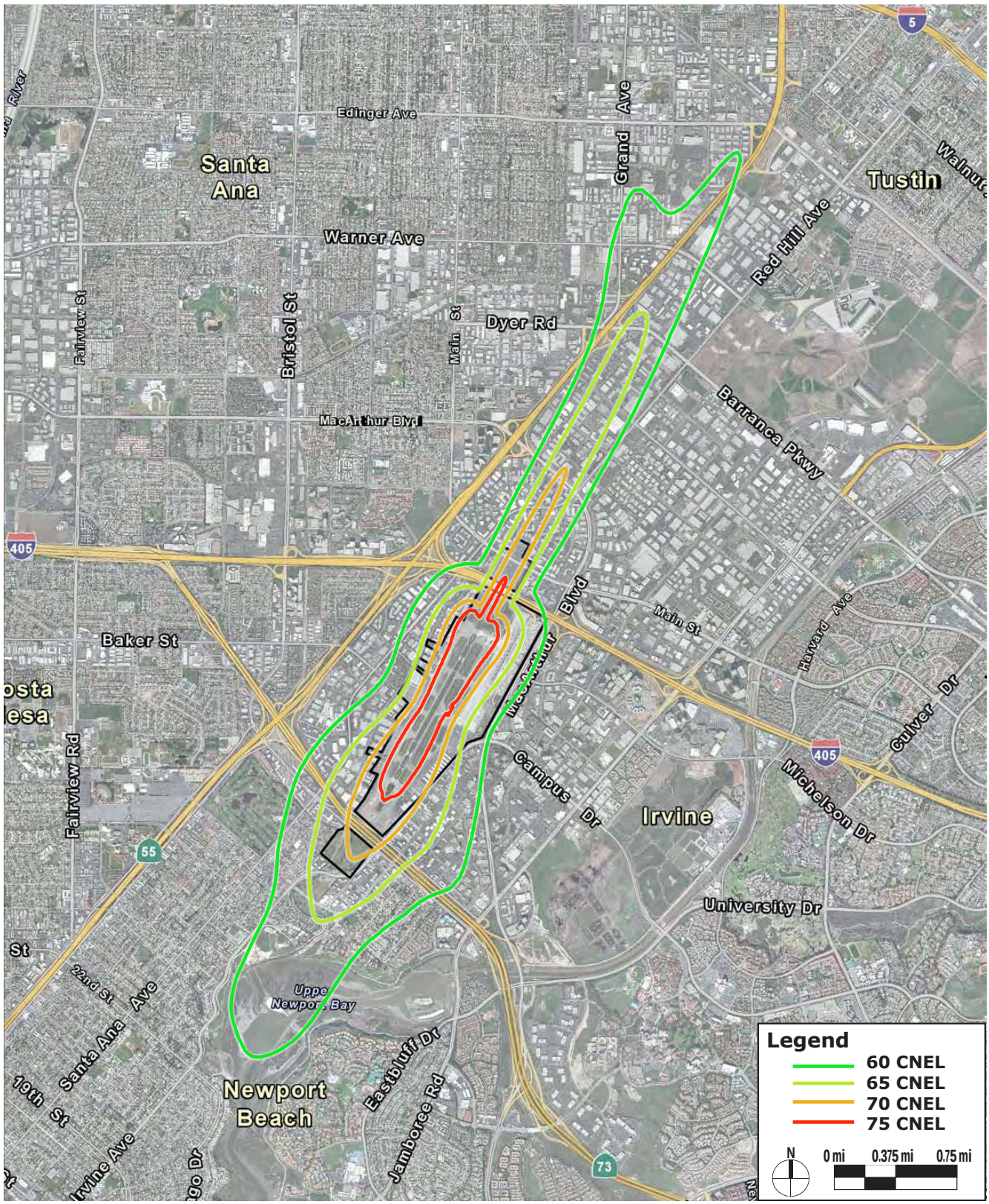
Source: *Noise Analysis Technical Report,* Tables 20 and 21, Landrum & Brown 2014.

Phase 1

The calculated CNEL levels for Alternative A, Phase 1 and the change in CNEL compared to the existing conditions are shown in Table 4.6-11. The CNEL contours for Alternative A, Phase 1 are shown in Exhibit 4.6-17. Under Phase 1 conditions, all noise level increases would be less than 1.0 CNEL and there are no NMS in Newport Beach where the noise level would be 75 CNEL or greater. Therefore, there would be no exceedance of the FAA, County of Orange, or City of Newport Beach thresholds.

Phase 2

The calculated CNEL levels for Alternative A, Phase 2 and the change in CNEL compared to the existing conditions are shown in Table 4.6-11. The CNEL contours for Alternative A, Phase 2 are shown in Exhibit 4.6-18. Under Phase 2 conditions, all noise level increases would be less than 1.0 CNEL and there are no NMS in Newport Beach where the noise level would be 75 CNEL or greater. Therefore, there would be no exceedance of the FAA, County of Orange, or City of Newport Beach thresholds.



Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

CNEL Contours – Alternative A Phase 1

Exhibit 4.6-17

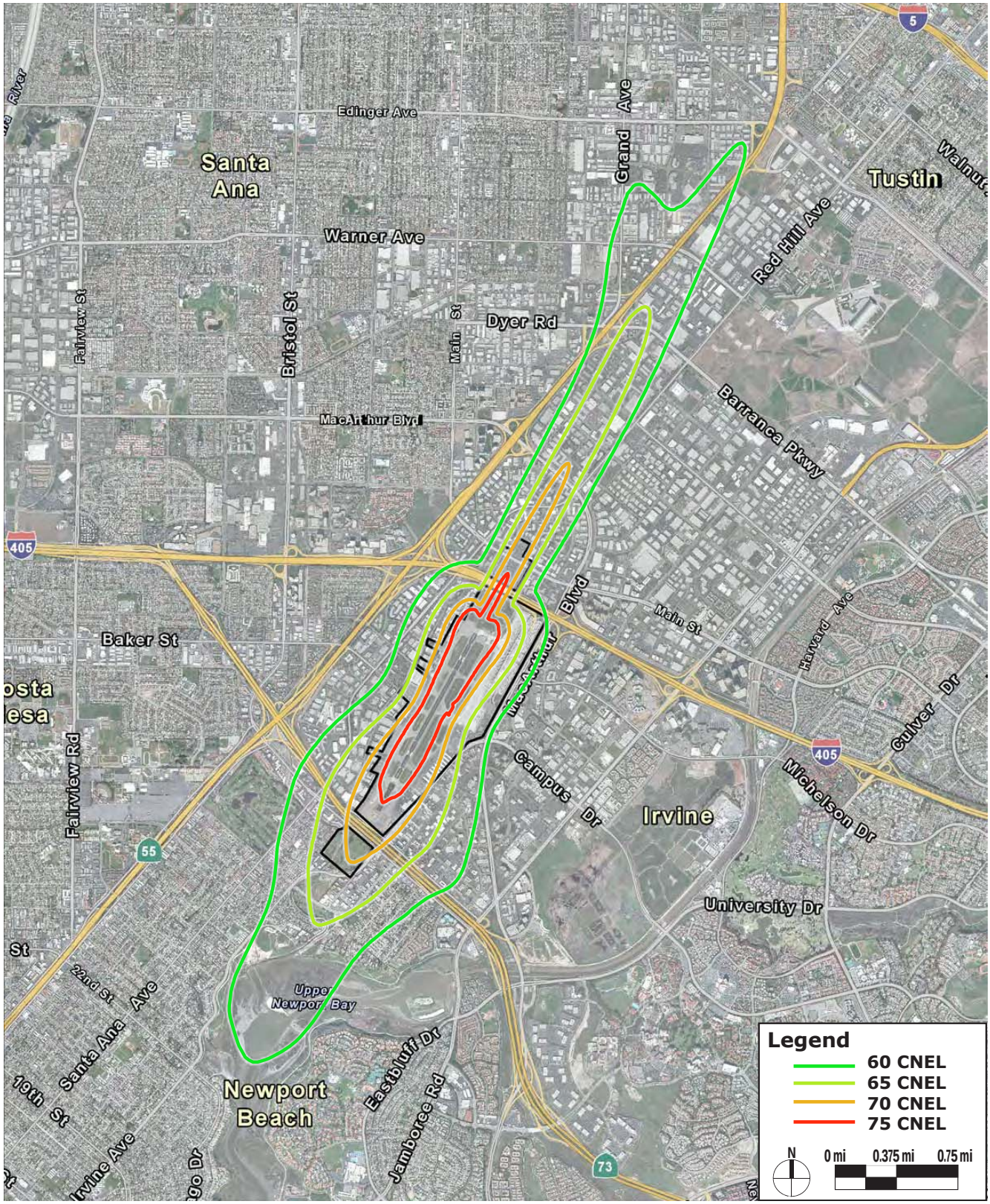
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Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

CNEL Contours – Alternative A Phase 2

Exhibit 4.6-18

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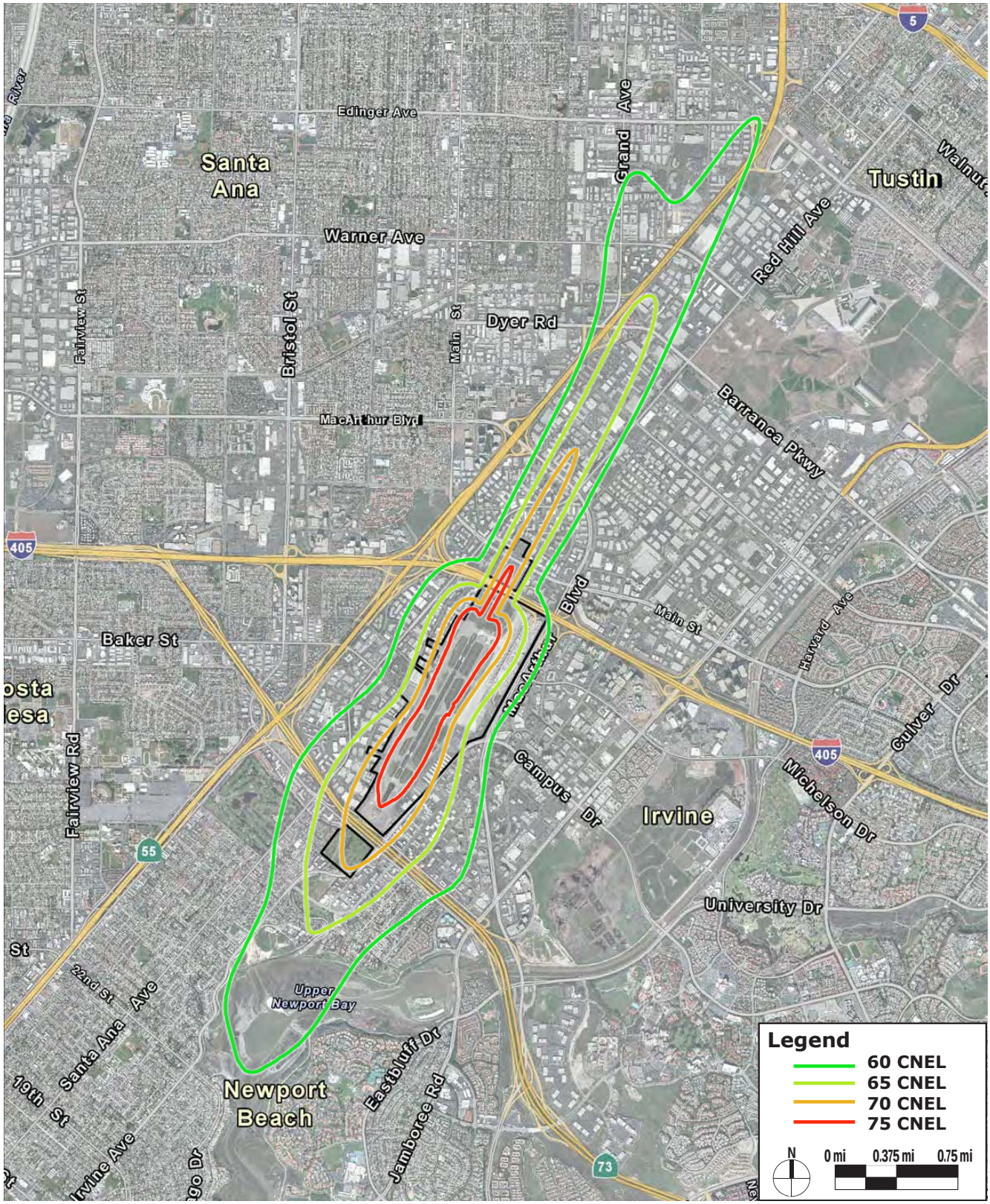
Phase 3

The calculated CNEL levels for Alternative A, Phase 3 and the change in CNEL compared to the existing conditions are shown in Table 4.6-11. The CNEL contours for Alternative A, Phase 3 are shown in Exhibit 4.6-19. Under Phase 3 conditions, all noise level increases would be less than 1.5 CNEL. Therefore, there would be no exceedance of the FAA or County of Orange standards. There would be noise level increases of 1.0 CNEL at NMS 1S and 2S in the Santa Ana Heights community of Newport Beach where the forecasted CNELs are 67.2 and 66.4, respectively; these increases equal the City of Newport Beach significance threshold and would be significant impacts.

Impact Conclusion: *Alternative A would have a less than significant impact for all phases for noise increases determined by FAA and County of Orange standards. In accordance with Newport Beach standards, Phase 3 of Alternative A would result in a significant noise impact at NMS 1S and 2S in the City of Newport Beach.*

Alternative B

Noise impacts for Alternative B were calculated using the INM modeling as described in Section 4.6.3, Methods. The numbers of Class A and Class E ADDs for each phase are shown in Table 4.6-12. The departures by aircraft type (fleet mix) are tabulated in Appendix C (Table 17). The results of the modeling are shown in Table 4.6-13.



Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

CNEL Contours – Alternative A Phase 3

Exhibit 4.6-19

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TABLE 4.6-12
ALTERNATIVE B MILLION ANNUAL PASSENGERS AND AVERAGE DAILY DEPARTURES

	Existing	Alternative B Phase		
		1	2	3
MAP	9.17	10.8	13	15
Average Daily Departures				
Class A	80	100	110	115
Class E	36	43.2	62.2	84.2
Total	**116**	**143.2**	**172.2**	**199.2**

MAP: Million annual passengers.

Source: *Noise Analysis Technical Report,* Table 19, Landrum & Brown 2014.

TABLE 4.6-13
ALTERNATIVE B COMMUNITY NOISE EQUIVALENT LEVELS AND CHANGES IN COMMUNITY NOISE EQUIVALENT LEVELS

CNEL Levels					Change in CNEL Over Existing Conditions			
		Alternative B Phase				Alternative B Phase		
NMS*	Existing	1	2	3	NMS*	1	2	3
1S	66.2	**66.5**	**67.3**	**67.9**	1S	0.3	**1.1**	**1.7**
2S	65.4	**65.8**	**66.5**	**67.1**	2S	0.4	**1.1**	**1.7**
3S	64.7	64.8	**65.3**	**65.7**	3S	0.1	0.6	**1**
4S	57.5	57.7	58.4	59	4S	0.2	0.9	1.5
5S	57.3	57.4	58	58.5	5S	0.1	0.7	1.2
6S	58.2	58.5	58.9	59.2	6S	0.3	0.7	1
7S	55.8	56	56.6	57	7S	0.2	0.8	1.2
8N	68.8	**69.4**	**70.2**	**70.8**	8N	0.6	1.4	**2**
9N	51.5	52.2	53	53.6	9N	0.7	1.5	2.1
10N	54.1	54.7	55.4	56	10N	0.6	1.3	1.9

CNEL: Community Noise Equivalent Level; NMS: Noise monitoring stations.

Bold: : In the "CNEL Levels" columns, **bold** indicates the CNEL level is equal to or greater than 65, which is used as the noise level when assessing potential impacts. In the "Change in CNEL" columns, **bold** indicates an increase exceeding a significance threshold.

* 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: *Noise Analysis Technical Report,* Tables 20 and 21, Landrum & Brown 2014.

Phase 1

The calculated CNEL levels for Alternative B, Phase 1 and the change in CNEL compared to the existing conditions are shown in Table 4.6-13. The CNEL contours for Alternative B, Phase 1 are shown in Exhibit 4.6-20. Under Phase 1 conditions, all noise level increases would be less than 1.0 CNEL and there are no NMS in Newport Beach where the noise level would be 75 CNEL or greater. Therefore, there would be no exceedance of the FAA, County of Orange, or City of Newport Beach thresholds.

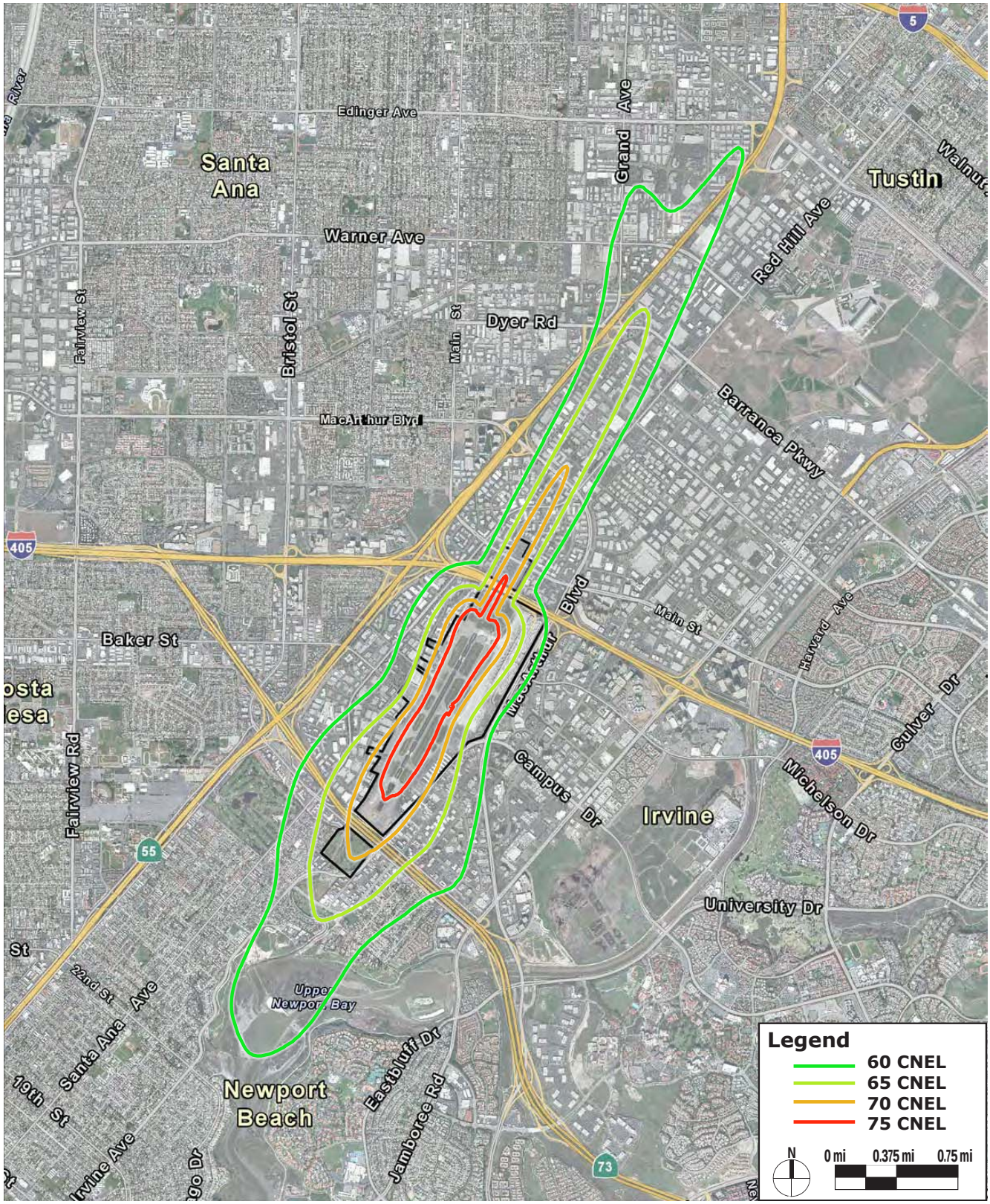
Phase 2

The calculated CNEL levels for Alternative B, Phase 2 and the change in CNEL compared to the existing conditions are shown in Table 4.6-13. The CNEL contours for Alternative B, Phase 2 are shown in Exhibit 4.6-21. Under Phase 2 conditions, all noise level increases would be less than 1.5 CNEL at locations where the CNEL is 65 or greater. Therefore, there would be no exceedance of the FAA or County of Orange standards. There would be noise level increases of 1.1 CNEL at NMS 1S and 2S in the Santa Ana Heights community of Newport Beach where the forecasted CNELs are 67.3 and 66.5, respectively; these increases exceed the City of Newport Beach significance threshold and would be significant impacts.

Phase 3

The calculated CNEL levels for Alternative B, Phase 3 and the change in CNEL compared to the existing conditions are shown in Table 4.6-13. The CNEL contours for Alternative B, Phase 3 are shown in Exhibit 4.6-22. There would be noise level increases of 1.7 CNEL at NMS 1S and 2S in the Santa Ana Heights community of Newport Beach where the forecasted CNELs are 67.9 and 67.1, respectively; these increases exceed the FAA, County of Orange, and Newport Beach significance thresholds and would be significant impacts. There also would be a noise level increase of 1.0 CNEL at NMS 3S in the Santa Ana Heights community of Newport Beach where the forecasted CNEL is 65.7; this increase equals the City of Newport Beach significance threshold and would be a significant impact. There would also be an increase of 2 CNEL as NMS 8N in the City of Irvine where the CNEL is forecasted to be 70.8; however, this would not be a significant impact because there are no sensitive receptors in the vicinity of NMS 8N.

Impact Conclusion: *Alternative B would have a less than significant impact for Phases 1 and 2 for noise increases determined by FAA and County of Orange standards. In accordance with Newport Beach standards, there would be no significant noise impacts for Phase 1; however, significant noise impacts would occur at NMS 1S and 2S for Phase 2. In Phase 3 of Alternative B, significant noise impacts would result at NMS 1S and 2S by FAA, County of Orange, and Newport Beach standards. In addition, NMS 3S would have a significant impact as determined by Newport Beach standards.*



Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

CNEL Contours – Alternative B Phase 1

Exhibit 4.6-20

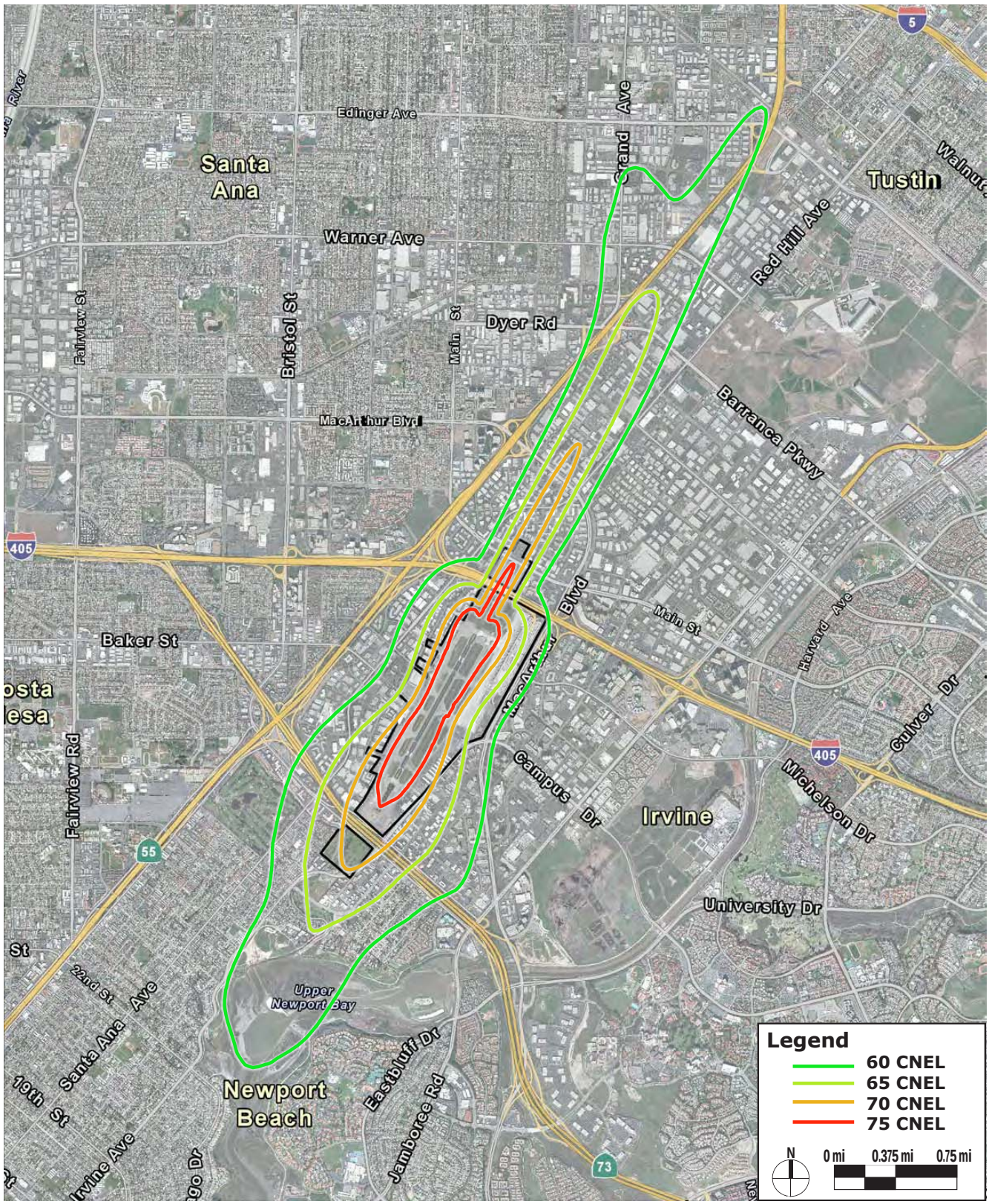
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Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

CNEL Contours – Alternative B Phase 2

Exhibit 4.6-21

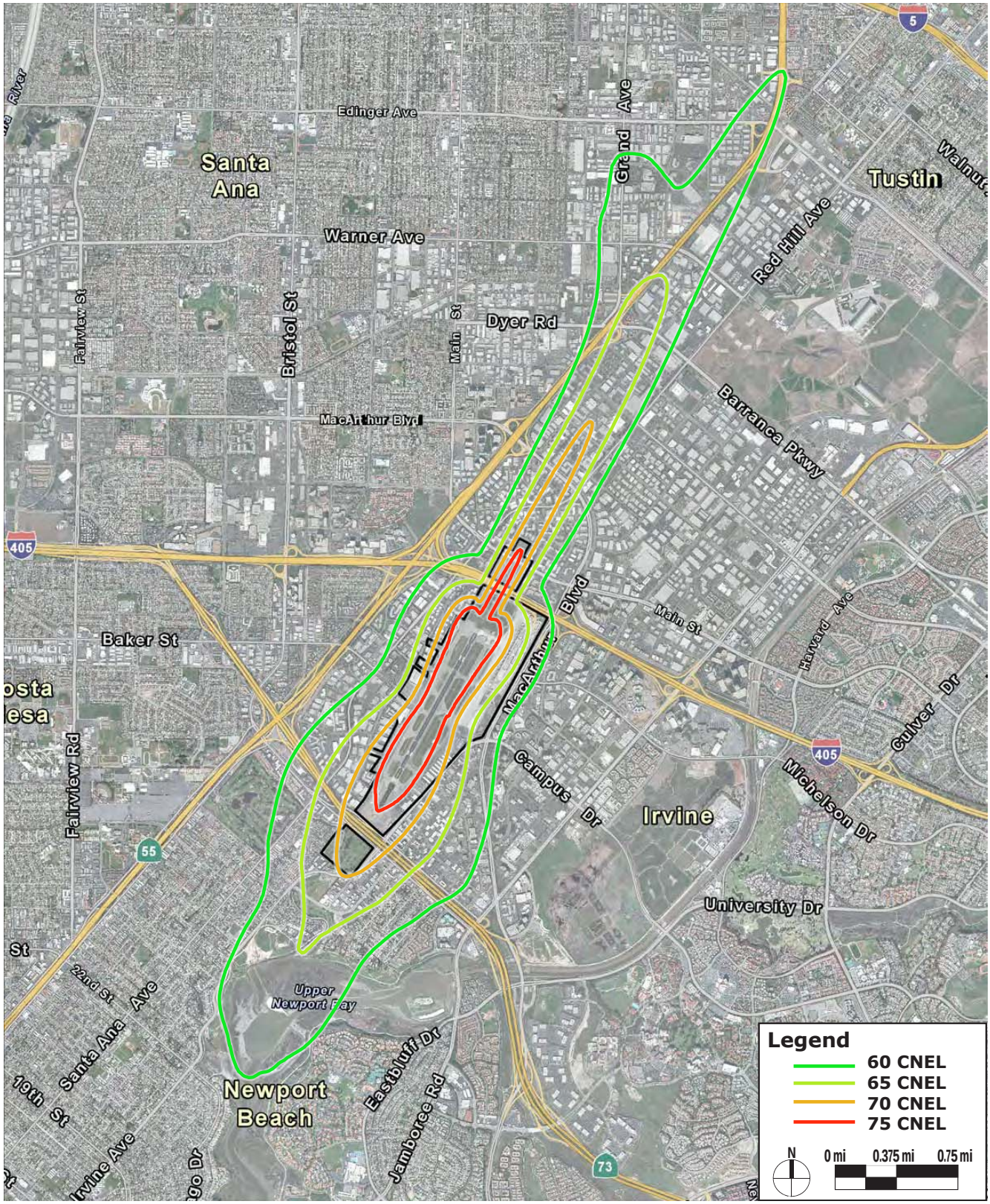
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Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

CNEL Contours – Alternative B Phase 3

Exhibit 4.6-22

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Alternative C

Noise impacts for the Alternative C were calculated using the INM modeling, as described in Section 4.6.3, Methods. The numbers of Class A and Class E ADDs for each phase are shown in Table 4.6-14. The departures by aircraft type (fleet mix) are tabulated in Appendix C (Table 18). The results of the modeling are shown in Table 4.6-15.

TABLE 4.6-14
ALTERNATIVE C MILLION ANNUAL PASSENGERS
AND AVERAGE DAILY DEPARTURES

	Existing	Alternative C Phase		
		1	2	3
MAP	9.17	16.9	16.9	16.9
Average Daily Departures				
Class A	80	228	228	228
Class E	36	0	0	0
Total	**116**	**228**	**228**	**228**

MAP: Million annual passengers.

Source: *Noise Analysis Technical Report,* Table 19, Landrum & Brown 2014.

TABLE 4.6-15
ALTERNATIVE C COMMUNITY NOISE EQUIVALENT LEVELS
AND CHANGES IN COMMUNITY NOISE EQUIVALENT LEVELS

CNEL Levels					Change in CNEL Over Existing Conditions			
		Alternative C Phase				Alternative C Phase		
NMS*	Existing	1	2	3	NMS*	1	2	3
1S	66.2	**68.6**	**71.2**	**71.2**	1S	**2.4**	**5**	**5**
2S	65.4	**67.8**	**70.3**	**70.3**	2S	**2.4**	**4.9**	**4.9**
3S	64.7	**66.7**	**69.1**	**69.1**	3S	**2**	**4.4**	**4.4**
4S	57.5	59.5	61.9	62	4S	2	**4.4**	**4.4**
5S	57.3	59.3	61.7	61.7	5S	2	**4.4**	**4.4**
6S	58.2	60.6	63	63	6S	**2.4**	**4.8**	**4.8**
7S	55.8	58	60.5	60.5	7S	2.2	**4.7**	**4.7**
8N	68.8	**71.2**	**72**	**72**	8N	**2.4**	**3.2**	**3.2**
9N	51.5	54	54.8	54.8	9N	2.5	3.3	3.3
10N	54.1	56.5	57.5	57.5	10N	2.4	3.4	3.4

CNEL: Community Noise Equivalent Level; NMS: Noise monitoring stations.

Bold: : In the "CNEL Levels" columns, **bold** indicates the CNEL level is equal to or greater than 65, which is used as the noise level when assessing potential impacts. In the "Change in CNEL" columns, **bold** indicates an increase exceeding a significance threshold.

* 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.

Note: Though the commercial ADDs stay the same in Phases 2 and 3, the business jet operations increase slightly in Phase 3 and the general aviation propeller operations decrease slightly. This results in slight differences between Phases 2 and 3 noise levels.

Source: *Noise Analysis Technical Report,* Tables 20 and 21, Landrum & Brown 2014.

Phase 1

The calculated CNEL levels for Alternative C, Phase 1 and the change in CNEL compared to the existing conditions are shown in Table 4.6-15. The CNEL contours for Alternative C, Phase 1 are shown on Exhibit 4.6-23. There would be noise level increases of 2.4 CNEL at NMS 1S and 2S and 2.0 CNEL at NMS 3S in the Santa Ana Heights community of Newport Beach where the forecasted CNELs are 68.6, 67.8, and 66.7, respectively; these increases exceed the FAA, County of Orange, and Newport Beach significance thresholds and would be significant impacts. There also would be a noise level increase of 2.4 CNEL at NMS 6S in the City of Newport Beach where the forecasted CNEL is between 60 and 65 CNEL; this increase exceeds the Newport Beach significance threshold of 2.0 and would be a significant impact. Finally, although there would be an increase of 2.4 CNEL at NMS 8N in the City of Irvine where the CNEL is forecasted to be 71.2, this would not be a significant impact because there are no sensitive receptors in the vicinity of NMS 8N.

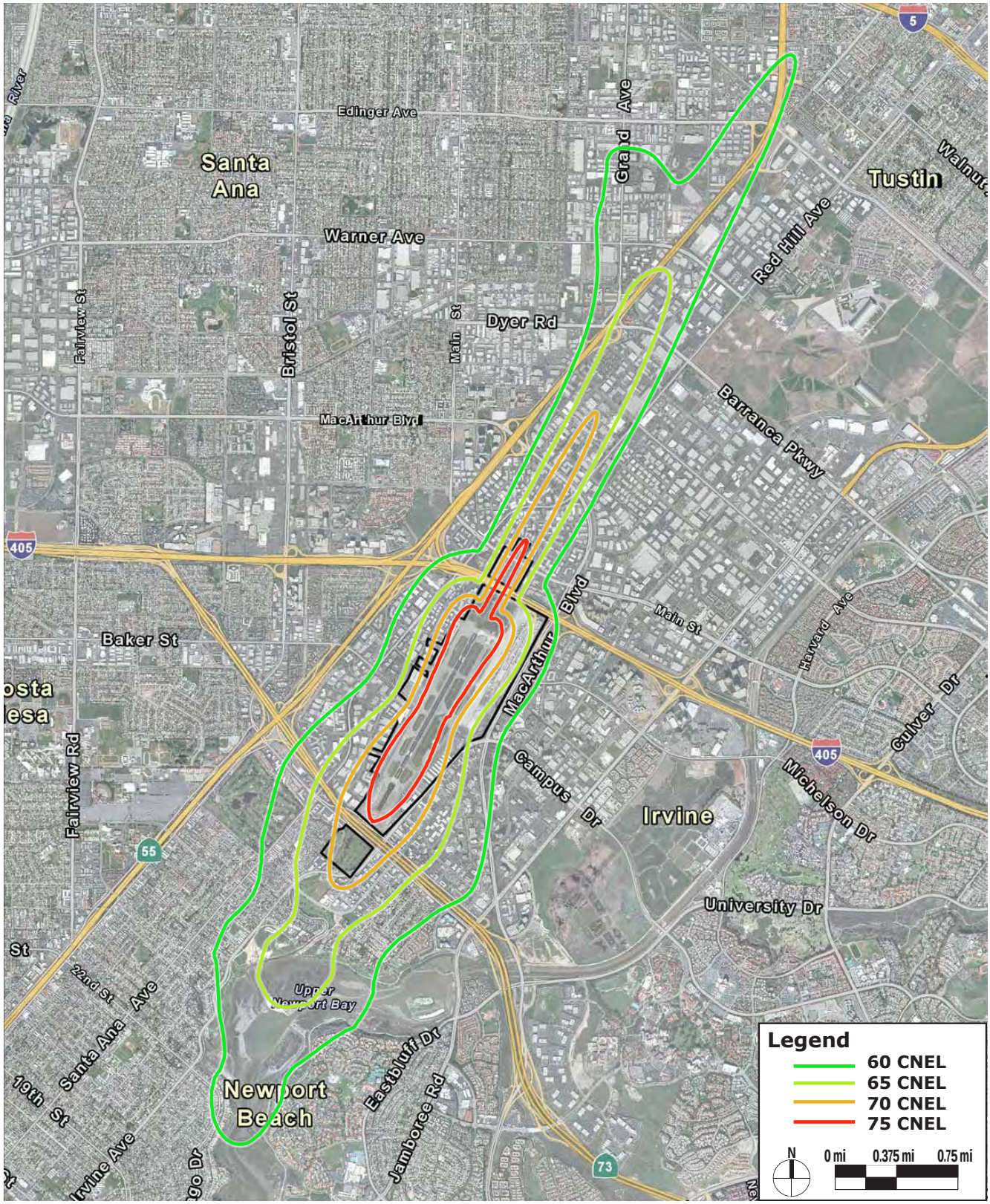
Phases 2 and 3

The calculated CNEL levels for Alternative C, Phases 2 and 3 and the changes in CNEL compared to the existing conditions are shown in Table 4.6-15. The CNEL contours for Alternative C, Phases 2 and 3 are shown in Exhibits 4.6-24 and 4.6-25. There would be noise level increases of more than 1.5 CNEL at NMS 1S, 2S, and 3S in the Santa Ana Heights community of Newport Beach where the forecasted CNELs are greater than 65 CNEL; these increases exceed the FAA, County of Orange, and Newport Beach significance thresholds and would be significant impacts. There also would be noise level increases of more than 3.0 CNEL at NMS 4S, 5S, 6S, and 7S in the City of Newport Beach where the forecasted CNELs are between 60 and 65 CNEL; these increases also exceed the FAA, County of Orange, and Newport Beach significance thresholds and would be significant impacts.

Phases 2 and 3 of Alternative C would result in the introduction of nighttime operations that would likely result in sleep disturbance. Exhibit 4.6-4 presents estimates of the percentage of persons awakened by indoor sound exposure levels. Because removal of the current curfew would result in new nighttime noise events, the upper red (non-habituated) curve in Exhibit 4.6-4 would be used to estimate awakenings in this case. The impact of added nighttime aircraft noise to an environment where there is little or no aircraft noise would be significant.

Finally, although there would be an increase of 3.2 CNEL at NMS 8N in the City of Irvine where the CNEL is forecasted to be 72.0, this would not be a significant impact because there are no sensitive receptors in the vicinity of NMS 8N.

Impact Conclusion: *Phase 1 of Alternative C would result in significant noise impacts at NMS 1S, 2S, and 3S as determined by FAA, County of Orange, and Newport Beach standards. In addition, with Phase 1 there would be a significant impact at NMS 6S based upon the Newport Beach standards. Phases 2 and 3 of Alternative C would result in significant noise impacts at NMS 1S, 2S, 3S, 4S, 5S, 6S, and 7S as determined by FAA, County of Orange, and Newport Beach standards. Phases 2 and 3 of Alternative C would also result in significant noise impact resulting from the introduction of nighttime aircraft noise.*



Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

CNEL Contours – Alternative C Phase 1

Exhibit 4.6-23

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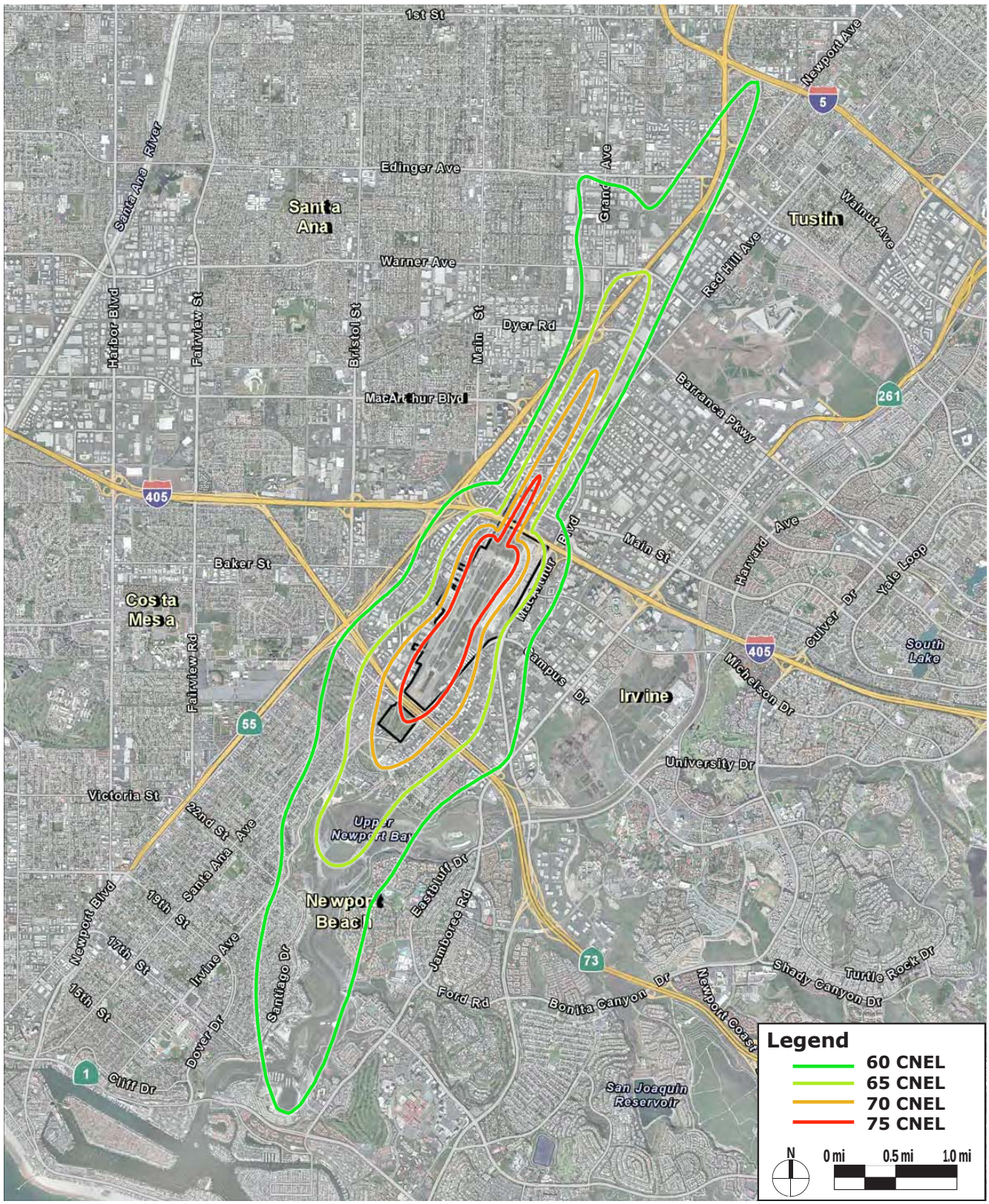
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Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

CNEL Contours – Alternative C Phase 2

Exhibit 4.6-24

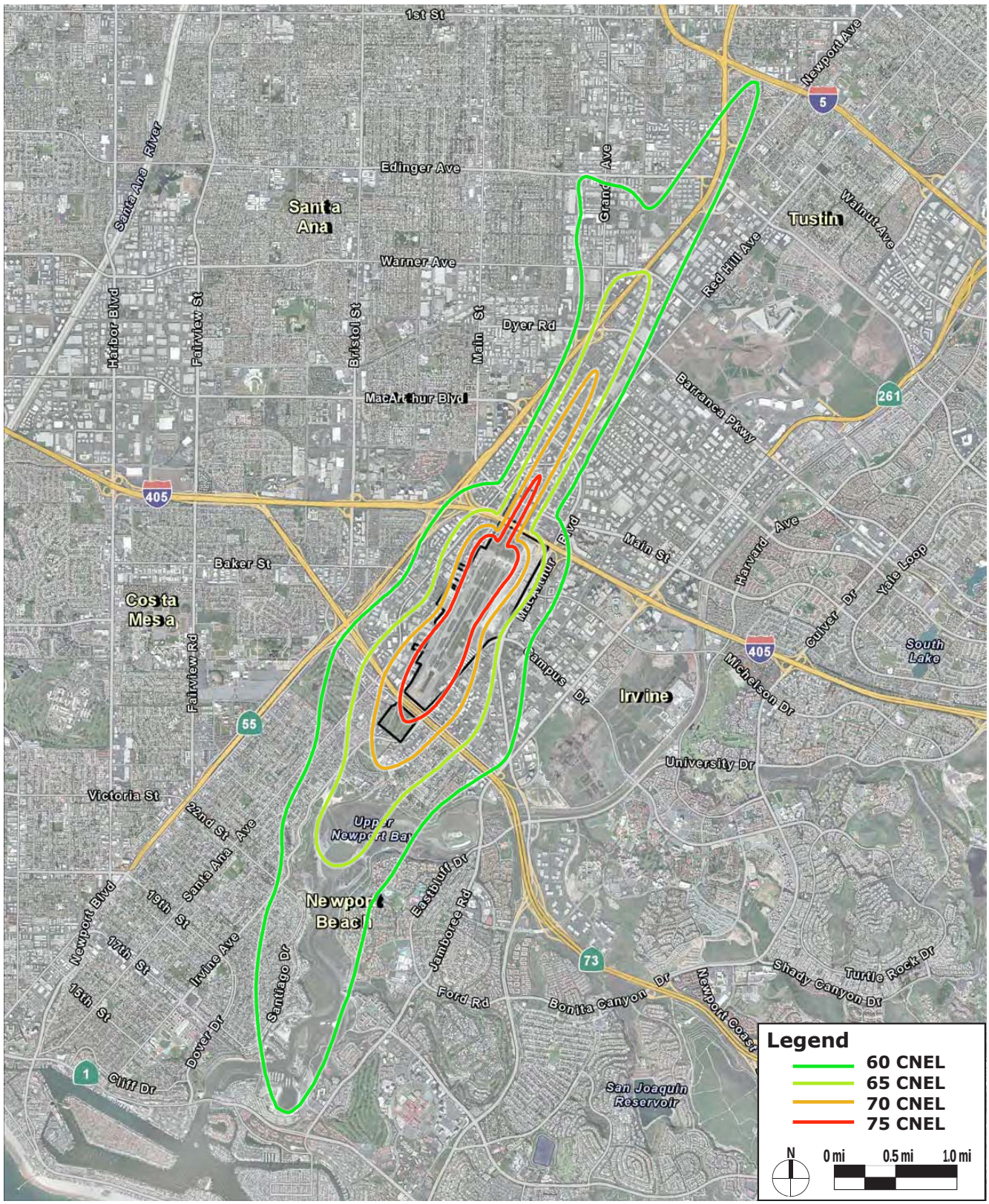
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Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

CNEL Contours – Alternative C Phase 3

Exhibit 4.6-25

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No Project Alternative

Noise impacts for the No Project Alternative were calculated using the INM modeling as described in Section 4.6.3, Methods. The numbers of Class A and Class E ADDs for each phase are shown in Table 4.6-16. The departures by aircraft type (fleet mix) are tabulated in Appendix C (Table 14). The results of the modeling are shown in Table 4.6-17.

TABLE 4.6-16
NO PROJECT ALTERNATIVE MILLION ANNUAL PASSENGERS AND AVERAGE DAILY DEPARTURES

	Existing	No Project Alternative Phases 1, 2, 3
MAP	9.17	10.8
Average Daily Departures		
Class A	80	85
Class E	36	60.8
Total	**116**	**145.8**

MAP: Million annual passengers.

Source: *Noise Analysis Technical Report,* Table 19, Landrum & Brown 2014.

TABLE 4.6-17
NO PROJECT ALTERNATIVE COMMUNITY NOISE EQUIVALENT LEVELS AND CHANGES IN COMMUNITY NOISE EQUIVALENT LEVELS

CNEL Levels			Change in CNEL Over Existing Conditions	
NMS*	Existing	No Project Alternative Phases 1, 2, 3	NMS*	No Project Alternative Phases 1, 2, 3
1S	**66.2**	**66.6**	1S	0.4
2S	**65.4**	**65.8**	2S	0.4
3S	64.7	64.7	3S	0
4S	57.5	57.8	4S	0.3
5S	57.3	57.4	5S	0.1
6S	58.2	58.2	6S	0
7S	55.8	55.9	7S	0.1
8N	**68.8**	**69.5**	8N	0.7
9N	51.5	52.3	9N	0.8
10N	54.1	54.8	10N	0.7

CNEL: Community Noise Equivalent Level; NMS: Noise monitoring stations

Bold: : In the "CNEL Levels" columns, **bold** indicates the CNEL level is equal to or greater than 65, which is used as the noise level when assessing potential impacts. In the "Change in CNEL" columns, **bold** indicates an increase exceeding a significance threshold.

* 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: *Noise Analysis Technical Report,* Tables 20 and 21, Landrum & Brown 2014.

Phases 1 through 3

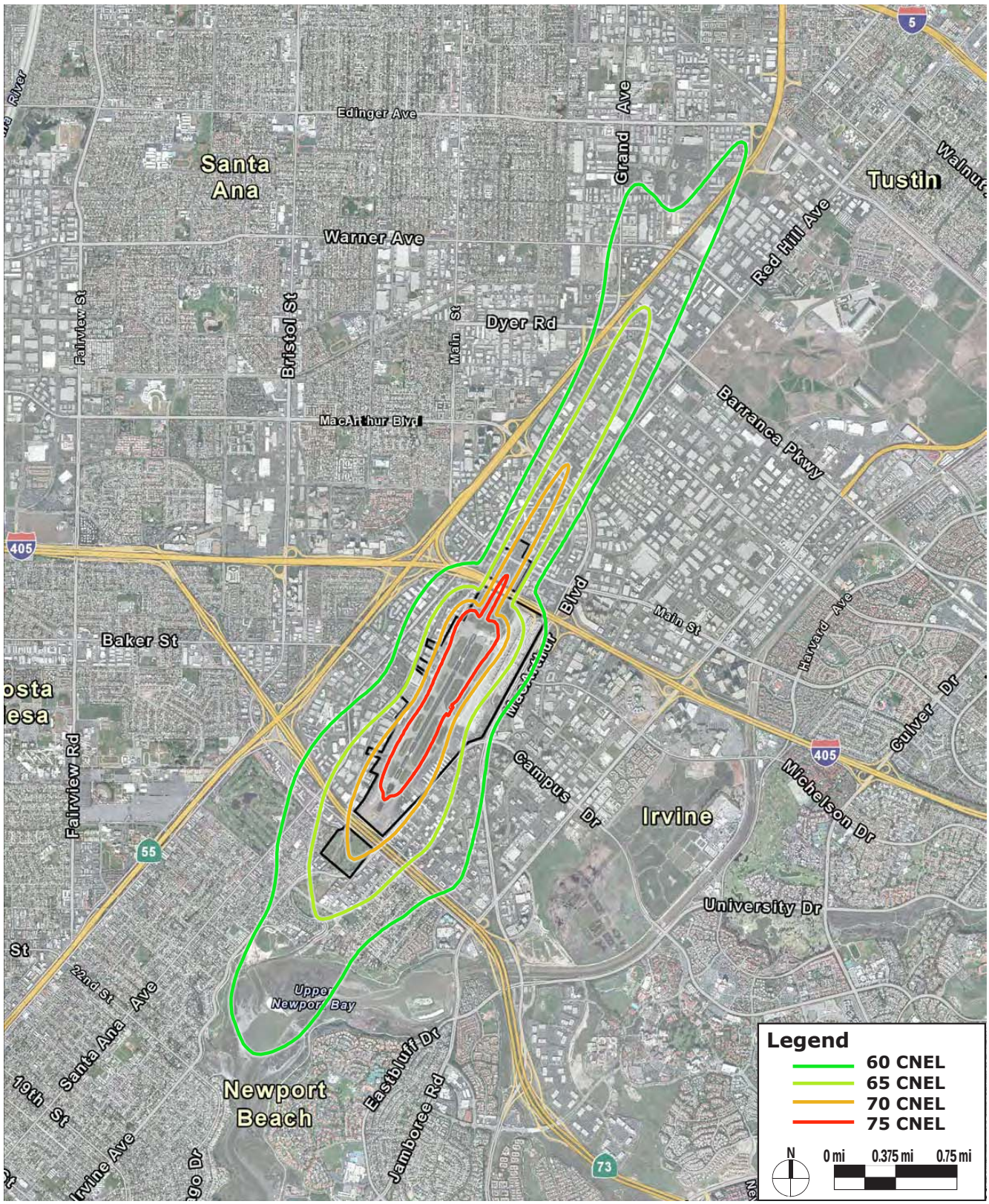
The calculated CNEL levels for Phases 1, 2, and 3 of the No Project Alternative and the change in CNEL compared to the existing conditions are shown in Table 4.6-17. The CNEL contours for the No Project Alternative are shown on Exhibit 4.6-26. All noise level increases would be less than 1.0 CNEL and there are no NMS in Newport Beach where the noise level would be 75 CNEL or greater. Therefore, there would be no exceedance of the FAA, County of Orange, or City of Newport Beach thresholds.

Impact Conclusion: *The No Project Alternative would have a less than significant noise impact relative to the FAA, County of Orange, and Newport Beach standards.*

Threshold 4.6-2 Would the project generate aircraft noise that would increase noise levels at exterior use areas of residences, schools or places of worship to noise levels of 65 CNEL or above, or interior areas of residences, schools, or places of worship to noise levels of 45 CNEL or above?

To preface, elements of the Proposed Project and alternatives and calculation of CNEL data for each phase are described under Threshold 4.6-1. To estimate the number of sensitive receptors that would be impacted, the land uses in the area between the existing CNEL contours and the corresponding CNEL for the Proposed Project and alternatives contours were counted. The results are shown in Tables 4.6-18 through 4.6-22.

In the following analysis of each phase, impacts to uninsulated noise-sensitive receptors that are newly located within the 65 to 70 CNEL contour are determined to be significant. The County's standard also identifies an interior noise standard of 45 dB CNEL. As discussed in Section 4.6.2, the outdoor to indoor noise reduction achieved by typical Southern California wood frame homes is 20 dBA with windows closed. Therefore, this analysis conservatively assumes that the outdoor-to-indoor noise reduction for an uninsulated home does not exceed 20 dBA and the indoor noise level of a sensitive receptor that is newly located within the 65 to 70 CNEL contour may have an interior noise level greater than 45 CNEL, which would potentially be a significant impact.



Source: *Noise Analysis Technical Report*, Landrum & Brown 2014

CNEL Contours – No Project Conditions

Exhibit 4.6-26

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Proposed Project

Table 4.6-18 identifies the number of sensitive receptors that would be impacted by the Proposed Project. This was done by determining the number of noise-sensitive receptors in the area between the existing CNEL contours and the corresponding Proposed Project CNEL contours.

TABLE 4.6-18
PROPOSED PROJECT LAND USES WITHIN COMMUNITY NOISE EQUIVALENT LEVEL CONTOURS

	Total Number						Increase over Existing		
				Proposed Project Phase			Proposed Project Phase		
CNEL	Existing	Master Plan	No Project	1	2	3	1	2	3
Total Number of Residences									
65–70	96	407	127	127	158	173	31	62	77
>70	0	6	0	0	0	0	0	0	0
Number of Insulated Residences									
65–70	38	255	48	48	61	72	10	23	34
>70	0	5	0	0	0	0	0	0	0
Number of Uninsulated Residences									
65–70	58	141	79	79	97	102	21	39	43
>70	0	6	0	0	0	0	0	0	0
Number of Schools									
65–70	0	2	0	0	0	0	0	0	0
>70	0	0	0	0	0	0	0	0	0
Number of Places of Worship									
65–70	2	2	2	2	2	2	0	0	0
>70	1	3	1	1	1	1	0	0	0

CNEL: Community Noise Equivalent Level.
Source: *Noise Analysis Technical Report,* Table 22, Landrum & Brown 2014.

Phase 1

As shown in Table 4.6-18, no additional sensitive receptors would be within the 70 CNEL contour when Phase 1 of the Proposed Project is compared to existing conditions. Increased noise levels would add 31 residences to the area within the 65 to 70 CNEL contour, of which 10 are currently insulated and 21 are not insulated. Exterior noise impacts to outdoor living areas would be significant and interior noise impacts to the uninsulated residences would be potentially significant. No other sensitive receptors would be included in the area added to the 65 to 70 CNEL contour.

Phase 2

As shown in Table 4.6-18, no additional sensitive receptors would be within the 70 CNEL contour when Phase 2 of the Proposed Project is compared to existing conditions. Increased noise levels would add 62 residences to the area within the 65 to 70 CNEL contour, of which 23 are currently insulated and 39 are not insulated. Exterior noise impacts to outdoor living areas would be

significant and interior noise impacts to the uninsulated residences would be potentially significant. No other sensitive receptors would be included in the area added to the 65 to 70 CNEL contour.

Phase 3

As shown in Table 4.6-18, no additional sensitive receptors would be within the 70 CNEL contour when Phase 3 of the Proposed Project is compared to existing conditions. Increased noise levels would add 77 residences to the area within the 65 to 70 CNEL contour, of which 34 are currently insulated and 43 are not insulated. The Orange Coast Free Methodist Church would move from the 70 to 75 CNEL contour to the greater than 75 CNEL contour. Exterior noise impacts to residential outdoor living areas would be significant and, interior noise impacts to the uninsulated residences and the Orange Coast Free Methodist Church would be potentially significant. No other sensitive receptors would be included in the area added to the 65 to 70 CNEL contour.

Impact Conclusion: *The Proposed Project would have a significant exterior noise impact on 31 residences in Phase 1, 62 residences in Phase 2, and 77 residences in Phase 3. The Proposed Project would have a potentially significant interior noise impact on 21 residences in Phase 1, 39 residences in Phase 2, and 43 residences and one place of worship in Phase 3.*

Alternative A

Table 4.6-19 identifies the number of sensitive receptors that would be impacted by Alternative A. This was done by determining the number of noise-sensitive receptors in the area between the existing CNEL contours and the corresponding Alternative A CNEL contours.

Phase 1

As shown in Table 4.6-19, no additional sensitive receptors would be within the 70 CNEL contour when Phase 1 of Alternative A is compared to existing conditions. Increased noise levels would add 22 residences to the area within the 65 to 70 CNEL contour, of which 7 are currently insulated and 15 are not insulated. Exterior noise impacts to the outdoor living areas would be significant and interior noise impacts to the uninsulated residences would be potentially significant. No other sensitive receptors would be included in the area added to the 65 to 70 CNEL contour.

It is noted that the Alternative A, Phase 1 noise impact would be slightly less than the No Project Alternative impact although there would be more Class A ADDs with Phase 1 of Alternative A. The differences result from the distribution of passengers among Class A and Class E aircraft. In Alternative A, Phase 1 there would be fewer Class E operations and also fewer total operations than for the No Project Alternative (compare Tables 4.6-10 and 4.6-16) resulting in a lesser noise impact.

TABLE 4.6-19
ALTERNATIVE A LAND USES WITHIN COMMUNITY NOISE EQUIVALENT LEVEL CONTOURS

	Total Number						Increase over Existing		
				Alternative A Phase			Alternative A Phase		
CNEL	Existing	Master Plan	No Project	1	2	3	1	2	3
Total Number of Residences									
65–70	96	407	127	118	144	181	22	48	85
>70	0	6	0	0	0	0	0	0	0
Number of Insulated Residences									
65–70	38	255	48	45	54	77	7	16	39
>70	0	5	0	0	0	0	0	0	0
Number of Uninsulated Residences									
65-70	58	141	79	73	90	104	15	32	46
>70	0	1	0	0	0	0	0	0	0
Number of Schools									
65–70	0	2	0	0	0	0	0	0	0
>70	0	0	0	0	0	0	0	0	0
Number of Places of Worship									
65–70	2	2	2	2	2	2	0	0	0
>70	1	2	1	1	1	1	0	0	0

CNEL: Community Noise Equivalent Level.

Source: *Noise Analysis Technical Report,* Table 22, Landrum & Brown 2014.

Phase 2

As shown in Table 4.6-19, no additional sensitive receptors would be within the 70 CNEL contour when Phase 2 of Alternative A is compared to existing conditions. Increased noise levels would add 48 residences to the area within the 65 to 70 CNEL contour, of which 16 are currently insulated and 32 are not insulated. Exterior noise impacts to outdoor living areas would be significant and interior noise impacts to the uninsulated residences would be potentially significant. No other sensitive receptors would be included in the area added to the 65 to 70 CNEL contour.

Phase 3

As shown in Table 4.6-19, no additional sensitive receptors would be within the 70 CNEL contour when Phase 3 of Alternative A is compared to existing conditions. Increased noise levels would add 85 residences to the area within the 65 to 70 CNEL contour, of which 39 are currently insulated and 46 are not insulated. . The Orange Coast Free Methodist Church would move from the 70 to 75 CNEL contour to the greater than 75 CNEL contour. Exterior noise impacts to outdoor living areas would be significant and interior noise impacts to the uninsulated residences and the Orange Coast Free Methodist Church would be potentially significant. No other sensitive receptors would be included in the area added to the 65 to 70 CNEL contour.

Impact Conclusion: *Alternative A would have a significant exterior noise impact on 22 residences in Phase 1, 48 residences in Phase 2, and 85 residences in Phase 3. Alternative A would have a potentially significant interior noise impact on 15 residences*

in Phase 1, 32 residences in Phase 2, and 46 residences and one place of worship in Phase 3.

Alternative B

Table 4.6-20 identifies the number of sensitive receptors that would be impacted by Alternative B. This was done by determining the number of noise-sensitive receptors in the area between the existing CNEL contours and the corresponding Alternative B CNEL contours.

TABLE 4.6-20
ALTERNATIVE B LAND USES WITHIN COMMUNITY NOISE EQUIVALENT LEVEL CONTOURS

Total Number							Increase over Existing		
				Alternative B Phase			Alternative B Phase		
CNEL	Existing	Master Plan	No Project	1	2	3	1	2	3
Total Number of Residences									
65–70	96	407	127	121	186	230	25	90	134
>70	0	6	0	0	0	1	0	0	1
Number of Insulated Residences									
65–70	38	255	48	46	81	111	8	43	73
>70	0	5	0	0	0	1	0	0	1
Number of Uninsulated Residences									
65–70	58	141	79	75	105	119	17	47	61
>70	0	1	0	0	0	0	0	0	0
Number of Schools									
65–70	0	2	0	0	0	0	0	0	0
>70	0	0	0	0	0	0	0	0	0
Number of Places of Worship									
65–70	2	2	2	2	2	2	0	0	0
>70	1	3	1	1	1	1	0	0	0

CNEL: Community Noise Equivalent Level.
Source: *Noise Analysis Technical Report,* Table 22, Landrum & Brown 2014.

Phase 1

As shown in Table 4.6-20, no additional sensitive receptors would be within the 70 CNEL contour when Phase 1 of Alternative B is compared to existing conditions. Increased noise levels would add 25 residences to the area within the 65 to 70 CNEL contour, of which 8 are currently insulated and 17 are not insulated. Exterior noise impacts to outdoor living areas would be significant and interior noise impacts to the uninsulated residences would be potentially significant. No other sensitive receptors would be included in the area added to the 65 to 70 CNEL contour.

It is noted that the Alternative B Phase 1 noise impact would be slightly less than the No Project Alternative impact although there would be more Class A ADDs with Phase 1 of Alternative B. The differences result from the distribution of passengers among Class A and Class E aircraft. In Alternative B Phase 1 there would be fewer Class E operations and also fewer total operations

than for the No Project Alternative (compare Tables 4.6-12 and 4.6-16) resulting in a lesser noise impact.

Phase 2

As shown in Table 4.6-20, no sensitive receptors would be within the 70 CNEL contour when Phase 2 of Alternative B is compared to existing conditions. Increased noise levels would add 90 additional residences to the area within the 65 to 70 CNEL contour, of which 43 are currently insulated and 47 are not insulated. The Orange Coast Free Methodist Church would move from the 70 to 75 CNEL contour to the greater than 75 CNEL contour Exterior noise impacts to outdoor living areas would be significant and interior noise impacts to the uninsulated residences and the Orange Coast Free Methodist Church would be potentially significant. No other sensitive receptors would be included in the area added to the 65 to 70 CNEL contour.

Phase 3

As shown in Table 4.6-20, one insulated residence would be newly located in the greater than 70 CNEL contour with implementation of Phase 3 of Alternative B. Increased noise levels would add 134 additional residences to the area within the 65 to 70 CNEL contour, of which 73 are currently insulated and 61 are not insulated. The Orange Coast Free Methodist Church would move from the 70 to 75 CNEL contour to the greater than 75 CNEL contour Exterior noise impacts to outdoor living areas would be significant and interior noise impacts to the uninsulated residences, the one insulated residence newly located in the greater than 70 CNEL contour, and the Orange Coast Free Methodist Church would be potentially significant. No other sensitive receptors would be included in the area added to the 65 to 70 CNEL contour.

Impact Conclusion: *Alternative B would have a significant exterior noise impact on 25 residences in Phase 1, 90 residences in Phase 2, and 135 residences in Phase 3. Alternative B would have a potentially significant interior noise impact on 17 residences in Phase 1, 47 residences and one place of worship in Phase 2, and 62 residences and one place of worship in Phase 3.*

Alternative C

Table 4.6-21 identifies the number of sensitive receptors that would be impacted by Alternative A. This was done by determining the number of noise-sensitive receptors in the area between the existing CNEL contours and the corresponding Alternative C CNEL contours.

TABLE 4.6-21
ALTERNATIVE C LAND USES WITHIN COMMUNITY NOISE EQUIVALENT LEVEL CONTOURS

	Total Number						Increase over Existing		
				Alternative C Phase			Alternative C Phase		
CNEL	Existing	Master Plan	No Project	1	2	3	1	2	3
Total Number of Residences									
65-70	96	407	127	345	870	869	249	774	773
>70	0	6	0	6	92	92	6	92	92
Number of Insulated Residences									
65-70	38	255	48	203	387	387	165	349	349
>70	0	5	0	4	38	38	4	38	38
Number of Uninsulated Residences Within 1985 AIP									
65-70	58	141	79	141	120	120	83	62	62
>70	0	1	0	2	54	54	2	54	54
Number of Uninsulated Residences Outside 1985 AIP									
65-70	0	11	1	1	363	362	1	363	362
>70	0	0	0	0	0	0	0	0	0
Number of Schools/Educational Facilities									
65-70	0	0	0	3	3	3	3	3	3
>70	0	0	0	0	0	0	0	0	0
Number of Places of Worship									
65-70	2	2	2	1	3	3	-1[a]	1	1
>70	1	3	1	2	3	3	1	2	2

CNEL: Community Noise Equivalent Level; AIP: Santa Ana Heights Acoustical Insulation Program .

a – There is an impact to one church not shown in net numbers because one church moves from the 65 CNEL contour to the 70 CNEL contour.

b - There are impacts to two places of worship not shown in net numbers because two places of worship move from the 65 CNEL contour to the 70 CNEL contour.

Source: *Noise Analysis Technical Report,* Table 22, Landrum & Brown 2014.

Phase 1

As shown in Table 4.6-21, six residences would be newly located in the greater than 70 CNEL contour with implementation of Phase 1 of Alternative C, of which four are currently insulated and two are not insulated. The four insulated residences were within the 65 to 70 CNEL contour when the 1985 Santa Ana Heights Acoustical Insulation Program ("AIP") was implemented and may not be adequately insulated for the increased noise level. Increased noise levels would add 249 additional residences to the area within the 65 to 70 CNEL contour, of which 165 are currently insulated and 84 are not insulated. One of the uninsulated residences is located outside the 1985 Master Plan area where the 1985 AIP was implemented.

Two schools (Newport Montessori, and Tutor Time Child Care/Learning Center) and the Peter & Mary Muth Interpretive Center (an educational facility), would be within the expanded 65 to 70 CNEL contour. Additionally, one place of worship, the Berean Community Church, would be within the expanded 70 to 75 CNEL contour. The Orange Coast Free Methodist Church would move from the 70 to 75 CNEL contour to the greater than 75 CNEL contour.

Exterior noise impacts to the outdoor living areas of the additional residences in the 65 to 70 CNEL and greater than 70 CNEL contours and the Interpretive Center would be significant. As discussed in Section 4.5, Land Use, the exterior areas for the two schools and churches would not meet the definition of "outdoor living areas" where an exterior noise level of less than 65 decibels standard is recommended. Therefore, Alternative C would not result in an impact based on the exterior noise standard for the schools or places of worship. The increase in interior noise levels in habitable areas for the above mentioned sensitive receptors (uninsulated residences added to the 65 to 70 and greater than 70 CNEL contours, insulated residences newly located in the greater than 70 CNEL contour, schools, interpretive center, and places of worship) would be potentially significant.

Phase 2

As shown in Table 4.6-21, 92 residences would be located in the greater than 70 CNEL contour with implementation of Phase 2 of Alternative C, of which 38 are currently insulated and 54 are not insulated. Of the insulated residences in the greater than 70 CNEL contour, 33 were within the 65 to 70 CNEL contour when the 1985 AIP was implemented and may not be adequately insulated for the increased noise level. Increased noise levels would add 774 additional residences to the area within the 65 to 70 CNEL contour, of which 349 are currently insulated and 425 are not insulated.

The impacts to the schools/educational facilities (Newport Montessori, and Tutor Time Child Care/Learning Center and the Peter & Mary Muth Interpretive Center) would be the same as discussed above for Phase 1. However, three place of worship would be newly within the expanded 65 to 70 CNEL contour (Disciple Church, Grace Fellowship Church, St. Mark Orthodox Church of Irvine), and two places of worship (Berean Community Church and Islamic Educational Center of Orange County) would move from the 65 to 70 CNEL contour to the expanded 70 to 75 CNEL contour. The Orange Coast Free Methodist Church would move from the 70 to 75 CNEL contour to the greater than 75 CNEL contour.

Exterior noise impacts to the outdoor living areas of the residences added to the 65 to 70 CNEL and greater than 70 CNELcontours and to the Interpretive Center would be a significant impact. The increase in interior noise levels in habitable areas for the uninsulated residences added to the 65 to 70 and greater than 70 CNEL contours, the 33 insulated residences that were in within the 65 to 70 CNEL contour when the 1985 AIP was implemented and are now within the greater than 70 CNEL contour, the schools/educational facilities, and places of worship would all be potentially significant.

Phase 3

As shown in Table 4.6-21, 92 residences would be located in the greater than 70 CNEL contour with implementation of Phase 3 of Alternative C, of which 38 are currently insulated and 54 are not insulated. Of the insulated residences in the greater than 70 CNEL contour, 33 were in within the 65 to 70 CNEL contour when the 1985 AIP was implemented and may not be adequately insulated for the increased noise level. Increased noise levels would add 773 additional residences to the area within the 65 to 70 CNEL contour, of which 349 are currently insulated and 424 are not insulated.

The impacts to the schools/educational facilities (Newport Montessori, and Tutor Time Child Care/Learning Center and the Peter & Mary Muth Interpretive Center) would be the same as discussed above for Phase 1. However, three place of worship would be newly within the

expanded 65 to 70 CNEL contour (Disciple Church, Grace Fellowship Church, St. Mark Orthodox Church of Irvine), and two places of worship (Berean Community Church and Islamic Educational Center of Orange County) would move from the 65 to 70 CNEL contour to the expanded 70 to 75 CNEL contour. The Orange Coast Free Methodist Church would move from the 70 to 75 CNEL contour to the greater than 75 CNEL contour.

Exterior noise impacts to the outdoor living areas of the residences added to the 65 to 70 CNEL and greater than 70 CNEL contours and to the Interpretive Center would be a significant impact. The increase in interior noise levels in habitable areas for the uninsulated residences added to the 65 to 70 and greater than 70 CNEL contours, the 33 insulated residences that were in within the 65 to 70 CNEL contour when the 1985 AIP was implemented and are now within the greater than 70 CNEL contour, the schools/educational facilities, and places of worship would all be potentially significant.

Impact Conclusion: *Alternative C would have a significant exterior noise impact on 255 residences in Phase 1, 866 residences in Phase 2, and 865 residences in Phase 3. Alternative C would have a potentially significant interior noise impact on 87 uninsulated residences, 3 schools/educational facilities, and 2 places of worship in Phase 1; 479 uninsulated residences, 3 schools/educational facilities, and 5 places of worship in Phase 2; and 478 uninsulated residences, 3 schools/educational facilities, and 5 places of worship in Phase 3. Additionally, Alternative C would have and potentially significant interior noise impact to 4 insulated residences in Phase 1 and 33 insulated residences in Phases 2 and 3.*

No Project Alternative

Table 4.6-22 identifies the number of sensitive receptors that would be impacted by the No Project Alternative. This was done by determining the number of noise-sensitive receptors in the area between the existing CNEL contours and the corresponding No Project Alternative CNEL contours.

TABLE 4.6-22
NO PROJECT ALTERNATIVE LAND USES
WITHIN COMMUNITY NOISE EQUIVALENT LEVEL CONTOURS

Total Number				Increase over Existing
				No Project
CNEL	Existing	Master Plan	No Project	All Phases
Total Number of Residences				
65–70	96	407	127	31
>70	0	6	0	0
Number of Insulated Residences				
65–70	38	255	48	10
>70	0	5	0	0
Number of Uninsulated Residences				
65–70	58	141	79	21
>70	0	1	0	0
Number of Schools				
65–70	0	2	0	0
>70	0	0	0	0
Number of Places of Worship				
65–70	2	2	2	0
>70	1	2	1	0

CNEL: Community Noise Equivalent Level.

Source: *Noise Analysis Technical Report,* Table 22, Landrum & Brown 2014.

Phases 1 through 3

As shown in Table 4.6-22, no additional sensitive receptors would be within the 70 CNEL contour when the No Project Alternative is compared to existing conditions. Increased noise levels would add 31 residences to the area within the 65 to 70 CNEL contour, of which 10 are currently insulated and 21 are not insulated. Exterior noise impacts to the outdoor living areas would be significant and interior noise impacts to the uninsulated residences would be potentially significant. No other sensitive receptors would be included in the area added to the 65 to 70 CNEL contour.

Impact Conclusion: *The No Project Alternative would have a significant exterior noise impact on 31 additional residences and a potentially significant interior noise impact on 21 residences.*

Threshold 4.6-3 **Would the project generate traffic noise that would result in:**

- **A noise increase of 1.5 CNEL or more at a sensitive receptor where the existing exposure is 65 CNEL or above, or**
- **A noise increase of 3.0 CNEL or more at a sensitive receptor where the existing exposure is between 60 and 65 CNEL, or**
- **A noise increase of 5.0 CNEL or more at a sensitive receptor where the existing exposure is between 45 and 60 CNEL, or**

- **A noise increase at a sensitive receptor in the City of Newport Beach of any magnitude if the noise level is 75 CNEL or greater or**
- **A noise increase at a sensitive receptor in the City of Newport Beach of 1.0 dB or greater where the noise level is less than 75 CNEL, which is the most restrictive noise increase threshold applied by the City of Newport Beach (see Table 4.6-3).**

Increases in CNEL traffic noise levels along roadways in the vicinity of the Airport were calculated using the methods described in Section 4.6.3 and traffic data provided in the Project traffic impact analysis (Section 4.8). Traffic volume data were developed for 177 road segments and each segment was identified as having or not having adjacent noise-sensitive receptors. Traffic noise level increases were projected for four analysis time frames: existing, 2016 through 2020; 2021 through 2025; and 2026 through 2030; corresponding to Phases 1, 2, and 3 for the Proposed Project and the alternatives. The data and results are tabulated in Appendix C to the *Noise Analysis Technical Report,* Appendix C of this EIR).

Proposed Project

Phases 1, 2, and 3

The traffic noise analysis for the Proposed Project shows that there are no roadways with existing adjacent noise-sensitive uses that are projected to experience a traffic noise level increase of 1.5 dB or greater. In Newport Beach, there are no roadways in the Project area with adjacent noise-sensitive uses with traffic volumes that could generate a noise level approaching 75 dBA in a private yard area where the noise standards are applicable. There also are no roadways in Newport Beach with existing adjacent noise-sensitive uses that are projected to experience a traffic noise level increase of 1.0 dB or greater.

Impact Conclusion: *The Proposed Project would have less than significant traffic noise impacts.*

Alternative A

Phases 1, 2, and 3

The traffic noise analysis for Alternative A shows that there are no roadways with existing adjacent noise sensitive uses that are projected to experience a traffic noise level increase of 1.5 dB or greater. In Newport Beach, there are no roadways in the Project area with adjacent noise sensitive uses with traffic volumes that could generate a noise level approaching 75 dBA in a private yard area where the noise standards are applicable. There also are no roadways in Newport Beach with existing adjacent noise sensitive uses that are projected to experience a traffic noise level increase of 1.0 dB or greater.

Impact Conclusion: *Alternative A would have less than significant traffic noise impacts.*

Alternative B

Phases 1, 2, and 3

The traffic noise analysis for Alternative B shows that there are no roadways with existing adjacent noise sensitive uses that are projected to experience a traffic noise level increase of 1.5 dB or greater. In Newport Beach, there are no roadways in the Project area with adjacent noise sensitive uses with traffic volumes that could generate a noise level approaching 75 dBA in a

private yard area where the noise standards are applicable. There also are no roadways in Newport Beach with existing adjacent noise sensitive uses that are projected to experience a traffic noise level increase of 1.0 dB or greater.

Impact Conclusion: *Alternative B would have less than significant traffic noise impacts.*

Alternative C

Phases 1, 2, and 3

The traffic noise analysis for Alternative C shows that there are no roadways with existing adjacent noise sensitive uses that are projected to experience a traffic noise level increase of 1.5 dB or greater. In Newport Beach, there are no roadways in the Project area with adjacent noise sensitive uses with traffic volumes that could generate a noise level approaching 75 dBA in a private yard area where the noise standards are applicable. There also are no roadways in Newport Beach with existing adjacent noise sensitive uses that are projected to experience a traffic noise level increase of 1.0 dB or greater.

Impact Conclusion: *Alternative C would have less than significant traffic noise impacts.*

No Project Alternative

Phases 1, 2, and 3

The traffic noise analysis for the No Project Alternative shows that there are no roadways with existing adjacent noise sensitive uses that are projected to experience a traffic noise level increase of 1.5 dB or greater. In Newport Beach, there are no roadways in the Project area with adjacent noise sensitive uses with traffic volumes that could generate a noise level approaching 75 dBA in a private yard area where the noise standards are applicable. There also are no roadways in Newport Beach with existing adjacent noise sensitive uses that are projected to experience a traffic noise level increase of 1.0 dB or greater.

Impact Conclusion: *The No Project Alternative would have less than significant traffic noise impacts.*

Threshold 4.6-4 Would the project expose persons to or generate excessive groundborne vibration or groundborne noise levels?

Proposed Project and All Alternatives

In the same way that sound is transmitted by vibrating air, vibrations can also be transmitted through the ground. It takes much more energy to get the ground vibrating and humans are much less sensitive to ground-borne vibrations than to noise.

One might suspect that the heavy aircraft traveling down the runway at high speed during takeoff would be a source of vibration. However, the runway surface is relatively smooth and the aircraft include large tires and shock absorbing mechanisms that absorb and minimize vibration generation. Further, as the aircraft travels down the runway it is effectively getting lighter and lighter and less able to cause the ground to vibrate. The largest potential vibration source associated with typical airport operations is a landing aircraft. From experience, it is known that while many landings are very smooth, there are occasional landings with considerable impacts at touchdown that could be expected to result in significant vibration levels. However, there is

no evidence that this is occurring at John Wayne Airport. The most impacted areas would be those located closest to the touch-down point on the runway. The Airport has not received any complaints or even any indication that vibration from such events is even noticeable outside of the Airport boundaries.

Heavier airplanes are able to generate higher vibration levels than lighter airplanes. However, maximum airplane weights are limited by the runway construction and length. The Proposed Settlement Agreement Amendment does not include any physical changes to the Airport or runway that would allow or expect to result in heavier aircraft using the Airport. Any such changes would require the assessment of potential impacts, including groundborne vibration, as required by the California Environmental Quality Act. Because groundborne vibration has not been identified as even being noticeable outside of the Airport property and no part of the Project would change the vibration generation potential of the Airport, the Project would not result in excessive groundborne vibration and the impact would be less than significant.

At high levels, airborne noise can induce structural vibrations. At its lowest levels, airborne noise induced vibration causes annoyance due to secondary vibrations generating noise, objects within the dwelling such as hanging pictures, dishes, plaques or bric-a-brac rattling, or due to vibrating window frames. However, for considerable vibration levels to be induced, the noise levels impacting a structure would need to exceed 110 dB.

The Phase 2 access plan prohibits aircraft with departure SENEL levels that exceed 101.8 dB at NMS 1 and 101.1 dB at NMS 2. The noise levels at these NMS are the highest noise levels impacting a sensitive use. Maximum aircraft overflight noise levels are approximately 10 dB lower than SENEL levels. Therefore, the maximum noise level at any sensitive use would be less than approximately 92 dB. Therefore, the noise levels will be at least 18 dB lower and have approximately 63 times less energy than the minimum noise level that would be expected to induce noticeable structural vibrations. Therefore there are no sensitive uses potentially impacted by airborne noise induced structural vibrations.

Impact Conclusion: *There would be a less than significant impact associated with groundborne and noise for the Proposed Project and all alternatives.*

Noise Evaluation For Informational Purposes

The following analysis of single event noise and TA values is provided for informational purposes, as there are no established regulatory benchmarks available for purposes of assessing significance to changes in either metric. Also, due to public concern expressed during the EIR's scoping process, an evaluation of potential effects to noise sensitive uses in the City of Laguna Beach is provided.

Single Event Noise

The analysis in this EIR, assumes the aircraft types expected to use JWA in the future are the same that currently use it or there would be aircraft that have similar noise characteristics.[7]

[7] As discussed in Section 3.7.2, Operation Assumptions, given the Project's term length (through 2030), it is likely that there will be some fleet turnover at the Airport through the commercial airlines' purchase and utilization of newer, and next generation aircraft. These newer aircraft likely would generate less noise and air pollutants as compared to the current fleet at JWA (AECOM 2014). However, the timing of changes to the fleet mix cannot be known at this time and CEQA does not allow speculation. In order to be conservative, the environmental analysis presented in this EIR

Accordingly, the future SENEL contours are forecasted to be the same as the existing conditions, which appeared in Table 4.6-7 and Exhibits 4.6-12 and 4.6-13 in Section 4.6.3. SENEL at sensitive receptor locations are provided in the Noise Analysis Technical Report, provided in Appendix C ([Appendix A: SENEL Levels by Year/Airline/Aircraft/Class] and Figures 14A and 14B. The SENEL data was developed using output from the noise monitoring stations.

Time Above Values

The TA metric is described above in Section 4.6.5. TA values were generated for JWA existing conditions, as well as each Phase of the Proposed Project and Alternatives at each of the permanent noise monitoring stations. The values of 65 dBA, 77 dBA, and 85 dBA correlate respectively to speech interference outdoors, indoors with windows open and indoors with windows closed. There are no accepted thresholds of significance for the TA metric and this analysis is presented for informational purposes only.

Tables presenting the number of minutes each day that aircraft noise levels are projected to exceed 65 dBA, 77 dBA, and 85 dBA for the existing conditions along with all phases of the Proposed Project and Alternatives are included in Appendix E. Tables 4.6-23, 4.6-24, and 4.6-25 present the increase in the time above 65, 77, and 85 dBA, respectively.

assumes the Project would maintain the Airport's existing fleet mix, thereby likely presenting the maximum environmental impact assessment of noise, air quality, and greenhouse gas impacts.

The next generation of aircraft at the Airport may not require any modifications to the existing facilities and could be incorporated into the fleet mix once the commercial airlines demonstrate that these aircraft meet the requirements of a Class A aircraft, as defined in the Phase 2 Access Plan. However, it also is possible that some newer aircraft would require facilities modifications. At this point in time, it is not known what, if any, facilities modifications would need to be undertaken as no specific aircraft have been identified for introduction at the Airport. Any changes to the facilities needed for the Airport to service the next generation of aircraft would require subsequent CEQA documentation subject to County evaluation.

TABLE 4.6-23
INCREASE IN TIME ABOVE 65 DBA OVER EXISTING CONDITIONS (MINUTES)

NMS	No Project	Project			Alternative A			Alternative B			Alternative C		
		P1	P2	P3	P1	P2	P3	P1	P2	P3	P1	P2	P3
1S	5.9	5.9	11.6	15.6	5.0	7.6	16.0	5.3	19.3	32.3	50.3	54.3	53.5
2S	6.2	6.2	11.9	16.2	5.1	7.9	16.3	5.4	19.6	32.6	49.9	53.9	53.3
3S	1.9	1.9	5.5	7.7	1.8	3.4	9.0	1.8	11.2	19.7	35.4	37.4	36.3
4S	3.3	3.3	6.8	9.7	2.1	3.9	8.8	2.5	10.6	18.3	25.2	27.2	27.4
5S	1.6	1.6	5.0	7.0	2.9	5.4	10.2	2.4	9.1	14.9	28.6	31.0	31.2
6S	0.8	0.8	3.9	4.9	4.9	8.2	12.8	3.6	8.2	11.7	32.9	35.6	35.7
7S	2.7	2.7	5.7	7.5	3.8	6.0	10.4	3.5	9.6	14.9	28.0	30.1	30.1
8N	4.2	4.2	7.3	9.8	3.1	4.3	9.1	3.4	11.9	19.9	28.7	31.8	31.0
9N	1.5	1.5	2.3	2.9	1.0	1.3	2.3	1.2	3.1	4.9	5.6	6.4	6.4
10N	3.1	3.1	4.8	6.1	2.7	3.5	5.8	2.8	6.7	10.3	13.4	14.8	14.9

dBA: A-weighted decibel; NMS: Noise Monitoring Station; P: Phase.

Source: *Noise Analysis Technical Report,* Table 24, Landrum & Brown 2014.

TABLE 4.6-24
INCREASE IN TIME ABOVE 77 DBA OVER EXISTING CONDITIONS (MINUTES)

NMS	No Project	Project			Alternative A			Alternative B			Alternative C		
		P1	P2	P3	P1	P2	P3	P1	P2	P3	P1	P2	P3
1S	1.7	1.7	3.7	5.2	1.7	2.9	5.8	1.7	6.2	10.2	17.4	18.9	1.7
2S	1.8	1.8	3.7	5.1	1.6	2.7	5.3	1.7	5.9	9.7	15.6	17.0	1.8
3S	0.0	0.0	0.0	3.0	1.1	2.2	4.1	0.0	3.8	6.2	11.5	12.4	0.0
4S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6S	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0
7S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8N	2.8	2.8	4.5	5.9	2.2	3.1	5.5	2.4	6.4	10.2	13.0	14.6	2.8
9N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

dBA: A-weighted decibel; NMS: Noise Monitoring Station; P: Phase

Source: *Noise Analysis Technical Report,* Table 26, Landrum & Brown 2014.

TABLE 4.6-25
INCREASE IN TIME ABOVE 85 DBA OVER EXISTING CONDITIONS (MINUTES)

NMS	Existing	No Project	Proposed Project			Alternative A			Alternative B			Alternative C		
			P1	P2	P3	P1	P2	P3	P1	P2	P3	P1	P2	P3
1S	2.1	2.3	2.3	2.5	2.6	2.3	2.5	2.8	2.3	2.8	3.2	4.3	4.3	4.3
2S	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.9	0.7	0.7	0.8	1.6	1.6	1.6
3S	0.8	0.7	0.7	0.7	0.8	0.8	0.8	0.9	0.7	0.8	0.9	1.3	1.3	1.3
4S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8N	6.0	7.0	7.0	7.6	8.1	6.7	7.0	7.9	6.8	8.3	9.7	10.8	11.5	11.5
9N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

dBA: A-weighted decibel; NMS: Noise Monitoring Station; P: Phase

Source: *Noise Analysis Technical Report,* Table 28, Landrum & Brown 2014.

Aircraft Noise in Laguna Beach

Flight Tracks

Flight tracks over Laguna Beach from Septembers in 1998, 2000, 2007, and 2013 are shown in Exhibits 4.6-27 through 4.6-30. The flight tracks are color coded for altitude and the approximate boundary of the City of Laguna Beach is shown in light green. The most striking difference between the four snapshots is the consistency of the tracks in 2013 compared to previous years. This is due to the introduction of Performance Based Navigation ("PBN") procedures at JWA. These procedures were introduced by the FAA and are the sole responsibility of the FAA; (i.e., JWA has no control over flight tracks or altitudes used by aircraft). While the definition of PBN can be complex, it can best be summarized in lay terms by saying that, prior to the PBN procedures, pilots determined the course of the aircraft based on air traffic control instructions and the location of certain navigation aids. After the introduction of PBN, the aircraft position is controlled by on-board computers using global positioning system ("GPS")[8] or inertial guidance systems.

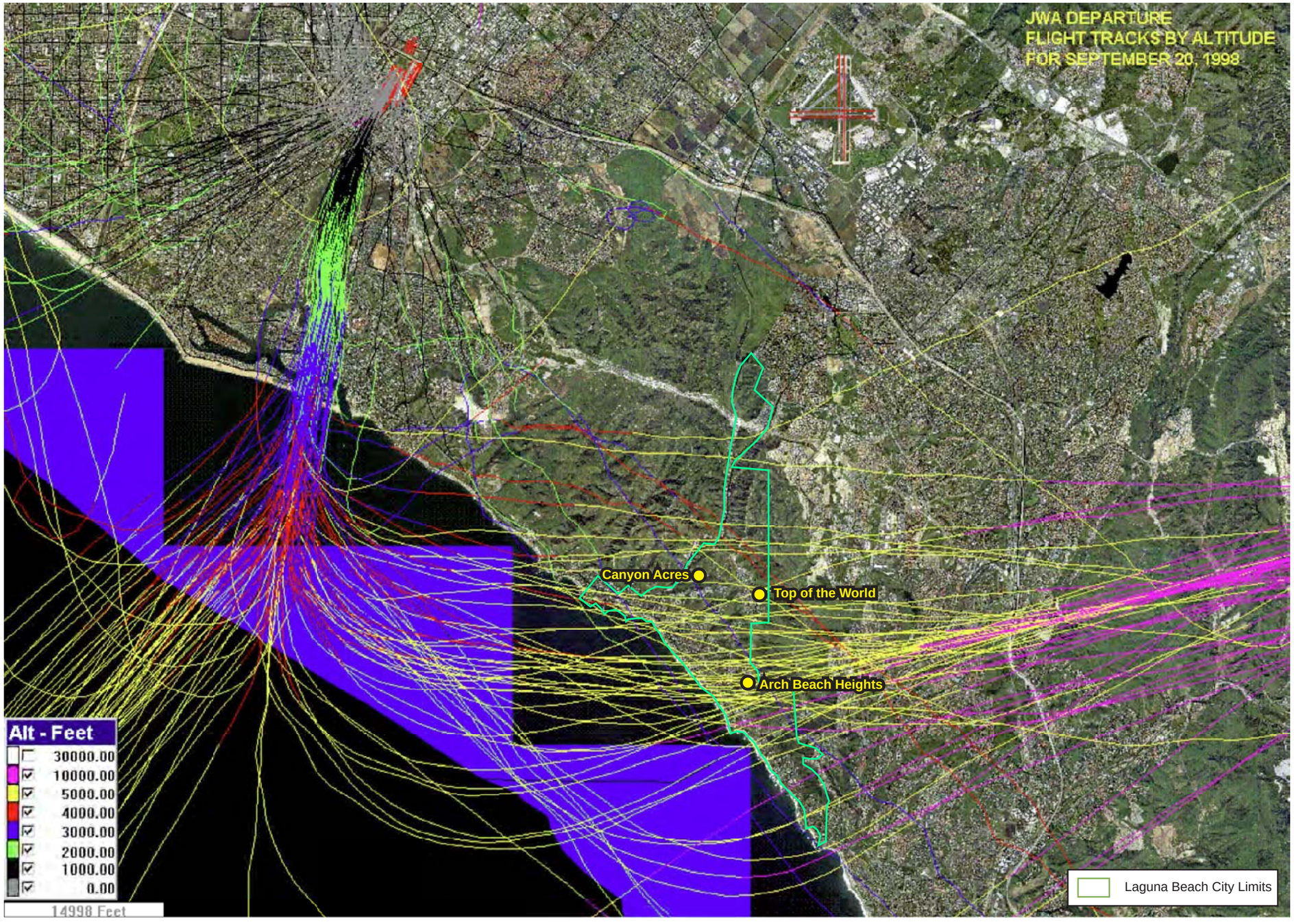
The four flight track exhibits show an apparent drift in the central tendencies of the tracks. In 1998, the tracks appear more evenly distributed over Laguna Beach, with a central tendency over Arch Beach Heights and Moulton Meadows Park. In the year 2000, after the closure of Marine Corps Air Station El Toro, there are concentrations over the Bluebird Park area and Lang Park area, but still a great deal of scatter over the entire City. In 2007, the central tendency is more of North Laguna continuing over Bluebird and southern end of Top of the World with also a grouping over Lang Park, but still a great deal of dispersion over all of Laguna Beach. In 2013, there is less dispersion, but still wide swaths of Laguna Beach are overflown with the central tendency moved north of North Laguna and continuing more over Top of the World than previous years.

Altitudes

The altitudes are shown as different colors along the flight tracks. Of interest is where the aircraft reach an altitude of 10,000 feet and color of tracks shown in the exhibits turn from yellow to magenta. Exhibit 4.6-30 shows that this transition occurred closer to the coastline than in previous years where the aircraft were generally further inland before they reach an altitude of 10,000 feet. This indicates that aircraft are generally flying at higher altitudes when the pass over Laguna Beach than they have in previous years. This would be consistent with the newer aircraft performance capabilities and the Required Navigation Performance ("RNP") flight tracks.

A review of radar data from individual departures showed that some aircraft would hold their altitude and fly level as they made the turn back towards the coast and Laguna Beach, while others would keep climbing to their cruising altitude. Those aircraft that hold their altitude and fly level as they fly over the Laguna Beach coast fly over the coast at an altitude between about 5,700 feet and 7,000 feet and maintain this altitude as they fly over the city and then start climbing again at various points, sometimes directly over the city. Aircraft that hold their altitude do so at the direction of air traffic control to ensure enough spacing from other aircraft flying at higher altitudes parallel to the coastline.

[8] GPS is a navigation system that uses space-based satellites to provide location data.



Source: *Noise Analysis Technical Report,* Landrum & Brown, 2014

Flight Tracks From The Year 1998

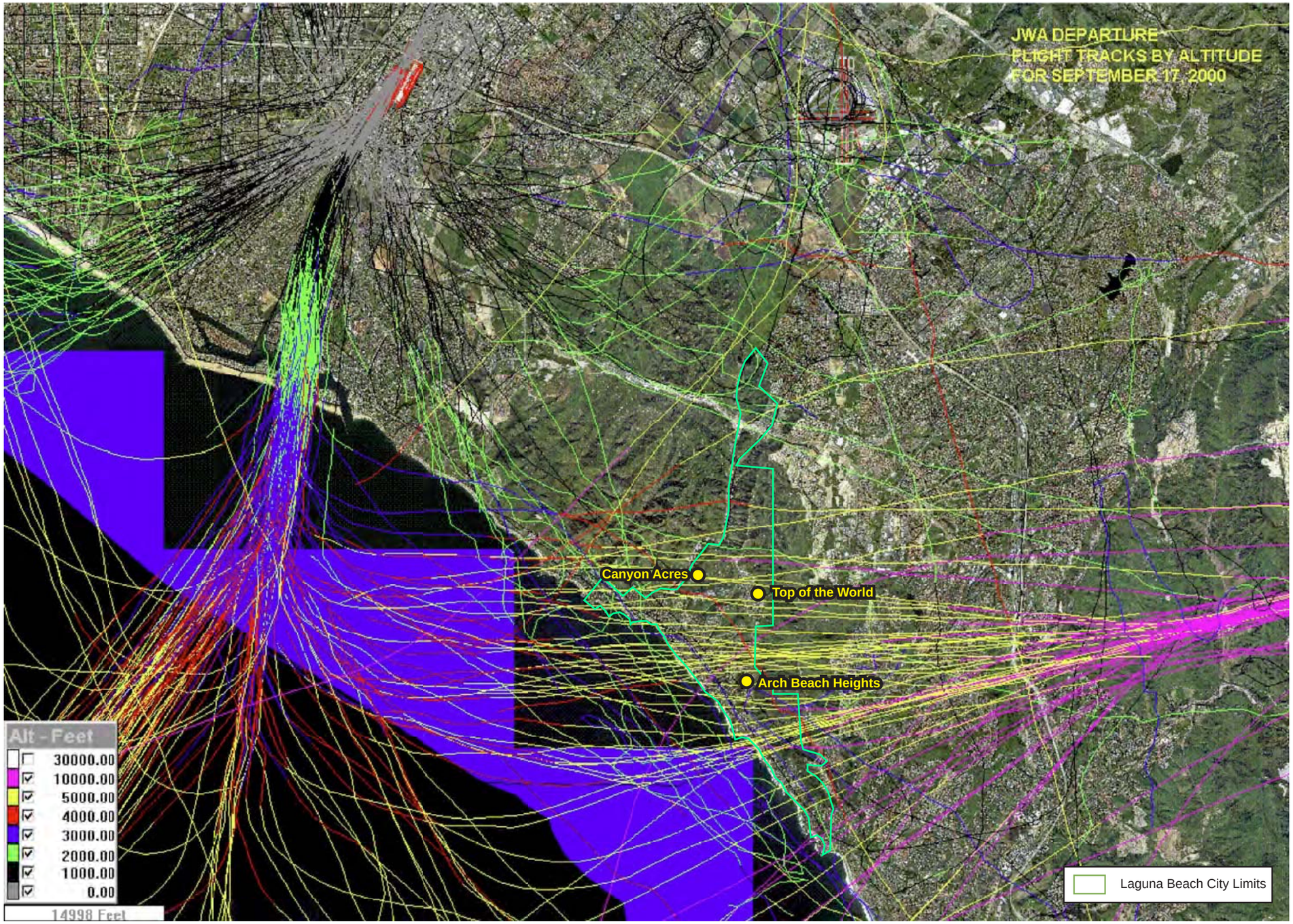
Exhibit 4.6-27

John Wayne Airport Settlement Agreement Amendment

JOHN WAYNE AIRPORT ORANGE COUNTY

(04/10/14 JAZ) R:\Projects\JWA\J003\Graphics\EIR\ex_FlightTracks1998.pdf

D:\Projects\JWA\J003\Graphics\EIR\ex_FlightTracks1998.ai



Source: *Noise Analysis Technical Report,* Landrum & Brown, 2014

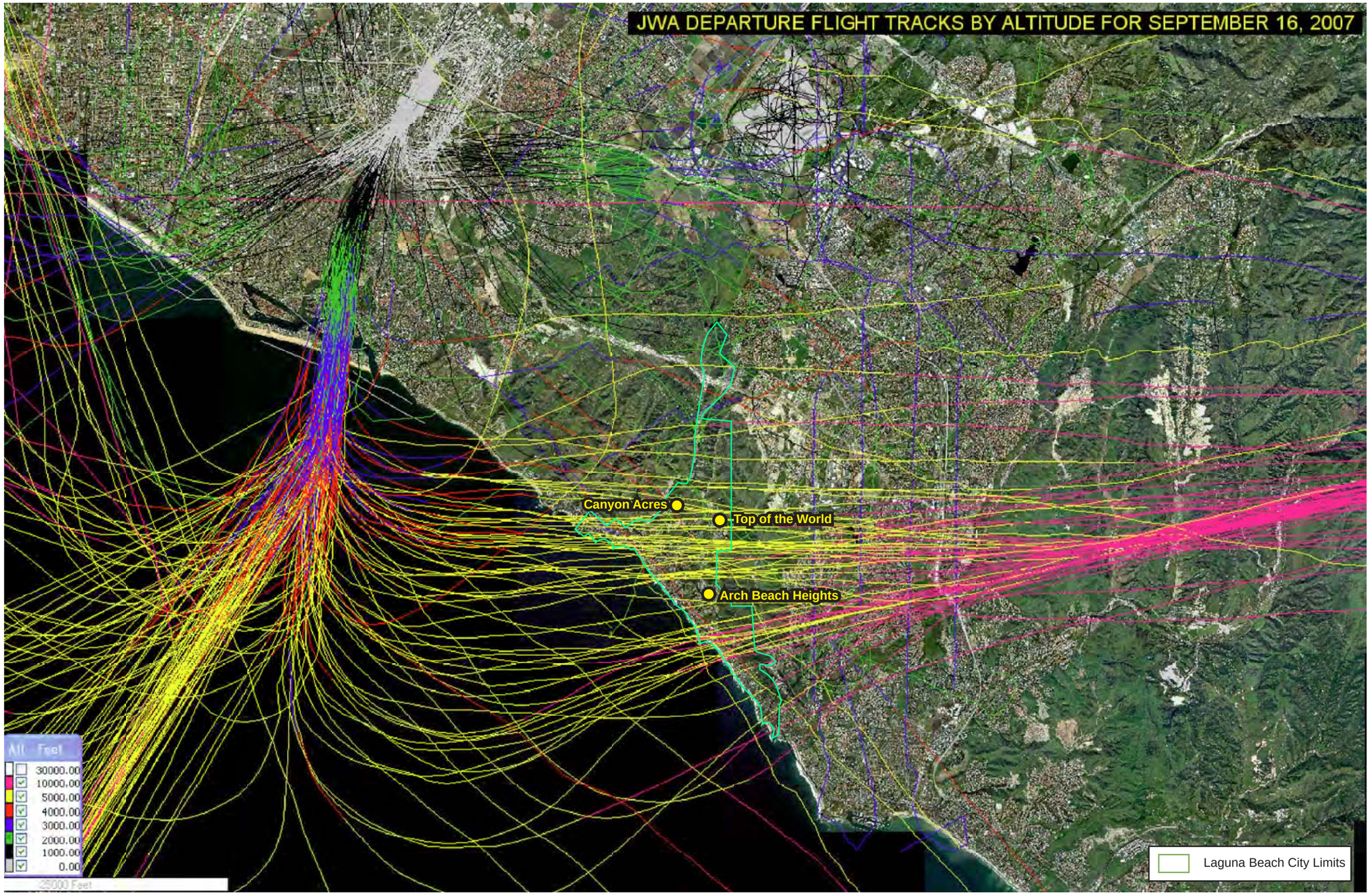
Flight Tracks From The Year 2000

Exhibit 4.6-28

John Wayne Airport Settlement Agreement Amendment

(04/10/14 JAZ) R:\Projects\JWA\J003\Graphics\EIR\ex_FlightTracks2000.pdf

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Source: *Noise Analysis Technical Report,* Landrum & Brown, 2014

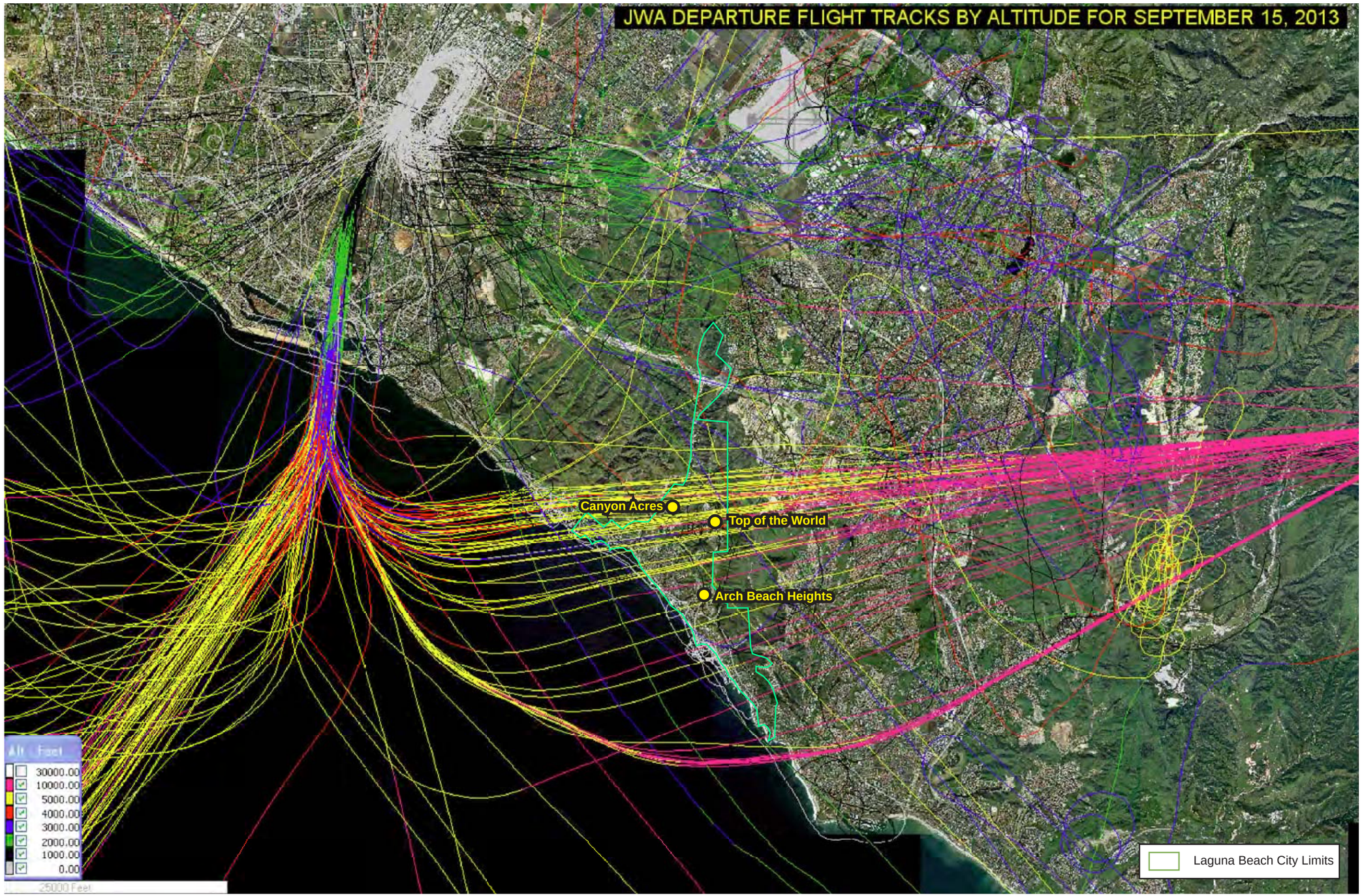
Flight Tracks From The Year 2007

Exhibit 4.6-29

John Wayne Airport Settlement Agreement Amendment

(04/10/14 JAZ) R:\Projects\JWA\J003\Graphics\EIR\ex_FlightTracks2007.pdf

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Source: *Noise Analysis Technical Report,* Landrum & Brown, 2014

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Flight Tracks From The Year 2013

Exhibit 4.6-30

John Wayne Airport Settlement Agreement Amendment

(04/10/14 JAZ) R:\Projects\JWA\J003\Graphics\EIR\ex_FlightTracks2013.pdf

Single Event Noise

Three specific points, Canyon Acres, Top of the World, and Arch Beach Heights, were analyzed for flyover noise. Canyon Acres was selected due to the large number of concerns about aircraft noise from this neighborhood, the same for Top of the World, as well as the fact that Top of the World and Arch Beach Heights are at higher elevation and thus closer to the aircraft than other neighborhoods in Laguna Beach. These three areas of Laguna Beach, excepting the parts of Canyon Acres nearest Laguna Canyon Road, currently have low ambient noise levels and the aircraft noise is more intrusive than it would be in a more urban area.

The maximum noise level at each of these locations during a fly over by the most commonly used aircraft serving JWA, the Boeing 737-700, was computed using the INM. The noise levels were calculated with flight tracks that passed directly overhead of the analysis locations for two flight profiles. The "held down" profile represents flights subject to altitude holds from air traffic control, as described above; the aircraft hold altitude at 5,700 feet and resume their climb as they pass over each of the analysis locations. This results in an estimate of the maximum environmental impact for noise levels. The second flight profile assumes that the departing aircraft climbed to their cruising altitude without air traffic control restrictions, which is the "typical" maximum aircraft overflight noise level at these sites.

The maximum noise level was estimated because it represents the instantaneous maximum heard during a flyover. Further, these locations are too far from the Airport and too far outside the regulatory threshold of 65 dB CNEL to reliably estimate CNEL. Moreover, it is the aircraft noise level during the flyover that is of concern to residents, not the 24-hour average. Table 4.6-26 shows the estimated maximum noise levels (i.e., Lmax values).

TABLE 4.6-26
MAXIMUM AIRCRAFT OVERFLIGHT SINGLE EVENT NOISE LEVEL

Receiver Location	Departure Type	
	Held Down	Typical
Canyon Acres	64.5 dBA	62.8 dBA
Top of the World	66.6 dBA	63.5 dBA
Arch Beach Heights	65.8 dBA	62.0 dBA

Source: *Noise Analysis Technical Report*, Table 35, Landrum & Brown, 2014.

The maximum noise levels shown in Table 4.6-26, in the range of approximately 62 dBA to 67 dBA, are noise levels not exceptional in terms of other ambient noises, such as cars, trucks, motorcycles, etc. that are typical of a 67 dBA noise level. The noise levels do not exceed any County, State, or Federal standard or guideline for environmental noise in residential areas.

Project Effects

Neither the Proposed Project nor any of the Project alternatives would affect the location or altitudes of flight tracks over Laguna Beach. The number of flights would increase commensurate with the increase in ADDs associated with the Proposed Project and each alternative. It is noted

that JWA operations peaked in the year 2007 and have decreased since that time. Although there have been recent increases in air carrier operations, the number of flights are still well below year 2007 levels. (See Table 3-1 in the *Aviation Forecast Technical Report* [Appendix B].)

Table 4.6-27 presents the percentage increase in ADDs (relative to the existing Settlement Agreement terms) for the Proposed Project and each alternative. Only Alternative C, Phases 2 and 3 consider the effect of removing the current curfew. Consequently, Alternative C, Phases 2 and 3 would result in a considerable increase in nighttime operations over Laguna Beach. Note that adoption of Alternative C, Phases 2 and 3 and the removal of the current curfew would require further Board of Supervisors discretionary action and additional environmental documentation.

Currently, there are no late nighttime overflights of Laguna Beach from JWA. However, there are several LAX arrivals and departures that overfly Laguna Beach at nighttime, particularly flights to and from Mexico. Additional discussion relative to current night flights is included Section B4 of the *Noise Analysis Technical Report* (Appendix C).

TABLE 4.6-27
PERCENT INCREASE IN TOTAL AIR CARRIER/CARGO DEPARTURES

Alt	Phase	Average Daily Departures (Class A and E)	% Increase
No Project Alternative		146	0
Proposed Project	1	146	0
	2	158	8
	3	168	15
Alternative A	1	142	-3
	2	148	2
	3	165	13
Alternative B	1	143	-2
	2	172	18
	3	199	37
Alternative C	1	228	56
	2	228	56
	3	228	56

Note: Total Operations decrease slightly between Alternative A and Alternative B because the number of Class A Average Daily Departures increases but the number of MAP remains constant. This results in a decrease in Class E operations due to larger load factors for Class A aircraft.

Source: *Noise Analysis Technical Report*, Table 36, Landrum & Brown, 2014.

4.6.7 MITIGATION PROGRAM

AN INTRODUCTION TO MITIGATION MEASURES

Because of the complexity of the roles of the airport proprietor, the federal government, state government and local municipalities, aviation noise mitigation is a complex subject. Generally, the responsibility and authority for noise abatement mitigation measures does not rest with one individual, one governmental entity or agency, or one community. To the contrary, the authority and responsibility lies with a wide variety of federal, state, local and private entities and corporations, both on a national and local level.

The federal government has the authority and responsibility to control aircraft noise sources, implement and enforce flight operational procedures and manage the air traffic control system in ways that minimize noise impacts on people. State and local governments have the responsibility to provide land use planning, zoning and development controls that will encourage development or redevelopment of land that is compatible with both present and projected Airport operations. In order to accomplish this task, the state must provide enabling legislation that grants authority to the local units of government to implement land use controls that are not confiscatory or discriminatory. In addition, the local units of government having land use control must work closely with airport management to coordinate land use compatibility planning beyond the airport's boundary. Sometimes, the airport management has no authority to control the types of land uses outside the airport ownership boundary and must therefore work cooperatively with the appropriate local unit of government.

Noise standards for individual aircraft are established by the federal government and must be met by the aircraft manufacturers through newly-designed engines and aircraft. The airlines are then responsible for replacing or retrofitting their fleet with these new aircraft and/or engines. The airlines are also responsible for scheduling and flying airplanes in a manner that minimizes the impact of aircraft-generated noise on people.

The airport management is responsible for planning and implementing airport development actions designed to reduce noise. Generally, such actions include improvements in airport design and noise abatement ground procedures, in addition to evaluating restrictions on airport use that does not unjustly discriminate against any user, impede the federal interest in safety and management of the air navigation system, or unreasonably interfere with interstate commerce.

The objective is to explore a range of feasible mitigation options, including land use patterns and noise control actions, seeking optimum accommodation of both airport users and airport neighbors within acceptable safety, economic and environmental parameters. Consideration of measures addresses both physical planning and the implementation aspects of proposed solutions. Some measures may have little or no value in a particular situation, especially if used alone. In order to be considered for implementation a measure should:

1. have the potential of resolving a recognized problem;
2. be implementable within acceptable economic, environmental and social costs; and
3. be legally permissible within existing state, federal and local legislation, regulations, and ordinances.

The following sections contain a description of potential noise abatement measures or actions for the reduction of noise levels associated with civilian aircraft operations. The list of mitigation measures presented here for evaluation was developed from FAR Part 150 guidelines ("Noise Control and Compatibility Planning for Airports", AC 150/5020-1, 1983).

A general evaluation of each measure has been made to determine if the measures are applicable or inapplicable to the Project; are associated with land use controls available to the state or local unit of government; or, are measures that have previously been or are existing noise abatement measures at JWA. This is then followed by a discussion of the mitigation measures recommended as part of this EIR.

MEASURES INAPPLICABLE TO THE PROPOSED PROJECT AND ALTERNATIVES

The following measures were determined not to be feasible mitigation option for the Proposed Project and Alternatives. This determination was made based on: the need to comply with FAR Part 161 (see discussion below regarding requirements of Part 161 and the unlikelihood that these measures could be implemented); the measures pertain to aircraft operation and are outside of the control of JWA; physical limitations of JWA; because they do not address a noise condition applicable to JWA; and/or are subject to regulatory restrictions.

Aircraft Noise Mitigation Options Requiring Federal Aviation Regulations Part 161 Compliance

The following discussion describes measures that are potentially available to airport proprietors to mitigate aircraft noise. As discussed, most of these measures require the proprietor to comply with FAR Part 161, which was adopted as required by the 1990 ANCA. One of the goals of ANCA was to minimize the burden of higher costs and inefficient use of aircraft on the nation's air transportation system from a lack of coordination among individual airport mitigation measures. ANCA and Part 161 apply to any "noise or access restriction" which is defined very broadly and includes, for example, "any other limit on Stage 2 or Stage 3 aircraft that has the effect of controlling airport noise." Any number of actions could have an effect on aircraft noise.

The onerous requirements of Part 161 that must be satisfied for an airport proprietor to implement these measures are quite stringent and unlikely to be satisfied except in unique situations. And, in the case of Stage 3 restrictions, the statutory and regulatory conditions for Stage 3 restrictions make it abundantly clear that the FAA will approve a restriction on Stage 3 aircraft only in exceptional circumstances. Airports that adopt restrictions subject to ANCA and Part 161 without following the regulations may lose eligibility for Airport Improvement Program grants and authority to collect Passenger Facility Charge ("PFCs").

A handful of airports have proposed implementing these mitigation measures and prepared analyses to demonstrate compliance with Part 161. However, only two have received approval of their proposals to restrict Stage 2 aircraft. The majority of the others have been abandoned based on FAA comments or denied by the FAA. The remaining have been abandoned because of voluntary agreements between the airports and airlines.

Denial of Use of Airport to Aircraft Not Meeting FAR Part 36 Stage 3 Standards

This measure limits access to the airport to aircraft that conform with certain FAR Part 36, Stage 3, noise level requirements. Older, non-complying (Stage 2) turbojets would be denied or given only restricted access.

Denying such aircraft use of the airport prior to the date required by the federal statute is a feasible option provided the action is not unjustly discriminatory, does not constitute a burden on interstate and foreign air commerce, does not conflict with any Airport policy or requirement, and is compliant with the requirements of FAR Part 161. Federal law required the elimination of Stage 2 aircraft from domestic operations by the year 2000 and all domestic airlines in the contiguous 48 states are in compliance. Therefore, this measure is inapplicable to the Proposed Project, as no Stage 2 operations are forecast for JWA under the Proposed Project, Alternatives A, B or C, or the No Project Alternative.

Capacity Limits Based on Noise

Historically, restrictions on airport use have, in certain limited instances, been based upon noise limits. The form of such restrictions can take three broad forms of implementation. These are outlined below.

All three measures can be successful when there is a significant noise problem affecting people beyond the boundary of the airport, but are usually not recommended for airports where there is little noise impact on people. Also, these measures have been severely limited by the 1990 ANCA and, unlike the existing JWA regulations, all of which were adopted before 1990, any new more restrictive regulations applied to JWA would require the Airport to satisfy the onerous requirements of FAR Part 161 prior to implementation.

Restrictions Based on Cumulative Impact. With this approach, a maximum cumulative impact (such as the total area within the existing CNEL 65, 70 or 75 dB contour) is established as the baseline cumulative impact and then the airport's operations are adjusted or limited so as not to exceed that maximum in the future. This is accomplished through "capacity limitations," whereas either the aircraft types, based upon their "noisiness;" the numbers and mix of aircraft; or the time of operations are limited or adjusted so as not to exceed the existing noise impact. This approach is sometimes referred to as a "noise budget" regulation. No commercial air carrier airport in the United States has ever implemented a regulatory restriction of this type. This type of regulation was considered and rejected by the County for JWA operations because of the extreme difficulties inherent in implementation and enforcement.

Restrictions Based on Certificated Single Event Noise Levels. Most aircraft today have been certificated for noise by the FAA, as part of the FAR Part 36 process explained earlier. These levels are published as part of the Advisory Circular ("AC") 36-1C and 36-3G, and it is possible to devise limitations based upon those certificated data. This measure can be formulated so as to set a threshold noise level for the airport which cannot be exceeded, or different levels can be implemented for either day or nighttime operations. An aircraft's compliance with this limit would be determined from the published FAA certification data. However, certificated levels are not always representative of actual operational noise levels of any given airport or for any specific flight. For this reason, the County has historically rejected this form of regulation at JWA, relying instead on actual measured noise levels rather than certificated levels.

Restrictions Based on Measured Single Event Noise Levels. Although aircraft noise levels vary widely with changes in operational procedures, as well as with atmospheric conditions, it is possible to set limits on measured single event noise levels. Aircraft which exceed this limit can be prohibited from using the airport. This does not mean that the airport, the community or citizen group can set up a microphone and noise level limit and challenge the pilots to not exceed

the limits (also known as "beat the box"). For air carrier aircraft, compliance with the single event level should be measured over an extended period of time (at JWA it is a quarterly measurement) and for many single events when practical (i.e., scheduled commercial operations), and violation determined from repeated excess noise or long-term average. This is one of the main air carrier noise control measures in effect at JWA. This long-term averaging is not practical for general aviation aircraft, where noise level limits are applied to each individual operation. Repeated violation of the limits can result in the aircraft owner, the aircraft operator and the aircraft being subject to denial of use of the Airport. At JWA, for general aviation three violations of the noise level limits within three years are grounds for denial of use.

Complete or Partial Curfews

Airport curfews are an effective but costly means of controlling noise intrusion into areas adjacent or in close proximity to the airport. Curfews can have a very significant negative economic effect upon airport users and those providing airport-related services. The issue is sometimes articulated as a concern of unjust discrimination or as an unreasonable burden to interstate or foreign commerce.

A curfew can take various forms, from restrictions upon some or all flights during certain times of the day or night, or restrictions based upon noise thresholds and certificated aircraft noise levels contained in the AC 36-3G. Curfews are usually implemented to restrict operations during periods when people are most sensitive to noise intrusion, which most often occurs between the hours of 10:00 PM or 11:00 PM to 6:00 AM or 7:00 AM. Again, generally, implementation of these measures as a new restriction has been severely limited by the 1990 ANCA and would require a Part 161 application for implementation.

JWA has two types of nighttime restrictions in place. Air carrier departures are prohibited from 10:00 PM to 7:00 AM (8:00 AM on Sundays). Air carrier arrivals are prohibited from 11:00 PM to 7:00 AM (8:00 AM on Sundays). General aviation aircraft may operate at nighttime if they comply with strict noise limits that have been set at the noise monitors. The nighttime general aviation noise limit is very restrictive and only the quietest of the general aviation fleet can operate at night. None of the nighttime restrictions at JWA are subject to change as part of the Proposed Project, Alternatives A, B, and C (Phase 1), and the No Project Alternative and the nighttime restrictions remain in place after the expiration of the 1985 Settlement Agreement (as amended in 2003), absent additional discretionary action by the County's Board of Supervisors. Even with Alternative C, Phases 2 and 3, subsequent CEQA documentation and action by the Board of Supervisors would be required to remove the curfew.

Measures Pertaining to Aircraft Operation

The following measures would restrict aircraft operations, which are under FAA jurisdiction. As such, these measures are outside of the control of JWA and do not directly relate to the Project.

Departure Thrust Cutback

This measure would involve the imposition of thrust cutbacks following takeoff. Because of system-wide needs, each airline has developed its own standardized takeoff procedure. This measure is recommended where the airlines have the opportunity to utilize a different departure thrust setting and still be within safety limits as per the particular type of aircraft they are flying

given the characteristics of the particular airport concerned. This measure cannot be implemented without the direct concurrence of the FAA and compliance with AC 91-53A.

Many of the airlines already use departure procedures at JWA that include a power cutback. This provides a noise benefit to residences near the Airport, in Santa Ana Heights. No changes in the JWA departure procedures are proposed as part of the Proposed Project or Alternatives.

Flight Track Alterations

This measure involves routing takeoff or approach flight tracks to minimize noise exposure on sensitive areas. These procedures are dictated by considerations of operational safety and air traffic control procedures. Generally speaking, the air traffic control procedures can be resolved, perhaps with penalties involving reductions in Airport use and airspace capacity. However, aircraft turns at low altitudes, where the aircraft are in a low-speed, high drag configuration, can cut deeply into aircraft operating margins. Turns during the last three to four miles of the final approach in good weather, and within the final six to seven miles during poor weather, are undesirable because they do not allow pilots to establish and maintain a stabilized approach. Aircraft bank angles near the ground need to be restricted to no more than 15–20 degrees. This measure cannot be implemented without the direct concurrence of the FAA.

The FAA has published AC 91-53-A regarding noise abatement departure procedures ("NADP"). AC 91-53-A sets minimum requirements for departure procedures and limits the number of NADPs that an airline may use. Again, these procedures cannot be implemented without the concurrence of the FAA, taking into account both operational, safety, and airspace considerations.

The current south flow departure track used by jet aircraft at JWA includes a left turn to generally follow Newport Back Bay. This locates the aircraft between the noise sensitive communities of East Bluff and Dover Shores. Note that flight track dispersion results in some aircraft performing the turn earlier or later than the ideal track and that results in some aircraft over flying the communities adjacent to the Back Bay. Historically, jet aircraft performed the noise abatement turn using distance-measuring equipment and the aircraft compass as the main guide. Increasing implementation of GPS procedures has resulted in reduced dispersion along the flight track.

Preferential Runway System

This measure involves the use of specific runways to minimize noise impacts. The FAA is responsible for implementing this measure based on the recommendation of the Airport operator and the safety considerations contained in FAR Part 121.

There is only one runway available to jet aircraft at JWA. The runway use (north or south flow) for that runway is determined largely by the prevailing wind. During calm or near calm conditions, the FAA tower will occasionally allow north flow departures as traffic permits. During an informal preferential runway program authorized by the Board of Supervisors in the early 1970s, aircraft were permitted to depart to the north in the early morning departure rush when the winds permitted. That test resulted in significant negative response from communities north of the Airport and the Board adopted a resolution ordering the discontinuance of this runway use program (Minute Order dated October 9, 1973).

Power and Flap Settings

A variety of operating procedures is possible for implementation at an airport. These include minimum flap landings and delaying flap and gear deployment. More extensive delayed flap procedures have not been considered safe with current air traffic control procedures and safety criteria. This is particularly true for an airport like JWA where the runway length is a limiting factor.

GPS Landing System

A landing system based on GPS Satellites is a new type of instrument landing system which, when fully installed, may allow noise abatement landing procedures which are not possible presently. This system is not yet fully serviceable, and it is unknown when this system will be available for instrument flight rules. Therefore, no recommendations concerning such a system are included in this analysis.

Not Applicable Due to Physical Limitation at John Wayne Airport

Construct a New Runway in a Different Orientation

Many times the construction of a new runway with a different orientation will shift impacts away from noise sensitive uses to less populated areas. The orientation of a runway is dependent upon many factors, including prevailing winds, topography, obstacles and other conditions. A new runway cannot be constructed if wind direction and topographic conditions are such that safety criteria cannot be met. New runways are not recommended for JWA because the Airport property is very limited (less than 500 total Airport acres).

Runway Extensions

Many times a runway extension, coupled with other noise-abatement procedures, can mitigate noise impacts on areas in close proximity to the Airport. The extension can allow aircraft to gain altitude quicker relative to surrounding land uses and produce less noise impact at ground level. In addition, noise-abatement turns are sometimes possible with an extension as a result of enhanced altitude position. Many times, with an extension, the area off the end of the runway with an extension can experience greater amounts of noise due to lower approach altitudes at this end of the runway. This can sometimes be corrected by establishing a displaced threshold so that aircraft land farther down the runway and maintain altitude over the area beyond the extension. This practice is not generally recommended by the FAA.

An additional factor to consider with a runway extension is that heavier, larger aircraft often can be accommodated at the airport as a result of the extension. This may not necessarily be undesirable, for many of the larger, heavier aircraft are new generation aircraft and are actually quieter than certain smaller or older aircraft. In addition, they are capable of handling a larger seating capacity, which may actually reduce the overall number of operations occurring at the airport. This could result in an overall reduction of noise intrusion. Runway extensions can also be used as a noise abatement measure to help reduce the need for using reverse thrust upon landing, which can generate a considerable amount of ground-level noise to areas in close proximity to the airport.

JWA has very limited real estate to consider a runway extension; therefore, any potential extension would be small. A movement of the runway threshold to the north could reduce noise

to the south of the Airport, except for any increase in departure weight that would be accommodated by the extended runway. There would be a concomitant increase in noise to the north unless a displaced threshold kept the landing point at its current position. If the runway were lengthened to the south the only change in noise to the south would be an increase associated with any increase in aircraft weight permitted by the extension. The Settlement Agreement Amendment pertains to operation restrictions and therefore, physical modifications to the Airport are not being evaluated at this time. A runway extension would need to be a separate discretionary action by the Board of Supervisors and would need to be evaluated in subsequent CEQA document.

High Speed Taxiways

High speed taxiways can help reduce noise intrusion by allowing aircraft to exit the runway quicker and reducing the need for extended use of reverse thrust. This measure is only viable with a runway of sufficient length to allow aircraft the opportunity to slow down to a speed sufficient enough to exit the runway. The runway at JWA is too short for this measure to be effective.

Address a Noise Condition Not Applicable to John Wayne Airport

Noise Barriers (Shielding)

Noise generated from ground-level sources on an airport can be a result of engine run-up and maintenance operations, taxiways and warehouse activities. Noise intrusion from these sources is usually only significant to those areas in close proximity to the airport. One method of mitigating this type of noise is through the use of noise barriers or earthen berms. These can protect immediately adjacent areas from the unwanted noise generated by aircraft still at ground level. Once the aircraft is airborne these measures have no effect. Another method is through the strategic and well planned location of airport structures that can provide shielding to adjacent areas to prevent noise intrusion. Run-up and maintenance areas can also be moved to areas which are away from noise sensitive uses adjacent the airport, and if necessary "hush houses" can be constructed to absorb sound for run-up and maintenance operations.

JWA does not support any maintenance facilities for large aircraft and there are no opportunities to achieve significant noise reductions at the Airport through the use of noise barriers.

Touch and Go Restrictions

Restrictions on training flights performing touch-and-go operations can mitigate noise impacts at airports where there are a significant number of such operations, especially jet training. This measure is also effective if the operations are occurring during the nighttime and early morning hours, for the restriction may be for certain time periods. Training operations at JWA are generally confined to areas over commercial land use and are not a significant source of noise impacts at JWA.

Infeasible Due to Other Regulatory Requirements and Restrictions

Ban All Jet Aircraft

This measure is sometimes proposed at general aviation airports, but it has been well settled and documented by case law that this is not legally possible. The federal courts have held that a regulation based on an aircraft's engine type rather than its noise level results in unjust

discrimination in violation of the grant assurances required by the Airport and Airway Improvement Act of 1982, as amended. An outright ban on all jet aircraft, especially at an air carrier airport, cannot be legally implemented.

Landing Fees Based on Noise

This measure is based on the premise that all or part of the landing fee for each aircraft focuses on the noisiness of that individual aircraft. This would apportion the "cost" of the noise to those aircraft which contribute the most to it. This measure would be implemented to encourage the use of quieter aircraft while generating additional revenue for the airport. In order to avoid unlawful discrimination, the FAA has suggested that the noise fee should be based upon a published standard for single event noise levels, such as those contained in AC 36-3G. As a corollary to this, the opposite strategy can also be used. That is, quieter aircraft could be apportioned a lesser fee than noisier aircraft, thus serving as an incentive for quieter aircraft. In this manner, airlines which go to extra lengths to reduce noise generated by their aircraft are rewarded. In effect, the theory of this type of approach is to create "market incentives" to "encourage" use of quieter aircraft.

This measure has never been successfully implemented primarily because any feasible price differential would be inconsequential to airline operating costs and there is no guarantee that noise will be reduced. This approach has historically been rejected by the County at JWA in favor of the strict noise limit with sanctions for non-compliance.

LAND USE CONTROLS AVAILABLE TO STATE/LOCAL GOVERNMENT

Land use and development controls which are based on a well-defined and thoroughly documented comprehensive plan are among the easiest and most powerful tools available to the local unit of government to ensure land use compatibility. It is very important for the local unit of government to exercise these controls, for these controls are beyond the authority of the airport management to implement, and it is the responsibility of the local unit of government having land use jurisdiction to implement these controls to protect the Airport from encroachment.

Traditionally, even if the airport is managed by the same unit of government that has land use control authority for the land area beyond the airport's boundary, there has been little coordination and discussion as to what land use controls should be implemented and which land uses are compatible with airport development. This is very important to ensure coordination of development plans for all parties involved, particularly where more than one unit of government has land use control authority for the area outside the airport's boundary. The airport is in a particularly precarious position, because the airport is liable for noise intrusion but has no authority to control what types of land uses are developed beyond its borders. It is extremely critical that the local units of government accept responsibility for ensuring land use compatibility in their planning and development actions.

It is also important that the State government provide the necessary enabling legislation that will allow the local unit of government to institute land use controls. The most common forms of land use controls available to the local governments include: zoning, easements, transfer of development rights, building code modifications, capital improvement programs, subdivision regulations and comprehensive planning. These forms of land use controls are briefly outlined in the following paragraphs.

Zoning. Zoning is the most common and traditional form of land use control used in the United States today. It controls the type and placement of different land uses within the designated areas. It is used to encourage land use compatibility while leaving property ownership in the hands of private individuals or business entities, thus leaving the land on the tax rolls. Zoning is not applied retroactively and is not necessarily permanent. It is most effective in areas which are not presently developed and which can be encouraged to develop with compatible uses.

Easements. As stated earlier, an easement is a right held by one to make use of the property of another for a limited purpose. Two specific types of easements are usually referenced in airport planning, a positive easement which would allow the generation of noise over the land and a negative easement to prevent the creation of a hazard or obstacle on the property of another.

Transfer of Development Rights. The transfer of development rights involves separate ownership of the "bundle of rights" associated with property ownership. The concept involves the transfer of the right to develop a certain parcel of property to a certain density/intensity to another parcel of property under separate ownership. This would allow the property that obtains the added development rights to develop to an intensity/density that is beyond that which would normally be allowed. The airport could also purchase these rights from the landowner and retain them or sell them to another landowner. This concept can be used to retain property in compatible uses and still compensate the landowner for his loss of development. The idea depends on market conditions of the area and (there is some disagreement on this point) upon the availability of state enabling legislation authorizing the development of the concept at the local level.

Building Code Modifications. This measure is to modify existing or potential building codes to include specific sound attenuation provisions for structures within areas impacted by aircraft noise.

Capital Improvements Program. This is a document that establishes priorities and costs on the funding and development of public facilities. It can be used very successfully, in concert with subdivision regulations and a comprehensive plan, to control not only the areas of development but the timing of development by controlling the timing and location of public facilities.

Subdivision Regulations. Subdivision regulations are used to control the design and placement of public and private facilities in the conversion of raw land to developed property.

Comprehensive Planning. When it is coordinated with the zoning ordinance, subdivision regulations and the capital improvements program, comprehensive future land use planning can reduce or avoid land use incompatibilities in the future. The County of Orange has adopted extensive regulations and mitigation measures for projects. These mitigation measures are presented in Section 7.6.4 of the *Noise Analysis Technical Report* (Appendix C), and include the County of Orange Standard Noise Mitigation Measures. The Airport Land Use Commission for Orange County has adopted a comprehensive AELUP and has a State-mandated review authority over planning in the vicinity of each Orange County airport.

State and local jurisdiction land use controls have been implemented near JWA by the County and the neighboring cities based on the planning policy boundary created by the 1985 Master Plan. It is recommended that no changes be made to those land use controls to prevent the creation of new noise impacts.

PREVIOUS AND EXISTING NOISE ABATEMENT MEASURES AT JWA

The Phase 2 Commercial Airline Access Plan and Regulation at John Wayne Airport

The Phase 2 Access Plan, was adopted by the County to implement mitigation measures identified in Orange County EIR 508/EIS prepared for the 1985 Master Plan. In addition, the Plan also implements the 1985 Settlement Agreement between the County, the City of Newport Beach and two community groups.

The Plan defines the noise level limits for Class A and Class E aircraft along with limits on the number of ADDs for airline and cargo aircraft and the number of annual passengers. It also specifies the hours that commercial and cargo aircraft can operate, prohibiting them during the nighttime. Commercial departures are allowed Monday through Saturday from 7:00 AM to 10:00 PM, and on Sundays from 8:00 AM to 10:00 PM Commercial arrivals are allowed Monday through Saturday from 7:00 AM to 11:00 PM, and on Sundays from 8:00 AM to 11:00 PM.

The Plan has been amended several times for clarification and to reflect changing conditions since its origination. In 2002, the Settlement Agreement was amended to provide additional ADDs and passengers in light of improvements to aircraft design that considerably lowered the noise emissions from newer aircraft, especially when compared to aircraft in use in 1985. The purpose of this Project is to further amend the Settlement Agreement to allow for additional, but limited, growth in airport operations in the future.

Nighttime Curfew

JWA has two types of nighttime restrictions in place. As discussed above, the Phase 2 Access Plan prohibits commercial aircraft activity during the nighttime. The General Aviation Noise Ordinance (GANO) also prohibits general aviation aircraft that are unable to comply with strict noise limits from operating during the nighttime hours. Aircraft that comply with the noise level limits are not restricted during the nighttime. However, nighttime general aviation noise limit is very restrictive and only the quietest of the general aviation fleet can operate at night.

Noise Abatement Departure

Anyone who has ever flown in a commercial aircraft departing from JWA is familiar with the noise abatement departure procedure. Under this procedure, commercial aircraft use full power to climb as quickly as safety permits right after takeoff. At approximately 1,000 feet, the aircraft level out and reduce power as they fly over Back Bay, Newport Beach, and Balboa Island. After the aircraft have passed the coast, the aircraft increase power to resume the climb to their cruising altitude. This departure procedure concentrates the noise close to the Airport, where the aircraft is climbing under full power, and reduces the noise between the point where the aircraft level out and where they resume their climb.

In addition, the current south flow departure track used by jet aircraft at JWA includes a left turn to generally follow Newport Back Bay. This locates the aircraft between the noise sensitive communities of East Bluff and Dover Shores. Historically, jet aircraft performed the noise abatement turn using distance-measuring equipment and the aircraft compass as the main guide. This resulted in flight track dispersion. That is, some aircraft performed the turn earlier or later than the ideal track and that resulted in some aircraft over flying the communities adjacent to

the Back Bay. Increasing implementation of GPS procedures has resulted in reduced dispersion along the flight track.

Noise Monitoring System

JWA's noise monitoring system is one of the most sophisticated systems in the world. To perform these duties the Office uses a start-of-the art noise monitoring and flight tracking system that allows them to track every aircraft operation and review noise levels at the ten noise monitoring stations (NMS) located around the airport. This system operates twenty-four hours a day, seven days a week. The NMS transmit noise events to the Access and Noise office, enabling the staff to have real-time data on these aircraft operations used for measurement and reporting of aircraft operation compliance with the regulations. The precision noise measurement equipment used in the noise monitoring system meets the highest professional standard of accuracy in the acoustical engineering industry. Daily electronic calibration checks are performed on of all ten (10) stations and they are field calibrated once each month. The field calibration equipment is laboratory certified annually.The Phase 2 Access Plan, described in Section 4.6.2 and above, defines the SENEL noise level limits for Class A and Class E commercial aircraft that cannot be exceeded on an energy average basis each calendar quarter. These limits are presented in Table 4.6-28. As discussed previously, SENEL represents the total acoustic energy from an aircraft overflight. The maximum instantaneous noise level is typically 10 dB less than the SENEL level. The General Aviation Noise Ordinance (GANO), described in Section 4.6.2, establishes SENEL noise level limits that cannot be exceeded by general aviation aircraft on a per flight basis. Separate limits are defined for the daytime hours and the nighttime hours and are shown in Table 4.6-28. The nighttime general aviation noise limit is very restrictive and only the quietest of the general aviation fleet can operate at night.

TABLE 4.6-28
NOISE MONITORING STATION SENEL NOISE LIMITS

	Commercial Aircraft		General Aviation	
NMS	**Class A**	**Class E**	**Daytime**	**Nighttime**
NMS 1S	101.8 dB	93.5 dB	101.8 dB	86.8 dB
NMS 2S	101.1 dB	93.0 dB	101.1 dB	86.9 dB
NMS 3S	100.7 dB	89.7 dB	100.7 dB	86.0 dB
NMS 4S	94.1 dB	86.0 dB		86.0 dB
NMS 5S	94.6 dB	86.6 dB		86.0 dB
NMS 6S	96.1 dB	86.6 dB		86.0 dB
NMS 7S	93.0 dB	86.0 dB		86.0 dB
NMS 8N	--	--		86.0 dB
NMS 9N	--	--		86.0 dB
NMS 10N	--	--		86.0 dB

NMS: Noise Monitoring Station
Source: *Noise Analysis Technical Report*, Tables 29 and 30, Landrum & Brown, 2014.

Noise Complaint/Citizen Liaison Program

The JWA Access and Noise staff answers approximately 2,500 calls a year regarding aircraft operations, noise complaints and questions, and requests for information. The staff strives to provide outstanding customer service by listening and responding to noise complaints, concerns of the community, and requests for information. Calls to the office during business hours are answered directly by the staff. Calls received after hours with a request for a return call are researched and called back, usually by the next business day. All noise complaints are entered into the noise database and the statistics are reported by community in the JWA Noise Program Quarterly Report, and made available to the public on the Airport's web site Quarterly Noise Abatement Reports and Annual Noise Contours

The Access and Noise office produces quarterly Noise Abatement Reports. These Reports present the previous quarter's aircraft operations and noise levels. Daily CNEL levels at each of the NMS are reported along with the monthly and quarterly levels. The number and average single event exposures for each commercial airline aircraft type are presented. In addition noise modeling is performed, and calibrated to the measured levels, to determine the extent of the 65 CNEL contour in the Santa Ana Heights Area. The noise monitoring and operational data for an entire year are used to model annual noise contours. All of this information is made readily available on the Airport's Website.

Santa Ana Heights Land Use Plan

This measure has been extensively implemented at JWA as a mitigation measure to the 1985 Master Plan EIR. Portions of Santa Ana Heights were included in a redevelopment area that has resulted in the conversion of some residential areas to commercial use.

All of the state and local jurisdiction land use controls have been implemented near JWA by the County and the neighboring cities based on the planning policy boundary created by the 1985 Master Plan. It is recommended that no changes be made to those land use controls to prevent the creation of new noise impacts.

Santa Ana Heights Specific Plan

As part of the mitigation of the 1985 Master Plan portions of Santa Ana Heights were included in a redevelopment area and the Santa Ana Heights Specific Plan. This plan zoned the areas subject to the highest aircraft noise levels as Business Park. In 1990 there were approximately 12.5 acres of residential uses in this area and there is currently less than 6 acres of non-conforming uses. These actions comprise the entirety of the state and local jurisdiction land use controls available to minimize noise impacts

Acoustical Insulation Program

As part of the easement acquisition process, airport proprietors may institute a program to install sound insulation in residences and others uses, such as schools, located in high noise impact areas. Typically, the airport provides examples and demonstrations of replacement doors and windows, ventilation systems and other sound insulating construction. The airport proprietor contracts with the property owner to install the insulation in return for an avigation easement The cost of these programs is sometimes funded from the proceeds of the PFC upon approval of the FAA. Additional funding sources include Acoustical Insulation Program Grant funds, JWA revenues and financing (JWA Bonds).

In August of 2012, the FAA issued Program Guidance Letter 12-09, Eligibility and Justification Requirements for Noise Insulation Projects (FAA 2012). This memorandum was issued to reconfirm that both indoor and outdoor noise levels must be evaluated to determine eligibility for residential and other noise insulation projects. Specifically, structures must have an existing exterior noise exposure greater than 65 CNEL and an existing interior noise exposure greater than 45 CNEL in order to be eligible for a sound insulation program funded under Airport Improvement Program.

The measured interior noise levels with windows and doors closed are used to establish eligibility. Only habitable rooms such as living, sleeping, eating or cooking areas are eligible for insulation. Bathrooms, closets, halls, vestibules, foyers, stairways, storage or utility spaces, as well as areas that are not allowed under the local building code are not considered habitable.

The FAA memorandum also specifies that the average interior noise level in all habitable rooms must exceed 45 CNEL in order to be eligible for sound insulation. This requirement could prevent eligibility although the noise level in some habitable rooms may exceed 45 CNEL. For example, if the noise level in one room was measured to be 40 CNEL, the noise level in a second room could be as high as 49.9 CNEL and the home would not be eligible for insulation.

Structures that do not have existing ventilation systems are eligible for the installation of a Continuous Positive Ventilation System even if the interior noise levels are measured to be less than 45 CNEL with windows closed. For homes with interior noise levels greater than 45 CNEL, noise insulation measures are typically limited to window and door replacement, ceiling insulation, caulking, and weather stripping. The insulation must provide a discernable amount of noise reduction, at least 5 dB. Sound insulation funds cannot be used for any improvements that are not directly related to the insulation. If other improvements are needed to conform to local building codes, these improvements will need to be completed before the insulation upgrades are installed.

It should be noted that the FAA guidance also states that previously insulated residences are ineligible for additional insulation. While it is recognized that noise insulation improvements will deteriorate over time, these are considered normal home maintenance expenses and the responsibility of the homeowner. The Santa Ana Heights Acoustical Insulation Program (AIP)[9] was extensively implemented at JWA as a mitigation measure for the 1985 Master Plan EIR. A total of 602 dwelling units (du) remain in the AIP eligibility area, consisting of 323 single-family residences and 279 multi-family residences. Of these, sound insulation was provided for 71% of the eligible residences (427 residences). 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.[10] Seventy six (76) du 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

[9] To avoid confusion between the residential noise attenuation program adopted as part of the 1985 Master Plan and the program recommended as part of this EIR, the 1985 program has been identified as the Santa Ana Heights Acoustical Insulation Program ("AIP"), whereas the program identified in conjunction with this Project (Mitigation Measures LU-1 and N-3) is identified as a Sound Insulation Program ("SIP").

[10] 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.

residences that were not insulated, 19 homeowners declined the offer, and 59 homeowners did not respond despite a good faith effort to contact them.

AIP eligibility was based on the future 65 CNEL contour predicted in the 1985 Master Plan. The existing 65 CNEL contour is much smaller than anticipated in the 1985 Master Plan. Currently, 96 du are located within the 65 CNEL contour. Insulation has been provided for 30 of these du (39%), 47 are non-conforming uses, and one was determined to have sufficient insulation to reduce interior noise levels to less than 45 CNEL. The nine remaining AIP eligible homes have not been insulated; of this amount, one homeowner declined the insulation offer and eight homeowners did not respond.

PROJECT MITIGATION MEASURES

The Proposed Project and Alternatives A through C contemplate an extension of the 1985 Settlement Agreement. Each scenario differs in the details of the proposed adjustments to the agreement.

The following noise control measures are in place and are assumed to be continued independent of the Project scenario selected[11]:

- Nighttime operations restrictions (except under Alternative C Phases 2 and 3, which would allow removal of these restrictions);
- South flow departure left turn over Newport Bay (primarily a responsibility of FAA);
- Class A and Class E departure noise limits;
- ALUC land use restrictions;
- Orange County General Plan land use restrictions;
- Orange County Standard Conditions of Approval, which are applicable to projects where the County of Orange issues permits. (These would minimize potential impacts associated with new development, but would not be applicable to the impacts identified above. The Standard Conditions of Approval are identified in the *Noise Analysis Technical Report*, provided in Appendix C (see Section 7.6, Mitigation Measures Recommend for Further Consideration). Each of the surrounding jurisdictions have similar control measures for new noise sensitive development surrounding the Airport. The City of Newport Beach has policies in the Noise Element of the General Plan regarding noise exposure for new development (see Table 4.5-10 in Land Use for discussion of these policies).

Mitigation of Impacts Based on County Significance Thresholds for Noise Increase

Impact analysis for Threshold 4.6-1 shows that significant noise impacts are projected to occur with Alternative B, Phase 3 and all three Phases of Alternative C. Under Phase 3 of Alternative B, significant noise impacts are projected to occur in the vicinity of NMS 1S and 2S. These two NMS are projected to experience noise levels exceeding 65 CNEL and have a Project-related increase

[11] There are no assurances these measures would continue under the No Project Alternative; however, elimination of certain measures, such as the curfew, would require subsequent CEQA documentation and additional discretionary action by the County's Board of Supervisors.

of more than 1.5 CNEL over existing conditions. Under all three Phases of Alternative C, NMS 1S, 2S, and 3S are projected to be significantly impacted for the same reason. Under Phases 2 and 3 of Alternative C, NMS 4S, 5S, 6S, and 7S are also shown to be significantly impacted because they are projected to be exposed to noise levels between 60 and 65 CNEL and subject to a Project-related noise level increase of more than 3 dB.

The primary area where significant impacts will occur is in the Santa Ana Heights area represented by NMS 1S, 2S, and 3S. The adoption of the 1985 Master Plan for JWA included adoption of the Santa Ana Heights Land Use Compatibility Plan ("SAH LUCP"). The SAH LUCP was, in part, project mitigation for the 1985 Master Plan and contemplated a combination of actions to achieve land use compatibility between Santa Ana Heights and JWA. This included zoning actions, a purchase assurance program, and a sound insulation program as discussed above.

Table 4.6-29 presents the number of residences that would be exposed to 65 CNEL or greater and be exposed to a noise level increase over existing conditions of 1.5 dB or more. The total number of impacted residences are shown in the first column of values. The remaining columns break out the number of residences that were insulated and not insulated under the 1985 Master Plan AIP along with the number of residences outside of the AIP. The number of residences within the AIP area that were insulated under the program is shown in the second column of values.

The number of residences that were included in the AIP but were not insulated are presented in the next two columns. These columns show the number of residences that were not insulated that conform to the SAH LUCP zoning and the number of residences that are non-conforming uses. The next column shows the number of du that are located outside of the SIP area. The final column shows the total number of residences that have not been previously insulated.

Mitigation Measure LU-2. described in Section 4.5, Land Use and Planning, provides a process for avoiding the exterior noise impacts forecasted to occur for Alternative B, Phase 3. Briefly, Mitigation Measure LU-2 would limit increases in MAP and/or ADD to ensure that noise increases at NMS 1S and 2S would be less than 1 CNEL. Because there is no practical method for mitigating outdoor noise levels, the number of residences presented in the "Total DU" column in Table 4.6-28 for all phases of Alternative C, identifies the total number of residences that will be subject to a significant and unavoidable outdoor noise impact.

TABLE 4.6-29
NUMBER OF RESIDENCES EXPOSED TO 65 CNEL OR GREATER AND AN INCREASE OVER EXISTING CONDITIONS OF 1.5 dB OR MORE

Nearest NMS	Total DU	Within AIP Insulated	Within AIP Not Insulated		Outside AIP Not Insulated	Total Not Insulated
			Conforming	Non-Conforming		
Alternative B, Phase 3						
1S	**309**	**295**	**13**	**1**	**0**	**14**
2S	94	13	6	75	0	81
Total	*188*	*93*	*19*	*76*	*0*	*95*
Alternative C, Phase 1						
1S	322	303	17	2	0	19
2S	118	28	16	74	0	90
3S	47	30	15	1	1	17
Total	*487*	*361*	*48*	*77*	*1*	*126*
Alternative C, Phase 2						
1S	647	315	16	7	309	332
2S	145	42	24	31	48	103
3S	121	81	33	1	6	40
Total	*913*	*438*	*73*	*39*	*363*	*475*
Alternative C, Phase 3						
1S	646	315	16	7	308	331
2S	145	42	24	31	48	103
3S	121	81	33	1	6	40
Total	*912*	*438*	*73*	*39*	*362*	*474*

NMS=Noise Monitoring Station; DU=Dwelling Unit; AIP: Santa Ana Heights Acoustical Insulation Program
Source: *Noise Analysis Technical Report*, Table 31, Landrum & Brown, 2014.

Significant indoor noise impacts occur when the interior noise level exceeds 45 CNEL. The residences located within the AIP that were insulated achieve sufficient outdoor-to-indoor reduction, such that the future interior noise levels under the Alternatives shown will be less than 45 CNEL. Therefore, the interiors of these residences will not be significantly impacted and no mitigation is required. The remaining residences that were not insulated may be impacted unless additional sound insulation is provided. Mitigation Measure N-1 outlines the parameters for determining those noise sensitive uses that would be considered for implementation of a sound insulation program.

As a part of the AIP, the noise reduction of the treated residences were measured before and after the insulation. The "before" measurements provide a reasonable estimate of the noise reduction provided by the residences that were not treated. Of the 903 rooms tested, only 2.5 percent had a noise reduction of 20 dB or less. In all cases, those residences that had a room with a noise reduction of 20 dB or less, the noise reduction of the other rooms was considerably higher. This indicates that these rooms had specific deficiencies that are not typical. Approximately 95 percent of the untreated rooms achieved more than 22 dB of outdoor-to-

indoor noise reduction. Therefore, most of the remaining untreated residences would need to be exposed to outdoor noise levels of 67 dB CNEL or greater in order to experience interior noise levels greater than 45 dB CNEL. The measured noise reduction in the vast majority of rooms, 75 percent, was 25 dB or greater before acoustical insulation was provided. These rooms would need to be exposed to outdoor noise levels greater than 70 dB CNEL in order for the interior noise level to exceed 45 dB CNEL

Mitigation Measure N-1: Sound Insulation Program Eligibility – County of Orange

N-1 Starting with the 2015 Fourth Quarter Noise Report,[12] the annual noise levels at NMS 1S, 2S, and 3S will be compared by the County of Orange to the 2013 annual noise levels. If the noise levels have increased by 1.5 dB or more at any of these NMS, all noise sensitive uses represented by that NMS (i.e., that is the closest NMS to the parcel) that have not been previously insulated under the 1985 AIP will be eligible for evaluation for participation in the Sound Insulation Program ("SIP") as described in Mitigation Measure N-3. Those uses with interior noise levels exceeding an average of 45 CNEL will be eligible for insulation under the SIP as described in the mitigation measure.

For those uses with interior noise levels less than 45 CNEL, the amount of outdoor-to-indoor noise reduction for each habitable room will be recorded. In each subsequent Fourth Quarter Noise Report, 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 described in Mitigation Measure N-3.

Mitigation of Impacts Based on Newport Beach Significance Thresholds

As previously discussed, the City of Newport Beach has adopted significance thresholds for noise that are more restrictive than those recommended by the FAA and used by the County. Impact analysis for Threshold 4.6-1 shows that Proposed Project, Phase 3; Alternative A, Phase 3; Alternative B, Phases 2 and 3; and all Phases of Alternative C would result in significant impacts due to a noise exposure between 65 and 75 CNEL and a 1 dB increase over existing conditions.

Table 4.6-30 presents the number of residences in the City of Newport Beach that are projected to have a noise exposure exceeding 65 CNEL and an increase over existing conditions of 1.0 dB or more. The total number of impacted residences are shown in the first column of values. The remaining columns break out the number of residences that were insulated and not insulated under the 1985 Master Plan AIP along with the number of residences outside of the AIP. The number of residences within the AIP area that were insulated under the program is shown in the second column of values.

The number of residences that were included in the AIP but were not insulated are presented in the next two columns. These columns show the number of residences that were not insulated that conform to the SAHSP zoning and the number of residences that are non-conforming uses.

[12] As described above, quarterly reports are available on the airport web site.

The next column shows the number of du that are located outside of the SIP area. The final column shows the total number of residences that have not been previously insulated.

TABLE 4.6-30
NUMBER OF NEWPORT BEACH RESIDENCES EXPOSED TO 65 CNEL OR GREATER AND AN INCREASE OVER EXISTING CONDITIONS OF 1.0 dB OR MORE

Nearest NMS	Total DU	Within AIP Insulated	Within AIP Not Insulated		Outside SIP Not Insulated	Total Not Insulated
			Conforming	Non-Conforming		
Proposed Project, Phase 3						
2S	23	8	5	10	0	15
Total	*23*	*8*	*5*	*10*	*0*	*15*
Alternative A, Phase 3						
1S	74	66	7	1	0	8
2S	22	7	5	10	0	15
Total	*96*	*73*	*12*	*11*	*0*	*23*
Alternative B, Phase 2						
1S	79	70	8	1	0	9
2S	24	9	5	10	0	15
Total	*103*	*79*	*13*	*11*	*0*	*24*
Alternative B, Phase 3						
1S	309	295	13	1	0	14
2S	94	13	6	75	0	81
3S	188	93	19	76	0	95
Total	*309*	*295*	*13*	*1*	*0*	*14*
Alternative C, Phase 1						
1S	322	303	17	2	0	19
2S	118	28	16	74	0	90
3S	47	30	15	1	1	17
Total	*487*	*361*	*48*	*77*	*1*	*126*
Alternative C, Phase 2						
1S	647	315	16	7	293	316
2S	145	42	24	31	48	103
3S	121	81	33	1	5	39
Total	*913*	*438*	*73*	*39*	*346*	*458*
Alternative C, Phase 3						
1S	646	315	16	7	292	315
2S	145	42	24	31	48	103
3S	121	81	33	1	5	39
Total	*912*	*438*	*73*	*39*	*345*	*457*

Source: *Noise Analysis Technical Report,* Table 33, Landrum & Brown 2014.

Mitigation Measure LU-2. described in Section 4.5, Land Use and Planning, provides a process for avoiding the exterior noise impacts forecasted to occur for the Proposed Project, Alternative A, and Alternative B. Briefly, Mitigation Measure LU-2 would limit increases in MAP and/or ADD to ensure that noise increases at NMS 1S and 2S would be less than 1 CNEL Because there is no practical method for mitigating outdoor noise levels, the data presented in the "Total DU" column for all phases of Alternative C in Table 4.6-29 identifies the total number of residences that will be subject to a significant and unavoidable outdoor noise impact.

Significant indoor noise impacts occur when the interior noise level exceeds 45 CNEL. The residences located within the AIP that were insulated achieve sufficient outdoor-to-indoor reduction, such that the future interior noise levels under the Alternatives shown will be less than 45 CNEL. Therefore, the interiors of these residences will not be significantly impacted and no mitigation is required. The remaining residences that were not insulated may be impacted unless additional sound insulation is provided. Mitigation Measure N-2 outlines the parameters for determining those noise sensitive uses that would be considered for implementation of a sound insulation program.

As a part of the AIP, the noise reduction of the treated residences were measured before and after the insulation. The "before" measurements provide a reasonable estimate of the noise reduction provided by the residences that were not treated. Of the 903 rooms tested, only 2.5 percent had a noise reduction of 20 dB or less. In all cases, those residences that had a room with a noise reduction of 20 dB or less, the noise reduction of the other rooms was considerably higher. This indicates that these rooms had specific deficiencies that are not typical. Approximately 95 percent of the untreated rooms achieved more than 22 dB of outdoor-to-indoor noise reduction. Therefore, most of the remaining untreated residences would need to be exposed to outdoor noise levels of 67 dB CNEL or greater in order to experience interior noise levels greater than 45 dB CNEL. The measured noise reduction in the vast majority of rooms, 75 percent, was 25 dB or greater before acoustical insulation was provided. These rooms would need to be exposed to outdoor noise levels greater than 70 dB CNEL in order for the interior noise level to exceed 45 dB CNEL.

Mitigation Measure N-2: Sound Insulation Program Eligibility – City of Newport Beach

N-2 Starting with the 2015 Fourth Quarter Noise Report,[13] the annual noise levels at NMS 1S, 2S, and 3S will be compared by JWA to the 2013 annual noise levels. If the noise levels have increased by 1.0 dB or more at any of these NMS, all noise sensitive uses represented by that NMS (i.e., that is the closest NMS to the parcel) exposed to noise levels of 65 CNEL or greater that have not been previously insulated under the 1985 AIP will be eligible for evaluation for participation in the Sound Insulation Program ("SIP") as described in Mitigation Measure N-3. Those uses with interior noise levels exceeding 45 CNEL will be eligible for insulation under the SIP as described in the mitigation measure.

For those uses with interior noise levels less than 45 CNEL, the amount of outdoor-to-indoor noise reduction for each habitable room will be recorded. In each subsequent Fourth Quarter Noise Report, the noise level impacting these uses and the measured noise reduction will be used to estimate the interior noise level. If the estimated interior

[13] As described above, quarterly reports are available on the Airport web site.

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 described in Mitigation Measure N-3.

All three Phases of Alternative C will result in significant impacts to the residences in the City of Newport Beach along the edge of Newport Back Bay represented by NMS 4S, 5S, 6S, and 7S (note Phase 1 of Alternative C only impacts the area near NMS 6S). Table 4.6-31 presents the number of residences that would be significantly impacted by each of these Phases of Alternative C.

As described above in the general description of the FAA Acoustical Insulation Program, the FAA has mandated that aircraft noise sound insulation programs can only be funded by the FAA or the airport operator when noise exposures are greater than 65 CNEL. Therefore, the use of a sound insulation program is not available to mitigate impacts for residences outside the 65 CNEL contour because there is no funding source (FAA 2012). These residences would be unavoidably and significantly impacted by aircraft noise under Alternative C.

TABLE 4.6-31
NUMBER OF NEWPORT BEACH RESIDENCES EXPOSED TO 60 CNEL AND 65 CNEL AND AN INCREASE OF 2.0 dB OR GREATER OVER EXISTING CONDITIONS

Nearest NMS	Residences
Alternative C, Phase 1	
6S	75
Total	*75*
Alternative C, Phase 2	
4S	112
5S	311
6S	797
7S	261
Total	*1,481*
Alternative C, Phase 3	
4S	112
5S	311
6S	797
7S	261
Total	*1,481*

Source: *Noise Analysis Technical Report,* Table 34, Landrum & Brown 2014.

Mitigation Measure N-3: Sound Insulation Program

N-3 The only practical way to mitigate indoor noise levels is through a Sound Insulation Program (SIP). Mitigation Measure LU-1, as described in the Section 4.5, Land Use, and Mitigation Measures N-1 and N-2, described above, will determine the sensitive land uses that will be eligible for participation in the SIP described below as Mitigation Measure N-3. FAA regulations require that residences be exposed to an outdoor noise level of 65 CNEL or greater and interior noise levels greater than 45 CNEL for FAA or Airport funds to be used for sound insulation. The referring Mitigation Measures, LU-1, N-1, and N-2, will ensure the outdoor noise criterion is met. The interior noise level criterion will be determined in the evaluation phase of Mitigation Measure N-3. Sensitive uses with interior noise levels greater than 45 CNEL will be eligible for sound insulation.

The FAA guidance for implementing sound insulation programs specifically states that the average noise level in all habitable rooms of a residence or all educational spaces in school must be greater than 45 CNEL for the use to be eligible for sound insulation funded by the Airport or FAA. However, the County's noise standards specifically require that the noise level in <u>any</u> habitable room or educational space must be less than 45 CNEL. This is implied in the City of Newport Beach's noise standards, as well. Under CEQA, the lead agency's noise standard is used to determine impacts. Therefore, a noise sensitive use is considered significantly impact if the noise level in any habitable room or educational space exceeds 45 CNEL.

As discussed below, the Airport will request that the FAA waive its requirement that the average noise level in all habitable rooms or educational spaces exceed 45 CNEL in order for sound insulation to be funded by the FAA or Airport in order that all noise related impacts are mitigated to a less than significant level in a timely manner. If the FAA does not agree to waive this requirement, then uses with one or more habitable rooms or educational spaces exceeding 45 CNEL but with the average noise level in all habitable rooms or educational spaces less than 45 CNEL would be significantly and unavoidably impacted as there is no other funding source for a SIP. However, these uses would be eligible for insulation when and if the average noise level exceeded 45 CNEL. As discussed in Mitigation Measures, LU-1, N-1, and N-2, if an individual land use is not eligible for insulation because the interior noise level does not exceed 45 CNEL, there are criteria for re-evaluation. If the annual report noise levels and previous evaluation measurements indicate that the use may meet the interior noise requirement it will be re-evaluated for insulation eligibility.

Part 1, Evaluation: When Mitigation Measures LU-1, N-1, or N-2 determines 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.

Per FAA guidance, noise levels will be measured with all windows and doors closed. Uses with measured interior noise levels less than 45 CNEL that do not have an existing central ventilation system, but rely on keeping windows open for air circulation will be eligible for a Continuous Positive Ventilation System. Implementation of such a system will be dependent on meeting the FAA requirements for implementation of such a system.

Part 2, Sound Insulation Program: Schools or residences that have interior noise levels exceeding 45 CNEL as determined by the evaluation measurements will be eligible for sound insulation. The implementation of sound insulation will depend on satisfying the FAA criteria described in Chapter 812 of Order 5100.38C Airport Improvement Program Handbook.

Note that as an alternative to providing sound insulation, an impacted property may also be mitigated by converting an incompatible use to a compatible use or removing the incompatible use.

4.6.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impact analysis shows that significant exterior noise impacts are projected to occur with each phase of the Proposed Project and all alternatives, including the No Project Alternative. Residence, that are currently exposed to noise levels less than 65 CNEL would be impacted if exposed to noise levels greater than or equal to 65 CNEL. In addition to residential areas, with Alternative C, the Peter and Mary Muth Interpretive Center (an educational facility with outdoor classrooms) would be exposed to exterior noise levels in excess of adopted standards. Mitigation measure LU-2, as described in the Section 4.5, Land Use, would avoid the exterior noise impacts for the Proposed Project, Alternative A, and Alternative B. Because there is no practical method for mitigating outdoor noise levels, the sensitive land uses that would be impacted under Alternative C would be subject to a significant and unavoidable outdoor noise impact.

Impact analysis shows that potentially significant interior noise impacts are projected to occur with each phase of the Proposed Project and all alternatives, including the No Project Alternative. Significant indoor noise impacts occur when the interior noise level exceeds the 45 CNEL interior noise standard. The residences exposed to noise levels in excess of 65 CNEL that were not insulated may have significant interior noise impacts unless sound insulation is provided. Some of the residences located within the AIP were previously insulated to achieve sufficient outdoor-to-indoor reduction, such that the future interior noise levels under the Proposed Project and alternatives would be less than 45 CNEL. Therefore, the interiors of these residences would not be significantly impacted and no mitigation would be required, with the potential exception of 4 residences in Alternative C, Phase 1 and 33 residences in Alternative C, Phases 2 and 3 that received insulation as part of the AIP for being within the 65 to 70 CNEL contour and would now be exposed to noise levels in excess of 70 CNEL. Potentially significant noise impacts to schools and places of worship are also projected to occur with all phases of Alternative C. With implementation of Mitigation Measure N-3, potentially significant interior noise impacts that would occur could be reduced to less than significant. However, it cannot be determined at this time whether the noise evaluation conducted as part of the SIP will find that the <u>average</u> noise levels in all habitable rooms of residences, schools, or places of worship exceed 45 CNEL even though the noise level in one or more habitable rooms may exceed 45 CNEL As previously described, if the average value does not exceed 45 CNEL and the FAA does not grant a waiver from the average level evaluation methodology, there would be no funding source and the SIP

could not proceed. Therefore, at this time all potential interior noise impacts must be determined to be significant and unavoidable.

Alternative C Phases 2 and 3 would also impact the residences surrounding Newport Back Bay represented by NMS 4S, 5S, 6S, and 7S. These residences are projected to be impacted because they would experience a noise level increase of 3.0 dB or greater; however, the absolute noise levels at these residences will be less than 65 CNEL. Table 4.6-32 presents the number of residences that would be significantly impacted. In an August 2012 Memorandum, the FAA mandated that aircraft noise sound insulation programs can only be funded by the FAA or the Airport operator when noise exposures are greater than 65 CNEL (FAA 2012). Therefore, the measures used previously to address impacts in Santa Ana Heights are not available to mitigate impacts for residences outside the 65 CNEL contour because there is no funding source. Therefore, these residences would be significantly and unavoidably impacted by aircraft noise under the Alternative C, Phases 2 and 3.

TABLE 4.6-32
NUMBER OF RESIDENCES EXPOSED TO 60 CNEL OR GREATER AND AN INCREASE OVER EXISTING CONDITIONS OF 3.0 dB OR GREATER

Nearest NMS	Residences
Alternative C, Phase 2	
4S	472
5S	311
6S	797
7S	261
Total	*1,841*
Alternative C, Phase 3	
4S	473
5S	311
6S	797
7S	261
Total	*1,842*

Source: *Noise Analysis Technical Report,* Table 32, Landrum & Brown 2014.

The noise impact findings are summarized in Table 4.6-33.

TABLE 4.6-33
SUMMARY OF NOISE IMPACTS

Threshold	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Threshold 4.6-1	***Orange County Standards*** Less than significant impacts (All phases)	***Orange County Standards*** Less than significant impacts (All phases)	***Orange County Standards*** Less than significant impact (All phases)	***Orange County Standards*** Significant, unavoidable impact (All phases)	***Orange County Standards*** Less than significant impacts (All phases)
	Newport Beach Standards Less than significant impact (All phases)	***Newport Beach Standards*** Less than significant impact (All phases)	***Newport Beach Standards*** Less than significant impact (All phases)	***Newport Beach Standards*** Significant, unavoidable impact (All phases)	***Newport Beach Standards*** Less than significant impacts (All phases)
Threshold 4.6-2	*Exterior Noise:* Significant, unavoidable impact (all phases) *Interior Noise:* Significant, unavoidable impact (All phases)	*Exterior Noise:* Significant, unavoidable impact (all phases) *Interior Noise:* Significant, unavoidable impact (All phases)	*Exterior Noise:* Significant, unavoidable impact (all phases) *Interior Noise:* Significant, unavoidable impact (All phases)	*Exterior Noise:* Significant, unavoidable impact (all phases) *Interior Noise:* Significant, unavoidable impact (All phases)	*Exterior Noise:* Significant, unavoidable impact (all phases) *Interior Noise:* Significant, unavoidable impact (All phases)
Threshold 4.6-3	Less than significant impacts (All phases)	Less than significant impacts (All phases)	Less than significant impacts (All phases)	Less than significant impacts (All phases)	Less than significant impacts (All phases)
Threshold 4.6-4	Less than significant impacts (All phases)	Less than significant impacts (All phases)	Less than significant impacts (All phases)	Less than significant impacts (All phases)	Less than significant impacts (All phases)

4.6.9 REFERENCES

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4.7 PUBLIC SERVICES

This section discusses Project-related impacts to existing fire and police protection services in the vicinity of John Wayne Airport ("JWA" or "the Airport").

As discussed on page 32 of the Notice of Preparation/Initial Study for the Project, a copy of which is located in Appendix A of this EIR, the Project would not result in potentially significant impacts to schools, parks and other public facilities. Therefore, these topics are not discussed in this section.

4.7.1 REGULATORY SETTING

FIRE PROTECTION

Federal Aviation Administration Part 139 Airport Certification

To ensure that appropriate safety levels are met at airports, the *Code of Federal Regulations* ("CFR", Title 14, Part 139) requires the Federal Aviation Administration ("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 and provide for such things as firefighting and rescue equipment. The exact parameters of these standards vary depending on the size of the airport and the type of flights available.

4.7.2 METHODOLOGY

The threshold of significance for this topic focuses on whether there would be adverse physical impacts associated with new or altered facilities for the provision of public services. The methodology, therefore, evaluates the ability to serve the public using the existing fire and police facilities and services at JWA. Because of the nature of the Project (an airport), the evaluation of police protection has been expanded to include provision of other security services. Also, since the Project does not propose the construction of any facilities that would result in physical impacts, the analysis focuses on the potential need for new or physically altered governmental facilities.

For each scenario contemplated by the Project and Alternatives, the greatest demand would be during Phase 3, when the most flights and passengers are permitted. Therefore, the analysis is based on the horizon-year capacity and operational assumptions (*i.e.,* the 2026–2030 timeframe) compared to the existing conditions, unless there the analysis indicates that an interim phase may result in potential impacts.

4.7.3 EXISTING CONDITIONS

FIRE PROTECTION SERVICES

As a Class I airport, JWA is required to meet certain safety standards regarding personnel training and equipment at the Airport, including Aircraft Rescue and Fire Fighting ("ARFF")

services. The Orange County Fire Authority ("OCFA") provides, on a contract basis, specialized ARFF services to the Airport that meet FAA requirements. Fire Station 33, located on the west side of the Airport at 380 Paularino Street in Costa Mesa, is a dedicated station (serves only JWA) that provides ARFF response to aircraft-related emergencies. If necessary, these services are augmented by the response of personnel and equipment from other OCFA stations and from surrounding jurisdictions, including the cities of Newport Beach and Costa Mesa Fire Departments through mutual aid agreements.

The closest emergency fire, hazardous materials, rescue, and medical services are provided by the OCFA from Fire Stations 33 and 28 (one mile away from JWA), Fire Station 6 (four miles away from JWA), and Fire Station 4 (three miles away from JWA). The Newport Beach Fire Department's Station 7 is located one mile away. The Costa Mesa Fire Department's Station on Baker Street is located two miles away from JWA.

POLICE SERVICES

Transportation Security Administration

In 2002, the Transportation Security Administration ("TSA") started screening passengers at JWA. In 2003, TSA initiated the screening of baggage at the Airport. In the past few years, JWA has worked with TSA to facilitate the installation of new screening equipment in Terminals A and B (the older terminals) to meet the updated TSA Planning Guidelines Design Standards. This includes replacing the checked baggage screening system and the Explosive Detection System ("EDS") equipment.

U.S. Immigration and Customs Enforcement

As an international airport, JWA is required to provide dedicated space for the inspection of passengers, crew, and baggage by federal inspectors. This includes U.S. immigration, customs, agriculture, and public health officers. These Federal Inspection Service ("FIS") facilities are located in the lower (arrivals) level of Terminal C and were constructed as part of the Terminal C project completed in November 2011.

The FIS facilities at JWA are approximately 28,378 square feet. There are currently two terminal gates that accommodate international operations (Gates 13 and 14), both of which have passenger loading bridges. In the processing of arriving international passengers, it is important that international passengers be kept separate from domestic passengers, until the international passengers clear U.S. immigration and customs officers. In order to achieve this separation of international passengers, Gates 13 and 14 are connected to a sterile corridor, leading passengers directly downstairs to the FIS facilities (AECOM 2014b).

The U.S. Immigration and Customs Enforcement ("ICE") agency currently provides immigration and customs screening at JWA for all international flights. It is estimated that approximately 16 daily international flights could be accommodated using the existing FIS facilities. This assumes that flights are on the ground for 1.5 hours to allow for passenger deplaning, aircraft servicing, and passenger enplaning, and assumes approximately one (1) hour between arriving international flights. The existing FIS facilities were designed to accommodate about 300 international passengers per hour.

In November 2013, John Wayne Airport submitted a formal request to U.S. Customs and Border Protection for Port of Entry status. Designation of JWA as a Port of Entry would not require changes to the Airport's existing FIS facilities, but rather would impact how immigrations and customs services at the Airport are funded.

Orange County Sheriff's Department

The Orange County Sheriff's Department ("OCSD") provides law enforcement and security services at JWA through a substation located in the terminal building. Police services are provided based on the Airport's demand. The OCSD also operates canine explosive detection and narcotics teams. Primary responsibilities of Airport police services include enforcing applicable laws, controlling parking and traffic, and assisting citizens in conducting business at the Airport. In addition, other measures not directly visible to the public have been implemented, but for security reasons are not publicly discussed.

4.7.4 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist, the Project would result in a significant impact related to public services if it would:

Threshold 4.7-1 Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for:

i. Fire protection

ii. Police protection

4.7.5 IMPACT ANALYSIS

Threshold 4.7-1 **Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for:**

i. Fire protection?

ii. Police protection?

PROPOSED PROJECT

Fire Protection

With the Proposed Project, there would be an increase in the number of flights and passengers served at the Airport and thus a theoretical increase in the demand for ARFF and other fire protection services at JWA. Station 33, which provides ARFF services and emergency medical response, and Station 28, which provides fire protection and emergency medical response, are appropriately staffed and have sufficient equipment to respond adequately to an aviation incident at the Airport. As the Proposed Project would not change the type of aircraft or the

nature of the operations, the requirements to respond to an incident with an aircraft would not be different than under existing conditions. The existing facilities would be sufficient to respond to the need for fire protection services. Therefore, the Proposed Project would not result in any modifications for services pursuant to the requirements of 14 CFR Part 139.

With an increase of number of passengers, the likelihood of emergency calls (such as emergency medical response) would increase. The Proposed Project would not change response times because the service area and facilities would not change. The increased demand for fire protection services would not result in physical environmental effects and would not be considered significant.

Impact Conclusion: *The Proposed Project would result in less than significant impacts to fire protection services because the existing fire facilities would be able to accommodate the increase in demand for fire protection services.*

POLICE/SECURITY PROTECTION

Transportation Security Administration

The Proposed Project would increase the demand for TSA services due to the increase in the number of passengers. The TSA staffing requirement is a function of the number of screening stations, peak passenger levels, and the type of equipment/technology available. Federal funding levels for TSA also influences staffing levels. No new TSA-related facilities are proposed by the Project; therefore, additional staffing would not be required to accommodate new facilities.

The overall level of service also is not expected to substantially deteriorate. The TSA screening stations are designed to accommodate the peak period passenger demand at the Airport. The peak period at the Airport generally maximizes the use of the available gates and the flight activity during the peak period is not expected to substantially increase under the Proposed Project. Rather, the majority of the additional flights would occur at either non-peak hours or the peak period would be extended; therefore, it is anticipated that TSA levels of service would be comparable to existing service during peak periods. (As also discussed in Section 4.5, Land Use, the Proposed Project would not exceed the historic peaks for the number of enplanements per gate that have been served at JWA.) Impacts to TSA services would be less than significant.

U.S. Immigration and Customs Enforcement

As discussed in Section 3, Project Description, international flights at JWA represent an emerging market. Based on the *Aviation Forecast Technical Report* (AECOM 2014a), Phase 3 of the Proposed Project is projected to serve 13.8 international flights per day. This is below the FIS design capacity, which can accommodate 16 daily international flights. No new facilities would be required. Therefore, overall levels of service for ICE would be maintained as the number of international flights increases. Impacts to ICE services would be less than significant.

Orange County Sheriff's Department

Similar to fire protection services, the increased number of flights and passengers at JWA under the Proposed Project would increase demand for police protection services. The increased demand would be associated with increased security in the terminal area; enforcement of the drop-off/pick-up and parking requirements; and responding to incidents at the Airport. The number of OCSD officers assigned to JWA is based on the identified demand at any given time.

Staffing is based on area coverage. Sufficient staffing is available to respond to multiple concurrent incidents at the Airport. Though the Proposed Project would increase the number of people using the Airport, it would not alter the characteristics of operations or add new facilities; therefore, no substantial impact to response times is anticipated and no new facilities would be required. Less than significant impacts are expected.

Impact Conclusion: *The Proposed Project would result in less than significant impacts to police/security protection services because it would not interfere with the sheriff/security response times and because existing facilities can accommodate the increased number of flights and passengers.*

ALTERNATIVE A

Fire Protection

With Alternative A, there would be an increase in the number of flights and passengers served at the Airport. Similar to the Proposed Project, there would be a theoretical increase in demand for ARFF and other fire protection services at JWA. As with the Proposed Project, however, Alternative A would not change the type of aircraft; the nature of the operations; or the requirements to respond to an incident with an aircraft. Station 33, which provides ARFF services, is appropriately staffed and has sufficient equipment to adequately respond to an aviation incident at the Airport. The existing facilities would be sufficient to respond to the need for fire protection services. Additionally, Alternative A would not result in any modifications for services pursuant to the requirements of 14 CFR Part 139.

The increased number of passengers associated with Alternative A would increase the likelihood of emergency calls requiring services of the emergency services staff. However, the response times would not be substantially altered because the service area and facilities would not change. The increased demand for fire protection services would not result in physical environmental effects and would not be considered significant.

Impact Conclusion: *Alternative A would result in less than significant impacts to fire protection services because the existing fire facilities would be able to accommodate the increase in demand for fire protection services.*

Police/Security Protection

Transportation Security Administration

Alternative A would increase the demand for TSA services due to the increase in the number of passengers being served at JWA. The TSA screening stations are designed to accommodate the peak period passenger demand at the Airport. Under existing conditions, the peak period at the Airport generally maximizes the use of the available gates and TSA is able to accommodate the demand. Greater demand would be placed on TSA when gate capacity is exceeded because that is an indicator of the number of passengers needing to go through security screening. The gate capacity analysis is discussed in Section 4.5, Land Use. With Phase 3 of Alternative A, there would be 307,500 enplanements per gate, which exceeds the threshold that was established for the gate capacity analysis (i.e., 90 percent of the historical peak throughput per gate with a passenger loading bridge or approximately 306,000 enplanements). During peak periods, there would be more people needing to go through screening checkpoints and the level of service may be

reduced compared to existing conditions. This would result in longer lines waiting to enter the TSA screening stations; however, TSA requirements would continue to be complied with. It should be noted, passenger level this would not exceed the peak reached in 2007 where 356,418 enplanements per gate with a passenger loading bridge were processed through TSA security screening without incident.

The threshold of significance focuses on the potential for environmental impacts associated with improvements needed to maintain acceptable service levels. No new facilities are proposed. Passengers traveling at peak times will need to allocate more time for going through screening. Should TSA determine that the expansion of screening facilities are required to accommodate the additional number of passengers, the equipment would be installed within the limits of the terminal building and secured areas. The introduction of new screening areas within the existing terminal would not result in significant environmental impacts. Impacts to TSA services would be less than significant.

U.S. Immigration and Customs Enforcement

Based on the *Aviation Forecast Technical Report* (Appendix B) (AECOM 2014a), Phase 3 of Alternative A is projected to serve 14.1 international flights per day. This is below the FIS design capacity of 16 daily international flights. No new facilities would be required. Therefore, overall levels of service for ICE would be maintained as the number of international flights increase. Impacts to ICE services would be less than significant.

Orange County Sheriff's Department

Similar to fire protection services, the increased number of flights and passengers at JWA under Alternative A would increase demand for police protection services. As indicated above, staffing is based on area coverage. Sufficient staffing is available to respond to multiple concurrent incidents in each of the Airport terminals. Alternative A would not add new facilities; therefore, no substantial impact to response times is anticipated. Impacts to police protection services would be less than significant.

Impact Conclusion: *Alternative A would result in less than significant impacts to police/security protection services because it would not interfere with the sheriff/security response times and existing facilities can accommodate the increased number of flights and passengers.*

ALTERNATIVE B

Fire Protection

The analysis of fire protection for Alternative B is comparable to the Proposed Project and Alternative A. There would be a theoretical increase in demand for ARFF and other fire protection services at JWA. Alternative B, however, would not change the type of aircraft or the nature of the operations, and the requirements to respond to an incident with an aircraft would not be different. Station 33, which provides ARFF services, is appropriately staffed and has sufficient equipment to adequately respond to an aviation incident at the Airport. The existing facilities would be sufficient to respond to the need for fire protection services. Additionally, Alternative B would not result in any modifications for services pursuant to the requirements of 14 CFR Part 139.

The increased number of passengers associated with Alternative B would increase the likelihood of emergency calls requiring emergency services staff. The response times would not be substantially altered because the service area and facilities would not change. Any increased demand for fire protection services would not result in physical environmental effects and would not be considered significant.

Impact Conclusion: *Alternative B would result in less than significant impacts to fire protection services because the existing fire facilities would be able to accommodate the increase in demand for fire protection services.*

Police/Security Protection

Transportation Security Administration

Alternative B would increase the demand for TSA services due to the increase in the number of passengers. As discussed above, no new facilities are proposed. The TSA screening stations are designed to accommodate the peak period passenger demand at the Airport. Greater demand would be placed on TSA when gate capacity is exceeded because that is an indicator of the number of passengers needing to go through security screening. Phase 2 of Alternative B is projected to have 312,500 enplanements per gate with a passenger loading bridge, which would not exceed the peak reached in 2007 where 356,418 enplanements per gate were processed through security without incident. Phase 3, however, would have 362,500 enplanements per gate, which would exceed the 2007 peaks. By law, security measures would be enforced, so security would not be compromised; however, there would be a decline in level of service during peak periods. This would be an inconvenience to travelers at JWA and travelers would need to allocate more time for security clearance, but impacts to security are not anticipated.

As indicated above, the threshold of significance focuses on the potential for environmental impacts associated with improvements needed to maintain acceptable service levels. Similar to Alternative A, should TSA determine that the expansion of screening facilities are required to accommodate the additional number of passengers, the equipment would be installed within the limits of the terminal building and secured areas. The introduction of new screening areas within the existing terminal would not result in significant environmental impacts. Impacts to TSA services would be less than significant.

U.S. Immigration and Customs Enforcement

Based on the Aviation Forecast Technical Report (Appendix B) (AECOM 2014a), Alternative B, Phase 3 is projected to serve 16.6 international flights per day, which is above the FIS design capacity of 16 daily international flights. Though exceeding the design capacity of the facility has been identified as a land use impact (see, Section 4.5), it is not expected to result in security impacts because, by law, ICE requirements would still be enforced. Similar to TSA screening, during peak periods, there would be an inconvenience to travelers at JWA due to delays. This would be for a limited period during the day. The ability to expand the FIS facilities is restricted due to design requirements. Therefore, overall levels of service for ICE would decline, but there would be no environmental impacts because expanded facilities would not be provided. Impacts to ICE services would be less than significant.

Orange County Sheriff's Department

Similar to fire protection services, the increased number of flights and passengers at JWA under Alternative B would increase demand for police protection services. As indicated above, staffing is based on area coverage. Sufficient staffing is available to respond to multiple concurrent incidents in each of the Airport terminals. Alternative B would not add new facilities; therefore, no substantial impact to response times is anticipated. Less than significant impacts are expected.

Impact Conclusion: *Alternative B would result in less than significant impacts to police/security protection services because it would not interfere with the sheriff/security response times and because existing facilities can accommodate the increased number of flights and passengers.*

ALTERNATIVE C

Fire Protection

The analysis of fire protection for Alternative C is comparable to the Proposed Project and Alternatives A and B. There would be a theoretical increase in demand for ARFF and other fire protection services at JWA. Alternative C, however, would not change the type of aircraft or the nature of the operations, and the requirements to respond to an incident with an aircraft would not be different. Station 33, which provides ARFF services, is appropriately staffed and has sufficient equipment to adequately respond to an aviation incident at the Airport. The existing facilities would be sufficient to respond to the need for fire protection services. And, Alternative C would not result in any modifications for services pursuant to the requirements of 14 CFR Part 139.

The increased number of passengers associated with Alternative C would increase the likelihood of emergency calls requiring the services of the emergency services staff. The response times would not be substantially altered because the service area and facilities would not change. Any increased demand for fire protection services would not result in physical environmental effects and would not be considered significant.

Impact Conclusion: *Alternative C would result in less than significant impacts to fire protection services because the existing fire facilities would be able to accommodate the increase in demand for fire protection services.*

Police/Security Protection

Transportation Security Administration

Alternative C would increase the demand for TSA services due to the increase in the number of passengers, though no new facilities are proposed. As discussed above, greater demand would be placed on TSA when gate capacity is exceeded because that is an indicator of the number of passengers needing to go through security screening. Alternative C is projected to have 422,500 enplanements per gate with a passenger loading bridge. By law, security measures would be enforced so no safety requirements would be compromised. However, there would be decline in level of service during peak periods and travelers would be inconvenienced.

As discussed for the Proposed Project and other alternatives, the threshold of significance focuses on the potential for environmental impacts associated with improvements needed to maintain acceptable service levels. Should TSA determine that the expansion of screening facilities are required to accommodate the additional number of passengers, the equipment would be installed within the limits of the terminal building and secured areas. The introduction of new screening areas within the existing terminal would not result in significant environmental impacts. Impacts to TSA services would be less than significant.

U.S. Immigration and Customs Enforcement

Alternative C, Phases 2 and 3 are projected to exceed the FIS design capacity of 16 daily international flights. Based on the *Aviation Forecast Technical Report* (Appendix B) (AECOM 2014a), with Alternative C, Phase 2, 16.8 international flights per day are projected and Phase 3 projects 18.6 international flights per day. Similar to Alternative B, this has been identified as a land use impact (see Section 4.5), but is not expected to result in security impacts because, by law, ICE requirements would still be enforced. Similar to TSA screening, during peak periods, there would be an inconvenience to travelers at JWA due to delays. The ability to expand the FIS facilities is restricted due to design requirements. Therefore, overall levels of service for ICE would decline, but there would be no environmental impacts because expanded facilities would not be provided. Impacts to ICE services would be less than significant.

Orange County Sheriff's Department

Similar to fire protection services, the increased number of flights and passengers at JWA under Alternative C would increase demand for police protection services. As indicated above, staffing is based on area coverage. Sufficient staffing is available to respond to multiple concurrent incidents in each of the Airport. Alternative C would not add new facilities; therefore, no substantial impacts to response times are anticipated. Less than significant impacts are expected.

Impact Conclusion: *Alternative C would result in less than significant impacts to police/security protection services because it would not interfere with the sheriff/security response times and because existing facilities can accommodate the increased number of flights and passengers.*

NO PROJECT ALTERNATIVE

Fire Protection

The No Project Alternative would result in an increase in the number of flights and passengers served at the Airport compared to existing conditions, and thus a theoretical increase in the demand for ARFF and other fire protection services at JWA. Station 33, which provides ARFF services, is appropriately staffed and has sufficient equipment to appropriately respond to an aviation incident at the Airport. Since the No Project Alternative would not change the type of aircraft or the nature of the operations, the requirements to respond to an incident with an aircraft would not be different. The existing facilities would be sufficient to respond to the need for fire protection services. Additionally, the No Project Alternative would not result in any modifications for services pursuant to the requirements of 14 CFR Part 139.

With an increase in the number of passengers, the likelihood of emergency calls (such as emergency medical response) would increase. The physical response area would not change

because the service area and facilities would not change. The increased demand for fire protection services would not result in physical environmental effects and would not be considered significant.

Impact Conclusion: *The No Project Alternative would result in less than significant impacts to fire protection services because the existing fire facilities would be able to accommodate the increase in demand for fire protection services.*

Police/Security Protection

Transportation Security Administration

The No Project Alternative would increase the demand for TSA services would be associated with the increase in the number of passengers. As previously indicated, the staffing requirement for TSA is a function of the number of screening stations, peak passenger levels, and the type of equipment/technology available. No new facilities are proposed. The overall level of service is not expected to substantially deteriorate. The TSA screening stations are designed to accommodate the peak period passenger demand at the Airport. The peak period at the Airport generally maximizes the use of the available gates, and the flight activity during the peak period is not expected to substantially increase. As discussed in Section 4.5, Land Use, the No Project Alternative would not exceed the historic peaks that have been served at JWA. Impacts to TSA services would be less than significant.

U.S. Immigration and Customs Enforcement

Based on the *Aviation Forecast Technical Report* (Appendix B) (AECOM 2014a), the No Project Alternative is projected to serve 8.4 international flights per day. This is below the FIS design capacity, which can accommodate 16 daily international flights. No new facilities would be required. Therefore, overall levels of service for ICE would be maintained as the number of international flights increase. Impacts to ICE services would be less than significant.

Orange County Sheriff's Department

Similar to fire protection services, the increased number of flights and passengers at JWA under the No Project Alternative would increase demand for police protection services. As indicated above, staffing is based on area coverage. Sufficient staffing is available to respond to multiple concurrent incidents in each of the Airport terminals. The No Project Alternative would not alter operations or add new facilities; therefore, no impact to response times is anticipated. Less than significant impacts are expected.

Impact Conclusion: *The No Project Alternative would result in less than significant impacts to police/security protection services because it would not interfere with the sheriff/security response times and because existing facilities can accommodate the increased number of flights and passengers.*

4.7.6 MITIGATION PROGRAM

No significant impacts were identified; therefore, no mitigation is required.

4.7.7 LEVEL OF SIGNIFICANCE AFTER MITIGATION

For all scenarios, the impacts on public services would be less than significant and no mitigation is required. Alternative A, Phase 3, Alternative B, Phases 2 and 3, and all Phases of Alternative C would result in longer delays at TSA screening facilities during peak hours. Alternative B, Phases 2 and 3 and all Phases of Alternative C would also result in processing delays for international passengers. This would be an inconvenience for passengers, but would not result in security impacts or environmental impacts associated with the need to construct new facilities. The Proposed Project and the No Project Alternative would accommodate the increased passenger levels and number of flights without exceeding the capacity of the existing facilities.

A summary of the level of significance for each threshold is provided in Table 4.7-1.

TABLE 4.7-1
SUMMARY OF PUBLIC SERVICES IMPACTS

Threshold	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Threshold 4.7-1	**Fire Protection** Less than significant impact **Police/Security Protection** Less than significant impact	**Fire Protection** Less than significant impact **Police/Security Protection** Less than significant impact	**Fire Protection** Less than significant impact **Police/Security Protection** Less than significant impact	**Fire Protection** Less than significant impact **Police/Security Protection** Less than significant impact	**Fire Protection** Less than significant impact **Police/Security Protection** Less than significant impact

4.7.8 REFERENCES

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4.8 TRANSPORTATION/TRAFFIC

This section discusses Project-related impacts associated with transportation and circulation, specifically with respect to vehicular traffic impacts on the roadway circulation system surrounding the Project site. The potential impacts of the Project were evaluated in detail in the *John Wayne Airport Transportation Impact Analysis* (Fehr & Peers, 2014). The findings of this technical report are summarized in this section. The technical report is provided as Appendix G of this EIR.

The Project does not propose any construction of improvements at the Airport; therefore, increased hazards due to a design feature; inadequate emergency access; or conflict with adopted policies, plan or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities were determined not to be applicable. Therefore, these topics are not discussed in this section (refer to the Notice of Preparation ["NOP"]/Initial Study in Appendix A).

4.8.1 REGULATORY SETTING

REGIONAL REGULATIONS

Orange County Congestion Management Program

The Orange County Congestion Management Program ("CMP") was originally adopted in 1991 and updated most recently in 2011. 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 current Land Use Analysis Program of the CMP is the preparation by local jurisdictions of a Traffic Impact Analysis Study ("TIS"). The TIS reports 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 TIS has additional requirements and evaluations compared to a typical traffic study. A TIS report 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 standards. Where applicable these standards have been incorporated into the thresholds of significance for determining if the Project would result in a significant impact. The goals and policies applicable to JWA from the General Plans for the County of Orange and cities of Newport Beach, Irvine, Costa Mesa, Santa Ana, and Tustin have been addressed in Section 4.5, Land Use and Planning.

4.8.2 METHODOLOGY

The study area was identified through an iterative process in cooperation with the local jurisdictions surrounding the Airport. As a starting point, the study area from the previous Settlement Agreement Amendment (completed in 2001) was utilized. This study area was then provided to the following state, regional, and local agencies for their review and comment:

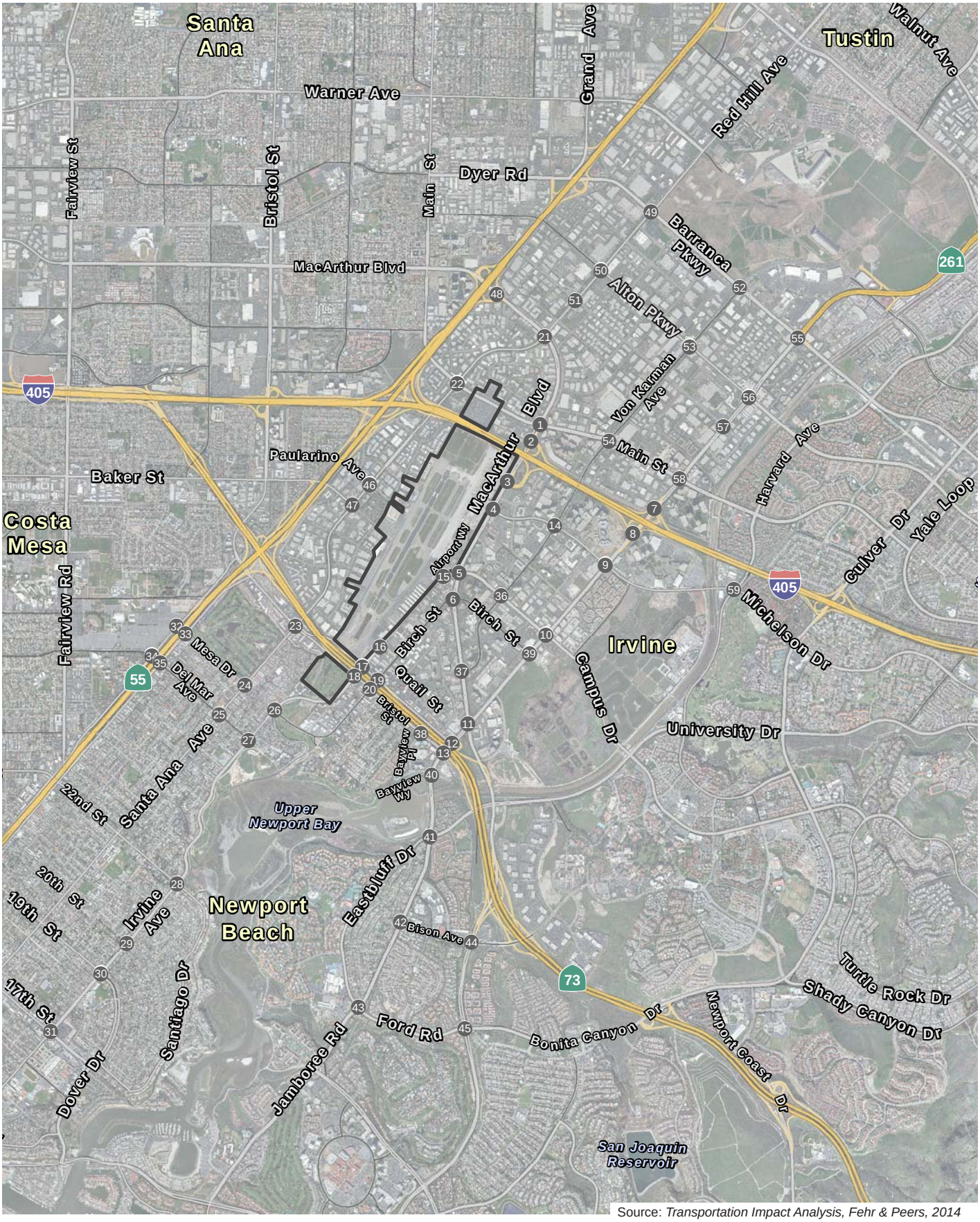
- OCTA
- City of Costa Mesa
- City of Irvine
- County of Orange
- City of Newport Beach
- California Department of Transportation ("Caltrans")
- Transportation Corridor Agencies ("TCA")

The study area was modified to include additional study locations requested by the local jurisdictions. The City of Irvine requested a four-step process for determining the intersections that required evaluation in the traffic analysis. The process requested by the City of Irvine, which is discussed in Appendix B of the *Transportation Impact Analysis* (the full report is provided in Appendix G), identified those locations that would carry more than 50 peak hour Project-related trips and were identified in the comprehensive study for the Irvine Business Complex ("IBC") as operating at a deficient level of service in either a near-term or longer-term scenario. These locations were added to the traffic study area. Exhibit 4.8-1 depicts the final recommended study area and study intersections. Exhibit 4.8-2 identifies the area within the IBC.

TRAFFIC MODELING AND PERFORMANCE MEASURES

The Orange County Transportation Analysis Model ("OCTAM") was used to project future traffic levels on the roadways within the study area. OCTAM is maintained by OCTA for use in regional transportation studies. The key reason for using OCTAM was that the Airport is a regional facility and OCTAM distributes traffic throughout Orange County and the larger region. Additionally, it incorporates the latest available land use forecasts for Orange County, Orange County Projections 2012[1]. The traffic analyses focuses on the morning and afternoon peak period when traffic is heaviest. Trips during non-peak hours would not have the same adverse impacts because there would be greater capacity available on the roadway network. The peak periods

[1] City of Irvine Citywide Travel Demand Model ("ITAM") is derived from OCTAM but includes additional data within the City of Irvine. An additional review was conducted to determine whether the use of ITAM would result in the identification of any significant impacts at locations within the City of Irvine not otherwise identified with use of the OCTAM. As part of this review, the results from a version of ITAM for 2017 were compared against the 2016 No Project and With Project results. This comparison determined that the LOS was similar between the two models at the common intersections and that the ITAM results were often the same as the OCTAM results. This review of OCTAM to ITAM for the same time period indicated that the use of ITAM would not result in the identification of any additional significant impacts in the City of Irvine; therefore OCTAM was utilized for the entire study area for consistency purposes.



Source: *Transportation Impact Analysis, Fehr & Peers, 2014*

Analyzed Intersections and Project Study Area

Exhibit 4.8-1

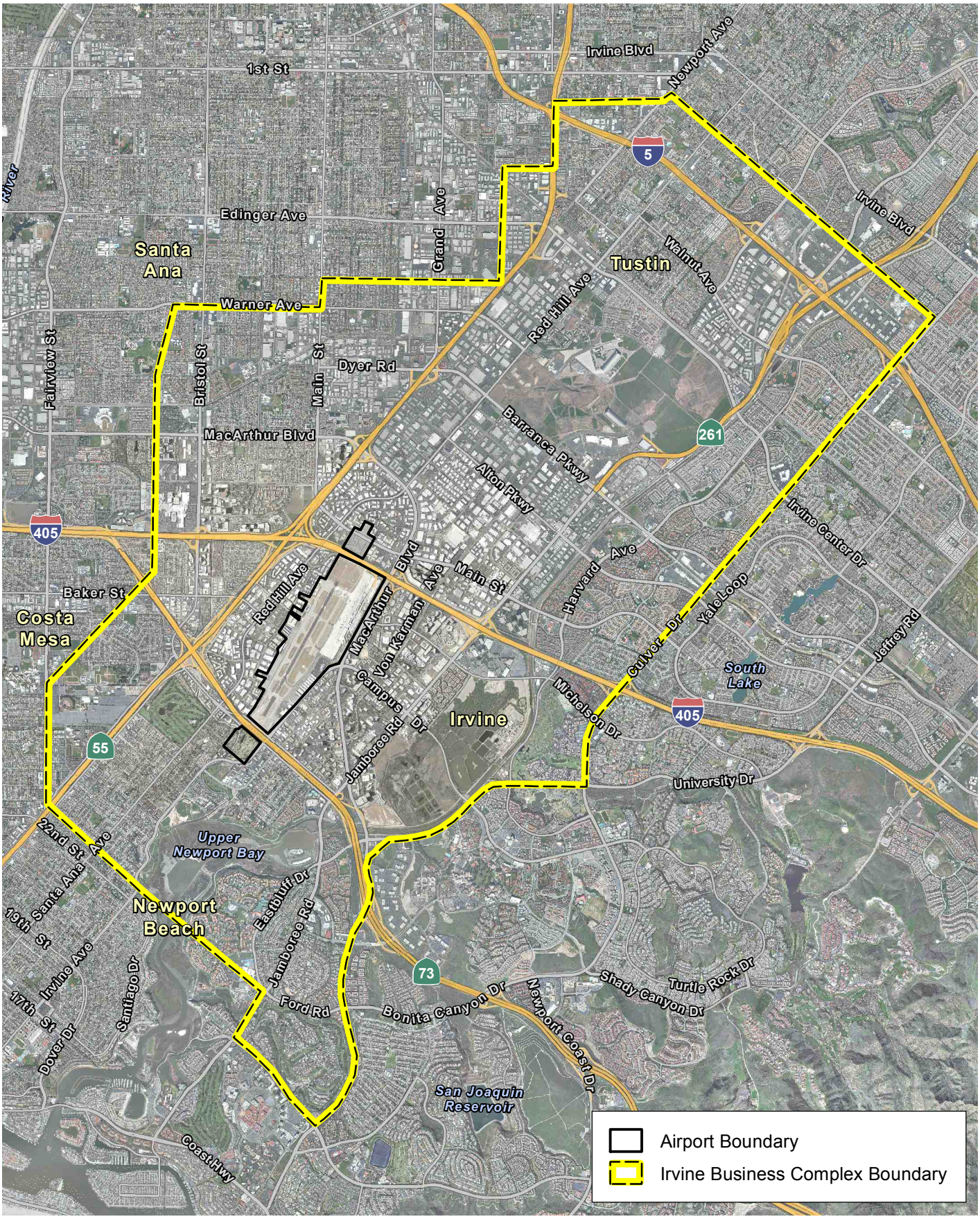
John Wayne Airport Settlement Agreement Amendment

N W E S

Map not to scale

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Irvine Business Complex Boundary

Exhibit 4.8-2

John Wayne Airport Settlement Agreement Amendment

N
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Feet

JOHN WAYNE AIRPORT
ORANGE COUNTY

for the Project area are 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM. More detail on the traffic modeling process is provided in Appendix G, Section 4.3.

The effectiveness of traffic operations on a transportation facility is measured in terms of level of service ("LOS") with LOS A representing the best operating conditions and LOS F representing the worst. There are two main approaches used for intersection LOS including:

- Intersection Capacity Utilization ("ICU") - ICU approaches are commonly used throughout Orange County including agencies such as the OCTA, and the cities of Newport Beach, Irvine, and Costa Mesa. ICU evaluates the capacity of an intersection as compared to the volume of traffic traveling through the intersection.

- Highway Capacity Manual ("HCM") - HCM methodologies are required by Caltrans. LOS for signalized intersections under HCM methodology is determined based on average delay, while unsignalized intersection LOS is based on worse case approach delay. Delay calculations incorporate traffic volumes, intersection configuration, traffic control (signal, stop sign), and other related items. Delay (in seconds) was calculated at each study intersection in Caltrans jurisdiction using Trafficware Synchro software v.7, and compared to the LOS thresholds outlined in the HCM 2001.

Table 4.8-1 provides the LOS ranges for the ICU volume/capacity analysis, the HCM signalized delay analysis, and the HCM unsignalized delay analysis.

TABLE 4.8-1
INTERSECTION AND ROADWAY SEGMENT LOS CRITERIA

Level of Service	Description	ICU Volume / Capacity	HCM Signalized Delay (Seconds)	HCM Unsignalized Delay (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	<0.60	≤ 10.0	≤ 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	0.61–0.70	> 10.0 to 20.0	>10.0 to 15.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	0.71–0.80	> 20.0 to 35.0	>15.0 to 25.0
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	> 35.0 to 55.0	>25.0 to 35.0

TABLE 4.8-1
INTERSECTION AND ROADWAY SEGMENT LOS CRITERIA

Level of Service	Description	ICU Volume / Capacity	HCM Signalized Delay (Seconds)	HCM Unsignalized Delay (Seconds)
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	> 55.0 to 80.0	>35.0 to 50.0
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	>1.00	> 80.0	>50.0
Source: *Transportation Impact Analysis*, (Table 4-1), Fehr & Peers, 2014.				

Table 4.8-2 lists each intersection by the jurisdiction and the LOS methodology applied. Several of the intersections have overlapping jurisdictions in which multiple agencies apply different LOS approaches, such as the on-ramps which have shared jurisdiction with Caltrans and the local cities. Three of the intersections also fall within the jurisdiction of the OCTA CMP; therefore, both ICU and HCM methodology was used, as shown in the table.

TABLE 4.8-2
INTERSECTION JURISDICTION & LOS METHODOLOGY

	LOS Methodology		Jurisdiction				
Intersection	HCM	ICU	Irvine (ICU)	Newport Beach (ICU)	Costa Mesa (ICU)	CMP (ICU)	Caltrans (HCM)
1. MacArthur Blvd at Main Street		✓	✓				
2. MacArthur Blvd at I-405 NB Ramps	✓	✓	✓			✓	✓
3. MacArthur Blvd at I-405 SB Ramps	✓	✓	✓			✓	✓
4. MacArthur Blvd at Michelson Dr		✓	✓				
5. MacArthur Blvd at Campus Dr		✓	✓	✓			
6. MacArthur Blvd at Birch St		✓		✓			
7. Jamboree Rd at I-405 NB Ramps	✓	✓	✓				✓
8. Jamboree Rd at I-405 SB Ramps	✓	✓	✓				✓
9. Jamboree Rd at Michelson Dr		✓	✓				
10. Jamboree Rd at Campus Dr		✓	✓	✓			
11. Jamboree Rd at MacArthur Blvd		✓		✓		✓	
12. Jamboree Rd at Bristol St North		✓		✓			
13. Jamboree Rd at Bristol St South		✓		✓			

TABLE 4.8-2
INTERSECTION JURISDICTION & LOS METHODOLOGY

Intersection	LOS Methodology		Jurisdiction				
	HCM	ICU	Irvine (ICU)	Newport Beach (ICU)	Costa Mesa (ICU)	CMP (ICU)	Caltrans (HCM)
14. Von Karman Ave at Michelson Dr		✓	✓				
15. Campus Dr at Airport Way		✓		✓			
16. Campus Dr at Quail St		✓		✓			
17. Campus Dr at Bristol St North		✓		✓			
18. Campus Dr at Bristol St South		✓		✓			
19. Birch St at Bristol St North		✓		✓			
20. Birch St at Bristol St South		✓		✓			
21. Red Hill Ave at MacArthur Blvd		✓	✓				
22. Red Hill Ave at Main St		✓	✓				
23. Santa Ana Ave at Bristol St		✓			✓		
24. Santa Ana Ave at Mesa Dr		✓			✓		
25. Santa Ana Ave at Del Mar Ave		✓			✓		
26. Irvine Ave at Mesa Dr		✓		✓			
27. Irvine Ave at University Dr		✓		✓			
28. Irvine Ave at 22nd St		✓		✓			
29. Irvine Ave at 20th St		✓		✓			
30. Irvine Ave at 19th St		✓		✓			
31. Irvine Ave at 17th St		✓		✓			
32. Newport Blvd SB at Mesa Dr		✓			✓		
33. Newport Blvd NB at Mesa Dr		✓			✓		
34. Newport Blvd SB at Del Mar Ave		✓			✓		
35. Newport Blvd NB at Del Mar Ave		✓			✓		
36. Von Karman Ave at Campus Dr		✓		✓			
37. Von Karman Ave at MacArthur Blvd		✓		✓			
38. Bayview Pl at Bristol St South		✓		✓			
39. Jamboree Rd at Birch St		✓		✓			
40. Jamboree Rd at Bayview Way		✓		✓			
41. Jamboree Rd at University Dr/Eastbluff Dr		✓		✓			
42. Jamboree Rd at Bison Ave		✓		✓			
43. Jamboree Rd at Eastbluff Dr/Ford Rd		✓		✓			
44. MacArthur Blvd at Bison Ave		✓		✓			
45. MacArthur Blvd at Ford Rd/Bonita Canyon Dr		✓		✓			
46. Red Hill Ave at Paularino		✓			✓		
47. Red Hill Ave at Baker		✓			✓		

TABLE 4.8-2
INTERSECTION JURISDICTION & LOS METHODOLOGY

Intersection	LOS Methodology		Jurisdiction				
	HCM	ICU	Irvine (ICU)	Newport Beach (ICU)	Costa Mesa (ICU)	CMP (ICU)	Caltrans (HCM)
48. MacArthur Boulevard at SR-55 NB Ramps		✓	✓				
49. Red Hill Avenue at Dyer Road		✓	✓				
50. Red Hill Avenue at Alton Parkway		✓	✓				
51. Red Hill Avenue at McGaw Avenue		✓	✓				
52. Von Karman Avenue at Barranca Parkway		✓	✓				
53. Von Karman Avenue at Alton Parkway		✓	✓				
54. Von Karman Avenue at Main Street		✓	✓				
55. Jamboree Road at Barranca Parkway		✓	✓				
56. Jamboree Road at Alton Parkway		✓	✓				
57. Jamboree Road at McGaw Avenue		✓	✓				
58. Jamboree Road at Main Street		✓	✓				
59. Harvard Avenue at Michelson Drive		✓	✓				
Source: Transportation Impact Analysis, (Table 4-2), Fehr & Peers, 2014							

The HCM also has special methodology for evaluating freeway segments. The analysis factors in the basic or mainline segments, as well as the merge and diverge components (i.e., lane changes to enter and exit the freeway) where capacity constraints typically occur. LOS for each of these segments is defined on the basis of density or passenger cars per mile per lane ("pc/mi/ln"). Table 4.8-3 presents the LOS criteria for basic (or mainline) freeway segments. Table 4.8-4 provides the LOS criteria for merge and diverge segments.

TABLE 4.8-3
LOS CRITERIA FOR BASIC OR MAINLINE FREEWAY SEGMENTS

LOS	Density (passenger cars per mile per lane)
A	≤11
B	<11-18
C	<18-26
D	<26-35
E	<35-45
F	Demand exceeds capacity >45
Source: *Transportation Impact Analysis,* (Table 4-3), Fehr & Peers, 2014	

TABLE 4.8-4
LOS CRITERIA FOR MERGE AND DIVERGE SEGMENTS

LOS	Density (pc/mi/ln)	Comments
A	≤10	Unrestricted operations
B	>10-20	Merging and diverging maneuvers noticeable to drivers
C	>20-28	Influence area speeds begin to decline
D	>28-35	Influence area turbulence becomes intrusive
E	>35	Turbulence felt by virtually all drivers
F	Demand exceeds capacity	Ramp and freeway queues form
Source: *Transportation Impact Analysis,* (Table 4-4), Fehr & Peers, 2014		

AIRPORT TRIP DISTRIBUTION

A key aspect of the analysis is the distribution of trips, which refers to the starting point or ending point of trips associated with JWA. As a regional destination, JWA draws traffic from the overall region, although most trips begin or end in Orange County. The trip distribution was quantified through a three step process as defined below:

- First, the traffic engineer ran a select zone/select-link analysis[2] using OCTAM for both the Base Year and the future Forecast Year. Distribution was tracked for both inbound and outbound trips for the AM and PM Peak hours.

- The distributions for each scenario were compared to each other and were determined to be nearly identical. Therefore, the assumption was made that the same trip distribution would be applied across all analysis years and scenarios.

- Lastly, the distribution results were compared against the most recent passenger survey, which identified the most common locations associated with air passengers. This comparison indicated that the major origins and destinations were consistent with the OCTAM results, which were then used in the study.

AIRPORT TRIP GENERATION

The anticipated trip generation associated with JWA was developed from a variety of sources including:

- Existing traffic counts

[2] Select zone/select-link analysis is a tool that allows the evaluator to pick a single zone or point on the roadway network and determine the origin and destination of the traffic that passes through that point.

- Projected increases in MAP
- Projected increases in the number of flights

The trip generation numbers for existing conditions, the Proposed Project and each alternative are presented later in this section. The trip generation numbers considered the following sources of vehicle trips:

- Terminal - This location includes rental car, passenger cars parking, and drop-off vehicles.
- Main Street Passengers - This location is an off-site location for passenger use only.
- Employee Lot - This location is also an off-site location for employee use only. This facility is located near to the Main Street Passenger lot.
- Cargo - This driveway provides accessibility for service and cargo facilities located on Paularino Avenue.

4.8.3 EXISTING CONDITIONS

REGIONAL AND LOCAL ACCESS ROUTES

Regional access to JWA is provided by Interstate 405 ("I-405"), State Route 55 ("SR-55"), and State Route 73 ("SR-73"). Local access is provided by MacArthur Boulevard, Jamboree Road, Irvine Avenue/Campus Drive, Santa Ana Avenue/Red Hill Avenue, Von Karman Avenue, Birch Street, and Newport Boulevard. (See Exhibit 4.8-1.) The characteristics of these roadways (i.e., number of lanes, posted speed limit, and whether on-street parking is available) are provided in Appendix G.

TRANSIT ROUTES

The study area is serviced by OCTA, Metrolink, iShuttle and Amtrak.

OCTA has two bus routes that provide direct access to JWA—Route 76 and Route 212. Route 76 provides weekday-only service between Huntington Beach and Newport Beach via Talbert Avenue/MacArthur Boulevard. This route provides direct access to John Wayne Airport ("JWA"), with headways of 45-75 minutes. Route 212 provides limited weekday-only service between Irvine and San Juan Capistrano via the I-405 freeway. This route provides direct access to the Airport. Northbound buses arrive at the airport twice in the early morning and southbound buses leave the airport twice in the late afternoon.

The Inland Empire-Orange County Line Metrolink line provides north-south service between the cities of San Bernardino and Oceanside. This line runs at 30-45 minute headways during the weekday morning and evening peak hours and limited service during the midday off-peak period. This line provides limited service on weekends. The Orange County Line Metrolink line provides north-south service between the cities Los Angeles (Union Station) and Oceanside. This line runs at 30-50 minute headways during the weekday morning and evening peak hours and limited service during the midday off-peak period. This line provides limited service on weekends. For both Metrolink routes, the closest station to JWA is the Tustin stop, five miles northeast of the airport. The iShuttle (a local commuter shuttle service) Route A serves as a

connection between the Tustin station and the Airport stops on the arrival level near Terminal B.

The Amtrak Pacific Surfliner serves major cities from San Luis Obispo south to San Diego along the California coastline. The closest stations to JWA are located in Anaheim, Santa Ana, and Irvine, and are located 10, 7, and 8 miles, respectively, from the Airport. Weekday headways range from 20 to 60 minutes. Numerous lines provide service on Saturday and Sunday.

EXISTING INTERSECTION OPERATIONS

Traffic counts were collected in the study area using a variety of sources. Intersection traffic counts were collected in September and October 2013. Counts were collected at all intersections during the morning (7:00 AM to 9:00 AM) peak periods and the afternoon (4:00 PM to 6:00 PM) peak periods. These intersection counts are provided in the *Transportation Impact Analysis* (Appendix G).

Table 4.8-5 documents the existing LOS at the study area intersections. LOS D or better generally is considered acceptable operating conditions, although in the City of Irvine, LOS E is an acceptable condition for streets located within the IBC, as is also the case in Newport Beach for streets located inside the JWA area shared with the City of Irvine.

As shown in Table 4.8-5, under existing conditions all of the study intersections are operating at an acceptable LOS based on the application of the ICU methodology. Table 4.8-6 documents the intersection LOS using the methodology from the HCM for intersections under the jurisdiction of Caltrans. As shown in that table, under the Existing Conditions (2013) baseline, only the Jamboree Road at I-405 southbound ramps are operating at a deficient LOS (LOS F in the AM peak period).[3]

[3] The intersections shown in Table 4.8-6 are within the jurisdiction of both Caltrans and the City of Irvine. The HCM methodology considers the effects of traffic signal timing and adjacent intersections, which explains why there can be different results than the application of the ICU methodology presented in Table 4.8-5 (Intersections 2, 3, 7 and 8).

TABLE 4.8-5
INTERSECTION LEVEL OF SERVICE:
EXISTING (2013) CONDITIONS

Intersection	Traffic Control	Peak Hour	V/C	LOS
1. MacArthur Blvd at Main Street[1]	Signal	AM	0.56	A
		PM	0.730	C
2. MacArthur Blvd at I-405 NB Ramps[1,4]	Signal	AM	0.68	B
		PM	0.64	B
3. MacArthur Blvd at I-405 SB Ramps[1,4]	Signal	AM	0.59	A
		PM	0.65	B
4. MacArthur Blvd at Michelson Drive[1]	Signal	AM	0.68	B
		PM	0.89	D
5. MacArthur Blvd at Campus Drive[1]	Signal	AM	0.54	A
		PM	0.75	C
6. MacArthur Blvd at Birch Street[2]	Signal	AM	0.374	A
		PM	0.490	A
7. Jamboree Rd at I-405 NB Ramps[1]	Signal	AM	0.68	B
		PM	0.79	C
8. Jamboree Rd at I-405 SB Ramps[1]	Signal	AM	0.88	D
		PM	0.78	C
9. Jamboree Rd at Michelson Drive[1]	Signal	AM	0.66	B
		PM	0.82	D
10. Jamboree Rd at Campus Drive[1]	Signal	AM	0.58	A
		PM	0.60	A
11. Jamboree Rd at MacArthur Boulevard[2,4]	Signal	AM	0.650	B
		PM	0.714	C
12. Jamboree Rd at Bristol Street North[2]	Signal	AM	0.496	A
		PM	0.488	A
13. Jamboree Rd at Bristol Street South[2]	Signal	AM	0.610	B
		PM	0.632	B
14. Von Karman Ave at Michelson Drive[1]	Signal	AM	0.49	A
		PM	0.64	B
15. Campus Dr at Airport Way[2]	Signal	AM	0.338	A
		PM	0.660	B
16. Campus Dr at Quail St[2]	Signal	AM	0.484	A
		PM	0.463	A
17. Campus Dr at Bristol St North[2]	Signal	AM	0.596	A
		PM	0.885	D
18. Campus Dr at Bristol St South[2]	Signal	AM	0.689	B
		PM	0.439	A

TABLE 4.8-5
INTERSECTION LEVEL OF SERVICE:
EXISTING (2013) CONDITIONS

Intersection	Traffic Control	Peak Hour	V/C	LOS
19. Birch St at Bristol St North[2]	Signal	AM	0.581	A
		PM	0.581	A
20. Birch St at Bristol St South[2]	Signal	AM	0.400	A
		PM	0.434	A
21. Red Hill Ave at MacArthur Blvd[1]	Signal	AM	0.61	B
		PM	0.71	C
22. Red Hill Ave at Main St[1]	Signal	AM	0.71	C
		PM	0.70	C
23. Santa Ana Ave at Bristol St[3]	Signal	AM	0.50	A
		PM	0.47	A
24. Santa Ana Ave at Mesa Dr[3]	Signal	AM	0.50	A
		PM	0.53	A
25. Santa Ana Ave at Del Mar Ave[3,5]	Stop Controlled l	AM	18.7	C
		PM	19.4	C
26. Irvine Ave at Mesa Dr[2]	Signal	AM	0.369	A
		PM	0.573	A
27. Irvine Ave at University Dr[2]	Signal	AM	0.641	B
		PM	0.719	C
28. Irvine Ave at 22nd St[2]	Signal	AM	0.619	B
		PM	0.695	B
29. Irvine Ave at 20th St[2]	Signal	AM	0.485	A
		PM	0.624	B
30. Irvine Ave at 19th St[2]	Signal	AM	0.528	A
		PM	0.662	B
31. Irvine Ave at 17th St[2]	Signal	AM	0.540	A
		PM	0.709	C
32. Newport Blvd SB at Mesa Dr[3]	Signal	AM	0.22	A
		PM	0.56	A
33. Newport Blvd NB at Mesa Dr[3]	Signal	AM	0.44	A
		PM	0.36	A
34. Newport Blvd SB at Del Mar Ave[3]	Signal	AM	0.32	A
		PM	0.43	A
35. Newport Blvd NB at Del Mar Ave[3]	Signal	AM	0.82	D
		PM	0.50	A
36. Von Karman Ave at Campus Dr[2]	Signal	AM	0.531	A
		PM	0.681	B

TABLE 4.8-5
INTERSECTION LEVEL OF SERVICE:
EXISTING (2013) CONDITIONS

Intersection	Traffic Control	Peak Hour	V/C	LOS
37. Von Karman Ave at MacArthur Blvd[2]	Signal	AM	0.576	A
		PM	0.543	A
38. Bayview Pl at Bristol St South[2]	Signal	AM	0.397	A
		PM	0.413	A
39. Jamboree Rd at Birch St[2]	Signal	AM	0.488	A
		PM	0.494	A
40. Jamboree Rd at Bayview Way[2]	Signal	AM	0.441	A
		PM	0.522	A
41. Jamboree Rd at University Dr/Eastbluff Dr[2]	Signal	AM	0.535	A
		PM	0.558	A
42. Jamboree Rd at Bison Ave[2]	Signal	AM	0.470	A
		PM	0.498	A
43. Jamboree Rd at Eastbluff Dr/Ford Rd[2]	Signal	AM	0.830	D
		PM	0.707	C
44. MacArthur Blvd at Bison Ave[2]	Signal	AM	0.594	A
		PM	0.590	A
45. MacArthur Blvd at Ford Rd/Bonita Canyon Dr[2]	Signal	AM	0.764	C
		PM	0.841	D
46. Red Hill Ave at Paularino Ave[3]	Signal	AM	0.54	A
		PM	0.65	B
47. Red Hill Ave at Baker St[3]	Signal	AM	0.42	A
		PM	0.61	B
48. MacArthur Blvd at SR-55 NB Ramps[1]	Signal	AM	0.76	C
		PM	0.62	B
49. Red Hill Ave at Dyer Rd[1]	Signal	AM	0.52	A
		PM	0.88	D
50. Red Hill Ave at Alton Pkwy[1]	Signal	AM	0.52	A
		PM	0.79	C
51. Red Hill Ave at McGaw Ave[1]	Signal	AM	0.45	A
		PM	0.74	C
52. Von Karman Ave at Barranca Pkwy[1]	Signal	AM	0.70	C
		PM	0.89	D
53. Von Karman Ave at Alton Pkwy[1]	Signal	AM	0.76	C
		PM	0.880	D
54. Von Karman Ave at Main St[1]	Signal	AM	0.60	B
		PM	0.78	C

TABLE 4.8-5
INTERSECTION LEVEL OF SERVICE:
EXISTING (2013) CONDITIONS

Intersection	Traffic Control	Peak Hour	V/C	LOS
55. Jamboree Road at Barranca Parkway[1]	Signal	AM	0.73	C
		PM	0.89	D
56. Jamboree Rd at Alton Pkwy[1]	Signal	AM	0.78	C
		PM	0.81	D
57. Jamboree Rd at McGaw Ave[1]	Signal	AM	0.64	B
		PM	0.65	B
58. Jamboree Rd at Main St[1]	Signal	AM	0.77	C
		PM	0.85	D
59. Harvard Ave at Michelson Dr[1]	Signal	AM	0.65	B
		PM	0.82	D

NB=Northbound; SB=Southbound

Notes: Signalized intersections evaluated using ICU methodology.
1. Based on City of Irvine intersection analysis methodology.
2. Based on City of Newport Beach intersection analysis methodology.
3. Based on City of Costa Mesa intersection analysis methodology.
4. Based on CMP intersection analysis methodology.
5. AWSC = All Way Stop Control; average intersection delay is reported.

Source: *Transportation Impact Analysis,* (Table 3-1), Fehr & Peers, 2014

TABLE 4.8-6
CALTRANS INTERSECTION LEVEL OF SERVICE:
EXISTING (2013) CONDITIONS

Intersection	Control	AM Peak		PM Peak	
		Delay[a]	LOS	Delay[a]	LOS
MacArthur Blvd at I-405 NB Ramps	Signal	22.1	C	23.3	C
MacArthur Blvd at I-405 SB Ramps	Signal	21.9	C	22.6	C
Jamboree Rd at I-405 NB Ramps	Signal	15.8	B	20.6	C
Jamboree Rd at I-405 SB Ramps	Signal	**90.8**	**F**	30.7	C

NB=Northbound; SB=Southbound
Intersections operating below acceptable standards are noted in **bold.**
[a] Delay is provided in seconds.
Source: Transportation Impact Analysis, (Table 3-2), Fehr & Peers, 2014

EXISTING FREEWAY AND RAMP OPERATIONS

Tables 4.8-7 through 4.8-9 provide the freeway LOS for the mainline, weave, and diverge segments[4] for the SR-55, SR-73, and the I-405 in the study area. As shown in these tables, there are numerous locations where the freeways operate deficiently under existing conditions. Large portions of the SR-55 and the I-405 operate at LOS F either in the AM or PM peak hour or both. The Caltrans Transportation Mobility Performance Report indicates that segments of the SR-55 and I-405 adjacent to John Wayne have some of the highest delay in Orange County.

TABLE 4.8-7
EXISTING (2013) FREEWAY MAINLINE
AND RAMPS OPERATIONS FOR STATE ROUTE 55

Location	Type	AM		PM	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Northbound SR-55					
Fair Dr/Del Mar Ave/Newport Blvd On-ramp to SR-73 Off Ramp	Weave	-	**F**	-	**F**
SR-73 Off Ramp to Baker St Off Ramp	Basic	28.8	D	10.7	A
Baker St Off Ramp	Diverge	21.6	C	3.4	A
Baker St Off Ramp to SR-73 On-ramp	Basic	**24.9**	**F**	14.3	B
On-ramp from SR-73 NB to Off Ramp to I-405 SB	Weave	-	**F**	32.8	D
Off Ramp to I-405 SB to Paularino Ave On-ramp	Basic	**28.3**	**F**	16.0	B
Paularino Ave On-ramp	Merge	29.6	D	**14.9**	**F**
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	34.3	D	**15.9**	**F**
On-ramp from I-405 SB	Basic	-	**F**	**15.5**	**F**
On-ramp from I-405 NB to MacArthur Blvd Off Ramp	Weave	-	**F**	**23.0**	**F**
Southbound SR-55					
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	34.1	D	**36.5**	**E**
MacArthur Blvd Direct On-ramp to Off Ramp to I-405 SB	Weave	-	**F**	-	**F**
Off Ramp to I-405 NB	Diverge	29.1	D	33.7	D
I-405 NB Off Ramp to Paularino Ave Off Ramp	Basic	23.2	C	25.8	C
Paularino Ave Off Ramp	Diverge	28.3	D	30.6	D

[4] A weave section is where traffic is entering a freeway travel lane from an on-ramp. A diverge segment is where vehicles leave a freeway travel lane to exit a freeway on an off-ramp.

TABLE 4.8-7
EXISTING (2013) FREEWAY MAINLINE
AND RAMPS OPERATIONS FOR STATE ROUTE 55

Location	Type	AM		PM	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Lane Drop	Basic	28.3	D	33.0	D
On-ramp from I-405 NB to Off Ramp to SR-73 SB	Weave	-	**F**	-	**F**
Baker St On-ramp	Basic	17.0	B	23.7	C
On-ramp from SR-73 NB	Merge	20.9	C	30.2	D
SR-73 NB On-ramp to SR-73 SB On-ramp	Basic	20.0	C	30.1	D
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off Ramp	Weave	30.0	D	-	**F**
Newport Blvd S/Mesa Dr Off to Newport Blvd S/Fair Dr On-ramp	Basic	16.5	B	23.5	C
Newport Blvd S/Fair Dr On-ramp	Merge	17.7	B	22.9	C

NB=Northbound; SB=Southbound
Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.

Source: Transportation Impact Analysis, (Table 3-3), Fehr & Peers, 2014

TABLE 4.8-8
EXISTING (2013) FREEWAY MAINLINE
AND RAMPS OPERATIONS FOR STATE ROUTE 73

Location	Type	AM		PM	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Northbound SR-73					
Lane Drop to MacArthur Blvd On-ramp	Basic	**40.3**	**E**	27.6	D
MacArthur Blvd On-ramp	Basic	**36.6**	**E**	28.6	D
Jamboree Rd On-ramp	Merge	34.8	D	32.3	D
Jamboree Rd On-ramp to Bristol St N Off Ramp	Basic	23.7	C	23.3	C
Bristol St N Off Ramp	Diverge	30.5	D	27.9	C
Bristol St N On-ramp to SR-55 N Off Ramp	Weave	32.1	D	-	**F**
Off Ramp to SR-55 SB	Diverge	24.1	C	**35.5**	**E**
On-ramp from SR-55 NB	Weave	33.1	D	-	**F**

TABLE 4.8-8
EXISTING (2013) FREEWAY MAINLINE
AND RAMPS OPERATIONS FOR STATE ROUTE 73

Location	Type	AM		PM	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Bear St Off Ramp to Bear St On-ramp	Basic	13.8	B	24.3	C
Southbound SR-73					
Bear St On-ramp to SR-55 S Off Ramp	Weave	**38.7**	**E**	32.5	D
On-ramp from SR-55 NB	Merge	29.9	D	29.5	D
SR-55 NB On-ramp to SR-55 SB On-ramp	Basic	26.2	D	21.4	C
On-ramp from SR-55 SB to Campus/Bristol St S Off Ramp	Weave	**-**	**F**	**-**	**F**
Campus/Bristol St S Off to Jamboree Rd Off	Basic	29.4	D	20.6	C
Jamboree Rd/Bristol St S Off Ramp	Diverge	31.1	D	21.4	C
Jamboree Rd Off to Lane Add	Basic	26.3	D	31.2	D
University Dr Off Ramp	Basic	15.5	B	17.7	B
University Off to Jamboree Rd On-ramp	Basic	15.6	B	23.6	C

NB=Northbound; SB=Southbound
Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.

Source: *Transportation Impact Analysis,* (Table 3-4), Fehr & Peers, 2014

TABLE 4.8-9
EXISTING (2013) FREEWAY MAINLINE
AND RAMPS OPERATIONS: I-405

Location	Type	AM		PM	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Northbound I-405					
Culver St On-ramp to Jamboree Rd Off Ramp	Basic	**42.7**	**E**	**25.5**	**F**
Jamboree Rd Off Ramp	Diverge	28.7	D	**18.2**	**F**
Jamboree Rd Loop On-ramp	Merge	27.3	C	**24.2**	**F**
Jamboree Rd Direct On-ramp to MacArthur Blvd Off Ramp	Weave	**-**	**F**	**41.6**	**F**

TABLE 4.8-9
EXISTING (2013) FREEWAY MAINLINE
AND RAMPS OPERATIONS: I-405

Location	Type	AM		PM	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
MacArthur Blvd On-ramp to SR-55 NB & SB Off Ramp	Weave	**40.8**	**E**	**-**	**F**
SR-55 Off Ramp to Bristol St Off Ramp	Basic	31.6	D	**33.9**	**F**
Bristol St/Ave of the Arts Off Ramp	Diverge	34.8	D	**36.1**	**F**
On-ramp from SR-55 SB	Basic	27.0	D	**27.2**	**F**
Bristol St N On-ramp	Merge	22.9	C	**23.9**	**F**
Bristol St S On-ramp to S Coast Off	Weave	**-**	**F**	**-**	**F**
Southbound I-405					
Off Ramp to I-405 SB to Fairview Rd On-ramp	Basic	**30.8**	**F**	19.7	C
Fairview Rd On-ramp	Merge	**34.1**	**F**	25.6	C
Fairview Rd On-ramp to Bristol St Off Ramp	Basic	**38.6**	**F**	23.3	C
Bristol St Off Ramp	Diverge	**27.2**	**F**	18.0	B
Bristol St On-ramp to SR-55 NB Off Ramp	Weave	**-**	**F**	29.4	D
Lane Drop	Basic	**36.9**	**E**	25.3	C
On-ramp from SR-55 NB	Basic	**37.0**	**E**	25.6	C
SR-55 SB On-ramp to MacArthur Blvd Off Ramp	Weave	**-**	**F**	**43.6**	**E**
MacArthur Blvd On-ramp to Jamboree Rd Off Ramp	Weave	-	**F**	**44.8**	**E**
Jamboree Rd Loop On-ramp	Merge	18.6	B	**21.3**	**F**
Jamboree Rd Direct On-ramp	Merge	17.2	B	**21.4**	**F**

NB=Northbound; SB=Southbound
Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.

Source: *Transportation Impact Analysis,* (Table 3-5), Fehr & Peers, 2014

EXISTING AIRPORT TRIP GENERATION

Existing traffic counts at JWA were taken at various locations in September 2013, a year in which the Airport's annualized passenger levels were 9.17 MAP. This information was used to develop the existing Airport trip generation numbers, which are presented in Table 4.8-10. Traffic counts for study facilities include intersections, ramps, and freeway segments. Count data was taken

during this period since it corresponds to a period of peak activity within the overall transportation system. While the peak of Airport travel occurs during the summer months, overall traffic counts are lower within this time period. Therefore, traffic counts were taken during the highest level of traffic for the roadway system, which ulitimately leads to more conservative results.

TABLE 4.8-10
EXISTING JWA TRIP GENERATION (2013 COUNT DATA)

Location	AM Peak Hour (7:00 AM to 9:00 AM)			PM Peak Hour (4:00 PM to 6:00 PM)		
	Inbound	Outbound	Total	Inbound	Outbound	Total
Terminal	1,174	1,121	2,295	1,111	1,194	2,305
Main Street (passengers)	27	12	38	16	35	51
Employee lot	45	26	71	24	46	70
Cargo	54	19	73	17	65	82
Total	**1,300**	**1,177**	**2,477**	**1,168**	**1,339**	**2,508**

Source: *Transportation Impact Analysis,* (Table 4-6), Fehr & Peers, 2014

Proposed Project / Alternatives Trip Generation

The anticipated trip generation associated with the Proposed Project and each of the alternatives was derived from a variety of sources, including existing traffic counts, the projected increase in MAP relative to each project alternative scenario, and projected increases in the number of flights. Table 4.8-11 shows the estimated increase in the number of peak hour vehicle trips relative to existing conditions for the Proposed Project and each of the alternatives. The table allows comparison of the total increased number of trips associated with each scenario. A breakdown of the source of each of these trips relative to the terminal, Main Street parking lot, employee lot and cargo use is provided in the *Transportation Impact Analysis*, in Tables 4-7 through 4-19 (See Appendix G). It should be noted that the location where the trips are generated influences the roadways where the trips are assigned. The existing and Project trip assignments can be found in Appendix E of the *Transportation Impact Analysis* provided in Appendix G of this EIR.

TABLE 4.8-11
PEAK HOUR TRIP GENERATION (INCREASE FROM EXISTING)

	AM Peak Hour (7:00 AM to 9:00 AM) [a]			PM Peak Hour (4:00 PM to 6:00 PM) [a]		
	Inbound	Outbound	Total	Inbound	Outbound	Total
Proposed Project						
Phase 1 (2016-2020)	234	208	442	206	242	448
Phase 2 (2020-2025)	375	336	711	334	386	720
Phase 3 (2026-2030)	475	425	900	423	488	911
Alternative A						
Phase 1 (2016-2020)	231	207	438	205	238	443

TABLE 4.8-11
PEAK HOUR TRIP GENERATION (INCREASE FROM EXISTING)

	AM Peak Hour (7:00 AM to 9:00 AM) [a]			PM Peak Hour (4:00 PM to 6:00 PM) [a]		
	Inbound	**Outbound**	**Total**	**Inbound**	**Outbound**	**Total**
Phase 2 (2020-2025)	314	283	597	282	323	605
Phase 3 (2026-2030)	459	439	898	435	467	902
Alternative B						
Phase 1 (2016-2020)	231	207	438	206	239	445
Phase 2 (2020-2025)	542	489	1,031	485	559	1,044
Phase 3 (2026-2030)	827	745	1,572	739	853	1,592
Alternative C						
All Phases (2016-2030)	1,100	991	2,091	982	1,134	2,116
No Project Alternative						
All Phases (2016-2030)	234	208	442	206	242	448

[a] The values represent the highest one hour within the two hour peak period.

Source: *Transportation Impact Analysis*, Data from Tables 4-7 through 4-19, *Fehr & Peers,* 2014

4.8.4 THRESHOLDS OF SIGNIFICANCE

The thresholds of significance have been developed in accordance with the County's Environmental Analysis Checklist. Due to the general nature of the checklist questions and the multiple jurisdictions affected by the Project, the thresholds of significance have been developed to specifically address the performance standards applicable to each jurisdiction.

CITY OF IRVINE

The Project would result in a significant transportation/traffic impact if any of the following conditions occur in the City of Irvine:

Threshold 4.8-1: In the City of Irvine outside of the Irvine Business Complex ("IBC"), the addition of Project-generated trips increases the ICU at a study intersection by 0.01 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F.

Threshold 4.8-2: In the City of Irvine inside the IBC, the addition of Project-generated trips increases the ICU at a study intersection by 0.01 or more of capacity, causing the intersection to change from an acceptable LOS E to LOS F.

Threshold 4.8-3: In the City of Irvine outside of the IBC, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions.

Threshold 4.8-4: In the City of Irvine inside the IBC, the addition of Project-generated trips increases the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions.

CITY OF NEWPORT BEACH

The Project would result in a significant transportation/traffic impact if any of the following conditions occur in the City of Newport Beach:

Threshold 4.8-5: In the City of Newport Beach outside of the JWA Area shared with the City of Irvine, the addition of Project-generated trips causes the LOS at a study intersection to change from LOS D to LOS E or F.

Threshold 4.8-6: In the City of Newport Beach inside the JWA Area shared with the City of Irvine, the addition of Project-generated trips causes the LOS at a study intersection to change from an acceptable LOS E to LOS F.

Threshold 4.8-7: In the City of Newport Beach outside of the JWA Area shared with the City of Irvine, the addition of Project-generated trips increases the ICU by 0.010 or more at a study intersection operating at LOS E or F under baseline conditions.

Threshold 4.8-8: In the City of Newport Beach inside of the JWA Area shared with the City of Irvine, the addition of Project-generated trips increases the ICU by 0.010 or more at a study intersection operating at LOS F under baseline conditions.

CITY OF COSTA MESA

The Project would result in a significant transportation/traffic impact if the following conditions occur in the City of Costa Mesa:

Threshold 4.8-9: The addition of Project-generated trips causes the LOS at a study intersection within the City of Costa Mesa to change from LOS D to LOS E or F.

CALTRANS

The Project would result in a significant transportation/traffic impact if any of the following conditions occur at locations within Caltrans jurisdiction:

Caltrans Intersections

Threshold 4.8-10: The addition of Project-generated trips causes the LOS at a study intersection within Caltrans jurisdiction to degrade from LOS A, B, C, or D to LOS E or F (as measured by the application of the HCM methodologies).

Threshold 4.8-11: The addition of Project-generated trips causes a 2 second or greaterincrease in delay at a study intersection within Caltrans jurisdiction (as measured by the application of HCM methodologies), where the intersection operates at LOS E or LOS F prior to the addition of Project traffic.

Caltrans Freeway Facilities (Mainline, ramp, merge/diverge)

Threshold 4.8-12: The addition of Project-generated trips increases the traffic on a freeway mainline, freeway ramp, or merge/diverge section by 2 percent or more, and causes the LOS to degrade from LOS A, B, C, or D to LOS E or F.

Threshold 4.8-13: The addition of Project-generated trips increases the traffic on a freeway mainline, freeway ramp, or merge/diverge section by 2 percent or more on a facility operating at LOS E or F prior to the addition of Project traffic.

ORANGE COUNTY CONGESTION MANAGEMENT PROGRAM

Threshold 4.8-14: The addition of Project-generated trips causes the LOS at a study intersection in the Orange County Transportation Authority Congestion Management Program to change from an acceptable LOS E to LOS F.

Threshold 4.8-15: The addition of Project-generated trips increases the ICU by 0.10 or more at a study intersection in the Orange County Transportation Authority Congestion Management Program operating at LOS F under baseline conditions.

AIR TRAFFIC PATTERNS

Threshold 4.8-16: Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?

4.8.5 IMPACT ANALYSIS

INTRODUCTION

The analysis evaluated potential traffic impacts on 59 local roadway intersections, as well as the study area freeway ramp intersections and mainline segments. To focus the discussion, the tables in this EIR section only identify those locations where there would be a deficient level of service regardless of whether the deficiency is Project related; that is, locations operating at a deficient condition under either "With Project" or "Without Project" conditions are identified in the tables. Locations operating at acceptable levels of service are not included within the tables, although in each of the tables, there is a reference to the applicable table in the *Transportation Impact Analysis* (Appendix G) where the level of service information for all the intersections, freeway ramps, and mainline freeway segments can be found.

The analysis presented below is arranged first by Project scenario – the Proposed Project is addressed first, followed by Alternatives A, B, and C, and the No Project Alternative. Within the discussion of the Proposed Project and each alternative, an Existing Plus Project analysis is first presented for information purposes, followed by analysis of each Project scenario (Proposed Project, Alternative A, B, C, or No Project) relative to the three analysis phases, Phase 1, Phase 2, and Phase 3. As previously explained in this EIR, the three phases delineate the proposed incremental increases in MAP and ADD levels associated with each scenario..

In all cases, it is assumed that the maximum MAP and ADD limits for each phase are reached in the first year of the phase. By assuming the maximum limit is reached in the first year, the EIR identifies the potential significant impacts at the earliest possible time.

Following the analysis of the Proposed Project and each of the alternatives, the thresholds of significance are applied on a jurisdiction-by-jurisdiction basis and a determination is made if there is a Project related significant impact.

TRAFFIC DATA

Proposed Project

Existing Plus Project Analyses

The Existing Plus Project analysis is a hypothetical scenario that assumes the ultimate Project traffic volumes would be added to existing roadway volumes and infrastructure. The analysis is hypothetical because it incorrectly assumes that the Project would be fully implemented immediately and the corresponding full implementation traffic volumes would be added to existing roadway volumes and infrastructure, even though restrictions would not permit the ultimate MAP and ADD levels until 2026, at the earliest.

The Existing Plus Project analysis presumes that the existing environment (existing traffic volumes, existing roadway infrastructure, and existing land uses) will not change over the long-term implementation of the Project. As a result, future increases in traffic volumes attributable to other development projects (i.e., cumulative traffic volumes) are not accounted for in this analysis. This can then result in understating Project impacts because capacity that otherwise would be utilized by future development that precedes a Project is now available to the Project. Conversely, because this analysis does not account for future planned roadway network improvements that would increase roadway capacities, it also potentially can result in overstating Project impacts. Furthermore, because the analysis does not account for future development and related changing land uses, it does not account for the corresponding change in trip distribution patterns that accompany changing land uses.

For example, specific to the Proposed Project, the Existing Plus Proposed Project analysis understates impacts as compared to the evaluation of future scenarios. Under Existing Plus Proposed Project, significant impacts are identified at one intersection (Campus Drive/Bristol Street North) and one Caltrans facility (On-ramp from I-405 northbound to MacArthur Blvd Off-ramp). However, under Phase 3 analyses, which takes into account future cumulative traffic as well as Project traffic, the Proposed Project would result in significant impacts at three intersections (MacArthur Boulevard/Michelson Drive, Von Karman Avenue/Alton Parkway, and Campus Drive/Bristol Street North) and one Caltrans (On-ramp from I-405 northbound to MacArthur Blvd Off-ramp). Therefore, the Existing Plus Proposed Project analysis is misleading since it does not identify several impacts, which occur as a result of both Project trips and ambient growth in background traffic.

Thus, if used to measure significance as to the Proposed Project, the Existing Plus Proposed Project scenario would understate Project impacts. Therefore, it would be misleading to the public and decision makers to rely on the Existing Plus Project evaluation for purposes of identifying Project impacts and mitigation. These scenarios are included to satisfy CEQA requirements and are provided for disclosure, information, and comparison purposes only.

Significant traffic impacts and recommended mitigation are assessed for each phase of the Project, with Phase 3 representing the long-term cumulative conditions evaluations because those scenarios accurately account for the long-range projected development of the Project within the context of an ever-changing traffic network and associated land uses.

Specific to the Proposed Project, Table 4.8-12 shows there is one location under the Existing Plus Proposed Project scenario that would degrade from acceptable conditions to LOS E. This intersection, Campus Drive/Bristol Street North, is located in the City of Newport Beach and the LOS worsens from LOS D to LOS E with the addition of the Proposed Project trips. As such, under this scenario, the Proposed Project would result in a significant impact at this intersection. The evaluation was based on City of Newport Beach intersection analysis methodology. The LOS for each of the 59 study intersections under the Existing Plus Proposed Project evaluation is provided in Appendix G (Table 6-1).

TABLE 4.8-12
INTERSECTION OPERATING AT A DEFICIENT LEVEL OF SERVICE
EXISTING PLUS PROPOSED PROJECT

Intersection	Traffic Control	Peak Hour	Existing		Existing Plus Proposed Project		
			V/C	LOS	V/C	LOS	Change
17. Campus Dr at Bristol St North	Signal	AM	0.596	A	0.620	B	0.024
		PM	0.885	D	**0.928**	**E**	0.043

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
Source: *Transportation Impact Analysis,* (Full data in Table 6-1), Fehr & Peers, 2014

Of the four intersections under the shared jurisdiction of Caltrans only the Jamboree Road at the I-405 southbound ramps would operate at deficient conditions under the "with project" scenario. However, as shown in Table 4.8-13 because the addition of Project-generated trips would not cause a two second delay increase at an intersection operating at an unacceptable LOS prior to the addition of Project traffic, the Existing Plus Proposed Project would not result in significant impacts at the Caltrans intersections.

TABLE 4.8-13
CALTRANS INTERSECTION OPERATING AT A DEFICIENT LEVEL OF SERVICE
EXISTING PLUS PROPOSED PROJECT

Intersection	Traffic Control	Peak Hour	Existing		Existing Plus Proposed Project	
			Delay[a]	LOS	Delay[a]	LOS
Jamboree Rd at I-405 SB Ramps	Signal	AM	**90.8**	**F**	**91.4**	**F**
		PM	30.7	C	30.9	C

NB=Northbound
Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
[a] Delay is provided in seconds.
Source: *Transportation Impact Analysis,* (Full data in Table 6-2), Fehr & Peers, 2014

Table 4.8-14 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-15 identifies the freeway mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities. As shown in the tables, most of these facilities would operate at deficient levels of service without Project-related traffic. However, during the PM peak hour, the Proposed Project would increase the traffic by over 2 percent on the northbound SR-55 from the onramp from I-405 to the MacArthur Boulevard off-ramp. This segment is operating at LOS F prior to the addition of Proposed Project traffic and, therefore, the Proposed Project would result in a significant cumulative impact at this location.

TABLE 4.8-14
FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS PROPOSED PROJECT – AM PEAK HOUR

Location	Type	Existing		Existing Plus Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off Ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
Baker St Off Ramp to SR-73 On-ramp	Basic	**24.9**	**F**	**37.7**	**F**	**20**	**0.4%**
On-ramp from SR-73 NB to Off Ramp to I-405 SB	Weave	**-**	**F**	**-**	**F**	**20**	**0.3%**
Off Ramp to I-405 SB to Paularino Ave On-ramp	Basic	**28.3**	**F**	**44.5**	**F**	**10**	**0.2%**
Paularino Ave On-ramp	Merge	29.6	D	-	**F**	**20**	**0.4%**
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	34.3	D	-	**F**	**20**	**0.4%**
On-ramp from I-405 SB	Basic	**-**	**F**	**-**	**F**	**20**	**0.2%**
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**100**	**1.0%**
Southbound SR-55							
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	**-**	**F**	**-**	**F**	**110**	**1.0%**
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	**40.3**	**E**	**40.5**	**E**	**20**	**0.3%**
MacArthur Blvd On-ramp	Basic	**36.6**	**E**	**36.8**	**E**	**30**	**0.4%**

TABLE 4.8-14
FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS PROPOSED PROJECT – AM PEAK HOUR

Location	Type	Existing		Existing Plus Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	23.7	C	**43.4**	**E**	**40**	**0.7%**
Bristol St N Off-ramp	Diverge	30.5	D	**-**	**F**	**40**	**0.6%**
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	32.1	D	**-**	**F**	**120**	**1.4%**
On-ramp from SR-55 NB	Weave	33.1	D	**-**	**F**	**90**	**1.7%**
Bristol St N Off-ramp	Diverge	30.5	D	**-**	**F**	**40**	**0.6%**
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	32.1	D	**-**	**F**	**120**	**1.4%**
On-ramp from SR-55 NB	Weave	33.1	D	**-**	**F**	**90**	**1.7%**
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	**38.7**	**E**	**39.1**	**E**	**40**	**0.6%**
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	**-**	**F**	**-**	**F**	**60**	**0.6%**
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**42.7**	**E**	**43.2**	**E**	**50**	**0.5%**
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.4%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**40.8**	**E**	**37.6**	**E**	**10**	**0.1%**
Bristol St S On-ramp to S Coast Off	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	**30.8**	**F**	**31.0**	**F**	**40**	**0.5%**
Fairview Rd On-ramp	Merge	**34.1**	**F**	**34.3**	**F**	**50**	**0.5%**
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	**38.6**	**F**	**38.9**	**F**	**50**	**0.5%**
Bristol St Off-ramp	Diverge	**27.2**	**F**	**27.4**	**F**	**50**	**0.4%**
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	**-**	**F**	**-**	**F**	**60**	**0.5%**
Lane Drop	Basic	**36.9**	**E**	**34.3**	**D**	**60**	**0.8%**
On-ramp from SR-55 NB	Basic	**37.0**	**E**	**34.9**	**D**	**70**	**0.7%**

TABLE 4.8-14
FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS PROPOSED PROJECT – AM PEAK HOUR

Location	Type	Existing		Existing Plus Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**70**	**0.5%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**-**	**F**	**-**	**F**	**60**	**0.5%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 6-3, 6-4, and 6-5), Fehr & Peers, 2014

TABLE 4.8-15
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS PROPOSED PROJECT – PM PEAK HOUR

Location	Type	Existing		Existing Plus Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/Newport Blvd On-ramp to SR-73 Off-ramp	Weave	**-**	**F**	**-**	**F**	**30**	**0.4%**
Paularino Ave On-ramp	Merge	**14.9**	**F**	**15.8**	**F**	**30**	**1.0%**
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	**15.9**	**F**	**16.8**	**F**	**30**	**1.0%**
On-ramp from I-405 SB	Basic	**15.5**	**F**	**16.2**	**F**	**30**	**0.8%**
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	**23.0**	**F**	**26.4**	**F**	**140**	**2.5%**
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	**36.5**	**E**	**37.0**	**E**	**60**	**0.8%**
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	**-**	**F**	**-**	**F**	**80**	**0.8%**

TABLE 4.8-15
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS PROPOSED PROJECT – PM PEAK HOUR

Location	Type	Existing		Existing Plus Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	10	0.1%
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Bristol St N Off-ramp	Diverge	27.9	C	**35.9**	**E**	30	0.5%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	100	1.1%
Off-ramp to SR-55 SB	Diverge	**35.5**	**E**	-	F	100	1.3%
On-ramp from SR-55 NB	Weave	-	F	-	F	90	1.3%
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	40	0.6%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**25.5**	F	**25.6**	F	50	0.7%
Jamboree Rd Off-ramp	Diverge	**18.2**	F	**18.4**	F	50	0.6%
Jamboree Rd Loop On-ramp	Merge	**24.2**	F	**23.7**	F	50	0.7%
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**41.6**	F	**40.4**	F	60	0.6%
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	-	F	**43.2**	F	20	0.2%
SR-55 Off-ramp to Bristol St Off-ramp	Basic	**33.9**	F	**26.2**	F	10	0.1%
Bristol St/Ave of the Arts Off-ramp	Diverge	**36.1**	F	**30.9**	F	10	0.1%
On-ramp from SR-55 SB	Basic	**27.2**	F	**22.4**	F	0	0.0%
Bristol St N On-ramp	Merge	**23.9**	F	**21.3**	F	0	0.0%
Bristol St S On-ramp to S Coast Off-ramp	Weave	-	F	-	F	0	0.0%

TABLE 4.8-15
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS PROPOSED PROJECT – PM PEAK HOUR

Location	Type	Existing		Existing Plus Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**43.6**	**E**	**-**	**F**	**80**	**0.8%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**44.8**	**E**	**45.1**	**E**	**70**	**0.6%**
Jamboree Rd Loop On-ramp	Merge	**21.3**	**F**	**22.1**	**F**	**70**	**1.1%**
Jamboree Rd Direct On-ramp	Merge	**21.4**	**F**	**22.9**	**F**	**90**	**1.3%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 6-6, 6-7, and 6-8), Fehr & Peers, 2014

Phase 1

Table 4.8-16 shows there is one location where there is an impact at a local roadway intersection with the Proposed Project in Phase 1. During the PM peak hour, the LOS at the Campus Drive at Bristol Street North intersection in the City of Newport Beach worsens. The change is of sufficient magnitude that it would result in a significant impact at this intersection. The evaluation was based on City of Newport Beach intersection analysis methodology. The LOS for each of the 59 study intersections under the Proposed Project, Phase 1 evaluation is provided in Appendix G (Table 6-9).

TABLE 4.8-16
INTERSECTION LEVEL OF SERVICE
PHASE 1 PROPOSED PROJECT

Intersection	Traffic Control	Peak Hour	Without Project		With Proposed Project		
			V/C	LOS	V/C	LOS	Change
17. Campus Dr at Bristol St North	Signal	AM	0.614	B	0.626	B	0.012
		PM	**0.916**	**E**	**0.936**	**E**	0.020

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
Source: *Transportation Impact Analysis,* (Full data in Table 6-9), Fehr & Peers, 2014

Of the four intersections under the shared jurisdiction of Caltrans only the Jamboree Road at the I-405 southbound ramps would operate at deficient conditions under the "with project" scenario. However, as shown in Table 4.8-17 because the addition of Proposed Project-generated trips would not cause a two second delay increase at an intersection operating at an unacceptable LOS prior to the addition of Project traffic, the Proposed Project, Phase 1 would not result in significant impacts at the Caltrans intersections.

TABLE 4.8-17
CALTRANS INTERSECTION LEVEL OF SERVICE
PHASE 1 PROPOSED PROJECT

Intersection	Traffic Control	Peak Hour	Without Project		With Proposed Project	
			Delay[a]	LOS	Delay[a]	LOS
Jamboree Rd at I-405 SB Ramps	Signal	AM	**94.7**	**F**	**94.7**	**F**
		PM	31.0	C	31.0	C

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
[a] Delay is provided in seconds.
Source: *Transportation Impact Analysis,* (Full data in Table 6-10), Fehr & Peers, 2014

Table 4.8-18 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-19 identifies the freeway mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities. As shown in the tables, most of these facilities would operate at deficient levels of service without Proposed Project-related traffic. However, because the addition of Proposed Project trips would not result in a decrease in LOS from acceptable to unacceptable, and because the addition of Proposed Project trips would not increase traffic by 2 percent or more, impacts would be less than significant.

TABLE 4.8-18
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 PROPOSED PROJECT – AM PEAK HOUR

Location	Type	Without Project		With Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/Newport Blvd On-ramp to SR-73 Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
Baker St Off-ramp to SR-73 On-ramp	Basic	**37.7**	**F**	**37.9**	**F**	**20**	**0.3%**
On-ramp from SR-73 NB to Off-ramp to I-405 SB	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
Off-ramp to I-405 SB to Paularino Ave On-ramp	Basic	**44.5**	**F**	**44.7**	**F**	**10**	**0.2%**
Paularino Ave On-ramp	Merge	**-**	**F**	**-**	**F**	**20**	**0.3%**

TABLE 4.8-18
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 PROPOSED PROJECT – AM PEAK HOUR

Location	Type	Without Project		With Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	-	F	-	F	20	0.3%
On-ramp from I-405 SB	Basic	-	F	-	F	20	0.2%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	-	F	-	F	60	0.5%
Southbound SR-55							
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	60	0.6%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	40.4	E	40.5	E	10	0.2%
MacArthur Blvd On-ramp	Basic	36.7	E	36.8	E	20	0.3%
Jamboree Rd On-ramp	Merge	34.9	D	35.1	E	30	0.3%
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	43.2	E	43.5	E	30	0.3%
Bristol St N Off-ramp	Diverge	-	F	-	F	30	0.3%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	70	0.7%
On-ramp from SR-55 NB	Weave	-	F	-	F	50	0.7%
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	38.8	E	39.1	E	30	0.5%
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	50	0.5%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	42.8	E	43.1	E	30	0.3%
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	-	F	-	F	30	0.2%
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	37.5	E	37.7	E	10	0.1%
Bristol St S On-ramp to South Coast Off-ramp	Weave	-	F	-	F	0	0.0%
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	30.9	F	31.0	F	20	0.2%
Fairview Rd On-ramp	Merge	34.2	F	34.3	F	30	0.3%

TABLE 4.8-18
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 PROPOSED PROJECT – AM PEAK HOUR

Location	Type	Without Project		With Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	**38.8**	**F**	**39.0**	**F**	**30**	**0.3%**
Bristol St Off-ramp	Diverge	**27.3**	**F**	**27.4**	**F**	**30**	**0.3%**
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	**-**	**F**	**-**	**F**	**40**	**0.3%**
On-ramp from SR-55 NB	Basic	34.8	D	**35.1**	**E**	**50**	**0.5%**
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.4%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.4%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 6-11, 6-12, and 6-13), Fehr & Peers, 2014

TABLE 4.8-19
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 PROPOSED PROJECT – PM PEAK HOUR

Location	Type	Without Project		With Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.3%**
Paularino Ave On-ramp	Merge	**15.7**	**F**	**15.8**	**F**	**20**	**0.7%**
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	**16.7**	**F**	**16.8**	**F**	**20**	**0.7%**
On-ramp from I-405 SB	Basic	**16.2**	**F**	**16.2**	**F**	**20**	**0.5%**
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	**25.5**	**F**	**26.1**	**F**	**80**	**1.3%**
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	**36.6**	**E**	**36.8**	**E**	**30**	**0.4%**

TABLE 4.8-19
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 PROPOSED PROJECT – PM PEAK HOUR

Location	Type	Without Project		With Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	50	0.5%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	10	0.1%
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Bristol St N Off-ramp	Diverge	35.9	E	36.1	E	30	0.4%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	60	0.6%
Off-ramp to SR-55 SB	Diverge	-	F	-	F	60	0.6%
On-ramp from SR-55 NB	Weave	-	F	-	F	50	0.6%
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	30	0.4%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	25.6	F	25.7	F	30	0.4%
Jamboree Rd Off-ramp	Diverge	18.3	F	18.4	F	30	0.3%
Jamboree Rd Loop On-ramp	Merge	23.8	F	23.9	F	30	0.4%
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	40.1	F	40.5	F	40	0.4%
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	-	F	-	F	20	0.2%
SR-55 Off-ramp to Bristol St Off-ramp	Basic	26.4	F	26.5	F	10	0.2%
Bristol St/Ave of the Arts Off-ramp	Diverge	31.0	F	31.2	F	10	0.1%
On-ramp from SR-55 SB	Basic	22.5	F	22.5	F	0	0.0%
Bristol St N On-ramp	Merge	21.4	F	21.4	F	0	0.0%
Bristol St S On-ramp to South Coast Off-ramp	Weave	-	F	-	F	0	0.0%

TABLE 4.8-19
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 PROPOSED PROJECT – PM PEAK HOUR

Location	Type	Without Project		With Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**44.2**	**E**	**60**	**0.6%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**44.2**	**E**	**45.4**	**E**	**60**	**0.6%**
Jamboree Rd Loop On-ramp	Merge	**22.4**	**F**	**22.2**	**F**	**60**	**0.9%**
Jamboree Rd Direct On-ramp	Merge	**22.6**	**F**	**23.0**	**F**	**70**	**0.9%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 6-14, 6-15, and 6-16), Fehr & Peers, 2014

Proposed Project Phase 2

Table 4.8-20 shows the locations where there would be a deficient local roadway intersection LOS with the Proposed Project, Phase 2. As shown on the table, Campus Drive at Bristol Street North (Intersection 17) is projected to operate at deficient conditions during the PM peak hour. This would be a significant impact because the ICU would increase by .01 or more. The evaluation for this intersection was based on City of Newport Beach intersection analysis methodology. The LOS for each of the 59 study intersections under the Proposed Project, Phase 2 evaluation is provided in Appendix G (Table 6-17).

TABLE 4.8-20
INTERSECTION LEVEL OF SERVICE
PHASE 2 PROPOSED PROJECT

Intersection	Traffic Control	Peak Hour	Without Project		With Proposed Project		
			V/C	LOS	V/C	LOS	Change
17. Campus Dr at Bristol St North	Signal	AM	0.641	B	0.659	B	0.018
		PM	**0.964**	**E**	**0.998**	**E**	0.034

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.

Source: *Transportation Impact Analysis,* (Full data in Table 6-17), Fehr & Peers, 2014

Of the four intersections under the shared jurisdiction of Caltrans only the Jamboree Road at the I-405 southbound ramps would operate at deficient conditions under the "with project" scenario. However, as shown in Table 4.8-21 this intersection would not be adversely impacted by the Proposed Project. As shown on the table, the overall intersection delay would improve at the Jamboree Road/I-405 southbound ramps during the AM peak hour because the Proposed Project increases traffic to certain movements which have available capacity or "green time". For example, if volumes are increased at a right-turn lane where volumes were low pre-Project, the intersection may operate more efficiently by utilizing the available capacity or "green time" allowing more vehicles to travel through the intersection. Since intersection delay is reported as a weighted average of all movements, this increase in traffic volume actually results in a reduction of overall intersection delay. Thus, with the addition of Proposed Project-generated trips, the overall intersection delay would improve at the Jamboree Road/I-405 southbound ramps during the AM peak hour because the Proposed Project, Phase 2 would increase traffic to the movements that have available capacity or "green time," resulting in a reduction of overall intersection delay.

TABLE 4.8-21
CALTRANS INTERSECTION LEVEL OF SERVICE
PHASE 2 PROPOSED PROJECT

Intersection	Traffic Control	Peak Hour	Without Project		With Proposed Project	
			Delay[a]	LOS	Delay[a]	LOS
Jamboree Rd at I-405 Southbound Ramps	Signal	AM	**99.7**	**F**	**99.5**	**F**
		PM	30.8	C	30.8	C

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.

Delay is provided in seconds.

Source: *Transportation Impact Analysis,* (Full data in Table 6-18), Fehr & Peers, 2014

Table 4.8-22 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-23 identifies the freeway mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities.

As shown in the tables, most of these facilities would operate at deficient levels of service without Proposed Project-related traffic. However, during the PM peak hour, the Proposed Project, Phase 2 would increase the traffic by over 2 percent on the northbound SR-55 from the onramp from I-405 to the MacArthur Boulevard off-ramp. Because this segment is operating at LOS F prior to the addition of Proposed Project, Phase 2 traffic, the Proposed Project, Phase 2 would result in a significant cumulative impact at this location.

TABLE 4.8-22
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 PROPOSED PROJECT – AM PEAK HOUR

Location	Type	Without Project		With Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	20	0.2%
Baker St Off-ramp to SR-73 On-ramp	Basic	37.9	F	38.1	F	20	0.3%
On-ramp from SR-73 NB to Off-ramp to I-405 SB	Weave	-	F	-	F	20	0.2%
Off-ramp to I-405 SB to Paularino Ave On-ramp	Basic	44.8	F	45.0	F	10	0.2%
Paularino Ave On-ramp	Merge	-	F	-	F	20	0.3%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	-	F	-	F	20	0.3%
On-ramp from I-405 SB	Basic	-	F	-	F	20	0.2%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	-	F	-	F	90	0.7%
Southbound SR-55							
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	90	0.8%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	40.4	E	40.6	E	20	0.3%
MacArthur Blvd On-ramp	Basic	36.7	E	36.9	E	30	0.4%
Jamboree Rd On-ramp	Merge	34.9	D	35.1	E	40	0.5%
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	43.2	E	43.6	E	40	0.5%
Bristol St N Off-ramp	Diverge	-	F	-	F	40	0.4%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	100	1.0%
On-ramp from SR-55 NB	Weave	-	F	-	F	80	1.1%
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	38.9	E	39.3	E	40	0.6%
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	60	0.6%

TABLE 4.8-22
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 PROPOSED PROJECT – AM PEAK HOUR

Location	Type	Without Project		With Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**42.9**	**E**	**43.3**	**E**	**40**	**0.4%**
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**40**	**0.3%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**37.6**	**E**	**37.7**	**E**	**10**	**0.1%**
Bristol St S On-ramp to South Coast Off-ramp	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	**31.0**	**F**	**31.2**	**F**	**30**	**0.3%**
Fairview Rd On-ramp	Merge	**34.3**	**F**	**34.5**	**F**	**40**	**0.4%**
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	**39.0**	**F**	**39.3**	**F**	**40**	**0.4%**
Bristol St Off-ramp	Diverge	**27.4**	**F**	**27.5**	**F**	**40**	**0.4%**
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.4%**
On-ramp from SR-55 NB	Basic	**35.0**	**E**	**35.4**	**E**	**60**	**0.6%**
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**60**	**0.4%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.4%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 6-19, 6-20, and 6-21), Fehr & Peers, 2014

TABLE 4.8-23
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 PROPOSED PROJECT – PM PEAK HOUR

Location	Type	Without Project		With Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	30	0.4%
Paularino Ave On-ramp	Merge	15.7	F	15.9	F	30	1.0%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	16.7	F	16.9	F	30	1.0%
On-ramp from I-405 SB	Basic	16.2	F	16.3	F	30	0.8%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	25.5	F	26.4	F	120	2.0%
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	36.6	E 37.0		E	50	0.6%
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	70	0.7%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	10	0.1%
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Bristol St N Off-ramp	Diverge	35.9	E	36.1	E	30	0.4%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	80	0.7%
Off-ramp to SR-55 SB	Diverge	-	F	-	F	80	0.9%
On-ramp from SR-55 NB	Weave	-	F	-	F	70	0.8%
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	40	0.5%

TABLE 4.8-23
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 PROPOSED PROJECT – PM PEAK HOUR

Location	Type	Without Project		With Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**25.6**	**F**	**25.8**	**F**	**40**	**0.5%**
Jamboree Rd Off-ramp	Diverge	**18.4**	**F**	**18.5**	**F**	**40**	**0.5%**
Jamboree Rd Loop On-ramp	Merge	**23.9**	**F**	**24.0**	**F**	**40**	**0.5%**
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**40.2**	**F**	**40.7**	**F**	**50**	**0.5%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
SR-55 Off-ramp to Bristol St Off-ramp	Basic	**26.4**	**F**	**26.5**	**F**	**10**	**0.2%**
Bristol St/Ave of the Arts Off-ramp	Diverge	**31.1**	**F**	**31.2**	**F**	**10**	**0.1%**
On-ramp from SR-55 SB	Basic	**22.5**	**F**	**22.5**	**F**	**0**	**0.0%**
Bristol St N On-ramp	Merge	**21.4**	**F**	**21.4**	**F**	**0**	**0.0%**
Bristol St S On-ramp to South Coast Off-ramp	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**70**	**0.7%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**44.3**	**E**	**45.4**	**E**	**60**	**0.6%**
Jamboree Rd Loop On-ramp	Merge	**22.4**	**F**	**22.2**	**F**	**60**	**0.9%**
Jamboree Rd Direct On-ramp	Merge	**22.7**	**F**	**23.2**	**F**	**70**	**0.9%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 6-22, 6-23, and 6-24), Fehr & Peers, 2014

Phase 3

Table 4.8-24 shows with the Proposed Project, Phase 3 there would be significant Project-related impacts at Intersections 4 (MacArthur Boulevard at Michelson Drive), 17 (Campus Drive at Bristol Street North), and 53 (Von Karman Avenue at Alton Parkway), during the PM peak hour. The evaluation methodology used for assessing the impact corresponds to the jurisdiction in which the intersection is located and is noted in the table.

Though Intersection 52 (Von Karman Avenue at Barranca Parkway) is projected to operate at a deficient LOS, it is not considered a significant Project-related impact because the threshold for intersections in the Irvine Business Complex is the Project-generated trips must increase the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. The Proposed Project only increases the ICU at this study intersection by 0.01. Similarly, Intersection 25 (Santa Ana Avenue at Del Mar Avenue) is projected to operate at a deficient LOS with or without the Proposed Project in the AM peak hour. Though the intersection would receive additional traffic associated with the Proposed Project, it would not reduce the LOS at this intersection and, therefore, impacts would not be significant. The LOS for each of the 59 study intersections under the Proposed Project, Phase 3 is provided in Appendix G (Table 6-25).

TABLE 4.8-24
INTERSECTION LEVEL OF SERVICE
PHASE 3 PROPOSED PROJECT

Intersection	Traffic Control	Peak Hour	Without Project		With Proposed Project		
			V/C	LOS	V/C	LOS	Change
4. MacArthur Blvd at Michelson Drive[1]	Signal	AM	0.77	C	0.81	D	0.04
		PM	**0.98**	**E**	**1.01**	**F**	0.03
17. Campus Dr at Bristol St North[2]	Signal	AM	0.666	B	0.692	B	0.026
		PM	**1.009**	**F**	**1.053**	**F**	0.044
25. Santa Ana Ave at Del Mar Ave[3,4]	Stop Controlled	AM	**36.3**	**E**	**45.2**	**E**	N/A
		PM	28.1	D	33.8	D	N/A
52. Von Karman Ave at Barranca Pkwy[1]	Signal	AM	0.83	D	0.84	D	0.01
		PM	**1.06**	**F**	**1.07**	**F**	0.01
53. Von Karman Ave at Alton Pkwy[1]	Signal	AM	0.83	D	0.84	D	0.01
		PM	0.99	E	**1.01**	**F**	0.02

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.

Notes: Signalized intersections evaluated using ICU methodology.
1. Based on City of Irvine intersection analysis methodology.
2. Based on City of Newport Beach intersection analysis methodology.
3. Based on City of Costa Mesa intersection analysis methodology.
4. AWSC = All Way Stop Control; average intersection delay is reported.

Source: *Transportation Impact Analysis,* (Full data in Table 6-25), Fehr & Peers, 2014

Of the four intersections under the shared jurisdiction of Caltrans only the Jamboree Road at the I-405 southbound ramps would operate at deficient conditions under the "with project" scenario. However, as shown in Table 4.8-25 this intersection would not be adversely

impacted by the Proposed Project, Phase 3. With the addition of Proposed Project-generated trips the overall intersection delay would improve at the Jamboree Road/I-405 southbound ramps during the AM peak hour because the Proposed Project, Phase 3 would increase traffic to the movements that have available capacity or "green time". As previously indicated, since intersection delay is reported as a weighted average of all movements, this increase in traffic volume actually results in a reduction of overall intersection delay.

TABLE 4.8-25
CALTRANS INTERSECTION LEVEL OF SERVICE
PHASE 3 PROPOSED PROJECT

Intersection	Traffic Control	Peak Hour	Without Project		With Proposed Project	
			Delay[a]	LOS	Delay[a]	LOS
Jamboree Rd at I-405 Southbound Ramps	Signal	**AM**	**106.3**	**F**	**106.2**	**F**
		PM	30.7	C	30.7	C

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.

[a] Delay is provided in seconds.

Source: *Transportation Impact Analysis,* (Full data in Table 6-26), Fehr & Peers, 2014

Table 4.8-26 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-27 identifies the freeway mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities.

As shown in the tables, most of these facilities would operate at deficient levels of service without Proposed Project-related traffic. However, during the PM peak hour, the Proposed Project, Phase 3 would increase the traffic by over 2 percent on the northbound SR-55 from the onramp from I-405 to the MacArthur Boulevard off-ramp. Because this segment is operating at LOS F prior to the addition of Proposed Project traffic, the Proposed Project, Phase 3 would result in a significant cumulative impact at this location.

TABLE 4.8-26
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 PROPOSED PROJECT – AM PEAK HOUR

Location	Type	Without Project		With Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	20	0.2%
Baker St Off-ramp to SR-73 On-ramp	Basic	38.0	F	38.3	F	20	0.3%
On-ramp from SR-73 NB to Off-ramp to I-405 SB	Weave	-	F	-	F	20	0.2%
Off-ramp to I-405 SB to Paularino Ave On-ramp	Basic	45.0	F	-	F	10	0.2%
Paularino Ave On-ramp	Merge	-	F	-	F	20	0.3%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	-	F	-	F	20	0.3%
On-ramp from I-405 SB	Basic	-	F	-	F	20	0.2%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	-	F	-	F	100	0.8%
Southbound SR-55							
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	110	1.0%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	40.5	E	40.7	E	20	0.3%
MacArthur Blvd On-ramp	Basic	36.8	E	37.0	E	30	0.4%
Jamboree Rd On-ramp	Merge	35.0	D	35.1	E	40	0.5%
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	43.3	E	43.7	E	40	0.5%
Bristol St N Off-ramp	Diverge	-	F	-	F	40	0.4%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	120	1.2%
On-ramp from SR-55 NB	Weave	-	F	-	F	90	1.2%

TABLE 4.8-26
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 PROPOSED PROJECT – AM PEAK HOUR

Location	Type	Without Project		With Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	**39.0**	**E**	**39.3**	**E**	**40**	**0.6%**
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	**-**	**F**	**-**	**F**	**60**	**0.6%**
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**43.0**	**E**	**43.4**	**E**	**50**	**0.5%**
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.4%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**37.6**	**E**	**37.7**	**E**	**10**	**0.1%**
Bristol St S On-ramp to South Coast Off-ramp	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	**31.1**	**F**	**31.3**	**F**	**40**	**0.4%**
Fairview Rd On-ramp	Merge	**34.4**	**F**	**34.6**	**F**	**50**	**0.5%**
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	**39.0**	**F**	**39.4**	**F**	**50**	**0.5%**
Bristol St Off-ramp	Diverge	**27.4**	**F**	**27.6**	**F**	**50**	**0.4%**
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	**-**	**F**	**-**	**F**	**60**	**0.5%**
On-ramp from SR-55 NB	Basic	**35.2**	**E**	**35.6**	**E**	**70**	**0.7%**
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**70**	**0.5%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**-**	**F**	**-**	**F**	**60**	**0.5%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 6-27, 6-28, and 6-29), Fehr & Peers, 2014

TABLE 4.8-27
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 PROPOSED PROJECT – PM PEAK HOUR

Location	Type	Without Project		With Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	30	0.4%
Paularino Ave On-ramp	Merge	15.7	F	15.9	F	30	1.0%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	16.7	F	16.9	F	30	1.0%
On-ramp from I-405 SB	Basic	16.2	F	16.3	F	30	0.8%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	25.5	F	26.5	F	140	2.3%
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	36.7	E	37.2	E	60	0.8%
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	80	0.8%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	10	0.1%
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Bristol St N Off-ramp	Diverge	36.0	E	36.2	E	30	0.4%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	100	0.9%
Off-ramp to SR-55 SB	Diverge	-	F	-	F	100	1.1%
On-ramp from SR-55 NB	Weave	-	F	-	F	90	1.0%
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	40	0.5%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	25.8	F	26.0	F	50	0.7%
Jamboree Rd Off-ramp	Diverge	18.5	F	18.6	F	50	0.6%
Jamboree Rd Loop On-ramp	Merge	24.0	F	24.2	F	50	0.7%

TABLE 4.8-27
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 PROPOSED PROJECT – PM PEAK HOUR

Location	Type	Without Project		With Proposed Project			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**40.5**	**F**	**41.1**	**F**	**60**	**0.7%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
SR-55 Off-ramp to Bristol St Off-ramp	Basic	**26.5**	**F**	**26.6**	**F**	**10**	**0.2%**
Bristol St/Ave of the Arts Off-ramp	Diverge	**31.1**	**F**	**31.3**	**F**	**10**	**0.1%**
On-ramp from SR-55 SB	Basic	**22.6**	**F**	**22.6**	**F**	**0**	**0.0%**
Bristol St N On-ramp	Merge	**21.5**	**F**	**21.5**	**F**	**0**	**0.0%**
Bristol St S On-ramp to S Coast Off-ramp	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**80**	**0.8%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**44.4**	**E**	**45.5**	**E**	**70**	**0.7%**
Jamboree Rd Loop On-ramp	Merge	**22.5**	**F**	**22.3**	**F**	**70**	**1.1%**
Jamboree Rd Direct On-ramp	Merge	**22.8**	**F**	**23.4**	**F**	**90**	**1.2%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 6-30, 6-31, and 6-32), Fehr & Peers, 2014

Caltrans Ramp Queue Analysis

A 95th percentile queue analysis has been prepared utilizing the Synchro 7 software to determine if adequate queue storage is provided at the off-ramp at MacArthur Boulevard and Jamboree Road under the Proposed Project scenario. Adequate queue storage is forecast to be provided at the Caltrans off-ramp locations. The detailed analysis is provided in Table 11-1 in the *Transportation Impact Analysis* (Appendix G).

Alternative A

Existing Plus Alternative A

As previously discussed, the Existing Plus Project analysis often results in either overstating or understating impacts, or both. Specific to Alternative A, the Existing Plus Project analysis understates impacts. As shown below, under the Existing Plus Alternative A analysis, Alternative A would result in significant impacts at one intersection and one Caltrans on-ramp. However, under the Phase 3 analysis, which also takes into account cumulative traffic growth and future road improvements, Alternative A would result in significant impacts at three intersections and one Caltrans on-ramp. Therefore, the results of the Existing Plus Alternative A analysis in this case are misleading and, as such, are presented for information and disclosure purposes only.

Table 4.8-28 shows there is one location under the Existing Plus Alternative A scenario where the LOS degrades from acceptable conditions to LOS E. This intersection, Campus Drive/Bristol Street North, located in the City of Newport Beach, worsens from LOS D to LOS E with the addition of the Alternative A trips. As such, under the Existing Plus Alternative A scenario, Alternative A would result in a significant impact at this intersection. The evaluation was based on City of Newport Beach intersection analysis methodology. The LOS for each of the 59 study intersections under the Existing Plus Alternative A scenario is provided in Appendix G (Table 7-1).

TABLE 4.8-28
INTERSECTION OPERATING AT A DEFICIENT LEVEL OF SERVICE
EXISTING PLUS ALTERNATIVE A

Intersection	Traffic Control	Peak Hour	Existing		Existing Plus Alternative A		
			V/C	LOS	V/C	LOS	Change
17. Campus Dr at Bristol St North	Signal	AM	0.596	A	0.624	B	0.028
		PM	0.885	D	**0.931**	**E**	0.046

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
Source: *Transportation Impact Analysis,* (Full data in Table 7-1), Fehr & Peers, 2014

Of the four intersections under the shared jurisdiction of Caltrans only the Jamboree Road at the I-405 southbound ramps would operate at deficient conditions under the "with project" scenario. However, as shown in Table 4.8-29 because the addition of Project-generated trips would not cause a two second delay increase at an intersection operating at an unacceptable LOS prior to the addition of Project traffic, Alternative A would not result in significant impacts at the Caltrans intersections.

TABLE 4.8-29
CALTRANS INTERSECTION OPERATING AT A DEFICIENT LEVEL OF SERVICE
EXISTING PLUS ALTERNATIVE A

Intersection	Traffic Control	Peak Hour	Existing		Existing Plus Alternative A	
			Delay [a]	LOS	Delay [a]	LOS
Jamboree Rd at I-405 SB Ramps	Signal	AM	**90.8**	**F**	**91.4**	**F**
		PM	30.7	C	30.9	C

NB=Northbound
Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
[a] Delay is provided in seconds.
Source: *Transportation Impact Analysis,* (Full data in Table 7-2), Fehr & Peers, 2014

Table 4.8-30 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-31 identifies the freeway mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities. As shown in the tables, most of these facilities would operate at deficient levels of service without Project-related traffic. In the PM peak hour, the northbound SR-55 onramp from I-405 to the MacArthur Boulevard off-ramp would also experience an increase in traffic by over 2 percent as a result of Alternative A. Since this segment is operating at LOS F prior to the addition of Project-generated traffic, Alternative A would result in a significant cumulative impact at this location.

TABLE 4.8-30
FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS ALTERNATIVE A – AM PEAK HOUR

Location	Type	Existing		Existing Plus Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
Baker St Off-ramp to SR-73 On-ramp	Basic	**24.9**	**F**	**37.7**	**F**	**20**	**0.4%**
On-ramp from SR-73 NB to Off-ramp to I-405 SB	Weave	**-**	**F**	**-**	**F**	**20**	**0.3%**
Off-ramp to I-405 SB to Paularino Ave On-ramp	Basic	**28.3**	**F**	**44.5**	**F**	**10**	**0.2%**
Paularino Ave On-ramp	Merge	29.6	D	-	**F**	**20**	**0.4%**
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	34.3	D	-	**F**	**20**	**0.4%**
On-ramp from I-405 SB	Basic	**-**	**F**	**-**	**F**	**20**	**0.2%**

TABLE 4.8-30
FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS ALTERNATIVE A – AM PEAK HOUR

Location	Type	Existing		Existing Plus Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	-	F	-	F	110	1.1%
Southbound SR-55							
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	110	1.0%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	40.3	E	40.5	E	20	0.3%
MacArthur Blvd On-ramp	Basic	36.6	E	36.8	E	30	0.4%
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	23.7	C	43.4	E	40	0.7%
Bristol St N Off-ramp	Diverge	30.5	D	-	F	40	0.6%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	32.1	D	-	F	130	1.5%
On-ramp from SR-55 NB	Weave	33.1	D	-	F	100	1.9%
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	38.7	E	39.1	E	40	0.6%
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	60	0.6%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	42.7	E	43.3	E	60	0.6%
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	-	F	-	F	50	0.4%
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	40.8	E	37.6	E	10	0.1%
Bristol St S On-ramp to South Coast Off-ramp	Weave	-	F	-	F	0	0.0%
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	30.8	F	31.0	F	50	0.6%
Fairview Rd On-ramp	Merge	34.1	F	34.3	F	60	0.6%

TABLE 4.8-30
FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS ALTERNATIVE A – AM PEAK HOUR

Location	Type	Existing		Existing Plus Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	**38.6**	**F**	**38.9**	**F**	**60**	**0.6%**
Bristol St Off-ramp	Diverge	**27.2**	**F**	**27.4**	**F**	**60**	**0.5%**
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	**-**	**F**	**-**	**F**	**70**	**0.5%**
Lane Drop	Basic	**36.9**	**E**	34.3	D	70	0.9%
On-ramp from SR-55 NB	Basic	**37.0**	**E**	34.9	D	80	0.8%
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**80**	**0.5%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**-**	**F**	**-**	**F**	**70**	**0.5%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 7-3, 7-4, and 7-5), Fehr & Peers, 2014

TABLE 4.8-31
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS ALTERNATIVE A – PM PEAK HOUR

Location	Type	Existing		Existing With Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/Newport Blvd On-ramp to SR-73 Off-ramp	Weave	**-**	**F**	**-**	**F**	**30**	**0.4%**
Paularino Ave On-ramp	Merge	**14.9**	**F**	**15.8**	**F**	**30**	**1.0%**
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	**15.9**	**F**	**16.8**	**F**	**30**	**1.0%**
On-ramp from I-405 SB	Basic	**15.5**	**F**	**16.2**	**F**	**30**	**0.8%**
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	**23.0**	**F**	**26.5**	**F**	**150**	**2.7%**
Southbound SR-55							
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	**-**	**F**	**-**	**F**	**10**	**0.1%**

TABLE 4.8-31
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS ALTERNATIVE A – PM PEAK HOUR

Location	Type	Existing		Existing With Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Bristol St N Off-ramp	Diverge	27.9	C	**36.0**	**E**	**30**	**0.5%**
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	90	0.9%
Off-ramp to SR-55 SB	Diverge	**35.5**	**E**	-	F	90	1.1%
On-ramp from SR-55 NB	Weave	-	F	-	F	80	1.1%
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	40	0.6%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**25.5**	F	**25.7**	F	50	0.7%
Jamboree Rd Off-ramp	Diverge	**18.2**	F	**18.4**	F	50	0.6%
Jamboree Rd Loop On-ramp	Merge	**24.2**	F	**23.8**	F	50	0.7%
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**41.6**	F	**40.5**	F	60	0.6%
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	-	F	**43.3**	F	10	0.1%
SR-55 Off-ramp to Bristol St Off-ramp	Basic	**33.9**	F	**26.3**	F	0	0.0%
Bristol St/Ave of the Arts Off-ramp	Diverge	**36.1**	F	**30.9**	F	0	0.0%
On-ramp from SR-55 SB	Basic	**27.2**	F	**22.4**	F	0	0.0%
Bristol St N On-ramp	Merge	**23.9**	F	**21.3**	F	0	0.0%
Bristol St S On-ramp to South Coast Off-ramp	Weave	-	F	-	F	0	0.0%
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**43.6**	E	-	F	80	0.8%
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**44.8**	E	**45.2**	E	60	0.6%

TABLE 4.8-31
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS ALTERNATIVE A – PM PEAK HOUR

Location	Type	Existing		Existing With Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Jamboree Rd Loop On-ramp	Merge	**21.3**	**F**	**22.2**	**F**	**60**	**1.0%**
Jamboree Rd Direct On-ramp	Merge	**21.4**	**F**	**23.0**	**F**	**80**	**1.1%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 7-6, 7-7, and 7-8), Fehr & Peers, 2014

Phase 1

Table 4.8-32 shows there is one location where there is a significant impact with Alternative A in Phase 1. During the PM peak hour, the LOS at the Campus Drive at Bristol Street North intersection in the City of Newport Beach worsens. The change is of sufficient magnitude that it would result in a significant impact at this intersection. The evaluation was based on City of Newport Beach intersection analysis methodology. The LOS evaluation for each of the 59 study intersections under Alternative A, Phase 1 is provided in Appendix G (Table 7-9).

TABLE 4.8-32
INTERSECTION LEVEL OF SERVICE
PHASE 1 ALTERNATIVE A

Intersection	Traffic Control	Peak Hour	Without Project		With Alternative A		
			V/C	LOS	V/C	LOS	Change
17. Campus Dr at Bristol St North	Signal	AM	0.614	B	0.626	B	0.012
		PM	**0.916**	**E**	**0.936**	**E**	0.020

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
Source: *Transportation Impact Analysis,* (Full data in Table 7-9), Fehr & Peers, 2014

Of the four intersections under shared jurisdiction with Caltrans only the Jamboree Road at the I-405 southbound ramps would operate at deficient conditions under the "with project" scenario. However, as shown in Table 4.8-33 because the addition of Alternative A-generated trips would not cause a two second delay increase at an intersection operating at an unacceptable LOS prior to the addition of Project traffic, Alternative A, Phase 1 would not result in significant impacts at the Caltrans intersections. This intersection is an instance where the overall intersection delay would improve at this location because Alternative A increases traffic

to certain movements which have available capacity or "green time". As previously discussed, since intersection delay is reported as a weighted average of all movements, this increase in traffic volume actually results in a reduction of overall intersection delay.

TABLE 4.8-33
CALTRANS INTERSECTION LEVEL OF SERVICE
PHASE 1 ALTERNATIVE A

Intersection	Traffic Control	Peak Hour	Without Project		With Alternative A	
			Delay[a]	LOS	Delay[a]	LOS
Jamboree Rd at I-405 SB Ramps	Signal	AM	**94.7**	**F**	**94.5**	**F**
		PM	31.0	C	31.0	C

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
[a] Delay is provided in seconds.
Source: *Transportation Impact Analysis,* (Full data in Table 7-10), Fehr & Peers, 2014

Table 4.8-34 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-35 identifies the freeway mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities. As shown in the tables, most of these facilities would operate at deficient levels of service without Alternative A-related traffic. Because the addition of Alternative A trips would not result in a decrease in LOS from acceptable to unacceptable, and because the addition of Alternative A trips would not increase traffic by 2 percent or more, impacts would be less than significant.

TABLE 4.8-34
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 ALTERNATIVE A – AM PEAK HOUR

Location	Type	Without Project		With Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
Baker St Off-ramp to SR-73 On-ramp	Basic	**37.7**	**F**	**37.9**	**F**	**20**	**0.3%**
On-ramp from SR-73 NB to Off-ramp to I-405 SB	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
Off-ramp to I-405 SB to Paularino Ave On-ramp	Basic	**44.5**	**F**	**44.7**	**F**	**10**	**0.2%**
Paularino Ave On-ramp	Merge	**-**	**F**	**-**	**F**	**20**	**0.3%**
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	**-**	**F**	**-**	**F**	**20**	**0.3%**
On-ramp from I-405 SB	Basic	**-**	**F**	**-**	**F**	**20**	**0.2%**

TABLE 4.8-34
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 ALTERNATIVE A – AM PEAK HOUR

Location	Type	Without Project		With Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	-	F	-	F	60	0.5%
Southbound SR-55							
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	60	0.6%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	40.4	E	40.5	E	10	0.2%
MacArthur Blvd On-ramp	Basic	36.7	E	36.8	E	20	0.3%
Jamboree Rd On-ramp	Merge	34.9	D	35.1	E	30	0.3%
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	43.2	E	43.5	E	30	0.3%
Bristol St N Off-ramp	Diverge	-	F	-	F	30	0.3%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	70	0.7%
On-ramp from SR-55 NB	Weave	-	F	-	F	50	0.7%
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	38.8	E	39.1	E	30	0.5%
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	50	0.5%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	42.8	E	43.1	E	30	0.3%
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	-	F	-	F	30	0.2%
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	37.5	E	37.7	E	10	0.1%
Bristol St S On-ramp to South Coast Off-ramp	Weave	-	F	-	F	0	0.0%

TABLE 4.8-34
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 ALTERNATIVE A – AM PEAK HOUR

Location	Type	Without Project		With Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	**30.9**	**F**	**31.0**	**F**	**20**	**0.2%**
Fairview Rd On-ramp	Merge	**34.2**	**F**	**34.3**	**F**	**30**	**0.3%**
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	**38.8**	**F**	**39.0**	**F**	**30**	**0.3%**
Bristol St Off-ramp	Diverge	**27.3**	**F**	**27.4**	**F**	**30**	**0.3%**
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	**-**	**F**	**-**	**F**	**40**	**0.3%**
On-ramp from SR-55 NB	Basic	34.8	D	**35.1**	**E**	**50**	**0.5%**
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.4%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.4%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 7-11, 7-12, and 7-13), Fehr & Peers, 2014

TABLE 4.8-35
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 ALTERNATIVE A– PM PEAK HOUR

Location	Type	Without Project		With Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/Newport Blvd On-ramp to SR-73 Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.3%**
Paularino Ave On-ramp	Merge	**15.7**	**F**	**15.8**	**F**	**20**	**0.7%**
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	**16.7**	**F**	**16.8**	**F**	**20**	**0.7%**
On-ramp from I-405 SB	Basic	**16.2**	**F**	**16.2**	**F**	**20**	**0.5%**

TABLE 4.8-35
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 ALTERNATIVE A– PM PEAK HOUR

Location	Type	Without Project		With Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	**25.5**	**F**	**26.1**	**F**	**80**	**1.3%**
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	**36.6**	**E**	**36.8**	**E**	**30**	**0.4%**
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	**-**	**F**	**-**	**F**	**50**	**0.5%**
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	**-**	**F**	**-**	**F**	**10**	**0.1%**
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
Northbound SR-73							
Bristol St N Off-ramp	Diverge	**35.9**	**E**	**36.1**	**E**	**30**	**0.4%**
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	**-**	**F**	**-**	**F**	**60**	**0.6%**
Off-ramp to SR-55 SB	Diverge	**-**	**F**	**-**	**F**	**60**	**0.6%**
On-ramp from SR-55 NB	Weave	**-**	**F**	**-**	**F**	**50**	**0.6%**
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	**-**	**F**	**-**	**F**	**30**	**0.4%**
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**25.6**	**F**	**25.7**	**F**	**30**	**0.4%**
Jamboree Rd Off-ramp	Diverge	**18.3**	**F**	**18.4**	**F**	**30**	**0.3%**
Jamboree Rd Loop On-ramp	Merge	**23.8**	**F**	**23.9**	**F**	**30**	**0.4%**
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**40.1**	**F**	**40.5**	**F**	**40**	**0.4%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
SR-55 Off-ramp to Bristol St Off-ramp	Basic	**26.4**	**F**	**26.5**	**F**	**10**	**0.2%**
Bristol St/Ave of the Arts Off-ramp	Diverge	**31.0**	**F**	**31.2**	**F**	**10**	**0.1%**

TABLE 4.8-35
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 ALTERNATIVE A– PM PEAK HOUR

Location	Type	Without Project		With Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
On-ramp from SR-55 SB	Basic	**22.5**	**F**	**22.5**	**F**	**0**	**0.0%**
Bristol St N On-ramp	Merge	**21.4**	**F**	**21.4**	**F**	**0**	**0.0%**
Bristol St S On-ramp to South Coast Off-ramp	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**44.2**	**E**	**60**	**0.6%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**44.2**	**E**	**45.4**	**E**	**60**	**0.6%**
Jamboree Rd Loop On-ramp	Merge	**22.4**	**F**	**22.2**	**F**	**60**	**0.9%**
Jamboree Rd Direct On-ramp	Merge	**22.6**	**F**	**23.0**	**F**	**70**	**0.9%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 7-14, 7-15, and 7-16), Fehr & Peers, 2014

Phase 2

Table 4.8-36 shows with Alternative A, Phase 2 there would be a significant impact at Intersection 17, Campus Drive at Bristol Street North, during the PM peak hour. The evaluation for this intersection was based on City of Newport Beach intersection analysis methodology. The LOS evaluation for each of the 59 study intersections under Alternative A, Phase 2 is provided in Appendix G (Table 7-17).

TABLE 4.8-36
INTERSECTION LEVEL OF SERVICE
PHASE 2 ALTERNATIVE A

Intersection	Traffic Control	Peak Hour	Without Project		With Alternative A		
			V/C	LOS	V/C	LOS	Change
17. Campus Dr at Bristol St North	Signal	AM	0.641	B	0.657	B	0.016
		PM	**0.964**	**E**	**0.992**	**E**	0.028

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.

Source: *Transportation Impact Analysis,* (Full data in Table 7-17), Fehr & Peers, 2014

As with the Proposed Project, with Alternative A, Phase 2 the only intersection under shared jurisdiction with Caltrans that would operate at deficient conditions under the "with project" scenario would be the Jamboree Road at the I-405 southbound ramps. However, as shown in Table 4.8-37 this intersection would not be adversely impacted by Alternative A. With the addition of Alternative A-generated trips the overall intersection delay would improve at the Jamboree Road/I-405 southbound ramps during the AM peak hour because Alternative A, Phase 2 would increase traffic to the movements that have available capacity or "green time". As previously indicated, since intersection delay is reported as a weighted average of all movements, this increase in traffic volume actually results in a reduction of overall intersection delay.

TABLE 4.8-37
CALTRANS INTERSECTION LEVEL OF SERVICE
PHASE 2 ALTERNATIVE A

Intersection	Traffic Control	Peak Hour	Without Project		With Alternative A	
			Delay[a]	LOS	Delay[a]	LOS
Jamboree Rd at I-405 Southbound Ramps	Signal	AM	**99.7**	**F**	**99.5**	**F**
		PM	30.8	C	30.8	C

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
[a] Delay is provided in seconds.
Source: *Transportation Impact Analysis,* (Full data in Table 7-18), Fehr & Peers, 2014

Table 4.8-38 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-39 identifies the freeway mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities.

As shown in the tables, most of these facilities would operate at deficient levels of service without Alternative A-related traffic. However, because the addition of Project trips would not result in a decrease in LOS from acceptable to unacceptable, and because the addition of the Alternative A, Phase 2 trips would not increase traffic by 2 percent or more, impacts would be less than significant.

TABLE 4.8-38
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 ALTERNATIVE A – AM PEAK HOUR

Location	Type	Without Project		With Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	20	0.2%
Baker St Off-ramp to SR-73 On-ramp	Basic	37.9	F	38.1	F	20	0.3%
On-ramp from SR-73 NB to Off-ramp to I-405 SB	Weave	-	F	-	F	20	0.2%
Off-ramp to I-405 SB to Paularino Ave On-ramp	Basic	44.8	F	45.0	F	10	0.2%
Paularino Ave On-ramp	Merge	-	F	-	F	20	0.3%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	-	F	-	F	20	0.3%
On-ramp from I-405 SB	Basic	-	F	-	F	20	0.2%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	-	F	-	F	80	0.6%
Southbound SR-55							
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	80	0.7%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	40.4	E	40.6	E	20	0.3%
MacArthur Blvd On-ramp	Basic	36.7	E	36.9	E	30	0.4%
Jamboree Rd On-ramp	Merge	34.9	D	35.1	E	40	0.5%
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	43.2	E	43.6	E	40	0.5%
Bristol St N Off-ramp	Diverge	-	F	-	F	40	0.4%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	90	0.9%
On-ramp from SR-55 NB	Weave	-	F	-	F	70	1.0%

TABLE 4.8-38
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 ALTERNATIVE A – AM PEAK HOUR

Location	Type	Without Project		With Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	**38.9**	**E**	**39.2**	**E**	**30**	**0.5%**
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.5%**
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**42.9**	**E**	**43.3**	**E**	**40**	**0.4%**
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**40**	**0.3%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**37.6**	**E**	**37.7**	**E**	**10**	**0.1%**
Bristol St S On-ramp to S Coast Off	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	**31.0**	**F**	**31.2**	**F**	**30**	**0.3%**
Fairview Rd On-ramp	Merge	**34.3**	**F**	**34.5**	**F**	**40**	**0.4%**
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	**39.0**	**F**	**39.3**	**F**	**40**	**0.4%**
Bristol St Off-ramp	Diverge	**27.4**	**F**	**27.5**	**F**	**40**	**0.4%**
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.4%**
On-ramp from SR-55 NB	Basic	**35.0**	**E**	**35.4**	**E**	**60**	**0.6%**
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**60**	**0.4%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.4%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 7-19, 7-20, and 7-21), Fehr & Peers, 2014

TABLE 4.8-39
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 ALTERNATIVE A – PM PEAK HOUR

Location	Type	Without Project		With Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	30	0.4%
Paularino Ave On-ramp	Merge	15.7	F	15.9	F	30	1.0%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	16.7	F	16.9	F	30	1.0%
On-ramp from I-405 SB	Basic	16.2	F	16.3	F	30	0.8%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	25.5	F	26.3	F	110	1.8%
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	36.6	E	36.9	E	40	0.5%
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	60	0.6%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	10	0.1%
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Bristol St N Off-ramp	Diverge	35.9	E	36.1	E	30	0.4%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	70	0.6%
Off-ramp to SR-55 SB	Diverge	-	F	-	F	70	0.8%
On-ramp from SR-55 NB	Weave	-	F	-	F	60	0.7%
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	40	0.5%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	25.6	F	25.8	F	30	0.4%
Jamboree Rd Off-ramp	Diverge	18.4	F	18.5	F	30	0.3%
Jamboree Rd Loop On-ramp	Merge	23.9	F	24.0	F	30	0.4%

TABLE 4.8-39
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 ALTERNATIVE A – PM PEAK HOUR

Location	Type	Without Project		With Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**40.2**	**F**	**40.7**	**F**	**40**	**0.4%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**-**	**F**	**-**	**F**	**10**	**0.1%**
SR-55 Off-ramp to Bristol St Off-ramp	Basic	**26.4**	**F**	**26.5**	**F**	**0**	**0.0%**
Bristol St/Ave of the Arts Off-ramp	Diverge	**31.1**	**F**	**31.2**	**F**	**0**	**0.0%**
On-ramp from SR-55 SB	Basic	**22.5**	**F**	**22.5**	**F**	**0**	**0.0%**
Bristol St N On-ramp	Merge	**21.4**	**F**	**21.4**	**F**	**0**	**0.0%**
Bristol St S On-ramp to S Coast Off	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**70**	**0.7%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**44.3**	**E**	**45.4**	**E**	**60**	**0.6%**
Jamboree Rd Loop On-ramp	Merge	**22.4**	**F**	**22.2**	**F**	**60**	**0.9%**
Jamboree Rd Direct On-ramp	Merge	**22.7**	**F**	**23.2**	**F**	**70**	**0.9%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 7-22, 7-23, and 7-24), Fehr & Peers, 2014

Phase 3

Table 4.8-40 shows the intersection LOS with Alternative A, Phase 3. Prior to mitigation there would be significant Project-related impacts at Intersections 4 (MacArthur Boulevard at Michelson Drive), 17 (Campus Drive at Bristol Street North), and 53 (Von Karman Avenue at Alton Parkway), during the PM peak hour. The evaluation methodology used for assessing the impacts corresponds to the jurisdiction in which the intersection is located and is noted in the table.

Though Intersection 52 (Von Karman Avenue at Barranca Parkway) is projected to operate at a deficient LOS, it is not considered a significant Project-related impact because the threshold for

intersections in the Irvine Business Complex is the Project-generated trips must increase the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. Alternative A only increases the ICU at this study intersection by 0.01. Similarly, Intersection 25 (Santa Ana Avenue at Del Mar Avenue) is projected to operate at a deficient LOS with or without Alternative A in the AM peak hour. Though the intersection would receive additional traffic associated with Alternative A, project traffic would not reduce the LOS at this intersection and, therefore, impacts would be less than significant. The LOS evaluation for each of the 59 study intersections under Alternative A, Phase 3 is provided in Appendix G (Table 7-25).

TABLE 4.8-40
INTERSECTION LEVEL OF SERVICE
PHASE 3 ALTERNATIVE A

Intersection	Traffic Control	Peak Hour	Without Project		With Alternative A		
			V/C	LOS	V/C	LOS	Change
4. MacArthur Blvd at Michelson Drive[1]	Signal	AM	0.77	C	0.81	D	0.04
		PM	**0.98**	**E**	**1.02**	**F**	0.04
17. Campus Dr at Bristol St North[2]	Signal	AM	0.666	B	0.694	B	0.028
		PM	**1.009**	**F**	**1.055**	**F**	0.046
25. Santa Ana Ave at Del Mar Ave[3,4]	Stop Controlled	AM	**36.3**	**E**	**45.2**	**E**	N/A
		PM	28.1	D	33.8	D	N/A
52. Von Karman Ave at Barranca Pkwy[1]	Signal	AM	0.83	D	0.84	D	0.01
		PM	**1.06**	**F**	**1.07**	**F**	0.01
53. Von Karman Ave at Alton Pkwy[1]	Signal	AM	0.83	D	0.84	D	0.01
		PM	0.99	E	**1.01**	**F**	0.02

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.

Notes: Signalized intersections evaluated using ICU methodology.

1. Based on City of Irvine intersection analysis methodology.
2. Based on City of Newport Beach intersection analysis methodology.
3. Based on City of Costa Mesa intersection analysis methodology.
4. AWSC = All Way Stop Control; average intersection delay is reported.

Source: *Transportation Impact Analysis,* (Full data in Table 7-25), Fehr & Peers, 2014

Of the four intersections under the shared jurisdiction of Caltrans only the Jamboree Road at the I-405 southbound ramps would operate at deficient conditions under the "with project" scenario. However, as shown in Table 4.8-41 this intersection would not be adversely impacted by Alternative A, Phase 3. With the addition of Alternative A-generated trips the overall intersection delay would improve at the Jamboree Road/I-405 southbound ramps during the AM peak hour because Alternative A, Phase 3 would increase traffic to the movements that have available capacity or "green time". As previously indicated, since intersection delay is reported as a weighted average of all movements, this increase in traffic volume actually results in a reduction of overall intersection delay.

TABLE 4.8-41
CALTRANS INTERSECTION LEVEL OF SERVICE
PHASE 3 ALTERNATIVE A

Intersection	Traffic Control	Peak Hour	Without Project		With Alternative A	
			Delay[a]	LOS	Delay[a]	LOS
Jamboree Rd at I-405 Southbound Ramps	Signal	**AM**	**106.3**	**F**	**106.2**	**F**
		PM	30.7	C	30.7	C

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
[a] Delay is provided in seconds.
Source: *Transportation Impact Analysis,* (Full data in Table 7-26), Fehr & Peers, 2014

Table 4.8-42 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-43 identifies the freeway mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities.

As shown in the tables, most of these facilities would operate at deficient levels of service without Alternative A-related traffic. However, during the PM peak hour, Alternative A, Phase 3 would increase the traffic by over 2 percent on the northbound SR-55 from the onramp from I-405 to the MacArthur Boulevard off-ramp. Because this segment is operating at LOS F prior to the addition of Alternative A traffic, Alternative A, Phase 3 would result in a significant cumulative impact at this location.

TABLE 4.8-42
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 ALTERNATIVE A – AM PEAK HOUR

Location	Type	Without Project		With Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
Baker St Off-ramp to SR-73 On-ramp	Basic	**38.0**	**F**	**38.3**	**F**	**20**	**0.3%**
On-ramp from SR-73 NB to Off-ramp to I-405 SB	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
Off-ramp to I-405 SB to Paularino Ave On-ramp	Basic	**45.0**	**F**	**-**	**F**	**10**	**0.2%**
Paularino Ave On-ramp	Merge	**-**	**F**	**-**	**F**	**20**	**0.3%**
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	**-**	**F**	**-**	**F**	**20**	**0.3%**
On-ramp from I-405 SB	Basic	**-**	**F**	**-**	**F**	**20**	**0.2%**

TABLE 4.8-42
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 ALTERNATIVE A – AM PEAK HOUR

Location	Type	Without Project		With Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	-	F	-	F	110	0.9%
Southbound SR-55							
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	110	1.0%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	40.5	E	40.7	E	20	0.3%
MacArthur Blvd On-ramp	Basic	36.8	E	37.0	E	30	0.4%
Jamboree Rd On-ramp	Merge	35.0	D	35.1	E	40	0.5%
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	43.3	E	43.7	E	40	0.5%
Bristol St N Off-ramp	Diverge	-	F	-	F	40	0.4%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	130	1.3%
On-ramp from SR-55 NB	Weave	-	F	-	F	100	1.4%
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	39.0	E	39.3	E	40	0.6%
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	60	0.6%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	43.0	E	43.5	E	60	0.6%
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	-	F	-	F	50	0.4%
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	37.6	E	37.7	E	10	0.1%
Bristol St S On-ramp to South Coast Off-ramp	Weave	-	F	-	F	0	0.0%

TABLE 4.8-42
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 ALTERNATIVE A – AM PEAK HOUR

Location	Type	Without Project		With Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	**31.1**	**F**	**31.3**	**F**	**50**	**0.6%**
Fairview Rd On-ramp	Merge	**34.4**	**F**	**34.6**	**F**	**60**	**0.6%**
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	**39.0**	**F**	**39.5**	**F**	**60**	**0.6%**
Bristol St Off-ramp	Diverge	**27.4**	**F**	**27.6**	**F**	**60**	**0.5%**
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	**-**	**F**	**-**	**F**	**70**	**0.5%**
On-ramp from SR-55 NB	Basic	**35.2**	**E**	**35.7**	**E**	**80**	**0.8%**
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**80**	**0.6%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**-**	**F**	**-**	**F**	**70**	**0.6%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 7-27, 7-28, and 7-29), Fehr & Peers, 2014

TABLE 4.8-43
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 ALTERNATIVE A – PM PEAK HOUR

Location	Type	Without Project		With Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	**-**	**F**	**-**	**F**	**30**	**0.4%**
Paularino Ave On-ramp	Merge	**15.7**	**F**	**15.9**	**F**	**30**	**1.0%**
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	**16.7**	**F**	**16.9**	**F**	**30**	**1.0%**
On-ramp from I-405 SB	Basic	**16.2**	**F**	**16.3**	**F**	**30**	**0.8%**
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	**25.5**	**F**	**26.6**	**F**	**150**	**2.5%**

TABLE 4.8-43
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 ALTERNATIVE A – PM PEAK HOUR

Location	Type	Without Project		With Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	**36.7**	**E**	**37.2**	**E**	**70**	**0.9%**
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	**-**	**F**	**-**	**F**	**90**	**0.9%**
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	**-**	**F**	**-**	**F**	**10**	**0.1%**
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
Northbound SR-73							
Bristol St N Off-ramp	Diverge	**36.0**	**E**	**36.2**	**E**	**30**	**0.4%**
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	**-**	**F**	**-**	**F**	**90**	**0.8%**
Off-ramp to SR-55 SB	Diverge	**-**	**F**	**-**	**F**	**90**	**1.0%**
On-ramp from SR-55 NB	Weave	**-**	**F**	**-**	**F**	**80**	**0.9%**
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	**-**	**F**	**-**	**F**	**40**	**0.5%**
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**25.8**	**F**	**26.0**	**F**	**50**	**0.7%**
Jamboree Rd Off-ramp	Diverge	**18.5**	**F**	**18.6**	**F**	**50**	**0.6%**
Jamboree Rd Loop On-ramp	Merge	**24.0**	**F**	**24.2**	**F**	**50**	**0.7%**
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**40.5**	**F**	**41.1**	**F**	**60**	**0.7%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**-**	**F**	**-**	**F**	**10**	**0.1%**
SR-55 Off-ramp to Bristol St Off-ramp	Basic	**26.5**	**F**	**26.6**	**F**	**0**	**0.0%**
Bristol St/Ave of the Arts Off-ramp	Diverge	**31.1**	**F**	**31.2**	**F**	**0**	**0.0%**
On-ramp from SR-55 SB	Basic	**22.6**	**F**	**22.6**	**F**	**0**	**0.0%**
Bristol St N On-ramp	Merge	**21.5**	**F**	**21.5**	**F**	**0**	**0.0%**

TABLE 4.8-43
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 ALTERNATIVE A – PM PEAK HOUR

Location	Type	Without Project		With Alternative A			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Bristol St S On-ramp to S Coast Off	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**80**	**0.8%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**44.4**	**E**	**45.5**	**E**	**60**	**0.6%**
Jamboree Rd Loop On-ramp	Merge	**22.5**	**F**	**22.2**	**F**	**60**	**0.9%**
Jamboree Rd Direct On-ramp	Merge	**22.8**	**F**	**23.4**	**F**	**80**	**1.1%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 7-30, 7-31, and 7-32), Fehr & Peers, 2014

Caltrans Ramp Queue Analysis

A 95th percentile queue analysis has been prepared utilizing the Synchro 7 software to determine if adequate queue storage is provided at the off-ramp at MacArthur Boulevard and Jamboree Road under the Alternative A scenario. Adequate queue storage is forecast to be provided at the Caltrans off-ramp locations. The detailed analysis is provided in Table 11-2 in the *Transportation Impact Analysis* (Appendix G).

Alternative B

Existing Plus Alternative B

As previously discussed, the Existing Plus Project analysis often results in either overstating or understating impacts, or both. Specific to Alternative B, the Existing Plus Project analysis both understates and overstates impacts. As shown below, under the Existing Plus Alternative B scenario, Alternative B would result in significant impacts at one intersection and three Caltrans facilities. However, under the Phase 3 analysis, which also takes into account cumulative traffic growth and future road improvements, Alternative B would result in significant impacts at four intersections and two Caltrans on-ramps. Thus, if used to measure significance, the Existing Plus Alternative B scenario would both understate and overstate project impacts. Therefore, the results of the Existing Plus Alternative B analysis in this case are misleading and, as such, are presented for information and disclosure purposes only.

Table 4.8-44 shows there is one location under the Existing Plus Alternative B scenario where the LOS degrades from acceptable conditions to LOS E. This intersection, Campus Drive/Bristol Street North, is located in the City of Newport Beach and the LOS worsens from LOS D to LOS E with the addition of the Alternative B trips. As such, under the Existing Plus Alternative B scenario, Alternative B would result in a significant impact at this intersection. The evaluation was based on City of Newport Beach intersection analysis methodology. The LOS for each of the 59 study intersections under the Existing Plus Alternative B scenario is provided in Appendix G (Table 8-1).

TABLE 4.8-44
INTERSECTION OPERATING AT A DEFICIENT LEVEL OF SERVICE
EXISTING PLUS ALTERNATIVE B

Intersection	Traffic Control	Peak Hour	Existing		Existing Plus Alternative B		
			V/C	LOS	V/C	LOS	Change
17. Campus Dr at Bristol St North	Signal	AM	0.596	A	0.638	B	0.042
		PM	0.885	D	**0.958**	**E**	**0.073**

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
Source: *Transportation Impact Analysis,* (Full data in Table 8-1), Fehr & Peers, 2014

Of the four intersections under the shared jurisdiction of Caltrans only the Jamboree Road at the I-405 southbound ramps would operate at deficient conditions under the "with project" scenario. However, as shown in Table 4.8-45 because the addition of Project-generated trips would not cause a two second delay increase at an intersection operating at an unacceptable LOS prior to the addition of Project traffic, Alternative B would not result in significant impacts at the Caltrans intersections.

TABLE 4.8-45
CALTRANS INTERSECTION OPERATING AT A DEFICIENT LEVEL OF SERVICE
EXISTING PLUS ALTERNATIVE B

Intersection	Traffic Control	Peak Hour	Existing		Existing Plus Alternative B	
			Delay[a]	LOS	Delay[a]	LOS
Jamboree Rd at I-405 SB Ramps	Signal	AM	**90.8**	**F**	**91.3**	**F**
		PM	30.7	C	30.9	C

NB=Northbound
Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
[a] Delay is provided in seconds.
Source: *Transportation Impact Analysis,* (Full data in Table 8-2), Fehr & Peers, 2014

Table 4.8-46 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-47 identifies the freeway mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities. As shown in the tables, most of these facilities would operate at deficient levels of service without Alternative B-generated traffic. However, Alternative B would result in an increase of over 2 percent SR-55 on the on-ramp from I-405 northbound to MacArthur Boulevard off-ramp, and two northbound SR-73 segments (Bristol Street North on-ramp to SR-55 north off-ramp and on-ramp from northbound SR-55), therefore, Alternative B would result in a significant cumulative impact at these locations.

TABLE 4.8-46
FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS ALTERNATIVE B – AM PEAK HOUR

Location	Type	Existing		Existing With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	30	0.3%
Baker St Off-ramp to SR-73 On-ramp	Basic	24.9	F	37.8	F	30	0.7%
On-ramp from SR-73 NB to Off-ramp to I-405 SB	Weave	-	F	-	F	30	0.4%
Off-ramp to I-405 SB to Paularino Ave On-ramp	Basic	28.3	F	44.7	F	20	0.4%
Paularino Ave On-ramp	Merge	29.6	D	-	F	30	0.6%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	34.3	D	-	F	30	0.6%
On-ramp from I-405 SB	Basic	-	F	-	F	30	0.4%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	-	F	-	F	170	1.6%
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	34.1	D	35.0	E	120	1.6%
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	180	1.7%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	20	0.2%

TABLE 4.8-46
FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS ALTERNATIVE B – AM PEAK HOUR

Location	Type	Existing		Existing With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	**40.3**	**E**	**40.7**	**E**	**30**	**0.5%**
MacArthur Blvd On-ramp	Basic	**36.6**	**E**	**37.0**	**E**	**40**	**0.5%**
Jamboree Rd On-ramp	Merge	34.8	D	**35.1**	**E**	**50**	**0.6%**
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	23.7	C	**43.6**	**E**	**50**	**0.9%**
Bristol St N Off-ramp	Diverge	30.5	D	**-**	**F**	**50**	**0.7%**
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	32.1	D	**-**	**F**	**190**	**2.3%**
On-ramp from SR-55 NB	Weave	33.1	D	**-**	**F**	**150**	**2.8%**
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	**38.7**	**E**	**39.2**	**E**	**60**	**0.9%**
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	**-**	**F**	**-**	**F**	**90**	**1.0%**
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**42.7**	**E**	**43.5**	**E**	**90**	**0.8%**
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**80**	**0.6%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**40.8**	**E**	**37.6**	**E**	**0**	**0.0%**
Bristol St S On-ramp to S Coast Off	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	**30.8**	**F**	**31.2**	**F**	**70**	**0.8%**
Fairview Rd On-ramp	Merge	**34.1**	**F**	**34.4**	**F**	**80**	**0.8%**
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	**38.6**	**F**	**39.1**	**F**	**80**	**0.8%**
Bristol St Off-ramp	Diverge	**27.2**	**F**	**27.5**	**F**	**80**	**0.7%**
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	**-**	**F**	**-**	**F**	**90**	**0.7%**
Lane Drop	Basic	**36.9**	**E**	34.5	D	90	1.1%
On-ramp from SR-55 NB	Basic	**37.0**	**E**	**35.1**	**E**	**100**	**1.0%**

TABLE 4.8-46
FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS ALTERNATIVE B – AM PEAK HOUR

Location	Type	Existing		Existing With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	-	F	-	F	100	0.7%
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	-	F	-	F	90	0.7%

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 8-3, 8-4, and 8-5), Fehr & Peers, 2014

TABLE 4.8-47
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS ALTERNATIVE B – PM PEAK HOUR

Location	Type	Existing		Existing With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	50	0.7%
Paularino Ave On-ramp	Merge	14.9	F	15.9	F	50	1.7%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	15.9	F	16.9	F	50	1.7%
On-ramp from I-405 SB	Basic	15.5	F	16.3	F	50	1.3%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	23.0	F	27.2	F	250	4.4%
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	36.5	E	37.4	E	100	1.3%
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	140	1.3%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	10	0.1%

TABLE 4.8-47
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS ALTERNATIVE B – PM PEAK HOUR

Location	Type	Existing		Existing With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Bristol St N Off-ramp	Diverge	27.9	C	**36.0**	**E**	40	0.6%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	150	1.6%
Off-ramp to SR-55 SB	Diverge	**35.5**	**E**	-	F	150	1.9%
On-ramp from SR-55 NB	Weave	-	F	-	F	140	2.0%
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	70	1.0%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**25.5**	F	**25.8**	F	80	1.1%
Jamboree Rd Off-ramp	Diverge	**18.2**	F	**18.5**	F	80	0.9%
Jamboree Rd Loop On-ramp	Merge	**24.2**	F	**23.8**	F	80	1.1%
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**41.6**	F	**40.8**	F	90	1.0%
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	-	F	**43.3**	F	10	0.1%
SR-55 Off-ramp to Bristol St Off-ramp	Basic	**33.9**	F	**26.3**	F	0	0.0%
Bristol St/Ave of the Arts Off-ramp	Diverge	**36.1**	F	**31.0**	F	0	0.0%
On-ramp from SR-55 SB	Basic	**27.2**	F	**22.4**	F	0	0.0%
Bristol St N On-ramp	Merge	**23.9**	F	**21.3**	F	0	0.0%
Bristol St S On-ramp to South Coast Off-ramp	Weave	-	F	-	F	0	0.0%
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**43.6**	E	-	F	110	1.1%
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**44.8**	E	**45.3**	E	90	0.8%

TABLE 4.8-47
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS ALTERNATIVE B – PM PEAK HOUR

Location	Type	Existing		Existing With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Jamboree Rd Loop On-ramp	Merge	**21.3**	**F**	**22.2**	**F**	**90**	**1.5%**
Jamboree Rd Direct On-ramp	Merge	**21.4**	**F**	**23.0**	**F**	**120**	**1.7%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 8-6, 8-7, and 8-8), Fehr & Peers, 2014

Phase 1

Table 4.8-48 shows there is one location where there is a significant impact with Alternative B in Phase 1. During the PM peak hour, the LOS at the Campus Drive at Bristol Street North intersection in the City of Newport Beach worsens. Though the intersection would operate at LOS E with or without Alternative B, Phase 1, the change is of sufficient magnitude that it would result in a significant impact at this intersection. The evaluation was based on City of Newport Beach intersection analysis methodology. The LOS evaluation for each of the 59 study intersections under Alternative B, Phase 1 is provided in Appendix G (Table 8-9).

TABLE 4.8-48
INTERSECTION LEVEL OF SERVICE
PHASE 1 ALTERNATIVE B

Intersection	Traffic Control	Peak Hour	Without Project		With Alternative B		
			V/C	LOS	V/C	LOS	Change
17. Campus Dr at Bristol St North	Signal	AM	0.614	B	0.626	B	0.012
		PM	**0.916**	**E**	**0.936**	**E**	0.020

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
Source: *Transportation Impact Analysis,* (Full data in Table 8-9), Fehr & Peers, 2014

Of the four intersections under shared jurisdiction with Caltrans only the Jamboree Road at the I-405 southbound ramps would operate at deficient conditions under the "with project" scenario. However, as shown in Table 4.8-49 because the addition of Alternative B-generated trips would not cause a two second delay increase at an intersection operating at an unacceptable LOS prior to the addition of Project traffic, Alternative B, Phase 1 would not result in significant impacts at the Caltrans intersections. This intersection is an instance where the

overall intersection delay would improve at this location because Alternative B increases traffic to certain movements which have available capacity or "green time". As previously discussed, since intersection delay is reported as a weighted average of all movements, this increase in traffic volume actually results in a reduction of overall intersection delay.

TABLE 4.8-49
CALTRANS INTERSECTION LEVEL OF SERVICE
PHASE 1 ALTERNATIVE B

Intersection	Traffic Control	Peak Hour	Without Project		With Alternative B	
			Delay[a]	LOS	Delay[a]	LOS
Jamboree Rd at I-405 SB Ramps	Signal	AM	**94.7**	**F**	**94.5**	**F**
		PM	31.0	C	31.0	C

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
[a] Delay is provided in seconds.
Source: *Transportation Impact Analysis,* (Full data in Table 8-10), Fehr & Peers, 2014

Table 4.8-50 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-51 identifies the freeway mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities. As shown in the tables, most of these facilities would operate at deficient levels of service without Alternative B-related traffic. Because the addition of Alternative B, Phase 1 trips would not result in a decrease in LOS from acceptable to unacceptable, and because the addition of Alternative B trips would not increase traffic by 2 percent or more, impacts would be less than significant.

TABLE 4.8-50
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 ALTERNATIVE B – AM PEAK HOUR

Location	Type	Without Project		With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
Baker St Off-ramp to SR-73 On-ramp	Basic	**37.7**	**F**	**37.9**	**F**	**20**	**0.3%**
On-ramp from SR-73 NB to Off-ramp to I-405 SB	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
Off-ramp to I-405 SB to Paularino Ave On-ramp	Basic	**44.5**	**F**	**44.7**	**F**	**10**	**0.2%**
Paularino Ave On-ramp	Merge	**-**	**F**	**-**	**F**	**20**	**0.3%**
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	**-**	**F**	**-**	**F**	**20**	**0.3%**
On-ramp from I-405 SB	Basic	**-**	**F**	**-**	**F**	**20**	**0.2%**

TABLE 4.8-50
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 ALTERNATIVE B – AM PEAK HOUR

Location	Type	Without Project		With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	-	F	-	F	60	0.5%
Southbound SR-55							
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	60	0.6%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	40.4	E	40.5	E	10	0.2%
MacArthur Blvd On-ramp	Basic	36.7	E	36.8	E	20	0.3%
Jamboree Rd On-ramp	Merge	34.9	D	35.1	E	30	0.3%
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	43.2	E	43.5	E	30	0.3%
Bristol St N Off-ramp	Diverge	-	F	-	F	30	0.3%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	70	0.7%
On-ramp from SR-55 NB	Weave	-	F	-	F	50	0.7%
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	38.8	E	39.1	E	30	0.5%
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	50	0.5%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	42.8	E	43.1	E	30	0.3%
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	-	F	-	F	30	0.2%
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	37.5	E	37.7	E	10	0.1%
Bristol St S On-ramp to South Coast Off-ramp	Weave	-	F	-	F	0	0.0%

TABLE 4.8-50
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 ALTERNATIVE B – AM PEAK HOUR

Location	Type	Without Project		With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	**30.9**	**F**	**31.0**	**F**	**20**	**0.2%**
Fairview Rd On-ramp	Merge	**34.2**	**F**	**34.3**	**F**	**30**	**0.3%**
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	**38.8**	**F**	**39.0**	**F**	**30**	**0.3%**
Bristol St Off-ramp	Diverge	**27.3**	**F**	**27.4**	**F**	**30**	**0.3%**
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	**-**	**F**	**-**	**F**	**40**	**0.3%**
On-ramp from SR-55 NB	Basic	34.8	D	**35.1**	**E**	**50**	**0.5%**
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.4%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.4%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 8-11, 8-12, and 8-13), Fehr & Peers, 2014

TABLE 4.8-51
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 ALTERNATIVE B– PM PEAK HOUR

Location	Type	Without Project		With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/Newport Blvd On-ramp to SR-73 Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.3%**
Paularino Ave On-ramp	Merge	**15.7**	**F**	**15.8**	**F**	**20**	**0.7%**
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	**16.7**	**F**	**16.8**	**F**	**20**	**0.7%**
On-ramp from I-405 SB	Basic	**16.2**	**F**	**16.2**	**F**	**20**	**0.5%**

TABLE 4.8-51
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 ALTERNATIVE B– PM PEAK HOUR

Location	Type	Without Project		With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	**25.5**	**F**	**26.1**	**F**	**80**	**1.3%**
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	**36.6**	**E**	**36.8**	**E**	**30**	**0.4%**
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	**-**	**F**	**-**	**F**	**50**	**0.5%**
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	**-**	**F**	**-**	**F**	**10**	**0.1%**
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
Northbound SR-73							
Bristol St N Off-ramp	Diverge	**35.9**	**E**	**36.1**	**E**	**30**	**0.4%**
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	**-**	**F**	**-**	**F**	**60**	**0.6%**
Off-ramp to SR-55 SB	Diverge	**-**	**F**	**-**	**F**	**60**	**0.6%**
On-ramp from SR-55 NB	Weave	**-**	**F**	**-**	**F**	**50**	**0.6%**
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	**-**	**F**	**-**	**F**	**30**	**0.4%**
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**25.6**	**F**	**25.7**	**F**	**30**	**0.4%**
Jamboree Rd Off-ramp	Diverge	**18.3**	**F**	**18.4**	**F**	**30**	**0.3%**
Jamboree Rd Loop On-ramp	Merge	**23.8**	**F**	**23.9**	**F**	**30**	**0.4%**
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**40.1**	**F**	**40.5**	**F**	**40**	**0.4%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
SR-55 Off-ramp to Bristol St Off-ramp	Basic	**26.4**	**F**	**26.5**	**F**	**10**	**0.2%**
Bristol St/Ave of the Arts Off-ramp	Diverge	**31.0**	**F**	**31.2**	**F**	**10**	**0.1%**

TABLE 4.8-51
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 ALTERNATIVE B– PM PEAK HOUR

Location	Type	Without Project		With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
On-ramp from SR-55 SB	Basic	**22.5**	**F**	**22.5**	**F**	**0**	**0.0%**
Bristol St N On-ramp	Merge	**21.4**	**F**	**21.4**	**F**	**0**	**0.0%**
Bristol St S On-ramp to South Coast Off-ramp	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**44.2**	**E**	**60**	**0.6%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**44.2**	**E**	**45.4**	**E**	**60**	**0.6%**
Jamboree Rd Loop On-ramp	Merge	**22.4**	**F**	**22.2**	**F**	**60**	**0.9%**
Jamboree Rd Direct On-ramp	Merge	**22.6**	**F**	**23.0**	**F**	**70**	**0.9%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 8-14, 8-15, and 8-16), Fehr & Peers, 2014

Phase 2

Table 4.8-52 shows with Alternative B, Phase 2 there would be a significant impact at Campus Drive at Bristol Street North (Intersection 17), during the PM peak hour. The evaluation for this intersection was based on City of Newport Beach intersection analysis methodology. The LOS evaluation for each of the 59 study intersections under Alternative B, Phase 2 is provided in Appendix G (Table 8-17).

TABLE 4.8-52
INTERSECTION LEVEL OF SERVICE
PHASE 2 ALTERNATIVE B

Intersection	Traffic Control	Peak Hour	Without Project		With Alternative B		
			V/C	LOS	V/C	LOS	Change
17. Campus Dr at Bristol St North	Signal	AM	0.641	B	0.667	B	0.026
		PM	**0.964**	**E**	**1.012**	**F**	0.048

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
Source: *Transportation Impact Analysis,* (Full data in Table 8-17), Fehr & Peers, 2014

As with the Proposed Project, with Alternative B, Phase 2 the only intersection under shared jurisdiction with Caltrans that would operate at deficient conditions under the "with project" scenario would be the Jamboree Road at the I-405 southbound ramps. However, as shown in Table 4.8-53 this intersection would not be adversely impacted by Alternative B. With the addition of Alternative B-generated trips the overall intersection delay would improve at the Jamboree Road/I-405 southbound ramps during the AM peak hour because Alternative B, Phase 2 would increase traffic to the movements that have available capacity or "green time". As previously indicated, since intersection delay is reported as a weighted average of all movements, this increase in traffic volume actually results in a reduction of overall intersection delay.

TABLE 4.8-53
CALTRANS INTERSECTION LEVEL OF SERVICE
PHASE 2 ALTERNATIVE B

Intersection	Traffic Control	Peak Hour	Without Project		With Alternative B	
			Delay[a]	LOS	Delay[a]	LOS
Jamboree Rd at I-405 Southbound Ramps	Signal	AM	**99.7**	**F**	**99.5**	**F**
		PM	30.8	C	30.8	C

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
[a] Delay is provided in seconds.
Source: *Transportation Impact Analysis,* (Full data in Table 8-18), Fehr & Peers, 2014

Table 4.8-54 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-55 identifies the freeway mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities.

As shown in the tables, most of these facilities would operate at deficient levels of service without Alternative B-related traffic. However, in the PM peak hour, Alternative B, Phase 2 would result in an increase of over 2 percent at the SR-55 on-ramp from I-405 northbound to MacArthur Boulevard off-ramp, which is projected to operate at LOS F prior to the addition of Project traffic. Therefore, Alternative B, Phase 2 would result in a significant cumulative impact at this location.

TABLE 4.8-54
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 ALTERNATIVE B – AM PEAK HOUR

Location	Type	Without Project		With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	20	0.2%
Baker St Off-ramp to SR-73 On-ramp	Basic	37.9	F	38.1	F	20	0.3%
On-ramp from SR-73 NB to Off-ramp to I-405 SB	Weave	-	F	-	F	20	0.2%
Off-ramp to I-405 SB to Paularino Ave On-ramp	Basic	44.8	F	45.0	F	10	0.2%
Paularino Ave On-ramp	Merge	-	F	-	F	20	0.3%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	-	F	-	F	20	0.3%
On-ramp from I-405 SB	Basic	-	F	-	F	20	0.2%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	-	F	-	F	120	0.9%
Southbound SR-55							
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	120	1.1%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	40.4	E	40.6	E	20	0.3%
MacArthur Blvd On-ramp	Basic	36.7	E	36.9	E	30	0.4%
Jamboree Rd On-ramp	Merge	34.9	D	35.1	E	40	0.5%
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	43.2	E	43.6	E	40	0.5%
Bristol St N Off-ramp	Diverge	-	F	-	F	40	0.4%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	130	1.3%
On-ramp from SR-55 NB	Weave	-	F	-	F	100	1.4%
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	38.9	E	39.3	E	50	0.8%
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	70	0.7%

TABLE 4.8-54
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 ALTERNATIVE B – AM PEAK HOUR

Location	Type	Without Project		With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**42.9**	**E**	**43.4**	**E**	**60**	**0.6%**
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.4%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**37.6**	**E**	**37.6**	**E**	**0**	**0.0%**
Bristol St S On-ramp to S Coast Off	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	**31.0**	**F**	**31.3**	**F**	**50**	**0.6%**
Fairview Rd On-ramp	Merge	**34.3**	**F**	**34.6**	**F**	**60**	**0.6%**
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	**39.0**	**F**	**39.4**	**F**	**60**	**0.6%**
Bristol St Off-ramp	Diverge	**27.4**	**F**	**27.6**	**F**	**60**	**0.5%**
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	**-**	**F**	**-**	**F**	**70**	**0.5%**
On-ramp from SR-55 NB	Basic	**35.0**	**E**	**35.5**	**E**	**80**	**0.8%**
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**80**	**0.6%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**-**	**F**	**-**	**F**	**70**	**0.6%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 8-19, 8-20, and 8-21), Fehr & Peers, 2014

TABLE 4.8-55
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 ALTERNATIVE B – PM PEAK HOUR

Location	Type	Without Project		With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	40	0.5%
Paularino Ave On-ramp	Merge	15.7	F	15.9	F	40	1.3%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	16.7	F	16.9	F	40	1.3%
On-ramp from I-405 SB	Basic	16.2	F	16.3	F	40	1.0%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	25.5	F	26.7	F	170	2.8%
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	36.6	E	37.2	E	70	0.9%
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	90	0.9%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	10	0.1%
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Bristol St N Off-ramp	Diverge	35.9	E	36.2	E	30	0.4%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	100	0.9%
Off-ramp to SR-55 SB	Diverge	-	F	-	F	100	1.1%
On-ramp from SR-55 NB	Weave	-	F	-	F	90	1.0%
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	50	0.6%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	25.6	F	25.8	F	50	0.7%
Jamboree Rd Off-ramp	Diverge	18.4	F	18.5	F	50	0.6%
Jamboree Rd Loop On-ramp	Merge	23.9	F	24.1	F	50	0.7%

TABLE 4.8-55
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 ALTERNATIVE B – PM PEAK HOUR

Location	Type	Without Project		With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**40.2**	**F**	**40.9**	**F**	**60**	**0.7%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**-**	**F**	**-**	**F**	**10**	**0.1%**
SR-55 Off-ramp to Bristol St Off-ramp	Basic	**26.4**	**F**	**26.5**	**F**	**0**	**0.0%**
Bristol St/Ave of the Arts Off-ramp	Diverge	**31.1**	**F**	**31.2**	**F**	**0**	**0.0%**
On-ramp from SR-55 SB	Basic	**22.5**	**F**	**22.5**	**F**	**0**	**0.0%**
Bristol St N On-ramp	Merge	**21.4**	**F**	**21.4**	**F**	**0**	**0.0%**
Bristol St S On-ramp to S Coast Off	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**90**	**0.8%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**44.3**	**E**	**45.5**	**E**	**80**	**0.7%**
Jamboree Rd Loop On-ramp	Merge	**22.4**	**F**	**22.3**	**F**	**80**	**1.2%**
Jamboree Rd Direct On-ramp	Merge	**22.7**	**F**	**23.3**	**F**	**100**	**1.3%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 8-22, 8-23, and 8-24), Fehr & Peers, 2014

Phase 3

Table 4.8-56 shows the intersection LOS with Alternative B, Phase 3. Prior to mitigation there would be significant Project-related impacts at Intersections 4 (MacArthur Boulevard at Michelson Drive), 15 (Campus Drive at Airport Way), 17 (Campus Drive at Bristol Street North), and 53 (Von Karman Avenue at Alton Parkway), during the PM peak hour. The evaluation methodology used for assessing the impact corresponds to the jurisdiction in which the intersection is located and is noted in the table.

Though Intersection 52 (Von Karman Avenue at Barranca Parkway) is projected to operate at a deficient LOS, it is not considered a Project-related impact because the threshold for

intersections in the Irvine Business Complex is the Project-generated trips must increase the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. Alternative B only increases the ICU at this study intersection by 0.01. Similarly, Intersection 25 (Santa Ana Avenue at Del Mar Avenue) is projected to operate at a deficient LOS with or without Alternative B in the AM peak hour. Though the intersection would receive additional traffic associated with the Alternative B, this additional traffic would not reduce the LOS at this intersection and, therefore, impacts would be less than significant. The LOS evaluation for each of the 59 study intersections under Alternative B, Phase 3 is provided in Appendix G (Table 8-25).

TABLE 4.8-56
INTERSECTION LEVEL OF SERVICE
PHASE 3 ALTERNATIVE B

Intersection	Traffic Control	Peak Hour	Without Project		With Alternative B		
			V/C	LOS	V/C	LOS	Change
4. MacArthur Blvd at Michelson Drive[1]	Signal	AM	0.77	C	0.83	D	0.06
		PM	0.98	E	**1.04**	**F**	0.06
15. Campus Dr at Airport Way[2]	Signal	AM	0.362	A	0.580	A	0.218
		PM	0.723	C	**0.922**	**E**	0.199
17. Campus Dr at Bristol St North[2]	Signal	AM	0.666	B	0.709	C	0.043
		PM	**1.009**	**F**	**1.081**	**F**	0.072
25. Santa Ana Ave at Del Mar Ave[3,5]	Stop Controlled	AM	**36.3**	**E**	**45.2**	**E**	N/A
		PM	28.1	D	33.8	D	N/A
52. Von Karman Ave at Barranca Pkwy[1]	Signal	AM	0.83	D	0.84	D	0.01
		PM	**1.06**	**F**	**1.07**	**F**	0.01
53. Von Karman Ave at Alton Pkwy[1]	Signal	AM	0.83	D	0.84	D	0.01
		PM	0.99	E	**1.01**	**F**	0.02

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.

Notes: Signalized intersections evaluated using ICU methodology.

1. Based on City of Irvine intersection analysis methodology.
2. Based on City of Newport Beach intersection analysis methodology.
3. Based on City of Costa Mesa intersection analysis methodology.
4. AWSC = All Way Stop Control; average intersection delay is reported.

Source: *Transportation Impact Analysis,* (Full data in Table 8-25), Fehr & Peers, 2014

Of the four intersections under the shared jurisdiction of Caltrans only the Jamboree Road at the I-405 southbound ramps would operate at deficient conditions under the "with project" scenario. However, as shown in Table 4.8-57 this intersection would not be adversely impacted by Alternative B, Phase 3. With the addition of Alternative B-generated trips the overall intersection delay would improve at the Jamboree Road/I-405 southbound ramps during the AM peak hour because Alternative B, Phase 3 would increase traffic to the movements that have available capacity or "green time". As previously indicated, since intersection delay is reported

as a weighted average of all movements, this increase in traffic volume actually results in a reduction of overall intersection delay.

TABLE 4.8-57
CALTRANS INTERSECTION LEVEL OF SERVICE
PHASE 3 ALTERNATIVE B

Intersection	Traffic Control	Peak Hour	Without Project		With Alternative B	
			Delay[a]	LOS	Delay[a]	LOS
Jamboree Rd at I-405 Southbound Ramps	Signal	AM	**106.3**	**F**	**106.1**	**F**
		PM	30.7	C	30.7	C

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
[a] Delay is provided in seconds.
Source: *Transportation Impact Analysis,* (Full data in Table 8-26), Fehr & Peers, 2014

Table 4.8-58 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-59 identifies the freeway mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities.

As shown in the tables, most of these facilities would operate at deficient levels of service without Alternative A-related traffic. However, during the PM peak hour, Alternative B, Phase 3 would increase the traffic by over 2 percent on the northbound SR-55 from the onramp from I-405 to the MacArthur Boulevard off-ramp, and the northbound SR-73 on-ramp from northbound SR-55. These segments are operating at LOS F prior to the addition of Alternative B traffic. Therefore, Alternative B, Phase 3 would result in a significant cumulative impact at these locations.

TABLE 4.8-58
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 ALTERNATIVE B – AM PEAK HOUR

Location	Type	Without Project		With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	**-**	**F**	**-**	**F**	**30**	**0.3%**
Baker St Off-ramp to SR-73 On-ramp	Basic	**38.0**	**F**	**38.4**	**F**	**30**	**0.5%**
On-ramp from SR-73 NB to Off-ramp to I-405 SB	Weave	**-**	**F**	**-**	**F**	**30**	**0.3%**
Off-ramp to I-405 SB to Paularino Ave On-ramp	Basic	**45.0**	**F**	**-**	**F**	**20**	**0.3%**
Paularino Ave On-ramp	Merge	**-**	**F**	**-**	**F**	**30**	**0.4%**

TABLE 4.8-58
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 ALTERNATIVE B – AM PEAK HOUR

Location	Type	Without Project		With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	-	F	-	F	30	0.4%
On-ramp from I-405 SB	Basic	-	F	-	F	30	0.3%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	-	F	-	F	170	1.3%
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	34.2	D	35.0	E	120	1.6%
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	180	1.7%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	40.5	E	40.9	E	30	0.5%
MacArthur Blvd On-ramp	Basic	36.8	E	37.1	E	40	0.5%
Jamboree Rd On-ramp	Merge	35.0	D	35.2	E	50	0.6%
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	43.3	E	43.8	E	50	0.6%
Bristol St N Off-ramp	Diverge	-	F	-	F	50	0.5%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	190	1.8%
On-ramp from SR-55 NB	Weave	-	F	-	F	150	2.1%
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	39.0	E	39.5	E	60	0.9%
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	90	0.9%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	43.0	E	43.8	E	90	0.8%
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	-	F	-	F	80	0.7%
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	37.6	E	37.7	E	0	0.0%

TABLE 4.8-58
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 ALTERNATIVE B – AM PEAK HOUR

Location	Type	Without Project		With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Bristol St S On-ramp to South Coast Off-ramp	Weave	-	F	-	F	0	0.0%
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	**31.1**	F	**31.4**	F	70	0.8%
Fairview Rd On-ramp	Merge	**34.4**	F	**34.7**	F	80	0.8%
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	**39.0**	F	**39.6**	F	80	0.8%
Bristol St Off-ramp	Diverge	**27.4**	F	**27.7**	F	80	0.7%
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	-	F	-	F	90	0.7%
On-ramp from SR-55 NB	Basic	**35.2**	E	**35.8**	E	100	1.0%
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	-	F	-	F	100	0.7%
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	-	F	-	F	90	0.7%

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 8-27, 8-28, and 8-29), Fehr & Peers, 2014

TABLE 4.8-59
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 ALTERNATIVE B – PM PEAK HOUR

Location	Type	Without Project		With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	50	0.7%
Paularino Ave On-ramp	Merge	**15.7**	F	**16.0**	F	50	1.6%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	**16.7**	F	**17.0**	F	50	1.6%
On-ramp from I-405 SB	Basic	**16.2**	F	**16.4**	F	50	1.3%

TABLE 4.8-59
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 ALTERNATIVE B – PM PEAK HOUR

Location	Type	Without Project		With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	**25.5**	**F**	**27.3**	**F**	**250**	**4.1%**
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	**36.7**	**E**	**37.5**	**E**	**100**	**1.3%**
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	**-**	**F**	**-**	**F**	**140**	**1.3%**
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	**-**	**F**	**-**	**F**	**10**	**0.1%**
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
Northbound SR-73							
Bristol St N Off-ramp	Diverge	**36.0**	**E**	**36.3**	**E**	**40**	**0.5%**
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	**-**	**F**	**-**	**F**	**150**	**1.4%**
Off-ramp to SR-55 SB	Diverge	**-**	**F**	**-**	**F**	**150**	**1.6%**
On-ramp from SR-55 NB	Weave	**-**	**F**	**-**	**F**	**140**	**1.6%**
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	**-**	**F**	**-**	**F**	**70**	**0.9%**
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**25.8**	**F**	**26.1**	**F**	**80**	**1.0%**
Jamboree Rd Off-ramp	Diverge	**18.5**	**F**	**18.7**	**F**	**80**	**0.9%**
Jamboree Rd Loop On-ramp	Merge	**24.0**	**F**	**24.3**	**F**	**80**	**1.1%**
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**40.5**	**F**	**41.4**	**F**	**90**	**1.0%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**-**	**F**	**-**	**F**	**10**	**0.1%**
SR-55 Off-ramp to Bristol St Off-ramp	Basic	**26.5**	**F**	**26.6**	**F**	**0**	**0.0%**
Bristol St/Ave of the Arts Off-ramp	Diverge	**31.1**	**F**	**31.2**	**F**	**0**	**0.0%**

TABLE 4.8-59
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 ALTERNATIVE B – PM PEAK HOUR

Location	Type	Without Project		With Alternative B			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
On-ramp from SR-55 SB	Basic	**22.6**	**F**	**22.6**	**F**	**0**	**0.0%**
Bristol St N On-ramp	Merge	**21.5**	**F**	**21.5**	**F**	**0**	**0.0%**
Bristol St S On-ramp to S Coast Off	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**110**	**1.0%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**44.4**	**E**	**45.6**	**E**	**90**	**0.8%**
Jamboree Rd Loop On-ramp	Merge	**22.5**	**F**	**22.3**	**F**	**90**	**1.4%**
Jamboree Rd Direct On-ramp	Merge	**22.8**	**F**	**23.5**	**F**	**120**	**1.6%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 8-30, 8-31, and 8-32), Fehr & Peers, 2014

Caltrans Ramp Queue Analysis

A 95th percentile queue analysis has been prepared utilizing the Synchro 7 software to determine if adequate queue storage is provided at the off-ramp at MacArthur Boulevard and Jamboree Road under the Alternative B scenario. Adequate queue storage is forecast to be provided at the Caltrans off-ramp locations. The detailed analysis is provided in Table 11-3 in the *Transportation Impact Analysis* (Appendix G).

Alternative C

Existing Plus Alternative C

For Alternative C, the Existing Plus Project analysis both understates and overstates impacts. As shown below, under the Existing Plus Alternative C scenario, Alternative C would result in significant impacts at two intersections and 11 Caltrans facilities. However, under the Phase 3 analysis, which also takes into account cumulative traffic growth and future road improvements, Alternative C would result in significant impacts at five intersections and eight Caltrans facilities. Thus, if used to measure significance, the Existing Plus Alternative C scenario would both understate and overstate project impacts. Therefore, the results of the Existing Plus Alternative C analysis in this case are misleading and, as such, are presented for information and disclosure purposes only.

Table 4.8-60 shows there are two locations under the Existing Plus Alternative C scenario where the LOS degrades from acceptable conditions to LOS E under the "with project" scenario. Specifically, the intersections of Campus Drive and Airport Way, and Campus Drive and Bristol Street North are located in the City of Newport Beach and worsen from LOS B or D to LOS E respectively, with the addition of the Alternative C-generated trips. As such, under the Existing Plus Alternative C scenario, Alternative C would result in a significant impact at these two intersections. The evaluation was based on City of Newport Beach intersection analysis methodology. The LOS for each of the 59 study intersections under the Existing Plus Alternative C scenario is provided in Appendix G (Table 9-1).

TABLE 4.8-60
INTERSECTION OPERATING AT A DEFICIENT LEVEL OF SERVICE
EXISTING PLUS ALTERNATIVE C

Intersection	Traffic Control	Peak Hour	Existing		Existing Alternative C		
			V/C	LOS	V/C	LOS	Change
15. Campus Dr at Airport Way[2]	Signal	AM	0.338	A	0.618	B	0.280
		PM	**0.660**	**B**	**0.911**	**E**	**0.251**
17. Campus Dr at Bristol St North[2]	Signal	AM	0.596	A	0.652	B	0.056
		PM	**0.885**	**D**	**0.981**	**E**	**0.096**

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
Source: *Transportation Impact Analysis,* (Full data in Table 9-1), Fehr & Peers, 2014

Of the four intersections under the shared jurisdiction of Caltrans only the Jamboree Road at the I-405 southbound ramps would operate at deficient conditions under the "with project" scenario. However, as shown in Table 4.8-61 because the addition of Project-generated trips would not cause a two second delay increase at an intersection operating at an unacceptable LOS prior to the addition of Project traffic, the Existing Plus Alternative C would not result in significant impacts at the Caltrans intersections.

TABLE 4.8-61
CALTRANS INTERSECTION OPERATING AT A DEFICIENT LEVEL OF SERVICE
EXISTING PLUS ALTERNATIVE C

Intersection	Traffic Control	Peak Hour	Existing		Existing Alternative C	
			Delay[a]	LOS	Delay[a]	LOS
Jamboree Rd at I-405 SB Ramps	Signal	AM	**90.8**	**F**	**91.1**	**F**
		PM	30.7	C	30.9	C

NB=Northbound

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
[a] Delay is provided in seconds.
Source: *Transportation Impact Analysis,* (Full data in Table 9-2), Fehr & Peers, 2014

Table 4.8-62 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-63 identifies the freeway mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities. As shown in the tables, most of these facilities would operate at deficient levels of service without Alternative C-generated traffic. However, as shown on the tables, the Alternative C-generated trips would result in an increase of over 2 percent either causing or worsening a deficient LOS at multiple locations; therefore, there would be a significant cumulative impact under the Existing Plus Alternative C at the following locations:

- Southbound SR-55: MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp (AM)
- Southbound SR-55: MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB (AM)
- Northbound SR-73: Bristol St N On-ramp to SR-55 N Off-ramp (AM)
- Northbound SR-73: On-ramp from SR-55 NB (AM)
- Northbound SR-55: Paularino Avenue On-ramp (PM)
- Northbound SR-55: Paularino Avenue On-ramp to I-405 SB On-ramp (PM)
- Northbound SR-55: On-ramp from I-405 NB to MacArthur Blvd Off-ramp (PM)
- Northbound SR-73: Off-Ramp to SR-55 SB (PM)
- Northbound SR-73: On-ramp From SR-55 NB (PM)
- Southbound I-405: Jamboree Loop On-ramp (PM)
- Southbound I-405: Jamboree Direct On-ramp (PM)

TABLE 4.8-62
FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS ALTERNATIVE C – AM PEAK HOUR

Location	Type	Existing		Existing With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	**-**	**F**	**-**	**F**	**30**	**0.3%**
Baker St Off-ramp to SR-73 On-ramp	Basic	**24.9**	**F**	**37.8**	**F**	**30**	**0.7%**
On-ramp from SR-73 NB to Off-ramp to I-405 SB	Weave	**-**	**F**	**-**	**F**	**30**	**0.4%**
Off-ramp to I-405 SB to Paularino Ave On-ramp	Basic	**28.3**	**F**	**44.7**	**F**	**20**	**0.4%**
Paularino Ave On-ramp	Merge	29.6	D	**-**	**F**	**30**	**0.6%**
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	34.3	D	**-**	**F**	**30**	**0.6%**
On-ramp from I-405 SB	Basic	**-**	**F**	**-**	**F**	**30**	**0.4%**

TABLE 4.8-62
FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS ALTERNATIVE C – AM PEAK HOUR

Location	Type	Existing		Existing With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	-	F	-	F	220	2.1%
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	34.1	D	**35.3**	**E**	160	2.1%
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	230	2.1%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	**40.3**	**E**	**40.9**	**E**	40	0.6%
MacArthur Blvd On-ramp	Basic	**36.6**	**E**	**37.1**	**E**	50	0.6%
Jamboree Rd On-ramp	Merge	**34.8**	**D**	**35.1**	**E**	60	0.7%
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	**23.7**	**C**	**43.7**	**E**	60	1.0%
Bristol St N Off-ramp	Diverge	**30.5**	**D**	-	F	60	0.9%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	32.1	D	-	F	240	2.8%
On-ramp from SR-55 NB	Weave	33.1	D	-	F	180	3.4%
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	**38.7**	**E**	**39.3**	**E**	80	1.2%
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	110	1.2%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**42.7**	**E**	**43.8**	**E**	120	1.1%
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	-	F	-	F	100	0.8%
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**40.8**	**E**	**37.7**	**E**	0	0.0%
Bristol St S On-ramp to S Coast Off	Weave	-	F	-	F	0	0.0%

TABLE 4.8-62
FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS ALTERNATIVE C – AM PEAK HOUR

Location	Type	Existing		Existing With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	**30.8**	**F**	**31.3**	**F**	**90**	**1.0%**
Fairview Rd On-ramp	Merge	**34.1**	**F**	**34.5**	**F**	**100**	**1.0%**
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	**38.6**	**F**	**39.3**	**F**	**100**	**1.0%**
Bristol St Off-ramp	Diverge	**27.2**	**F**	**27.5**	**F**	**100**	**0.9%**
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	**-**	**F**	**-**	**F**	**110**	**0.8%**
Lane Drop	Basic	**36.9**	**E**	34.8	D	110	1.4%
On-ramp from SR-55 NB	Basic	**37.0**	**E**	**35.3**	**E**	**120**	**1.2%**
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**120**	**0.8%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**-**	**F**	**-**	**F**	**100**	**0.8%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 9-3, 9-4, and 9-5), Fehr & Peers, 2014

TABLE 4.8-63
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS ALTERNATIVE C – PM PEAK HOUR

Location	Type	Existing		Existing With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/Newport Blvd On-ramp to SR-73 Off-ramp	Weave	**-**	**F**	**-**	**F**	**60**	**0.8%**
Paularino Ave On-ramp	Merge	**14.9**	**F**	**15.9**	**F**	**60**	**2.1%**
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	**15.9**	**F**	**16.9**	**F**	**60**	**2.1%**
On-ramp from I-405 SB	Basic	**15.5**	**F**	**16.3**	**F**	**60**	**1.6%**

TABLE 4.8-63
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS ALTERNATIVE C – PM PEAK HOUR

Location	Type	Existing		Existing With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	**23.0**	**F**	**27.7**	**F**	**320**	**5.7%**
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	**36.5**	**E**	**37.7**	**E**	**140**	**1.8%**
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	**-**	**F**	**-**	**F**	**180**	**1.7%**
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	**-**	**F**	**-**	**F**	**10**	**0.1%**
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	**-**	**F**	**-**	**F**	**30**	**0.3%**
Northbound SR-73							
Bristol St N Off-ramp	Diverge	27.9	C	**36.1**	**E**	**40**	**0.6%**
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	**-**	**F**	**-**	**F**	**180**	**1.9%**
Off-ramp to SR-55 SB	Diverge	**35.5**	**E**	**-**	**F**	**180**	**2.3%**
On-ramp from SR-55 NB	Weave	**-**	**F**	**-**	**F**	**160**	**2.3%**
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	**-**	**F**	**-**	**F**	**80**	**1.1%**
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**25.5**	**F**	**25.9**	**F**	**110**	**1.5%**
Jamboree Rd Off-ramp	Diverge	**18.2**	**F**	**18.6**	**F**	**110**	**1.3%**
Jamboree Rd Loop On-ramp	Merge	**24.2**	**F**	**23.9**	**F**	**110**	**1.5%**
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**41.6**	**F**	**41.0**	**F**	**120**	**1.3%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**-**	**F**	**43.2**	**F**	**20**	**0.2%**
SR-55 Off-ramp to Bristol St Off-ramp	Basic	**33.9**	**F**	**26.2**	**F**	**10**	**0.1%**
Bristol St/Ave of the Arts Off-ramp	Diverge	**36.1**	**F**	**31.0**	**F**	**10**	**0.1%**

TABLE 4.8-63
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS ALTERNATIVE C – PM PEAK HOUR

Location	Type	Existing		Existing With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
On-ramp from SR-55 SB	Basic	**27.2**	**F**	**22.3**	**F**	**0**	**0.0%**
Bristol St N On-ramp	Merge	**23.9**	**F**	**21.3**	**F**	**0**	**0.0%**
Bristol St S On-ramp to South Coast Off-ramp	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**43.6**	**E**	**-**	**F**	**140**	**1.3%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**44.8**	**E**	**45.4**	**E**	**120**	**1.1%**
Jamboree Rd Loop On-ramp	Merge	**21.3**	**F**	**22.2**	**F**	**120**	**2.0%**
Jamboree Rd Direct On-ramp	Merge	**21.4**	**F**	**23.1**	**F**	**150**	**2.1%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 9-6, 9-7, and 9-8), Fehr & Peers, 2014

Phase 1

Table 4.8-64 shows there are three locations where there is a significant impact with Alternative C in Phase 1. As shown in the table, under this scenario, Alternative C would result in significant impacts at Intersections 4 (MacArthur Blvd. at Michelson Drive), 15 (Campus Drive at Airport Way), and 17 Campus Drive at Bristol Street North) all during the PM peak hour. The LOS evaluation for each of the 59 study intersections under Alternative C, Phase 1 is provided in Appendix G (Table 9-9).

TABLE 4.8-64
INTERSECTION LEVEL OF SERVICE
PHASE 1 ALTERNATIVE C

Intersection	Traffic Control	Peak Hour	Without Project		With Alternative C		
			V/C	LOS	V/C	LOS	Change
4. MacArthur Blvd at Michelson Drive[1]	Signal	AM	0.71	C	0.78	C	0.07
		PM	0.91	E	**1.00**	**F**	0.09
15. Campus Dr at Airport Way[2]	Signal	AM	0.346	A	0.625	B	0.279
		PM	0.682	B	**0.936**	**E**	0.254
17. Campus Dr at Bristol St North	Signal	AM	0.614	B	0.626	B	0.012
		PM	**0.916**	**E**	**1.011**	**F**	0.095

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
Notes: Signalized intersections evaluated using ICU methodology.
1. Based on City of Irvine intersection analysis methodology.
2. Based on City of Newport Beach intersection analysis methodology.
Source: *Transportation Impact Analysis,* (Full data in Table 9-9), Fehr & Peers, 2014

As with the Proposed Project and other alternatives, of the four intersections under shared jurisdiction with Caltrans only the Jamboree Road at the I-405 southbound ramps would operate at deficient conditions under the "with project" scenario. However, as shown in Table 4.8-65 because the addition of Alternative C-generated trips would not cause a two second delay increase at an intersection operating at an unacceptable LOS prior to the addition of Project traffic, Alternative C, Phase 1 would not result in significant impacts at the Caltrans intersections. This intersection is another instance where the overall intersection delay would improve at this location because Alternative C increases traffic to certain movements which have available capacity or "green time". As previously discussed, since intersection delay is reported as a weighted average of all movements, this increase in traffic volume actually results in a reduction of overall intersection delay.

TABLE 4.8-65
CALTRANS INTERSECTION LEVEL OF SERVICE
PHASE 1 ALTERNATIVE C

Intersection	Traffic Control	Peak Hour	Without Project		With Alternative C	
			Delay[a]	LOS	Delay[a]	LOS
Jamboree Rd at I-405 SB Ramps	Signal	AM	**94.7**	**F**	**94.1**	**F**
		PM	31.0	C	31.0	C

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
[a] Delay is provided in seconds.
Source: *Transportation Impact Analysis,* (Full data in Table 9-10), Fehr & Peers, 2014

Table 4.8-66 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-67 identifies the freeway

mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities. As shown in the tables, most of these facilities would operate at deficient levels of service without Alternative C-related traffic. However, the Alternative C, Phase 1-generated traffic would result in an increase of over 2 percent either causing or worsening a deficient LOS at several locations; therefore, the project would result in a significant cumulative impact at the following locations:

- Southbound SR-55: MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp (AM)
- Northbound SR-55: Paularino Avenue On-ramp (PM)
- Northbound SR-55: Paularino Avenue On-ramp to I-405 SB On-ramp (PM)
- Northbound SR-55: On-ramp from I-405 NB to MacArthur Blvd Off-ramp (PM)
- Southbound SR-55: MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB (AM)
- Southbound I-405: Jamboree Direct On-ramp (PM)

TABLE 4.8-66
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 ALTERNATIVE C – AM PEAK HOUR

Location	Type	Without Project		With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	30	0.3%
Baker St Off-ramp to SR-73 On-ramp	Basic	37.7	F	38.0	F	30	0.5%
On-ramp from SR-73 NB to Off-ramp to I-405 SB	Weave	-	F	-	F	30	0.3%
Off-ramp to I-405 SB to Paularino Ave On-ramp	Basic	44.5	F	44.8	F	20	0.3%
Paularino Ave On-ramp	Merge	-	F	-	F	30	0.4%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	-	F	-	F	30	0.4%
On-ramp from I-405 SB	Basic	-	F	-	F	30	0.3%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	-	F	-	F	220	1.7%
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	34.2	D	35.3	E	160	2.1%
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	230	2.1%

TABLE 4.8-66
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 ALTERNATIVE C – AM PEAK HOUR

Location	Type	Without Project		With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	40.4	E	40.9	E	40	0.6%
MacArthur Blvd On-ramp	Basic	36.7	E	37.1	E	50	0.6%
Jamboree Rd On-ramp	Merge	34.9	D	35.2	E	60	0.7%
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	43.2	E	43.8	E	60	0.7%
Bristol St N Off-ramp	Diverge	-	F	-	F	60	0.6%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	240	2.3%
On-ramp from SR-55 NB	Weave	-	F	-	F	180	2.5%
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	38.8	E	39.5	E	80	1.2%
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	110	1.1%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	42.8	E	43.9	E	120	1.1%
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	-	F	-	F	100	0.8%
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	37.5	E	37.6	E	0	0.0%
Bristol St S On-ramp to South Coast Off-ramp	Weave	-	F	-	F	0	0.0%
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	30.9	F	31.4	F	90	1.0%
Fairview Rd On-ramp	Merge	34.2	F	34.6	F	100	1.0%
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	38.8	F	39.5	F	100	1.0%
Bristol St Off-ramp	Diverge	27.3	F	27.6	F	100	0.9%
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	-	F	-	F	110	0.9%
On-ramp from SR-55 NB	Basic	34.8	D	35.5	E	120	1.3%

TABLE 4.8-66
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 ALTERNATIVE C – AM PEAK HOUR

Location	Type	Without Project		With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	-	**F**	-	**F**	**120**	**0.9%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	-	**F**	-	**F**	**100**	**0.8%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 9-11, 9-12, and 9-13), Fehr & Peers, 2014

TABLE 4.8-67
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 ALTERNATIVE C – PM PEAK HOUR

Location	Type	Without Project		With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	**F**	-	**F**	**60**	**0.8%**
Paularino Ave On-ramp	Merge	**15.7**	**F**	**16.0**	**F**	**60**	**2.0%**
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	**16.7**	**F**	**17.0**	**F**	**60**	**2.0%**
On-ramp from I-405 SB	Basic	**16.2**	**F**	**16.4**	**F**	**60**	**1.5%**
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	**25.5**	**F**	**27.9**	**F**	**320**	**5.2%**
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	**36.6**	**E**	**37.7**	**E**	**140**	**1.8%**
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	**F**	-	**F**	**180**	**1.7%**
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	**F**	-	**F**	**10**	**0.1%**

TABLE 4.8-67
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 ALTERNATIVE C – PM PEAK HOUR

Location	Type	Without Project		With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	-	F	-	F	30	0.3%
Northbound SR-73							
Bristol St N Off-ramp	Diverge	35.9	E	36.2	E	40	0.5%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	180	1.7%
Off-ramp to SR-55 SB	Diverge	-	F	-	F	180	1.9%
On-ramp from SR-55 NB	Weave	-	F	-	F	160	1.9%
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	80	1.0%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	25.6	F	26.0	F	110	1.5%
Jamboree Rd Off-ramp	Diverge	18.3	F	18.6	F	110	1.3%
Jamboree Rd Loop On-ramp	Merge	23.8	F	24.1	F	110	1.5%
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	40.1	F	41.3	F	120	1.3%
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	-	F	-	F	20	0.2%
SR-55 Off-ramp to Bristol St Off-ramp	Basic	26.4	F	26.5	F	10	0.2%
Bristol St/Ave of the Arts Off-ramp	Diverge	31.0	F	31.2	F	10	0.1%
On-ramp from SR-55 SB	Basic	22.5	F	22.5	F	0	0.0%
Bristol St N On-ramp	Merge	21.4	F	21.4	F	0	0.0%
Bristol St S On-ramp to South Coast Off-ramp	Weave	-	F	-	F	0	0.0%
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	-	F	-	F	140	1.3%
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	44.2	E	45.6	E	120	1.1%

TABLE 4.8-67
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 ALTERNATIVE C – PM PEAK HOUR

Location	Type	Without Project		With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Jamboree Rd Loop On-ramp	Merge	**22.4**	**F**	**22.3**	**F**	**120**	**1.8%**
Jamboree Rd Direct On-ramp	Merge	**22.6**	**F**	**23.3**	**F**	**150**	**2.0%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 9-14, 9-15, and 9-16), Fehr & Peers, 2014

Phase 2

Table 4.8-68 shows with Alternative C, Phase 2 there would be a significant impact at Intersections 4 (MacArthur Blvd at Michelson Drive), 15 (Campus Drive at Airport Way) and 17 (Campus Drive at Bristol Street North), all during the PM peak hour. The LOS evaluation for each of the 59 study intersections under Alternative C, Phase 2 is provided in Appendix G (Table 9-17).

TABLE 4.8-68
INTERSECTION LEVEL OF SERVICE
PHASE 2 ALTERNATIVE C

Intersection	Traffic Control	Peak Hour	Without Project		With Alternative C		
			V/C	LOS	V/C	LOS	Change
4. MacArthur Blvd at Michelson Drive[1]	Signal	AM	0.74	C	0.81	D	0.07
		PM	0.94	E	**1.03**	**F**	0.09
15. Campus Dr at Airport Way[2]	Signal	AM	0.354	A	0.633	B	0.279
		PM	0.703	C	**0.957**	**E**	0.254
17. Campus Dr at Bristol St North	Signal	AM	0.641	B	0.694	B	0.053
		PM	**0.964**	**E**	**1.059**	**F**	0.095

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
Notes: Signalized intersections evaluated using ICU methodology.
1. Based on City of Irvine intersection analysis methodology.
2. Based on City of Newport Beach intersection analysis methodology.

Source: *Transportation Impact Analysis,* (Full data in Table 9-17), Fehr & Peers, 2014

As with the Proposed Project, with Alternative C, Phase 2 the only intersection under shared jurisdiction with Caltrans that would operate at deficient conditions under the "with project"

scenario would be the Jamboree Road at the I-405 southbound ramps. However, as shown in Table 4.8-69 this intersection would not be adversely impacted by Alternative C. With the addition of Alternative C-generated trips the overall intersection delay would improve at the Jamboree Road/I-405 southbound ramps during the AM peak hour because Alternative C, Phase 2 would increase traffic to the movements that have available capacity or "green time". As previously indicated, since intersection delay is reported as a weighted average of all movements, this increase in traffic volume actually results in a reduction of overall intersection delay.

TABLE 4.8-69
CALTRANS INTERSECTION LEVEL OF SERVICE
PHASE 2 ALTERNATIVE C

Intersection	Traffic Control	Peak Hour	Without Project		With Alternative C	
			Delay[a]	LOS	Delay[a]	LOS
Jamboree Rd at I-405 Southbound Ramps	Signal	AM	**99.7**	**F**	**99.2**	**F**
		PM	30.8	C	30.8	C

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
[a] Delay is provided in seconds.
Source: *Transportation Impact Analysis,* (Full data in Table 9-18), Fehr & Peers, 2014

Table 4.8-70 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-71 identifies the freeway mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities.

As shown in the tables, most of these facilities would operate at deficient levels of service without Alternative C-generated traffic. However, Alternative C, Phase 2 would result in an increase of over 2 percent either causing or worsening a deficient LOS at several locations; therefore, the Project would result in a significant cumulative impact at the following locations:

- Southbound SR-55: MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp (AM)
- Northbound SR-55: Paularino Avenue On-ramp (PM)
- Northbound SR-55: Paularino Avenue On-ramp to I-405 SB On-ramp (PM)
- Northbound SR-55: On-ramp from I-405 NB to MacArthur Blvd Off-ramp (PM)
- Southbound SR-55: MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB (AM)
- Northbound SR-73: Bristol St. N On-ramp to SR-55 N Off-ramp (AM)
- Northbound SR-73: On-ramp From SR-55 NB (AM)
- Southbound I-405: Jamboree Direct On-ramp (PM)

TABLE 4.8-70
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 ALTERNATIVE C – AM PEAK HOUR

Location	Type	Without Project		With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	30	0.3%
Baker St Off-ramp to SR-73 On-ramp	Basic	37.9	F	38.3	F	30	0.5%
On-ramp from SR-73 NB to Off-ramp to I-405 SB	Weave	-	F	-	F	30	0.3%
Off-ramp to I-405 SB to Paularino Ave On-ramp	Basic	44.8	F	-	F	20	0.3%
Paularino Ave On-ramp	Merge	-	F	-	F	30	0.4%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	-	F	-	F	30	0.4%
On-ramp from I-405 SB	Basic	-	F	-	F	30	0.3%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	-	F	-	F	220	1.7%
Southbound SR-55							
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	34.2	D	35.3	E	160	2.1%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	230	2.1%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	40.4	E	40.9	E	40	0.6%
MacArthur Blvd On-ramp	Basic	36.7	E	37.1	E	50	0.6%
Jamboree Rd On-ramp	Merge	34.9	D	35.2	E	60	0.7%
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	43.2	E	43.8	E	60	0.7%
Bristol St N Off-ramp	Diverge	-	F	-	F	60	0.6%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	240	2.3%
On-ramp from SR-55 NB	Weave	-	F	-	F	180	2.5%

TABLE 4.8-70
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 ALTERNATIVE C – AM PEAK HOUR

Location	Type	Without Project		With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	**38.9**	**E**	**39.6**	**E**	**80**	**1.2%**
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	**-**	**F**	**-**	**F**	**110**	**1.1%**
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**42.9**	**E**	**44.0**	**E**	**120**	**1.1%**
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**100**	**0.8%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**37.6**	**E**	**37.6**	**E**	**0**	**0.0%**
Bristol St S On-ramp to South Coast Off-ramp	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	**31.0**	**F**	**31.5**	**F**	**90**	**1.0%**
Fairview Rd On-ramp	Merge	**34.3**	**F**	**34.7**	**F**	**100**	**1.0%**
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	**39.0**	**F**	**39.7**	**F**	**100**	**1.0%**
Bristol St Off-ramp	Diverge	**27.4**	**F**	**27.7**	**F**	**100**	**0.9%**
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	**-**	**F**	**-**	**F**	**110**	**0.9%**
Lane Drop	Basic	34.4	D	**35.2**	**E**	**110**	**1.4%**
On-ramp from SR-55 NB	Basic	**35.0**	**E**	**35.8**	**E**	**120**	**1.2%**
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**120**	**0.9%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**-**	**F**	**-**	**F**	**100**	**0.8%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 9-19, 9-20, and 9-21), Fehr & Peers, 2014

TABLE 4.8-71
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 ALTERNATIVE C – PM PEAK HOUR

Location	Type	Without Project		With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	60	0.8%
Paularino Ave On-ramp	Merge	15.7	F	16.0	F	60	2.0%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	16.7	F	17.0	F	60	2.0%
On-ramp from I-405 SB	Basic	16.2	F	16.4	F	60	1.5%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	25.5	F	27.9	F	320	5.2%
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	36.6	E	37.7	E	140	1.8%
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	180	1.7%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	10	0.1%
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	-	F	-	F	30	0.3%
Northbound SR-73							
Bristol St N Off-ramp	Diverge	35.9	E	36.2	E	40	0.5%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	180	1.7%
Off-ramp to SR-55 SB	Diverge	-	F	-	F	180	1.9%
On-ramp from SR-55 NB	Weave	-	F	-	F	160	1.9%
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	80	1.0%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	25.6	F	26.1	F	110	1.4%
Jamboree Rd Off-ramp	Diverge	18.4	F	18.7	F	110	1.3%
Jamboree Rd Loop On-ramp	Merge	23.9	F	24.2	F	110	1.5%

TABLE 4.8-71
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 ALTERNATIVE C – PM PEAK HOUR

Location	Type	Without Project		With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**40.2**	**F**	**41.4**	**F**	**120**	**1.3%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
SR-55 Off-ramp to Bristol St Off-ramp	Basic	**26.4**	**F**	**26.5**	**F**	**10**	**0.2%**
Bristol St/Ave of the Arts Off-ramp	Diverge	**31.1**	**F**	**31.2**	**F**	**10**	**0.1%**
On-ramp from SR-55 SB	Basic	**22.5**	**F**	**22.5**	**F**	**0**	**0.0%**
Bristol St N On-ramp	Merge	**21.4**	**F**	**21.4**	**F**	**0**	**0.0%**
Bristol St S On-ramp to South Coast Off-ramp	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**140**	**1.3%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**44.3**	**E**	**45.7**	**E**	**120**	**1.1%**
Jamboree Rd Loop On-ramp	Merge	**22.4**	**F**	**22.3**	**F**	**120**	**1.8%**
Jamboree Rd Direct On-ramp	Merge	**22.7**	**F**	**23.5**	**F**	**150**	**2.0%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 9-22, 9-23, and 9-24), Fehr & Peers, 2014

Phase 3

Table 4.8-72 shows the intersection LOS with Alternative C, Phase 3 and that there would be significant impacts at Intersections 4 (MacArthur Blvd. at Michelson Drive), 15 (Campus Drive at Airport Way), 17 (Campus Drive at Bristol Street North), 25 (Santa Ana Avenue at Del Mar Avenue), and 53 (Von Karman Avenue at Alton Parkway), during the PM peak hour. The evaluation methodology used for assessing the impact corresponds to the jurisdiction in which the intersection is located and is noted in the table.

Though Intersection 52 (Von Karman Avenue at Barranca Parkway) is projected to operate at a deficient LOS, it is not considered a significant Project-related impact because the threshold for

intersections in the Irvine Business Complex is the Project-generated trips must increase the ICU by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions. Alternative C only increases the ICU at this study intersection by 0.01. Similarly, Intersection 25 (Santa Ana Avenue at Del Mar Avenue) is projected to operate at a deficient LOS with or without Alternative C in the AM peak hour. Though the intersection would receive additional traffic associated with the Alternative C, project traffic would not reduce the LOS at this intersection and, therefore, impacts would be less than significant. The LOS evaluation for each of the 59 study intersections under Alternative C, Phase 3 is provided in Appendix G (Table 9-25).

TABLE 4.8-72
INTERSECTION LEVEL OF SERVICE
PHASE 3 ALTERNATIVE C

Intersection	Traffic Control	Peak Hour	Without Project		With Alternative C		
			V/C	LOS	V/C	LOS	Change
4. MacArthur Blvd at Michelson Drive[1]	Signal	AM	0.77	C	0.84	D	0.07
		PM	0.98	E	**1.07**	**F**	0.09
15. Campus Dr at Airport Way[2]	Signal	AM	0.362	A	0.642	B	0.280
		PM	0.723	C	**0.982**	**E**	0.259
17. Campus Dr at Bristol St North[2]	Signal	AM	0.666	B	0.721	C	0.055
		PM	**1.009**	**F**	**1.105**	**F**	0.096
25. Santa Ana Ave at Del Mar Ave[3,5]	Stop Controlled	AM	**36.3**	**E**	**48.3**	**E**	N/A
		PM	28.1	D	**35.0**	**E**	N/A
49. Red Hill Ave at Dyer Rd[1]	Signal	AM	0.55	A	0.57	A	0.02
		PM	**0.92**	**E**	**0.92**	**E**	**0.00**
50. Red Hill Ave at Alton Pkwy[1]	Signal	AM	0.87	D	0.88	D	0.01
		PM	0.90	D	**0.91**	**E**	**0.01**
52. Von Karman Ave at Barranca Pkwy[1]	Signal	AM	0.83	D	0.84	D	0.01
		PM	**1.06**	**F**	**1.07**	**F**	0.01
53. Von Karman Ave at Alton Pkwy[1]	Signal	AM	0.83	D	0.84	D	0.01
		PM	**0.99**	**E**	**1.01**	**F**	0.02

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.

Notes: Signalized intersections evaluated using ICU methodology.
1. Based on City of Irvine intersection analysis methodology.
2. Based on City of Newport Beach intersection analysis methodology.
3. Based on City of Costa Mesa intersection analysis methodology.
4. AWSC = All Way Stop Control; average intersection delay is reported.

Source: *Transportation Impact Analysis,* (Full data in Table 9-25), Fehr & Peers, 2014

Of the four intersections under the shared jurisdiction of Caltrans only the Jamboree Road at the I-405 southbound ramps would operate at deficient conditions under the "with project" scenario. However, as shown in Table 4.8-73 this intersection would not be impacted by Alternative C, Phase 3. With the addition of Alternative C-generated trips the overall intersection delay would improve at the Jamboree Road/I-405 southbound ramps during the AM peak hour because Alternative C, Phase 3 would increase traffic to the movements that have

available capacity or "green time". As previously indicated, since intersection delay is reported as a weighted average of all movements, this increase in traffic volume actually results in a reduction of overall intersection delay. Because the addition of Alternative C, Phase 3-generated trips would not cause the LOS to degrade from acceptable to unacceptable LOS, and because Project trips would not cause a 2 second delay increase at an intersection operating at an unacceptable LOS prior to the addition of Project traffic, under this scenario, the Project would not result in significant impacts at the Caltrans intersections.

TABLE 4.8-73
CALTRANS INTERSECTION LEVEL OF SERVICE
PHASE 3 ALTERNATIVE C

Intersection	Traffic Control	Peak Hour	Without Project		With Alternative C	
			Delay[a]	LOS	Delay[a]	LOS
Jamboree Rd at I-405 Southbound Ramps	Signal	AM	**106.3**	**F**	**106.0**	**F**
		PM	30.7	C	30.7	C

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
[a] Delay is provided in seconds.
Source: *Transportation Impact Analysis,* (Full data in Table 9-26), Fehr & Peers, 2014

Table 4.8-74 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-75 identifies the freeway mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities.

As shown in the tables, most of these facilities would operate at deficient levels of service without project traffic. However, Alternative C, Phase 3 would result in an increase of over 2 percent either causing or worsening a deficient LOS at several locations; therefore, the project would result in a significant cumulative impact at the following locations:

- Southbound SR-55: MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp (AM)
- Northbound SR-55: Paularino Avenue On-ramp (PM)
- Northbound SR-55: Paularino Avenue On-ramp to I-405 SB On-ramp (PM)
- Northbound SR-55: On-ramp from I-405 NB to MacArthur Blvd Off-ramp (PM)
- Southbound SR-55: MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB (AM)
- Northbound SR-73: Bristol St. N On-ramp to SR-55 N Off-ramp (AM)
- Northbound SR-73: On-ramp From SR-55 NB (AM)
- Southbound I-405: Jamboree Direct On-ramp (PM)

TABLE 4.8-74
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 ALTERNATIVE C – AM PEAK HOUR

Location	Type	Without Project		With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	30	0.3%
Baker St Off-ramp to SR-73 On-ramp	Basic	38.0	F	38.4	F	30	0.5%
On-ramp from SR-73 NB to Off-ramp to I-405 SB	Weave	-	F	-	F	30	0.3%
Off-ramp to I-405 SB to Paularino Ave On-ramp	Basic	45.0	F	-	F	20	0.3%
Paularino Ave On-ramp	Merge	-	F	-	F	30	0.4%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	-	F	-	F	30	0.4%
On-ramp from I-405 SB	Basic	-	F	-	F	30	0.3%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	-	F	-	F	220	1.7%
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	34.2	D	35.3	E	160	2.1%
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	230	2.1%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	40.5	E	41.0	E	40	0.6%
MacArthur Blvd On-ramp	Basic	36.8	E	37.2	E	50	0.6%
Jamboree Rd On-ramp	Merge	35.0	D	35.2	E	60	0.7%
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	43.3	E	44.0	E	60	0.7%
Bristol St N Off-ramp	Diverge	-	F	-	F	60	0.6%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	240	2.3%
On-ramp from SR-55 NB	Weave	-	F	-	F	180	2.5%

TABLE 4.8-74
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 ALTERNATIVE C – AM PEAK HOUR

Location	Type	Without Project		With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	**39.0**	**E**	**39.7**	**E**	**80**	**1.2%**
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	**-**	**F**	**-**	**F**	**110**	**1.1%**
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**43.0**	**E**	**44.0**	**E**	**120**	**1.1%**
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**100**	**0.8%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**37.6**	**E**	**37.7**	**E**	**0**	**0.0%**
Bristol St S On-ramp to South Coast Off-ramp	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	**31.1**	**F**	**31.5**	**F**	**90**	**1.0%**
Fairview Rd On-ramp	Merge	**34.4**	**F**	**34.8**	**F**	**100**	**1.0%**
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	**39.0**	**F**	**39.8**	**F**	**100**	**1.0%**
Bristol St Off-ramp	Diverge	**27.4**	**F**	**27.7**	**F**	**100**	**0.9%**
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	**-**	**F**	**-**	**F**	**110**	**0.9%**
Lane Drop	Basic	**34.5**	**D**	**35.3**	**E**	**110**	**1.4%**
On-ramp from SR-55 NB	Basic	**35.2**	**E**	**35.9**	**E**	**120**	**1.2%**
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**120**	**0.9%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**-**	**F**	**-**	**F**	**100**	**0.8%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 9-27, 9-28, and 9-29), Fehr & Peers, 2014

TABLE 4.8-75
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 ALTERNATIVE C – PM PEAK HOUR

Location	Type	Without Project		With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	60	0.8%
Paularino Ave On-ramp	Merge	15.7	F	16.0	F	60	2.0%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	16.7	F	17.0	F	60	2.0%
On-ramp from I-405 SB	Basic	16.2	F	16.4	F	50	1.3%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	25.5	F	27.9	F	320	5.2%
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	36.7	E	37.8	E	140	1.8%
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	180	1.7%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	10	0.1%
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	-	F	-	F	30	0.3%
Northbound SR-73							
Bristol St N Off-ramp	Diverge	36.0	E	36.3	E	40	0.5%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	180	1.6%
Off-ramp to SR-55 SB	Diverge	-	F	-	F	180	1.9%
On-ramp from SR-55 NB	Weave	-	F	-	F	160	1.8%
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	80	1.0%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	25.8	F	26.2	F	110	1.4%
Jamboree Rd Off-ramp	Diverge	18.5	F	18.8	F	110	1.3%
Jamboree Rd Loop On-ramp	Merge	24.0	F	24.4	F	110	1.5%

TABLE 4.8-75
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 ALTERNATIVE C – PM PEAK HOUR

Location	Type	Without Project		With Alternative C			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**40.5**	**F**	**41.7**	**F**	**120**	**1.3%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
SR-55 Off-ramp to Bristol St Off-ramp	Basic	**26.5**	**F**	**26.6**	**F**	**10**	**0.2%**
Bristol St/Ave of the Arts Off-ramp	Diverge	**31.1**	**F**	**31.3**	**F**	**10**	**0.1%**
On-ramp from SR-55 SB	Basic	**22.6**	**F**	**22.6**	**F**	**0**	**0.0%**
Bristol St N On-ramp	Merge	**21.5**	**F**	**21.5**	**F**	**0**	**0.0%**
Bristol St S On-ramp to S Coast Off	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**140**	**1.3%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**44.4**	**E**	**45.7**	**E**	**120**	**1.1%**
Jamboree Rd Loop On-ramp	Merge	**22.5**	**F**	**22.4**	**F**	**120**	**1.8%**
Jamboree Rd Direct On-ramp	Merge	**22.8**	**F**	**23.6**	**F**	**150**	**2.0%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 9-30, 9-31, and 9-32), Fehr & Peers, 2014

Caltrans Ramp Queue Analysis

A 95th percentile queue analysis has been prepared utilizing the Synchro 7 software to determine if adequate queue storage is provided at the off-ramp at MacArthur Boulevard and Jamboree Road under the Alternative C scenario. Adequate queue storage is forecast to be provided at the Caltrans off-ramp locations. The detailed analysis is provided in Table 11-4 in the *Transportation Impact Analysis* (Appendix G).

No Project Alternative

Existing Plus No Project

Table 4.8-76 shows there is one location under the Existing Plus No Project Alternative that would degrade from acceptable conditions to LOS E. This intersection, Campus Drive and Bristol Street North, is located in the City of Newport Beach and the LOS worsens from LOS D to LOS E with the addition of the No Project Alternative trips. As such, under this scenario, the No Project Alternative would result in a significant impact at this intersection. The evaluation was based on City of Newport Beach intersection analysis methodology. The LOS for each of the 59 study intersections under the Existing Plus No Project Alternative evaluation is provided in Appendix G (Table 10-1).

TABLE 4.8-76
INTERSECTION OPERATING AT A DEFICIENT LEVEL OF SERVICE
EXISTING PLUS NO PROJECT ALTERNATIVE

Intersection	Traffic Control	Peak Hour	Existing		Existing Plus No Project Alternative		
			V/C	LOS	V/C	LOS	Change
17. Campus Dr at Bristol St North	Signal	AM	0.596	A	0.610	B	0.014
		PM	0.885	D	**0.908**	**E**	**0.023**

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
Source: *Transportation Impact Analysis,* (Full data in Table 10-1), Fehr & Peers, 2014

Of the four intersections under the shared jurisdiction of Caltrans only the Jamboree Road at the I-405 southbound ramps would operate at deficient conditions under the Existing Plus No Project Alternative scenario. However, as shown in Table 4.8-77 because the addition of No Project Alternative-generated trips would not cause a two second delay increase at an intersection operating at an unacceptable LOS prior to the addition of No Project Alternative traffic, the No Project Alternative would not result in significant impacts at the Caltrans intersections.

TABLE 4.8-77
CALTRANS INTERSECTION OPERATING AT A DEFICIENT LEVEL OF SERVICE
EXISTING PLUS NO PROJECT ALTERNATIVE

Intersection	Traffic Control	Peak Hour	Existing		Existing Plus No Project Alternative	
			Delay[a]	LOS	Delay[a]	LOS
Jamboree Rd at I-405 SB Ramps	Signal	AM	**90.8**	**F**	**91.5**	**F**
		PM	30.7	C	30.9	C

NB=Northbound
Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
[a] Delay is provided in seconds.
Source: *Transportation Impact Analysis,* (Full data in Table 10-2), Fehr & Peers, 2014

Table 4.8-78 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-79 identifies the freeway mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities. As shown in the tables, most of these facilities would operate at deficient levels of service without the No Project Alternative-related traffic. However, because the addition of the No Project Alternative trips would not result in a decrease in LOS from acceptable to unacceptable, and because the addition of the No Project Alternative trips would not increase traffic by 2 percent or more, impacts would be less than significant.

TABLE 4.8-78
FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS NO PROJECT ALTERNATIVE – AM PEAK HOUR

Location	Type	Existing		Existing Plus No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/Newport Blvd On-ramp to SR-73 Off Ramp	Weave	-	F	-	F	20	0.2%
Baker St Off Ramp to SR-73 On-ramp	Basic	24.9	F	37.7	F	20	0.4%
On-ramp from SR-73 NB to Off Ramp to I-405 SB	Weave	-	F	-	F	20	0.3%
Off Ramp to I-405 SB to Paularino Ave On-ramp	Basic	28.3	F	44.5	F	10	0.2%
Paularino Ave On-ramp	Merge	29.6	D	-	F	20	0.4%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	34.3	D	-	F	20	0.4%
On-ramp from I-405 SB	Basic	-	F	-	F	20	0.2%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	-	F	-	F	60	0.6%
Southbound SR-55							
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	60	0.6%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	40.3	E	40.5	E	10	0.2%
MacArthur Blvd On-ramp	Basic	36.6	E	36.8	E	20	0.3%
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	23.7	C	43.4	E	30	0.5%

TABLE 4.8-78
FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS NO PROJECT ALTERNATIVE – AM PEAK HOUR

Location	Type	Existing		Existing Plus No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Bristol St N Off-ramp	Diverge	30.5	D	-	**F**	**30**	**0.4%**
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	32.1	D	-	**F**	**70**	**0.8%**
On-ramp from SR-55 NB	Weave	33.1	D	-	**F**	**50**	**0.9%**
Bristol St N Off-ramp	Diverge	30.5	D	**-**	**F**	**40**	**0.6%**
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	32.1	D	**-**	**F**	**120**	**1.4%**
On-ramp from SR-55 NB	Weave	33.1	D	**-**	**F**	**90**	**1.7%**
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	**38.7**	**E**	**38.9**	**E**	**30**	**0.5%**
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.5%**
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**42.7**	**E**	**43.0**	**E**	**30**	**0.3%**
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**30**	**0.2%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**40.8**	**E**	**37.7**	**E**	**10**	**0.1%**
Bristol St S On-ramp to South Coast Off-ramp	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	**30.8**	**F**	**30.9**	**F**	**20**	**0.2%**
Fairview Rd On-ramp	Merge	**34.1**	**F**	**34.2**	**F**	**30**	**0.3%**
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	**38.6**	**F**	**38.8**	**F**	**30**	**0.3%**
Bristol St Off-ramp	Diverge	**27.2**	**F**	**27.3**	**F**	**30**	**0.3%**
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	**-**	**F**	**-**	**F**	**40**	**0.3%**
Lane Drop	Basic	**36.9**	**E**	34.2	D	40	0.5%
On-ramp from SR-55 NB	Basic	**37.0**	**E**	34.8	D	50	0.5%

TABLE 4.8-78
FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS NO PROJECT ALTERNATIVE – AM PEAK HOUR

Location	Type	Existing		Existing Plus No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	-	**F**	**50**	**0.3%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**-**	**F**	-	**F**	**50**	**0.4%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 10-3, 10-4, and 10-5), Fehr & Peers, 2014

TABLE 4.8-79
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS NO PROJECT ALTERNATIVE – PM PEAK HOUR

Location	Type	Existing		Existing Plus No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/Newport Blvd On-ramp to SR-73 Off-ramp	Weave	**-**	**F**	**-**	**F**		**0.3%**
Paularino Ave On-ramp	Merge	**14.9**	**F**	**15.8**	**F**		**0.7%**
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	**15.9**	**F**	**16.8**	**F**		**0.7%**
On-ramp from I-405 SB	Basic	**15.5**	**F**	**16.2**	**F**		**0.5%**
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	**23.0**	**F**	**26.0**	**F**		**1.4%**
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	**36.5**	**E**	**36.8**	**E**	**30**	**0.4%**
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	**-**	**F**	**-**	**F**	**50**	**0.5%**
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	**-**	**F**	**-**	**F**	**10**	**0.1%**

TABLE 4.8-79
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS NO PROJECT ALTERNATIVE – PM PEAK HOUR

Location	Type	Existing		Existing Plus No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Bristol St N Off-ramp	Diverge	27.9	C	**35.9**	**E**	**30**	**0.5%**
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	60	0.6%
Off-ramp to SR-55 SB	Diverge	**35.5**	**E**	-	F	60	0.8%
On-ramp from SR-55 NB	Weave	-	F	-	F	50	0.7%
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	30	0.4%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**25.5**	**F**	**25.6**	**F**	**30**	**0.4%**
Jamboree Rd Off-ramp	Diverge	**18.2**	**F**	**18.3**	**F**	**30**	**0.3%**
Jamboree Rd Loop On-ramp	Merge	**24.2**	**F**	**23.7**	**F**	**30**	**0.4%**
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**41.6**	**F**	**40.2**	**F**	**40**	**0.4%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	-	F	**43.4**	**F**	**20**	**0.2%**
SR-55 Off-ramp to Bristol St Off-ramp	Basic	**33.9**	**F**	**26.3**	**F**	**10**	**0.1%**
Bristol St/Ave of the Arts Off-ramp	Diverge	**36.1**	**F**	**31.0**	**F**	**10**	**0.1%**
On-ramp from SR-55 SB	Basic	**27.2**	**F**	**22.4**	**F**	**0**	**0.0%**
Bristol St N On-ramp	Merge	**23.9**	**F**	**21.4**	**F**	**0**	**0.0%**
Bristol St S On-ramp to South Coast Off-ramp	Weave	-	F	-	F	0	0.0%
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**43.6**	**E**	**43.9**	**E**	**60**	**0.6%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**44.8**	**E**	**45.1**	**E**	**60**	**0.6%**

TABLE 4.8-79
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
EXISTING PLUS NO PROJECT ALTERNATIVE – PM PEAK HOUR

Location	Type	Existing		Existing Plus No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Jamboree Rd Loop On-ramp	Merge	**21.3**	**F**	**22.1**	**F**	**60**	**1.0%**
Jamboree Rd Direct On-ramp	Merge	**21.4**	**F**	**22.8**	**F**	**70**	**1.0%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 10-6, 10-7, and 10-8), Fehr & Peers, 2014

Phase 1

Table 4.8-80 shows there is one location where there is a significant impact at a local roadway intersection with the No Project Alternative in Phase 1. During the PM peak hour, the LOS at the Campus Drive at Bristol Street North intersection in the City of Newport Beach worsens. The change is of sufficient magnitude that it would result in a significant impact at this intersection. The evaluation was based on City of Newport Beach intersection analysis methodology. The LOS for each of the 59 study intersections under the No Project Alternative, Phase 1 evaluation is provided in Appendix G (Table 10-9).

TABLE 4.8-80
INTERSECTION LEVEL OF SERVICE
PHASE 1 NO PROJECT ALTERNATIVE

Intersection	Traffic Control	Peak Hour	Without Project		With No Project Alternative		
			V/C	LOS	V/C	LOS	Change
17. Campus Dr at Bristol St North	Signal	AM	0.614	B	0.626	B	0.012
		PM	**0.916**	**E**	**0.936**	**E**	0.020

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
Source: *Transportation Impact Analysis,* (Full data in Table 10-9), Fehr & Peers, 2014

Of the four intersections under the shared jurisdiction of Caltrans only the Jamboree Road at the I-405 southbound ramps would operate at deficient conditions under the No Project scenario. However, as shown in Table 4.8-81 because the addition of No Project Alternative-generated trips would not cause a two second delay increase at an intersection operating at an unacceptable LOS prior to the addition of Project traffic, the No Project Alternative, Phase 1 would not result in significant impacts at the Caltrans intersections.

TABLE 4.8-81
CALTRANS INTERSECTION LEVEL OF SERVICE
PHASE 1 NO PROJECT ALTERNATIVE

Intersection	Traffic Control	Peak Hour	Without Project		With No Project Alternative	
			Delay[a]	LOS	Delay[a]	LOS
Jamboree Rd at I-405 SB Ramps	Signal	AM	**94.7**	**F**	**94.5**	**F**
		PM	31.0	C	31.0	C

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
[a] Delay is provided in seconds.
Source: *Transportation Impact Analysis,* (Full data in Table 10-10), Fehr & Peers, 2014

Table 4.8-82 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-83 identifies the freeway mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities. As shown in the tables, most of these facilities would operate at deficient levels of service without No Project Alternative-related traffic. However, because the addition of No Project Alternative trips would not result in a decrease in LOS from acceptable to unacceptable, and because the addition of No Project Alternative trips would not increase traffic by 2 percent or more, impacts would be less than significant.

TABLE 4.8-82
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 NO PROJECT ALTERNATIVE – AM PEAK HOUR

Location	Type	Without Project		With No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
Baker St Off-ramp to SR-73 On-ramp	Basic	**37.7**	**F**	**37.9**	**F**	**20**	**0.3%**
On-ramp from SR-73 NB to Off-ramp to I-405 SB	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
Off-ramp to I-405 SB to Paularino Ave On-ramp	Basic	**44.5**	**F**	**44.7**	**F**	**10**	**0.2%**
Paularino Ave On-ramp	Merge	**-**	**F**	**-**	**F**	**20**	**0.3%**
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	**-**	**F**	**-**	**F**	**20**	**0.3%**
On-ramp from I-405 SB	Basic	**-**	**F**	**-**	**F**	**20**	**0.2%**
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**60**	**0.5%**

TABLE 4.8-82
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 NO PROJECT ALTERNATIVE – AM PEAK HOUR

Location	Type	Without Project		With No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Southbound SR-55							
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	60	0.6%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	40.4	E	40.5	E	10	0.2%
MacArthur Blvd On-ramp	Basic	36.7	E	36.8	E	20	0.3%
Jamboree Rd On-ramp	Merge	34.9	D	35.1	E	30	0.3%
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	43.2	E	43.5	E	30	0.3%
Bristol St N Off-ramp	Diverge	-	F	-	F	30	0.3%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	70	0.7%
On-ramp from SR-55 NB	Weave	-	F	-	F	50	0.7%
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	38.8	E	39.1	E	30	0.5%
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	50	0.5%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	42.8	E	43.1	E	30	0.3%
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	-	F	-	F	30	0.2%
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	37.5	E	37.7	E	10	0.1%
Bristol St S On-ramp to South Coast Off-ramp	Weave	-	F	-	F	0	0.0%
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	30.9	F	31.0	F	20	0.2%
Fairview Rd On-ramp	Merge	34.2	F	34.3	F	30	0.3%
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	38.8	F	39.0	F	30	0.3%

TABLE 4.8-82
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 NO PROJECT ALTERNATIVE – AM PEAK HOUR

Location	Type	Without Project		With No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Bristol St Off-ramp	Diverge	**27.3**	**F**	**27.4**	**F**	**30**	**0.3%**
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	**-**	**F**	**-**	**F**	**40**	**0.3%**
On-ramp from SR-55 NB	Basic	34.8	D	**35.1**	**E**	**50**	**0.5%**
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.4%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.4%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 10-11, 10-12, and 10-13), Fehr & Peers, 2014

TABLE 4.8-83
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 NO PROJECT ALTERNATIVE – PM PEAK HOUR

Location	Type	Without Project		With No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/Newport Blvd On-ramp to SR-73 Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.3%**
Paularino Ave On-ramp	Merge	**15.7**	**F**	**15.8**	**F**	**20**	**0.7%**
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	**16.7**	**F**	**16.8**	**F**	**20**	**0.7%**
On-ramp from I-405 SB	Basic	**16.2**	**F**	**16.2**	**F**	**20**	**0.5%**
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	**25.5**	**F**	**26.1**	**F**	**80**	**1.3%**
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	**36.6**	**E**	**36.8**	**E**	**30**	**0.4%**
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	**-**	**F**	**-**	**F**	**50**	**0.5%**

TABLE 4.8-83
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 NO PROJECT ALTERNATIVE – PM PEAK HOUR

Location	Type	Without Project		With No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	10	0.1%
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Bristol St N Off-ramp	Diverge	35.9	E	36.1	E	30	0.4%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	60	0.6%
Off-ramp to SR-55 SB	Diverge	-	F	-	F	60	0.6%
On-ramp from SR-55 NB	Weave	-	F	-	F	50	0.6%
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	30	0.4%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	25.6	F	25.7	F	30	0.4%
Jamboree Rd Off-ramp	Diverge	18.3	F	18.4	F	30	0.3%
Jamboree Rd Loop On-ramp	Merge	23.8	F	23.9	F	30	0.4%
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	40.1	F	40.5	F	40	0.4%
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	-	F	-	F	20	0.2%
SR-55 Off-ramp to Bristol St Off-ramp	Basic	26.4	F	26.5	F	10	0.2%
Bristol St/Ave of the Arts Off-ramp	Diverge	31.0	F	31.2	F	10	0.1%
On-ramp from SR-55 SB	Basic	22.5	F	22.5	F	0	0.0%
Bristol St N On-ramp	Merge	21.4	F	21.4	F	0	0.0%
Bristol St S On-ramp to South Coast Off-ramp	Weave	-	F	-	F	0	0.0%
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	-	F	44.2	E	60	0.6%
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	44.2	E	45.4	E	60	0.6%
Jamboree Rd Loop On-ramp	Merge	22.4	F	22.2	F	60	0.9%

TABLE 4.8-83
PROJECT FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 1 NO PROJECT ALTERNATIVE – PM PEAK HOUR

Location	Type	Without Project		With No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Jamboree Rd Direct On-ramp	Merge	**22.6**	**F**	**23.0**	**F**	**70**	**0.9%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 10-14, 10-15, and 10-16), Fehr & Peers, 2014

Phase 2

Table 4.8-84 shows the location where there would be a deficient local roadway intersection LOS with the No Project Alternative, Phase 2. As shown, Campus Drive at Bristol Street North (Intersection 17) is projected to operate at deficient conditions during the PM peak hour. This would be a significant impact because the V/C ratio increases by .010 or more. The evaluation for this intersection was based on City of Newport Beach intersection analysis methodology. The LOS for each of the 59 study intersections under the No Project Alternative, Phase 2 evaluation is provided in Appendix G (Table 10-17).

TABLE 4.8-84
INTERSECTION LEVEL OF SERVICE
PHASE 2 NO PROJECT ALTERNATIVE

Intersection	Traffic Control	Peak Hour	Without Project		With No Project Alternative		
			V/C	LOS	V/C	LOS	Change
17. Campus Dr at Bristol St North	Signal	AM	0.641	B	0.659	B	0.018
		PM	**0.964**	**E**	**0.984**	**E**	0.020

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.

Source: *Transportation Impact Analysis,* (Full data in Table 10-17), Fehr & Peers, 2014

Of the four intersections under the shared jurisdiction of Caltrans only the Jamboree Road at the I-405 southbound ramps would operate at deficient conditions under the No Project Alternative. However, as shown in Table 4.8-85 this intersection would not be impacted by the No Project Alternative. With the addition of the No Project Alternative-generated trips the overall intersection delay would improve at the Jamboree Road/I-405 southbound ramps during the AM peak hour because the No Project Alternative, Phase 2 would increase traffic to the movements that have available capacity or "green time". As previously indicated, since intersection delay is reported as a weighted average of all movements, this increase in traffic volume actually results in a reduction of overall intersection delay.

TABLE 4.8-85
CALTRANS INTERSECTION LEVEL OF SERVICE
PHASE 2 NO PROJECT ALTERNATIVE

Intersection	Traffic Control	Peak Hour	Without Project		With No Project Alternative	
			Delay[a]	LOS	Delay[a]	LOS
Jamboree Rd at I-405 Southbound Ramps	Signal	AM	**99.7**	**F**	**99.6**	**F**
		PM	30.8	C	30.8	C

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.
[a] Delay is provided in seconds.
Source: *Transportation Impact Analysis,* (Full data in Table 10-18), Fehr & Peers, 2014

Table 4.8-86 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-87 identifies the freeway mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities.

As shown in the tables, most of these facilities would operate at deficient levels of service without the No Project Alternative-related traffic. However, because the addition of the No Project Alternative-generated trips would not result in a decrease in LOS from acceptable to unacceptable, and because the addition of project trips would not increase traffic by 2 percent or more, impacts would be less than significant.

TABLE 4.8-86
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 NO PROJECT ALTERNATIVE – AM PEAK HOUR

Location	Type	Without Project		With No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	20	0.2%
Baker St Off-ramp to SR-73 On-ramp	Basic	37.9	F	38.1	F	20	0.3%
On-ramp from SR-73 NB to Off-ramp to I-405 SB	Weave	-	F	-	F	20	0.2%
Off-ramp to I-405 SB to Paularino Ave On-ramp	Basic	44.8	F	45.0	F	10	0.2%
Paularino Ave On-ramp	Merge	-	F	-	F	20	0.3%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	-	F	-	F	20	0.3%
On-ramp from I-405 SB	Basic	-	F	-	F	20	0.2%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	-	F	-	F	60	0.5%
Southbound SR-55							
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	60	0.6%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	40.4	E	40.5	E	10	0.2%
MacArthur Blvd On-ramp	Basic	36.7	E	36.8	E	20	0.3%
Jamboree Rd On-ramp	Merge	34.9	D	35.1	E	30	0.3%
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	43.2	E	43.5	E	30	0.3%
Bristol St N Off-ramp	Diverge	-	F	-	F	30	0.3%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	70	0.7%
On-ramp from SR-55 NB	Weave	-	F	-	F	50	0.7%
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	38.9	E	39.2	E	30	0.5%
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	50	0.5%

TABLE 4.8-86
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 NO PROJECT ALTERNATIVE – AM PEAK HOUR

Location	Type	Without Project		With No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**42.9**	**E**	**43.2**	**E**	**30**	**0.3%**
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**30**	**0.2%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**37.6**	**E**	**37.7**	**E**	**10**	**0.1%**
Bristol St S On-ramp to South Coast Off-ramp	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	**31.0**	**F**	**31.1**	**F**	**20**	**0.2%**
Fairview Rd On-ramp	Merge	**34.3**	**F**	**34.5**	**F**	**30**	**0.3%**
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	**39.0**	**F**	**39.2**	**F**	**30**	**0.3%**
Bristol St Off-ramp	Diverge	**27.4**	**F**	**27.5**	**F**	**30**	**0.3%**
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	**-**	**F**	**-**	**F**	**40**	**0.3%**
On-ramp from SR-55 NB	Basic	**35.0**	**E**	**35.3**	**E**	**50**	**0.5%**
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.4%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.4%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 10-19, 10-20, and 10-21), Fehr & Peers, 2014

TABLE 4.8-87
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 NO PROJECT ALTERNATIVE – PM PEAK HOUR

Location	Type	Without Project		With No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	20	0.3%
Paularino Ave On-ramp	Merge	15.7	F	15.8	F	20	0.7%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	16.7	F	16.8	F	20	0.7%
On-ramp from I-405 SB	Basic	16.2	F	16.2	F	20	0.5%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	25.5	F	26.1	F	80	1.3%
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	36.6	E	36.8	E	30	0.4%
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	50	0.5%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	10	0.1%
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Bristol St N Off-ramp	Diverge	35.9	E	36.1	E	30	0.4%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	60	0.6%
Off-ramp to SR-55 SB	Diverge	-	F	-	F	60	0.6%
On-ramp from SR-55 NB	Weave	-	F	-	F	50	0.6%
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	30	0.4%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	25.6	F	25.8	F	30	0.4%
Jamboree Rd Off-ramp	Diverge	18.4	F	18.5	F	30	0.3%
Jamboree Rd Loop On-ramp	Merge	23.9	F	24.0	F	30	0.4%

TABLE 4.8-87
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 2 NO PROJECT ALTERNATIVE – PM PEAK HOUR

Location	Type	Without Project		With No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**40.2**	**F**	**40.6**	**F**	**40**	**0.4%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
SR-55 Off-ramp to Bristol St Off-ramp	Basic	**26.4**	**F**	**26.5**	**F**	**10**	**0.2%**
Bristol St/Ave of the Arts Off-ramp	Diverge	**31.1**	**F**	**31.2**	**F**	**10**	**0.1%**
On-ramp from SR-55 SB	Basic	**22.5**	**F**	**22.5**	**F**	**0**	**0.0%**
Bristol St N On-ramp	Merge	**21.4**	**F**	**21.4**	**F**	**0**	**0.0%**
Bristol St S On-ramp to South Coast Off-ramp	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**44.2**	**E**	**60**	**0.6%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**44.3**	**E**	**45.4**	**E**	**60**	**0.6%**
Jamboree Rd Loop On-ramp	Merge	**22.4**	**F**	**22.2**	**F**	**60**	**0.9%**
Jamboree Rd Direct On-ramp	Merge	**22.7**	**F**	**23.2**	**F**	**70**	**0.9%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 10-22, 10-23, and 10-24), Fehr & Peers, 2014

Phase 3

Table 4.8-88 shows with the No Project Alternative, Phase 3 there would be a significant impact at Intersections 17 (Campus Drive at Bristol Street North), and 53 (Von Karman Avenue at Alton Parkway), during the PM peak hour. The LOS for each of the 59 study intersections under the No Project Alternative, Phase 3 is provided in Appendix G (Table 10-25).

TABLE 4.8-88
INTERSECTION LEVEL OF SERVICE
PHASE 3 NO PROJECT ALTERNATIVE

Intersection	Traffic Control	Peak Hour	Without Project		With No Project Alternative		
			V/C	LOS	V/C	LOS	Change
17. Campus Dr at Bristol St North[1]	Signal	AM	0.666	B	0.678	B	0.012
		PM	**1.009**	**F**	**1.030**	**F**	0.021
25. Santa Ana Ave at Del Mar Ave[2,3]	Signal	AM	**36.3**	**E**	**36.3**	**E**	0.00
		PM	28.1	D	29.0	D	0.90

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.

Notes: Signalized intersections evaluated using ICU methodology.
1. Based on City of Newport Beach intersection analysis methodology.
2. Based on City of Costa Mesa intersection analysis methodology.
3. AWSC = All Way Stop Control; average intersection delay is reported.

Source: *Transportation Impact Analysis,* (Full data in Table 10-25), Fehr & Peers, 2014

Of the four intersections under the shared jurisdiction of Caltrans only the Jamboree Road at the I-405 southbound ramps would operate at deficient conditions under the with No Project Alternative scenario. However, as shown in Table 4.8-89 this intersection would not be adversely impacted by the No Project Alternative, Phase 3. With the addition of the No Project Alternative-generated trips, the overall intersection delay would improve at the Jamboree Road/I-405 southbound ramps during the AM peak hour because the No Project Alternative, Phase 3 would increase traffic to the movements that have available capacity or "green time". As previously indicated, since intersection delay is reported as a weighted average of all movements, this increase in traffic volume actually results in a reduction of overall intersection delay.

TABLE 4.8-89
CALTRANS INTERSECTION LEVEL OF SERVICE
PHASE 3 NO PROJECT ALTERNATIVE

Intersection	Traffic Control	Peak Hour	Without Project		With No Project Alternative	
			Delay[a]	LOS	Delay[a]	LOS
Jamboree Rd at I-405 Southbound Ramps	Signal	**AM**	**106.3**	**F**	**106.3**	**F**
		PM	30.7	C	30.7	C

Boldface indicates the intersection is operating below acceptable standards for the applicable jurisdiction.

[a] Delay is provided in seconds.

Source: *Transportation Impact Analysis,* (Full data in Table 10-26), Fehr & Peers, 2014

Table 4.8-90 identifies the freeway mainline and ramp locations that would operate at a deficient LOS on SR-55, SR-73, and I-405 during the AM peak hour. Table 4.8-91 identifies the freeway mainline and ramp locations that would operate at a deficient LOS during the PM peak hour for these same facilities.

As shown in the tables, most of these facilities would operate at deficient levels of service without the No Project Alternative-related traffic. However, because the addition of the No Project Alternative would not result in a decrease in LOS from acceptable to unacceptable, and because the addition of project trips would not increase traffic by 2 percent or more, impacts would be less than significant.

TABLE 4.8-90
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 NO PROJECT ALTERNATIVE – AM PEAK HOUR

Location	Type	Without Project		Plus No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	20	0.2%
Baker St Off-ramp to SR-73 On-ramp	Basic	38.0	F	38.3	F	20	0.3%
On-ramp from SR-73 NB to Off-ramp to I-405 SB	Weave	-	F	-	F	20	0.2%
Off-ramp to I-405 SB to Paularino Ave On-ramp	Basic	45.0	F	-	F	10	0.2%
Paularino Ave On-ramp	Merge	-	F	-	F	20	0.3%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	-	F	-	F	20	0.3%
On-ramp from I-405 SB	Basic	-	F	-	F	20	0.2%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	-	F	-	F	60	0.5%
Southbound SR-55							
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	60	0.6%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Lane Drop to MacArthur Blvd On-ramp	Basic	40.5	E	40.6	E	10	0.2%
MacArthur Blvd On-ramp	Basic	36.8	E	36.9	E	20	0.3%
Jamboree Rd On-ramp	Merge	35.0	D	35.1	E	30	0.3%
Jamboree Rd On-ramp to Bristol St N Off-ramp	Basic	43.3	E	43.6	E	30	0.3%
Bristol St N Off-ramp	Diverge	-	F	-	F	30	0.3%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	70	0.7%
On-ramp from SR-55 NB	Weave	-	F	-	F	50	0.7%

TABLE 4.8-90
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 NO PROJECT ALTERNATIVE – AM PEAK HOUR

Location	Type	Without Project		Plus No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Southbound SR-73							
Bear St On-ramp to SR-55 S Off-ramp	Weave	**39.0**	**E**	**39.3**	**E**	**30**	**0.5%**
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.5%**
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	**43.0**	**E**	**43.4**	**E**	**30**	**0.3%**
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**30**	**0.2%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**37.6**	**E**	**37.7**	**E**	**10**	**0.1%**
Bristol St S On-ramp to South Coast Off-ramp	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
Off-ramp to I-405 SB to Fairview Rd On-ramp	Basic	**31.1**	**F**	**31.2**	**F**	**20**	**0.2%**
Fairview Rd On-ramp	Merge	**34.4**	**F**	**34.5**	**F**	**30**	**0.3%**
Fairview Rd On-ramp to Bristol St Off-ramp	Basic	**39.0**	**F**	**39.3**	**F**	**30**	**0.3%**
Bristol St Off-ramp	Diverge	**27.4**	**F**	**27.5**	**F**	**30**	**0.3%**
Bristol St On-ramp to SR-55 NB Off-ramp	Weave	**-**	**F**	**-**	**F**	**40**	**0.3%**
On-ramp from SR-55 NB	Basic	**35.2**	**E**	**35.5**	**E**	**50**	**0.5%**
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.4%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**-**	**F**	**-**	**F**	**50**	**0.4%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 10-27, 10-28, and 10-29), Fehr & Peers, 2014

TABLE 4.8-91
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 NO PROJECT ALTERNATIVE – PM PEAK HOUR

Location	Type	Without Project		With No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Northbound SR-55							
Fair Dr/Del Mar Ave/ Newport Blvd On-ramp to SR-73 Off-ramp	Weave	-	F	-	F	20	0.3%
Paularino Ave On-ramp	Merge	15.7	F	15.8	F	20	0.7%
Paularino Ave On-ramp to I-405 SB On-ramp	Basic	16.7	F	16.8	F	20	0.7%
On-ramp from I-405 SB	Basic	16.2	F	16.2	F	20	0.5%
On-ramp from I-405 NB to MacArthur Blvd Off-ramp	Weave	25.5	F	26.1	F	80	1.3%
Southbound SR-55							
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp	Basic	36.7	E	36.9	E	30	0.4%
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB	Weave	-	F	-	F	50	0.5%
On-ramp from I-405 NB to Off-ramp to SR-73 SB	Weave	-	F	-	F	10	0.1%
SR-73 SB On-ramp to Newport Blvd S/Mesa Dr Off-ramp	Weave	-	F	-	F	20	0.2%
Northbound SR-73							
Bristol St N Off-ramp	Diverge	36.0	E	36.2	E	30	0.4%
Bristol St N On-ramp to SR-55 N Off-ramp	Weave	-	F	-	F	60	0.5%
Off-ramp to SR-55 SB	Diverge	-	F	-	F	60	0.6%
On-ramp from SR-55 NB	Weave	-	F	-	F	50	0.6%
Southbound SR-73							
On-ramp from SR-55 SB to Campus/Bristol St S Off-ramp	Weave	-	F	-	F	30	0.4%
Northbound I-405							
Culver St On-ramp to Jamboree Rd Off-ramp	Basic	25.8	F	25.9	F	30	0.4%
Jamboree Rd Off-ramp	Diverge	18.5	F	18.6	F	30	0.3%
Jamboree Rd Loop On-ramp	Merge	24.0	F	24.2	F	30	0.4%

TABLE 4.8-91
FREEWAY MAINLINE AND RAMPS OPERATIONS
PHASE 3 NO PROJECT ALTERNATIVE – PM PEAK HOUR

Location	Type	Without Project		With No Project Alternative			
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Project Trips	Percent Increase
Jamboree Rd Direct On-ramp to MacArthur Blvd Off-ramp	Weave	**40.5**	**F**	**40.9**	**F**	**40**	**0.4%**
MacArthur Blvd On-ramp to SR-55 NB & SB Off-ramp	Weave	**-**	**F**	**-**	**F**	**20**	**0.2%**
SR-55 Off-ramp to Bristol St Off-ramp	Basic	**26.5**	**F**	**26.6**	**F**	**10**	**0.2%**
Bristol St/Ave of the Arts Off-ramp	Diverge	**31.1**	**F**	**31.3**	**F**	**10**	**0.1%**
On-ramp from SR-55 SB	Basic	**22.6**	**F**	**22.6**	**F**	**0**	**0.0%**
Bristol St N On-ramp	Merge	**21.5**	**F**	**21.5**	**F**	**0**	**0.0%**
Bristol St S On-ramp to S Coast Off	Weave	**-**	**F**	**-**	**F**	**0**	**0.0%**
Southbound I-405							
SR-55 SB On-ramp to MacArthur Blvd Off-ramp	Weave	**-**	**F**	**-**	**F**	**60**	**0.6%**
MacArthur Blvd On-ramp to Jamboree Rd Off-ramp	Weave	**44.4**	**E**	**44.9**	**E**	**60**	**0.6%**
Jamboree Rd Loop On-ramp	Merge	**22.5**	**F**	**22.0**	**F**	**60**	**0.9%**
Jamboree Rd Direct On-ramp	Merge	**22.8**	**F**	**23.1**	**F**	**70**	**0.9%**

Notes:
1. Freeway facilities operating below acceptable standards are noted in **bold.**
2. Analysis performed using the HCM 2010 methodology.
3. pc/mi/ln = passenger cars per mile per lane.
4. NB=Northbound; SB=Southbound

Source: *Transportation Impact Analysis,* (Full data in Tables 10-30, 10-31, and 10-32), Fehr & Peers, 2014

Caltrans Ramp Queue Analysis

A 95th percentile queue analysis has been prepared utilizing the Synchro 7 software to determine if adequate queue storage is provided at the off-ramp at MacArthur Boulevard and Jamboree Road under the No Project Alternative scenario. Adequate queue storage is forecast to be provided at the Caltrans off-ramp locations. The detailed analysis is provided in Table 11-1 in the *Transportation Impact Analysis* (Appendix G).

THRESHOLD EVALUATION

This section provides a summary of the analyses presented above relative to the Proposed Project and each of the project alternatives, including application of the significance thresholds to the identified impacts, and is organized on a jurisdictional basis.

City of Irvine

Threshold 4.8-1: In the City of Irvine outside of the Irvine Business Complex ("IBC"), the addition of Project-generated trips increases the ICU at a study intersection by 0.01 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F.

Threshold 4.8-2: In the City of Irvine inside the IBC, the addition of Project-generated trips increases the ICU at a study intersection by 0.01 or more of capacity, causing the intersection to change from an acceptable LOS E to LOS F.

Threshold 4.8-3: In the City of Irvine outside of the IBC, the addition of Project-generated trips increases the ICU by 0.02 more at a study intersection operating at LOS E or F under baseline conditions.

Threshold 4.8-4: In the City of Irvine inside the IBC, the addition of Project-generated trips increases the ICU by 0.02 more at a study intersection operating at LOS E or F under baseline conditions.

Proposed Project

There would be no significant impacts associated with any of the above thresholds within the City of Irvine under the Existing Plus Proposed Project and the future years scenarios, Proposed Project, Phases 1 and 2. However, with the Proposed Project in Phase 3, operations at the intersection of MacArthur Boulevard/Michelson Drive in the City of Irvine would decrease from LOS E to LOS F with the addition of Proposed Project traffic, with an increase in V/C ratio of 0.03. Additionally, in Phase 3, operations at the intersection of Von Karman Avenue/Alton Parkway in the City of Irvine would decrease from LOS E to LOS F with the addition of Project traffic, with an increase in V/C ratio of 0.02. These intersections are in the IBC and an increase in ICU greater than 0.01 concurrent with this degradation in LOS, is considered a significant impact (Threshold 4.8-2). As shown in Table 4.8-24, with Phase 3 of the Proposed Project there would be a significant impact for Phase 3; however, there would not be significant impacts based on the other City of Irvine thresholds.

Impact Conclusion: *The addition of Project-generated trips associated with the Proposed Project, Phase 3 would increases the ICU at a study intersection within the IBC by 0.01 or more of capacity, causing the intersection to change from an acceptable LOS E to LOS F. This would be a significant impact.*

The addition of Proposed Project-generated trips would not increase the ICU by 0.01 or more of capacity, causing intersections in the City of Irvine outside of the Irvine Business Complex ("IBC") to change from an acceptable LOS D to LOS E or LOS F. The Proposed Project-generated trips would also not increases the ICU by 0.02 or more at a study intersection in the City of Irvine outside of the IBC operating at LOS E or F under baseline conditions. The

Proposed Project-generated trips would not increase the ICU by 0.02 or more at a study intersection in the City of Irvine inside the IBC operating at LOS E or F under baseline conditions. These impacts would be less than significant.

Alternative A

There would be no significant impacts associated with any of the above thresholds within the City of Irvine under the Existing Plus Alternative A and the future year scenarios Alternative A, Phases 1 and 2. However, in Alternative A, Phase 3 operations at the intersection of MacArthur Boulevard/Michelson Drive in the City of Irvine would decrease from LOS E to LOS F with the addition of Alternative A traffic, with an increase in V/C ratio of 0.03. Additionally, in Phase 3 operations at the intersection of Von Karman Avenue/Alton Parkway in the City of Irvine would decrease from LOS E to LOS F with the addition of Alternative A traffic, with an increase in V/C ratio of 0.02. These intersections are in the IBC and an increase in ICU greater than 0.01 concurrent with this degradation in LOS, is considered a significant impact (Threshold 4.8-2). As shown in Table 4.8-40, with Phase 3 of Alternative A there would be a significant impact for Phase 3; however, there would not be significant impacts based on the other City of Irvine thresholds.

Impact Conclusion: *The addition of Project-generated trips associated with Alternative A, Phase 3 would increase the ICU at a study intersection within the IBC by 0.01 or more of capacity, causing the intersection to change from an acceptable LOS E to LOS F. This would be a significant impact.*

The addition of Alternative A-generated trips would not increase the ICU by 0.01 or more of capacity, causing intersections in the City of Irvine outside of the Irvine Business Complex ("IBC") to change from an acceptable LOS D to LOS E or LOS F. The Alternative A-generated trips would also not increase the ICU by 0.02 or more at a study intersection in the City of Irvine outside of the IBC operating at LOS E or F under baseline conditions. The Alternative A-generated trips would not increase the ICU by 0.02 or more at a study intersection in the City of Irvine inside the IBC operating at LOS E or F under baseline conditions. These impacts would be less than significant.

Alternative B

There would be no significant impacts associated with any of the above thresholds within the City of Irvine under the Existing Plus Alternative B and the future year scenarios Alternative B, Phases 1 and 2. In Alternative B, Phase 3, the intersection of MacArthur Boulevard and Michelson Drive in the City of Irvine would degrade from LOS E to LOS F, with an increase in V/C ratio of 0.06. Since the increase in ICU is greater than 0.01 concurrent with this degradation in LOS, a significant impact occurs. The intersection of Von Karman Avenue and Alton Parkway in the City of Irvine would also degrade from LOS E to LOS F, with an increase in V/C ratio of 0.02. Since the increase in ICU is greater than 0.01 concurrent with this degradation in LOS, this would also be considered a significant impact. However, there would not be significant impacts based on the other City of Irvine thresholds.

Impact Conclusion: *The addition of Project-generated trips for the Alternative B, Phase 3 would increase the ICU at two study intersection within the IBC by 0.01 or more of*

capacity, causing the intersection to change from an acceptable LOS E to LOS F. This would be a significant impact.

The addition of Alternative B-generated trips would not increase the ICU by 0.01 or more of capacity, causing intersections in the City of Irvine outside of the Irvine Business Complex ("IBC") to change from an acceptable LOS D to LOS E or LOS F. The Alternative B-generated trips would also not increase the ICU by 0.02 or more at a study intersection in the City of Irvine outside of the IBC operating at LOS E or F under baseline conditions. The Alternative B-generated trips would not increase the ICU by 0.02 or more at a study intersection in the City of Irvine inside the IBC operating at LOS E or F under baseline conditions. These impacts would be less than significant.

Alternative C

There would be no significant impacts associated with any of the above thresholds within the City of Irvine under the Existing Plus Alternative C scenario.

Under the future year scenarios, for all phases of Alternative C, the intersection of MacArthur Boulevard and Michelson Drive in the City of Irvine would degrade from LOS E to LOS F, with an increase in V/C ratio of 0.09. Since the increase in ICU is greater than 0.01 concurrent with this degradation in LOS, a significant impact occurs. Additionally, in Phase 3, the intersection of Von Karman Avenue and Alton Parkway in the City of Irvine would degrade from LOS E to LOS F, with an increase in V/C ratio of 0.02. Since the increase in ICU is greater than 0.01 concurrent with this degradation in LOS, a significant impact occurs (Threshold 4.8-2) (see Tables 4.8-64, 4.8-68, and 4.8-72, for Phases 1 through 3, respectively). However, there would not be significant impacts based on the other City of Irvine thresholds.

Impact Conclusion: *The addition of Project-generated trips associated with Alternative C would increase the ICU at two study intersections within the IBC by 0.01 or more of capacity, causing the intersections to change from an acceptable LOS E to LOS F. This would be a significant impact.*

The addition of Alternative C-generated trips would not increase the ICU by 0.01 or more of capacity, causing intersections in the City of Irvine outside of the Irvine Business Complex ("IBC") to change from an acceptable LOS D to LOS E or LOS F. The Alternative C-generated trips would also not increase the ICU by 0.02 or more at a study intersection in the City of Irvine outside of the IBC operating at LOS E or F under baseline conditions. The Alternative C-generated trips would not increase the ICU by 0.02 or more at a study intersection in the City of Irvine inside the IBC operating at LOS E or F under baseline conditions. These impacts would be less than significant.

No Project Alternative

Impacts associated with the No Project Alternative would be less than significant for all City of Irvine thresholds for the Existing Plus No Project and all future year phases of the No Project Alternative.

Impact Conclusion: *The addition of Project-generated trips associated with the No Project Alternative would not increase the ICU at a study intersection within the IBC by 0.01 or more of capacity, causing the intersection to change from an acceptable LOS E to LOS F. No Project Alternative-generated trips would not increase the ICU by 0.01 or more of capacity, causing intersections in the City of Irvine outside of the Irvine Business Complex ("IBC") to change from an acceptable LOS D to LOS E or LOS F. The No Project Alternative -generated trips would also not increase the ICU by 0.02 or more at a study intersection in the City of Irvine outside of the IBC operating at LOS E or F under baseline conditions. The No Project Alternative-generated trips would not increase the ICU by 0.02 or more at a study intersection in the City of Irvine inside the IBC operating at LOS E or F under baseline conditions. These impacts would be less than significant for all phases of the No Project Alternative.*

City of Newport Beach

Threshold 4.8-5: In the City of Newport Beach outside of the JWA Area shared with the City of Irvine, the addition of Project-generated trips causes the LOS at a study intersection to change from LOS D to LOS E or F.

Threshold 4.8-6: In the City of Newport Beach inside the JWA Area shared with the City of Irvine, the addition of Project-generated trips causes the LOS at a study intersection to change from an acceptable LOS E to LOS F.

Threshold 4.8-7: In the City of Newport Beach outside of the JWA Area shared with the City of Irvine, the addition of Project-generated trips increases the ICU by 0.010 or more at a study intersection operating at LOS E or F under baseline conditions.

Threshold 4.8-8: In the City of Newport Beach inside of the JWA Area shared with the City of Irvine, the addition of Project-generated trips increases the ICU by 0.010 or more at a study intersection operating at LOS F under baseline conditions.

Proposed Project

Under the Existing Plus Proposed Project scenario, the LOS at the intersection of Campus Drive/Bristol Street North in the City of Newport Beach worsens from LOS D to LOS E with the addition of Proposed Project-related trips. As this intersection is outside of the JWA area, this degradation of LOS is a significant impact (see Table 4.8-12) (Threshold 4.8-5). However, as previously discussed, the Existing Plus Proposed Project scenario can be misleading and is therefore provided for informational purposes only.

Under the future year scenarios, the Campus Drive/ Bristol Street North intersection is projected to operate at LOS E in Phases 1 and 2 with or without the addition of the Proposed Project-related traffic. However, under the Proposed Project, Phase 1, the addition of Project-related traffic causes the ICU at the Campus Drive/ Bristol Street North intersection to increase by 0.020 at an intersection which is projected to operate at LOS E prior to the addition of Proposed Project, Phase 1 traffic. Since this increase in ICU is greater than 0.01, a significant impact occurs. The ICU at this same intersection would increase by 0.034 in Phase 2, and 0.044 in Phase 3 compared to the applicable baseline. In Phase 3, this intersection is projected to operate at LOS F with or

without the Proposed Project traffic. Since these increases in ICU are greater than 0.01, a significant impact occurs in all three phases of the Proposed Project (see Tables 4.8-16, 4.8-20, and 4.8-24, respectively) (Threshold 4.8-7).

Impact Conclusion: *The addition of Project-generated trips associated with the Proposed Project would result in the ICU of a study intersection in the City of Newport Beach, outside of the JWA Area shared with the City of Irvine, to increase by 0.010 or more at a location where the intersection is projected to operate at LOS E or F under baseline conditions. This would be a significant impact.*

There are no locations in the City of Newport Beach outside of the JWA Area shared with the City of Irvine where the addition of Proposed Project-generated trips would cause the LOS at a study intersection to change from LOS D to LOS E or F. There are no locations in the City of Newport Beach inside the JWA Area shared with the City of Irvine where the addition of Proposed Project-generated trips would cause the LOS at a study intersection to change from an acceptable LOS E to LOS F. There are also no locations in the City of Newport Beach inside of the JWA Area shared with the City of Irvine where the addition of Proposed Project-generated trips would increase the ICU by 0.010 or more at a study intersection operating at LOS F under baseline conditions. These impacts would be less than significant.

Alternative A

The LOS for the Campus Drive/Bristol Street North intersection, in the City of Newport Beach, would worsen from LOS D to LOS E with the addition of Alternative A-related trips under the Existing Plus Alternative A evaluation. As this intersection is outside of the JWA area, this degradation of LOS is a significant impact (see Table 4.8-28) (Threshold 4.8-5). However, as previously discussed, the Existing Plus Project scenario can be misleading and is provided for informational purposes only.

Under the future year scenarios, the Campus Drive/ Bristol Street North intersection is projected to operate at LOS E in Phases 1 and 2 with or without the addition of the Alternative A-related traffic. However, the Phase 1 traffic would cause the ICU to increase by 0.020 at this location. Since this increase in ICU is greater than 0.01, a significant impact occurs. The ICU at this same intersection would increase by 0.034 in Phase 2 and 0.046 in Phase 3 compared to the applicable baseline. In Phase 3, this intersection is projected to operate at LOS F with or without the Alternative A traffic. Since these increases in ICU are greater than 0.01, a significant impact occurs in all three phases of Alternative A (see Tables 4.8-32, 4.8-36, and 4.8-40, respectively) (Threshold 4.8-7).

Impact Conclusion: *The addition of Project-generated trips associated with Alternative A would result in the ICU of a study intersection in the City of Newport Beach, outside of the JWA Area shared with the City of Irvine, to increase by 0.010 or more at a location where the intersection is projected to operate at LOS E or F under baseline conditions. This would be a significant impact.*

There are no locations in the City of Newport Beach outside of the JWA Area shared with the City of Irvine where the addition of Alternative A-generated

trips would cause the LOS at a study intersection to change from LOS D to LOS E or F. There are no locations in the City of Newport Beach inside the JWA Area shared with the City of Irvine where the addition of Alternative A-generated trips would cause the LOS at a study intersection to change from an acceptable LOS E to LOS F. There are also no locations in the City of Newport Beach inside of the JWA Area shared with the City of Irvine where the addition of Alternative A-generated trips would increase the ICU by 0.010 or more at a study intersection operating at LOS F under baseline conditions. These impacts would be less than significant.

Alternative B

The LOS for the Campus Drive/Bristol Street North intersection, in the City of Newport Beach, would worsen from LOS D to LOS E with the addition of Alternative B-related trips under the Existing Plus Alternative B evaluation. As this intersection is outside of the JWA Area, this degradation of LOS is a significant impact (see Table 4.8-44) (Threshold 4.8-5). However, as previously discussed, the Existing Plus Project scenario can be misleading and is provided for informational purposes only.

Under the future year scenarios, the Campus Drive/ Bristol Street North intersection is projected to operate at LOS E in Phases 1 and 2 with or without the addition of the Alternative B-related traffic. However, the Phase 1 traffic would cause the ICU to increase by 0.020 at this location. Since this increase in ICU is greater than 0.01, a significant impact occurs. In Phase 2 this intersection is projected to operate at LOS E without the Alternative B-related traffic. With the projected Alternative B, Phase 2 traffic, the ICU would increase by 0.048 in Phase 2 compared to the without Project baseline and operate at LOS F. In Phase 3 this intersection is projected to operate at LOS F with and without the Alternative B, Phase 3-related traffic. With the projected Alternative B, Phase 3 traffic, the ICU would increase by 0.072 compared to the applicable baseline. Since these increases in ICU are greater than 0.01, a significant impact occurs in all three phases of Alternative B (see Tables 4.8-48, 4.8-52, and 4.8-56, respectively) (Threshold 4.8-7). In addition, the LOS at the intersection of Campus Drive and Airport Way in the City of Newport Beach would degrade from LOS C to LOS E with the addition of the Alternative B, Phase 3 trips; therefore a significant impact occurs at this location (Threshold 4.8-5)(see Table 4.8-56).

Impact Conclusion: *The addition of Project-generated trips associated with Alternative B would result in the ICU of a study intersection in the City of Newport Beach, outside of the JWA Area shared with the City of Irvine, to increase by 0.010 or more at a location where the intersection is projected to operate at LOS E or F under baseline conditions. This would be a significant impact.*

There are no locations in the City of Newport Beach outside of the JWA Area shared with the City of Irvine where the addition of Alternative B-generated trips would cause the LOS at a study intersection to change from LOS D to LOS E or F. There are no locations in the City of Newport Beach inside the JWA Area shared with the City of Irvine where the addition of Alternative B-generated trips would cause the LOS at a study intersection to change from an acceptable LOS E to LOS F. There are also no locations in the City of Newport Beach inside of the JWA Area shared with the City of Irvine where the addition of Alternative B-generated trips would increase the ICU by

0.010 or more at a study intersection operating at LOS F under baseline conditions. These impacts would be less than significant.

Alternative C

The LOS for the Campus Drive and Bristol Street North intersection, in the City of Newport Beach, would worsen from LOS D to LOS E with the addition of Alternative C-related trips under the Existing Plus Alternative C evaluation. As this intersection is outside of the JWA Area, this degradation of LOS is a significant impact. In addition, the LOS at the intersection of Campus Drive and Airport Way in the City of Newport Beach would degrade to LOS E with the addition of Alternative C-generated trips. The degradation of the LOS at these two intersections would be considered a significant impact (see Table 4.8-60) (Threshold 4.8-5). However, as previously discussed, the Existing Plus Project scenario can be misleading and is provided for informational purposes only.

Under the future year scenarios, for all three phases of Alternative C, the LOS at the intersection of Campus Drive and Airport Way in the City of Newport Beach would degrade to LOS E with the addition of Project trips; therefore, a significant impact occurs (Threshold 4.8-5). Additionally, in all three phases the Project traffic causes the ICU at the Campus Drive and Bristol Street North intersection to increase by more than 0.01 (Phases 1 and 2 would increase by 0.095 and Phase 3 would increase 0.096). Since the intersection is projected to operate at LOS E prior to the addition of Project traffic a significant impact would occur (Threshold 4.8-7). See Tables 4.8-64, 4.8-68, and 4.8-72, for Phases 1 through 3, respectively.

Impact Conclusion: *The addition of Project-generated trips associated with Alternative C would result in the ICU of a study intersection in the City of Newport Beach, outside of the JWA Area shared with the City of Irvine to increase by 0.010 or more at a location where the intersection is projected to operate at LOS E or F under baseline conditions. This would be a significant impact.*

There are no locations in the City of Newport Beach inside the JWA Area shared with the City of Irvine where the addition of Alternative C-generated trips would causes the LOS at a study intersection to change from an acceptable LOS E to LOS F. There are also no locations in the City of Newport Beach inside of the JWA Area shared with the City of Irvine where the addition of Alternative C-generated trips would increase the ICU by 0.010 or more at a study intersection operating at LOS F under baseline conditions. These impacts would be less than significant.

No Project Alternative

Under the Existing Plus No Project Alternative scenario, the LOS at the intersection of Campus Drive/Bristol Street North in the City of Newport Beach worsens from LOS D to LOS E with the addition of No Project-related trips. As this intersection is outside of the JWA area, this degradation of LOS is a significant impact (see Table 4.8-76) (Threshold 4.8-5). However, as previously discussed, the Existing Plus Project scenario can be misleading and is therefore provided for informational purposes only.

Under the future year scenarios, the Campus Drive and Bristol Street North intersection is projected to operate at LOS E in Phases 1 and 2 with or without the addition of the No Project

Alternative-related traffic. In Phase 3, this intersection is projected to operate at LOS F with or without the No Project Alternative traffic. In Phases 1 and 2 of the No Project Alternative, the addition of No Project Alternative-related traffic causes the ICU at the Campus Drive and Bristol Street North intersection to increase by 0.020. In Phase 3, the ICU would be increased by 0.021. For all phases, since this intersection is projected to operate at LOS E prior to the addition of No Project Alternative-generated traffic and the increase in ICU is greater than 0.01, a significant impact occurs. (see Tables 4.8-80, 4.8-84, and 4.8-88 for Phases 1 through 3, respectively) (Threshold 4.8-7).

Impact Conclusion: *The addition of Project-generated trips associated with the No Project Alternative would result in the ICU of a study intersection in the City of Newport Beach, outside of the JWA Area shared with the City of Irvine, to increase by 0.010 or more at a location where the intersection is projected to operate at LOS E or F under baseline conditions. This would be a significant impact.*

There are no locations in the City of Newport Beach outside of the JWA Area shared with the City of Irvine where the addition of No Project Alternative-generated trips would cause the LOS at a study intersection to change from LOS D to LOS E or F. There are no locations in the City of Newport Beach inside the JWA Area shared with the City of Irvine where the addition of No Project Alternative-generated trips would cause the LOS at a study intersection to change from an acceptable LOS E to LOS F. There are also no locations in the City of Newport Beach inside of the JWA Area shared with the City of Irvine where the addition of No Project Alternative-generated trips would increase the ICU by 0.010 or more at a study intersection operating at LOS F under baseline conditions. These impacts would be less than significant.

City of Costa Mesa

Threshold 4.8-9: The addition of Project-generated trips causes the LOS at a study intersection within the City of Costa Mesa to change from LOS D to LOS E or F.

Proposed Project

Under the Existing Plus Project scenario, there would be no significant impacts under the Proposed Project associated with the above threshold within the City of Costa Mesa.

As to the future year scenarios, under the Proposed Project, Phase 3, the Santa Ana Avenue at Del Mar Avenue intersection in the City of Costa Mesa (Intersection 25) is projected to operate at LOS E, with or without Phase 3 of the Proposed Project in the AM peak hour. Though the intersection would receive additional traffic associated with the Proposed Project, the additional traffic would not reduce the LOS at this intersection. The Proposed Project (all phases) would not cause the LOS at any study intersections in the City of Costa Mesa to change from LOS D to LOS E or F.

Impact Conclusion: *The additional trips generated by the Proposed Project (all phases) would not cause the LOS at any study intersections in the City of Costa Mesa to*

change from LOS D to LOS E or F. The impacts would be less than significant pursuant to this threshold.

Alternative A

Under the Existing Plus Project scenario, there would be no significant impacts under Alternative A associated with the above threshold within the City of Costa Mesa.

As to the future year scenarios, in Alternative A, Phase 3, the Santa Ana Avenue at Del Mar Avenue intersection in the City of Costa Mesa (Intersection 25) is projected to operate at LOS E, with or without the Proposed Project in the AM peak hour. Though the intersection would receive additional traffic associated with Alternative A, the additional traffic would not reduce the LOS at this intersection. Alternative A (all phases) would not cause the LOS at any study intersections in the City of Costa Mesa to change from LOS D to LOS E or F.

Impact Conclusion: *The additional trips generated by Alternative A (all phases) would not cause the LOS at any study intersections in the City of Costa Mesa to change from LOS D to LOS E or F. The impacts would be less than significant pursuant to this threshold.*

Alternative B

Under the Existing Plus Project scenario, there would be no significant impacts under Alternative B associated with the above threshold within the City of Costa Mesa.

As to the future year scenarios, in Alternative B, Phase 3, the Santa Ana Avenue at Del Mar Avenue intersection in the City of Costa Mesa (Intersection 25) is projected to operate at LOS E, with or without the Proposed Project in the AM peak hour. Though the intersection would receive additional traffic associated with Alternative B, the additional traffic would not reduce the LOS at this intersection. Alternative B (all phases) would not cause the LOS at any study intersections in the City of Costa Mesa to change from LOS D to LOS E or F.

Impact Conclusion: *The additional trips generated by Alternative B (all phases) would not cause the LOS at any study intersections in the City of Costa Mesa to change from LOS D to LOS E or F. The impacts would be less than significant pursuant to this threshold.*

Alternative C

Under the Existing Plus Project scenario, there would be no significant impacts under Alternative C associated with the above threshold within the City of Costa Mesa.

As to the future year scenarios, in Alternative C, Phase 3 the addition of Project traffic causes the intersection of Santa Ana Avenue and Del Mar Avenue to operate at LOS E during the PM Peak Hour. As this LOS result exceeds the LOS D threshold, a significant impact occurs in the City of Costa Mesa.

Impact Conclusion: *The additional trips generated by Alternative C, Phase 3 would cause the LOS at a study intersection in the City of Costa Mesa to change from LOS D to LOS E. This would be a significant impact pursuant to this threshold.*

No Project Alternative

Under the Existing Plus Project scenario, there would be no significant impacts under the No Project Alternative associated with the above threshold within the City of Costa Mesa.

As to the future year scenarios, under the No Project Alternative, Phase 3, the Santa Ana Avenue at Del Mar Avenue intersection in the City of Costa Mesa (Intersection 25) is projected to operate at LOS E, with or without the Proposed Project in the AM peak hour. Though the intersection would receive additional traffic associated with the No Project Alternative, the additional traffic would not reduce the LOS at this intersection. The No Project Alternative (all phases) would not cause the LOS at any study intersections in the City of Costa Mesa to change from LOS D to LOS E or F.

Impact Conclusion: *The additional trips generated by the No Project Alternative (all phases) would not cause the LOS at any study intersections in the City of Costa Mesa to change from LOS D to LOS E or F. The impacts would be less than significant pursuant to this threshold.*

Caltrans

Threshold 4.8-10: The addition of Project-generated trips causes the LOS at a study intersection within Caltrans jurisdiction to degrade from LOS A, B, C, or D to LOS E or F (as measured by the application of the HCM methodologies).

Threshold 4.8-11: The addition of Project-generated trips causes a two second or greater increase in delay at a study intersection within Caltrans jurisdiction (as measured by the application of HCM methodologies), where the intersection operates at LOS E or LOS F prior to the addition of Project traffic.

Threshold 4.8-12: The addition of Project-generated trips increases the traffic on a freeway mainline, freeway ramp, or merge/diverge section by 2 percent or more, and causes the LOS to degrade from LOS A, B, C, or D to LOS E or F.

Threshold 4.8-13: The addition of Project-generated trips increases the traffic on a freeway mainline, freeway ramp, or merge/diverge section by 2 percent or more on a facility operating at LOS E or F prior to the addition of Project traffic.

Proposed Project

With the Existing Plus Proposed Project scenario, the Project results in an increase in traffic volume of over 2 percent on the northbound SR-55 from the onramp from I-405 to the MacArthur Boulevard off-ramp. This segment operates at LOS F prior to the addition of the Proposed Project traffic. Therefore, based on Threshold 4.8-13, the Proposed Project would result in a significant cumulative impact under the Existing Plus Project scenario (see Table 4.8-15). As previously discussed, the Existing Plus Proposed Project scenario can be misleading and is therefore provided for informational purposes only.

However, under the future year scenarios, with the Proposed Project, Phases 2 and 3, this same segment of northbound SR-55 would experience an over 2 percent increase in traffic volume from the Proposed Project. Therefore, the Proposed Project would result in a significant cumulative impact at this location (see Tables 4.8-23 and 4.8-27 for Phases 2 and 3, respectively).

For all phases of the Proposed Project, the impacts associated for the other thresholds would be less than significant.

Impact Conclusion: *Traffic generated by the Proposed Project, Phases 2 and 3 would increase traffic volume by more than 2 percent on a Caltrans freeway facility operating at LOS E or F prior to the addition of Proposed Project traffic. This would be a significant cumulative impact.*

For all phases, the addition of Proposed Project-generated trips would not cause the LOS at study intersections within Caltrans jurisdiction to degrade from LOS A, B, C, or D to LOS E or F. The addition of Proposed Project-generated trips would not cause a two second or greater increase in delay at a study intersection within Caltrans jurisdiction where the intersection operates at LOS E or LOS F prior to the addition of Proposed Project traffic. The addition of Proposed Project-generated trips would not increase the traffic volume on a freeway mainline, freeway ramp, or merge/diverge section by 2 percent or more, and cause the LOS to degrade from LOS A, B, C, or D to LOS E or F. These impacts would be less than significant.

Alternative A

As with the Proposed Project, under the Existing Plus Alternative A scenario, the Project results in an increase in traffic volume of over 2 percent on the northbound SR-55 from the onramp from I-405 to the MacArthur Boulevard off-ramp. This segment operates at LOS F prior to the addition of the Alternative A traffic. Therefore, based on Threshold 4.8-13, Alternative A would result in a significant cumulative impact (see Table 4.8-31). As previously discussed, the Existing Plus Project scenario can be misleading and is therefore provided for informational purposes only.

However, under the future year scenarios, with Alternative A, Phase 3, this same segment of northbound SR-55 would experience an over 2 percent increase in traffic volume compared to the applicable baseline. Therefore, Alternative A, Phase 3 would result in a significant cumulative impact at this location (see Table 4.8-43). For all phases of Alternative A, the impacts associated for the other thresholds would be less than significant.

Impact Conclusion: *Traffic generated by Alternative A, Phase 3 would increase the traffic volume by more than 2 percent on a Caltrans freeway facility operating at LOS E or F prior to the addition of Alternative A traffic. This would be a significant cumulative impact.*

For all phases, the addition of Alternative A-generated trips would not cause the LOS at study intersections within Caltrans jurisdiction to degrade from LOS A, B, C, or D to LOS E or F. The addition of Alternative A-generated trips would not cause a two second or greater increase in delay at a study intersection within Caltrans jurisdiction where the intersection operates at LOS E or LOS F prior to the addition of Alternative A traffic. The addition of Alternative A-generated trips would not increase the traffic volume on a freeway mainline, freeway ramp, or merge/diverge section by 2 percent or more and cause the LOS to degrade from LOS A, B, C, or D to LOS E or F. These impacts would be less than significant.

Alternative B

Under the Existing Plus Alternative B scenario, the Project traffic causes two segments on the northbound SR-73 to degrade from LOS D to LOS F. The two locations, the Bristol St North on-ramp to SR-55 North off-ramp and the on-ramp from SR 55 northbound, would be affected in the AM peak hour. In both instances, the Project's contribution to the increase in traffic volume is greater than 2 percent; therefore the project would result in a significant impact at these locations (Threshold 4.8-12) (see Table 4.8-46). There are also two locations where the Alternative B-generated traffic would result in an increase of over 2 percent on facilities operating at LOS E or F. In the PM peak hour, the northbound SR-55 onramp from I-405 to the MacArthur Boulevard off-ramp and the northbound SR-73 on-ramp from SR-55 northbound are both projected to operate at LOS F prior to the addition of the Alternative B-generated traffic. In both of these instances the Existing Plus Alternative B scenario would result in a significant cumulative impact (Threshold 4.8-13) (see Table 4.8-47). As previously discussed, the Existing Plus Project scenario can be misleading and is therefore provided for informational purposes only.

Under the future year scenarios, with Alternative B, Phases 2 and 3, the Project results in an increase in traffic volume of over 2 percent on the northbound SR-55 onramp from I-405 to the MacArthur Boulevard off-ramp in the PM peak hour. This segment is projected to operate at LOS F prior to the addition of Project traffic. Therefore, Alternative B, Phases 2 and 3 would result in a significant cumulative impact at this location (Threshold 4.8-13) (see Tables 4.8-55 and 4.8-59 for Phases 2 and 3, respectively). In addition, in the AM peak hour, Alternative B, Phase 3 would result in an increase in traffic volume of over 2 percent on the northbound SR-73 on-ramp from SR-55 northbound, which is projected to operate at LOS F prior to the addition of the Alternative B traffic (see Table 4.8-59). This would result in a significant cumulative impact.

For all phases of Alternative B, the impacts associated for the other thresholds would be less than significant.

Impact Conclusion: *Traffic generated by Alternative B, Phases 2 and 3 would increase the traffic volume by more than 2 percent on a Caltrans freeway facility operating at LOS E or F prior to the addition of Alternative B traffic. This would be a significant cumulative impact.*

For all phases, the addition of Alternative B-generated trips would not cause the LOS at study intersections within Caltrans jurisdiction to degrade from LOS A, B, C, or D to LOS E or F. The addition of Alternative B-generated trips would not cause a two second or greater increase in delay at a study intersection within Caltrans jurisdiction, where the intersection operates at LOS E or LOS F prior to the addition of Alternative B traffic. The addition of Alternative B-generated trips would not increase the traffic volume on a freeway mainline, freeway ramp, or merge/diverge section by 2 percent or more, and causes the LOS to degrade from LOS A, B, C, or D to LOS E or F. These impacts would be less than significant.

Alternative C

Under the Existing Plus Alternative C scenario, the Project traffic causes two segments on the northbound SR-73 to degrade from LOS D to LOS F. The two locations, the Bristol St North on-

ramp to SR-55 North off-ramp and the on-ramp from SR-55 northbound, would be affected in the AM peak hour. In addition, the Project-generated traffic causes the MacArthur Boulevard Loop On-ramp to MacArthur Blvd Direct On-ramp on the southbound SR-55 to degrade from LOS D to LOS F in the AM peak hour. In each instance, the Project's contribution to the increase in traffic volume is greater than 2 percent; therefore, under the Existing Plus Alternative C scenario, the Project would result in a significant impact at these locations (Threshold 4.8-12).

In addition to the significant impacts identified above, under the Existing Plus Alternative C scenario, Alternative C would result in additional significant impacts at the following locations:

The Existing Plus Alternative C scenario would result in an increase of over 2 percent in traffic volume on the following segments of the northbound SR-55 during the PM peak hour, which is projected to operate at LOS F prior to the addition of project traffic:

- Paularino Avenue On-ramp
- Paularino Avenue On-ramp to I-405 SB On-ramp
- On-ramp from I-405 NB to MacArthur Blvd Off-ramp

The Existing Plus Alternative C scenario would result in an increase of over 2 percent in traffic volume on the following segment of the southbound SR-55 during the AM peak hour, which is projected to operate at LOS F prior to the addition of project traffic:

- MacArthur Blvd Direct On-ramp to Off-ramp to I-405 southbound

The Existing Plus Alternative C scenario would result in an increase of over 2 percent in traffic volume on the following segments of the northbound SR-73 during the PM peak hour, which is projected to operate at LOS F prior to the addition of project traffic:

- Off-Ramp to SR-55 southbound
- On-ramp From SR-55 northbound

The Existing Plus Alternative C scenario would result in an increase of over 2 percent in traffic volume on the following segments of the southbound I-405 during the PM peak hour, which is projected to operate at LOS F prior to the addition of project traffic:

- Jamboree Loop On-ramp (PM)
- Jamboree Direct On-ramp (PM)

Since in all instances, the Project's contribution to the increase in traffic is greater than 2 percent, the Existing Plus Alternative C scenario would result in a significant impact at these locations (Threshold 4.8-13). See Table 4.8-62 for the AM peak hour data and Table 4.8-63 for the PM peak hour data. As previously discussed, the Existing Plus Project scenario can be misleading and is therefore provided for informational purposes only.

Under the future year scenarios, project-generated traffic for all phases of Alternative C would result in the LOS on the southbound SR-55 from the MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp to degrade from LOS D to LOS F during the AM peak hour. Since the increase

in traffic attributable to the Project is greater than 2 percent, a significant cumulative impact occurs. (Threshold 4.8-12).

All phases of Alternative C also would result in an increase of over 2 percent in traffic volume on the following segments of the northbound SR-55 during the PM peak hour, which are projected to operate at LOS F prior to the addition of Project traffic:

- Paularino Avenue On-ramp
- Paularino Avenue On-ramp to I-405 southbound On-ramp
- On-ramp from I-405 northbound to MacArthur Blvd Off-ramp

All phases of Alternative C also would result in an increase of over 2 percent in traffic volume on the following segment of the southbound SR-55 during the AM peak hour, which is projected to operate at LOS F prior to the addition of Project traffic:

- MacArthur Blvd Direct On-ramp to Off-ramp to I-405 southbound

All phases of Alternative C would result in an increase of over 2 percent in traffic volume on the following segment of the Southbound I-405 during the PM peak hour, which is projected to operate at LOS F prior to the addition of project traffic:

- Jamboree Direct On-ramp

In addition, Alternative C, Phase 3 would result in an increase of over 2 percent in traffic volume on the following segments of the northbound SR-73 during the AM peak hour, which are projected to operate at LOS F prior to the addition of project traffic:

- Bristol St. N On-ramp to SR-55 N Off-ramp
- On-ramp From SR-55 northbound

In all instances, Alternative C would add traffic greater than 2 percent to locations operating at less than acceptable conditions prior to the addition of Project-generated traffic. Therefore, Alternative C would result in a significant cumulative impact at these locations (Threshold 4.8-13). See Tables 4.8-66, 4.8-70, and 4.8-74 for AM peak hour data for Phases 1 through 3, respectively, and Tables 4.8-67, 4.8-71, and 4.8-75 for PM peak hour data for Phases 1 through 3, respectively.

Impact Conclusion: *Traffic generated by all phases of Alternative C would increase the traffic volume by more than 2 percent on a Caltrans freeway facility and contribute to the LOS being reduced from LOS D to LOS F. Additionally, all phases of Alternative C would increase the traffic volume by more than 2 percent on a Caltrans freeway facility operating at LOS E or F prior to the addition of Alternative C traffic. This would be a significant cumulative impact.*

For all phases, the addition of Alternative C-generated trips would not cause the LOS at study intersections within Caltrans jurisdiction to degrade from LOS A, B, C, or D to LOS E or F. The addition of Alternative C-generated trips would not cause a two second or greater increase in delay at a study

intersection within Caltrans jurisdiction, where the intersection operates at LOS E or LOS F prior to the addition of Alternative C traffic. These impacts would be less than significant.

No Project Alternative

The additional traffic generated by the No Project Alternative (all phases and the Existing Plus No Project Alternative scenario) would not result in an increase of over 2 percent in traffic volume on any Caltrans facilities. Therefore, for all phases of the No Project Alternative, the impacts associated with the Caltrans thresholds would be less than significant.

Impact Conclusion: *None of the phases of the No Project Alternative increase the traffic volume by more than 2 percent on a Caltrans facility operating at LOS E or F prior to the addition of No Project Alternative traffic. For all phases, the addition of the No Project Alternative-generated trips would not cause the LOS at study intersections within Caltrans jurisdiction to degrade from LOS A, B, C, or D to LOS E or F. The addition of No Project Alternative-generated trips would not cause a two second or greater increase in delay at a study intersection within Caltrans jurisdiction where the intersection operates at LOS E or LOS F prior to the addition of No Project Alternative traffic. The addition of No Project Alternative-generated trips would not increase the traffic volume on a freeway mainline, freeway ramp, or merge/diverge section by 2 percent or more and cause the LOS to degrade from LOS A, B, C, or D to LOS E or F. These impacts would be less than significant.*

Orange County Transportation Authority Congestion Management Program

Threshold 4.8-14: The addition of Project-generated trips causes the LOS at a study intersection in the Orange County Transportation Authority Congestion Management Program to change from an acceptable LOS E to LOS F.

Threshold 4.8-15: The addition of Project-generated trips increases the ICU by 0.10 or more at a study intersection in the Orange County Transportation Authority Congestion Management Program operating at LOS F under baseline conditions.

Proposed Project

As shown in Table 4.8-2, the following three study area intersections are in the CMP:

- MacArthur Boulevard at I-405 northbound ramps
- MacArthur Boulevard at I-405 southbound ramps
- Jamboree Road at MacArthur Boulevard

The Proposed Project would not result in significant impacts to these intersections.

Impact Conclusion: *Proposed Project-generated trips would not cause the LOS at a study intersection under the jurisdiction of OCTA CMP to change from an acceptable LOS E to LOS F. Additionally, Proposed Project-generated trips would not increase the ICU by 0.10 or more at a CMP study intersection*

operating at LOS F under baseline conditions. Impacts would be less than significant.

Alternative A

Alternative A would not result in significant impacts to the CMP intersections.

Impact Conclusion: *Alternative A-generated trips would not cause the LOS at a study intersection under the jurisdiction of OCTA CMP to change from an acceptable LOS E to LOS F. Additionally, Alternative A-generated trips would not increase the ICU by 0.10 or more at a CMP study intersection operating at LOS F under baseline conditions. Impacts would be less than significant.*

Alternative B

Alternative B would not result in significant impacts to the CMP intersections.

Impact Conclusion: *Alternative B-generated trips would not cause the LOS at a study intersection under the jurisdiction of OCTA CMP to change from an acceptable LOS E to LOS F. Additionally, Alternative B-generated trips would not increase the ICU by 0.10 or more at a CMP study intersection operating at LOS F under baseline conditions. Impacts would be less than significant.*

Alternative C

Alternative C would not result in significant impacts to the CMP intersections.

Impact Conclusion: *Alternative C-generated trips would not cause the LOS at a study intersection under the jurisdiction of OCTA CMP to change from an acceptable LOS E to LOS F. Additionally, Alternative C-generated trips would not increase the ICU by 0.10 or more at a CMP study intersection operating at LOS F under baseline conditions. Impacts would be less than significant.*

No Project Alternative

The No Project Alternative would not result in significant impacts to the CMP intersections.

Impact Conclusion: *The No Project Alternative-generated trips would not cause the LOS at a study intersection under the jurisdiction of OCTA CMP to change from an acceptable LOS E to LOS F. Additionally, the No Project Alternative-generated trips would not increase the ICU by 0.10 or more at a CMP study intersection operating at LOS F under baseline conditions. Impacts would be less than significant.*

Air Traffic Patterns

Threshold 4.8-16: Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?

Proposed Project and All Alternatives

The Proposed Project and all the alternatives would increase the number of flights at JWA. However, they would not change the air traffic patterns. The Airport has no control over the air

traffic patterns; that is the responsibility of the Federal Aviation Administration ("FAA"). As such, a change in air traffic patterns is neither a component of the Proposed Project or any of its alternatives, nor is it a component of the Settlement Agreement.

The flight levels proposed by the Proposed Project or any of the alternatives would not result in substantial safety risks. All flights would be required to abide by FAA safety regulations governing flights and directions of the JWA control tower. Since the air traffic patterns would not be modified, the flights would not conflict with the air space associated with other airports, such as Los Angeles International Airport. Therefore, impacts would be less than significant.

The automobile traffic levels associated with the increased flights have been addressed through the Thresholds 4.8-1 through 4.8-15. The Project does not propose any physical improvements that would result in safety risks associated with automobile traffic.

Impact Conclusion: *The Proposed Project, Alternatives A, B, or C; and the No Project Alternative would increase the number of flights at JWA; however, they would not change the air traffic patterns or a change in location. Therefore, the potential for a substantial increase in safety risks is less than significant.*

IMPACT SUMMARY

The following tables provide a summary of the intersections and freeway locations that would be significantly impacted either directly or indirectly (i.e., cumulatively) by one or more of the scenarios. Table 4.8-92, Intersection Impact Summary, identifies the five roadway intersections that would be significantly impacted by alternative and phase. Table 4.8-93, Freeway Impact Summary, identifies the freeway locations that would be significantly impacted directly or indirectly by alternative and phase.

TABLE 4.8-92
INTERSECTION IMPACT SUMMARY

		Proposed Project								Alternative A								Alternative B								Alternative C								No Project							
		Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3	
#	Intersection Locations	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
4	MacArthur & Michelson								D								D								D				D		D		D							
15	Campus & Airport																								D				D		D		D							
17	Campus & Bristol N.		D		C		C		C		D		C		C		C		D		C		C		C		D		C		C		C		D		C		C
25	Santa Ana & Del Mar																														D								
53	Von Karman & Alton								D								D								D							D								

Notes: D = Direct Impact; C = Cumulative Impact; Ex.+ Proj. = Existing Plus Project

Source: *Transportation Impact Analysis,* (Tables 12-1), Fehr & Peers, 2014

TABLE 4.8-93
FREEWAY IMPACT SUMMARY

	Proposed Project								Alternative A								Alternative B								Alternative C								No Project							
	Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3	
Intersection Locations	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
Northbound SR-55																																								
Paularino Ave On Ramp																										C		C		C		C								
Paularino Ave On Ramp to I-405 SB On Ramp																										C		C		C		C								
On Ramp from I-405 NB to MacArthur Blvd Off Ramp		C				C		C		C						C		C				C		C		C		C		C		C								
Southbound SR-55																																									
MacArthur Blvd Loop On Ramp to MacArthur Blvd Direct On Ramp																									D		D		D		D										
MacArthur Blvd Direct On Ramp to Off Ramp to I-405 SB																									C		C		C		C										
Northbound SR-73																																									
Jamboree Rd On Ramp																																									
Jamboree Rd On Ramp to Bristol St N Off Ramp																																									
Bristol St N On Ramp to SR-55 N Off Ramp																	D								D				C		C										
Off Ramp to SR-55 SB																										C															
On Ramp from SR-55 NB																	D						C		D	C			C		C										
Southbound SR-73																																									

TABLE 4.8-93
FREEWAY IMPACT SUMMARY

	Proposed Project								Alternative A								Alternative B								Alternative C								No Project							
	Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3	
Intersection Locations	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
No Impacts																																								
Northbound I-405																																								
No Impacts																																								
Southbound I-405																																								
Jamboree Rd Loop On Ramp																										C														
Jamboree Rd Direct On Ramp																										C		C		C		C								

Notes: D = Direct Impact; C = Cumulative Impact; Ex.+ Proj = Existing Plus Project

Source: *Transportation Impact Analysis,* (Tables 12-2), Fehr & Peers, 2014

4.8.6 MITIGATION PROGRAM

ROADWAY INTERSECTIONS

The following mitigation measures have been developed to address the significant impacts resulting from implementation of the Proposed Project and project alternatives. As explained below, each mitigation measure is applicable to a varying collective of the Proposed Project and project alternatives dependent upon the identification of a significant impact. Following each measure is a brief description of what is involved with implementation of the measure and an assessment of the type of environmental impacts, if any, that would be associated with implementation of the mitigation measure.

MacArthur Boulevard and Michelson Drive

The intersection of MacArthur Boulevard and Michelson Drive would be significantly impacted under the Proposed Project and Alternatives A, B, and C. The following mitigation measure is recommended for implementation with the Proposed Project and Alternatives A, B, and C:

T-1 The County of Orange/JWA shall coordinate with the City of Irvine and, once agreement is reached as to costs and parameters of design, pay to the City the fullcost of converting the traffic signal at the intersection of MacArthur Boulevard / Michelson Drive so that the signal for the westbound right-turn lane under overlap phasing conditions is fully operational prior to JWA serving 12.5 MAP.

Implementation: Mitigating this impact will require converting the traffic signal for the westbound right-turn lane to operate under overlap conditions. The traffic signal currently can accommodate overlap phasing but the phasing is not currently implemented. This impact is a direct impact in that the Project causes the intersection to operate deficiently. This intersection is under the jurisdiction of the City of Irvine. As no physical improvement is required, JWA will coordinate with the City of Irvine to implement the phasing such that it is fully operational prior to JWA reaching 12.5 MAP. Since this impact is directly attributable to incremental traffic from the Project, JWA would pay for the full cost of this signal timing change. The City of Irvine would then be responsible for implementing the improvement. With implementation of this measure, an LOS D would be achieved with the Proposed Project, Alternative A, and Alternative B. LOS E would be achieved with Alternative C. However, because full implementation of the subject improvement is outside the jurisdiction and control of the County of Orange/JWA and, therefore, implementation cannot be assured, in the event the improvement is not fully operational prior to JWA serving 12.5 MAP, the Project's impacts at the intersection would remain significant and unavoidable as there is no other feasible mitigation that would fully reduce the identified impacts to less than significant. No environmental impacts are anticipated with the implementation of this mitigation measure.

Campus Drive and Airport Way

The intersection of Campus Drive and Airport Way would be significantly impacted under Alternatives B and C. The following mitigation measure is recommended for implementation with Alternatives B and C:

T-2 The County of Orange/JWA shall coordinate with the City of Newport Beach and, once agreement is reached as to costs and parameters of design, pay to the City the full cost of

adding a second northbound left-turn lane at the intersection of Campus Drive / Airport Way that is fully operational prior to JWA serving 15.0 MAP.

Implementation: Mitigating this impact will require the addition of a second northbound left-turn lane. This impact is a direct impact as the addition of Project traffic causes the intersection to degrade from acceptable to unacceptable levels. This intersection is under the jurisdiction of the City of Newport Beach. JWA would be responsible for paying to the City of Newport Beach the cost of the improvement in a manner that would ensure the improvement is fully constructed and operational prior to JWA reaching the 15.0 MAP level. The City of Newport Beach would then be responsible for the construction of this mitigation measure. With implementation of this measure, a LOS C would be achieved with Alternative B and LOS D would be achieved with Alternative C. However, because full implementation of the subject improvement is outside the jurisdiction and control of the County of Orange/JWA and, therefore, implementation cannot be assured, in the event the improvement is not fully operational prior to JWA serving 15.0 MAP, the Project's impacts at the intersection would remain significant and unavoidable as there is no other feasible mitigation that would fully reduce the identified impacts to less than significant. The current width of the northbound approach is approximately 65 feet including a portion of a median, four travel lanes, and a bike lane. Based on a preliminary assessment, an additional left-turn lane could be accommodated within the existing curb-to-curb width by removing the median and reducing lane width for the other lanes (Exhibit G-1, showing the lane widths, is provided at the end of Appendix G.). However, there is the potential that additional right-of-way r from the Airport or from the private properties in the City of Newport Beach would be required. In addition, this mitigation measure would result in construction-related impacts, such as air emissions, noise, and short-term traffic delays.

Campus Drive/Bristol Street North

The intersection of Campus Drive and Bristol Street North would be significantly impacted under the Proposed Project, Alternatives A, B, and C, and the No Project Alternative. The following mitigation measure is recommended for implementation with the Proposed Project, Alternatives A, B, and C and the No Project Alternative:

T-3 The County of Orange/JWA shall coordinate with the City of Newport Beach and construct a third southbound right-turn lane at the intersection of Campus Drive and Bristol Street North that is fully operational prior to JWA serving 10.8 MAP.

Implementation: Mitigating this impact will require the addition of a third southbound right-turn lane. This proposed mitigation measure is identical to one identified in the traffic analysis prepared in connection with the previous Settlement Agreement Amendment (EIR 582). This impact is a cumulative impact, which the Project contributes to but is not fully responsible for as this intersection operates at a deficient LOS prior to the introduction of Project traffic. This impact is therefore different from the impact identified in EIR 582, which was an impact directly attributable to the project. Growth in background traffic volumes since the previous analysis was completed have worsened conditions at this intersection such that the additional traffic from JWA is now *contributing* to an already deficient condition rather than *creating* a new (i.e., direct project impact) deficient condition.

The typical approach for mitigating a project's cumulative impact is the payment of a fair share contribution. In this instance, however, pursuant to its mitigation obligation under EIR 582, JWA

presently is implementing this additional right-turn lane through consultations with Orange County and the City of Newport Beach. JWA has completed planning studies for this improvement and is currently in the process of preparing construction plans, which are approximately 70 percent complete as of March 2014. JWA has also agreed to fund necessary ancillary construction work at this location, including any utility relocation that might be required. Given these previous commitments, no additional mitigation is required. This improvement is currently scheduled to be completed by 2016, which is the first year in which the impact would occur. With implementation of this measure, an LOS D would be achieved with the Proposed Project and Alternative A, and LOS E would be achieved with Alternative B and Alternative C; therefore, impacts would be reduced to less than significant. Since this measure was identified in EIR 582, it would also apply to the No Project Alternative, which would achieve a LOS D. Environmental impacts associated with this improvement were addressed in the Supplement to EIR 582 and include impacts to the JWA maintenance building and construction impacts.

Santa Ana Avenue and Del Mar Avenue

The intersection of Santa Ana Avenue and Del Mar Avenue would be significantly impacted under Alternative C. The following mitigation measure is recommended with the implementation of Alternative C, which would reduce the impacts to less than significant:

T-4 The County of Orange/JWA shall coordinate with the City of Costa Mesa and, once an agreement is reached as to costs and parameters of design, pay to the City the full cost of adding a traffic signal at the intersection of Santa Ana Avenue and Del Mar Avenue that is fully operational prior to JWA serving 16.9 MAP.

Implementation: Mitigating this impact will require the addition of a traffic signal. This impact is a direct impact which occurs as the result of additional project traffic causing an intersection to degrade from acceptable to unacceptable conditions. This intersection is under the jurisdiction of the City of Costa Mesa. JWA would pay for the cost of installing the traffic signal, which would be implemented by the City of Costa Mesa, in a manner that would ensure the improvement would be fully constructed and operational prior to reaching 16.9 MAP. With implementation of this measure, an LOS B would be achieved. However, because full implementation of the subject improvement is outside the jurisdiction and control of the County of Orange/JWA and, therefore, implementation cannot be assured, in the event the improvement is not fully operational prior to JWA serving 16.9 MAP, the Project's impacts at the intersection would remain significant and unavoidable as there is no other feasible mitigation that would fully reduce the identified impacts to less than significant. Environmental impacts would be limited to construction impacts.

Von Karman Avenue and Alton Parkway

The intersection of Von Karman Avenue and Alton Parkway would be significantly impacted under the Proposed Project and Alternatives A, B, and C. The following mitigation measure is recommended for implementation with the Proposed Project and Alternatives A, B, and C, which would reduce the impacts to less than significant:

T-5 The County of Orange/JWA shall coordinate with the City of Irvine and, once agreement is reached as to costs and parameters of design, pay to the City the full cost of adding a

northbound right-turn lane at the intersection of Von Karman Avenue and Alton Parkway that is fully operational prior to JWA serving 12.5 MAP.

Implementation: Mitigating this impact will require the addition of a northbound right-turn lane. This impact is a direct impact as the addition of project traffic causes the intersection to degrade from acceptable to unacceptable levels. This intersection is under the jurisdiction of the City of Irvine. JWA would be responsible for paying to the City of Irvine the cost of the improvement prior to reaching the 12.5 MAP threshold, which is the lowest threshold at which this impact would occur. The City of Irvine would then be responsible for the construction of this mitigation measure. With implementation of this measure, an LOS D would be achieved with the Proposed Project, Alternative A, Alternative B, and Alternative C. However, because full implementation of the subject improvement is outside the jurisdiction and control of the County of Orange/JWA and, therefore, implementation cannot be assured, in the event the improvement is not fully operational prior to JWA serving 12.5 MAP, the Project's impacts at the intersection would remain significant and unavoidable as there is no other feasible mitigation that would fully reduce the identified impacts to less than significant. It is anticipated this mitigation measure would have minimal environmental impacts, which would be limited to short-term construction-related impacts. The current width of the northbound shared through/right-turn lane is approximately 22 feet. Therefore, a restripe within the existing curb-to-curb width would be feasible providing an 11-foot through lane and 11-foot right turn lane.

FREEWAY MITIGATION MEASURES

As shown in Table 4.8-93, the majority of the identified significant freeway impacts attributable to the Proposed Project and alternatives would result from a cumulative condition in that traffic from JWA is added to facilities which would operate at a deficient level even without Project traffic. As shown in the previous tables, the contribution of additional traffic volume by JWA (i.e., the Proposed Project and alternatives) to these segments is minimal, and ranges from 2 percent to 5 percent.

It also is noted that both FAA and SCAG projections indicate that forecasted passenger demand at JWA exceeds the current Settlement Agreement limits of 10.8 MAP, and that FAA projections anticipate unconstrained passenger demand at JWA reaching 12.8 MAP by 2030. (See the *Capacity Analysis Technical Report*, Section 7, provided in Appendix F [AECOM, 2014].) As JWA currently serves approximately 9.2 million annual passengers, allowing an increase in MAP to only 10.8 MAP likely would cause residents of Orange County to divert to other airports in the region to satisfy their air travel needs. (Id.) This diversion of workers and residents to other facilities, such as Los Angeles International Airport (LAX), Long Beach Airport, or Ontario, likely would result in additional travel on the regional roadway system, which could result in additional congestion, vehicle miles traveled (VMT) and emissions for these longer distance trips. As such, by increasing the MAP limit at JWA, the Proposed Project, as well as Alternatives A, B, or C, likely would eliminate the need for a certain number of air passengers to travel to another airport, thereby reducing congestion on the regional freeway system.

In terms of physical improvements necessary to increase freeway capacity, mitigating the identified significant impacts to the freeway and mainline segments would require a complete reconstruction of the SR-55, SR-73, and the I-405 freeways to add travel lanes and upgrade each of the deficient ramp locations. Since the freeways in the study area are interconnected systems,

it would not be possible, nor effective, to provide isolated spot improvements of one segment of the freeway where deficient operations are observed.

OCTA is currently finalizing a comprehensive study of the SR-55 to evaluate potential improvements through the Caltrans Project Report/Environmental Document process. This study has tentatively identified improvements to the SR-55 to add a mainline lane and also improve several interchanges. However; no additional travel lanes have been proposed for the segment between I-405 and MacArthur Boulevard as of April 2014. Additionally there is no dedicated funding for these proposed improvements. The *Regional Transportation Plan* indicates that this improvement could be funded in 2035, which would be an insufficient timeframe to address impacts that might occur as early as 2026, and in the case of the Proposed Project as early as 2021.

OCTA is also currently evaluating various proposals to improve operations on I-405 throughout the study area. Various concepts have been evaluated including a toll lane, a general use travel lane, or some combination of the two. Regardless of the proposed improvement, it would not provide for sufficient capacity to fully mitigate the impacts identified along I-405.

No improvements are pending for SR-73 at this time (April 2014).

In summary, the physical improvements necessary to provide the additional capacity for the Proposed Project would require the addition of general purpose travel lanes and no definitive plans identifying such additional lanes are currently available as of April 2014. While OCTA, Caltrans, and other agencies are currently studying potential improvements to SR-55 through the Caltrans Project Report/Environmental Document process, widening the SR-55 between I-405 and the MacArthur Boulevard off-ramp to add a general purpose travel lane is not being considered at this time.

Because the improvements necessary to mitigate the identified significant freeway impacts (i.e., providing increased capacity) are beyond the jurisdiction and control of the County, and because the agencies with jurisdiction and control over these facilities (i.e., Caltrans and OCTA) have no present plans to construct the necessary improvements within the timeframe necessary to mitigate the identified significant impacts, there is no mechanism by which the project can contribute its fair-share towards the necessary improvements and, consequently, there is no evidence that even with a fair-share payment the necessary improvements would be constructed. As such, the mitigation necessary to reduce the identified significant impacts is infeasible and the impacts are significant and unavoidable.

4.8.7 LEVEL OF SIGNIFICANCE AFTER MITIGATION

With implementation of the mitigation measures identified above, the impacts to roadway intersections can be reduced to less than significant for the Proposed Project and Alternatives A, B, and C. However, because full implementation of the subject improvement is outside the jurisdiction and control of the County of Orange/JWA, implementation cannot be assured. Therefore, as noted above, the Project's impacts at the local intersection outside of the County of Orange jurisdiction would remain significant and unavoidable. Similarly, though the Proposed Project has committed to contribute its fair-share towards necessary freeway improvements to address the identified significant cumulative impact, because the improvements necessary to mitigate the identified freeway impacts (i.e., providing increased capacity) are neither planned

nor funded, and there is no current mechanism by which the Project can contribute its fair-share. As such, mitigation is infeasible and the impacts are significant and unavoidable.

Table 4.8-94 provides a summary of the findings of significance after implementation of the mitigation measures for each threshold for each alternative under the future year scenarios, Phase 1, Phase 2, and Phase 3.

TABLE 4.8-94
SUMMARY OF SIGNIFICANCE OF TRAFFIC IMPACTS
AFTER MITIGATION

Threshold	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
City of Irvine					
Threshold 4.8-1	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)
Threshold 4.8-2	Less than significant impact (Phases 1 and 2) Significant unavoidable impact (Phase 3)	Less than significant impact (Phases 1 and 2) Significant unavoidable impact (Phase 3)	Less than significant impact (Phases 1 and 2) Significant unavoidable impact (Phase 3)	Significant unavoidable impact (All Phases)	Less than significant impact (All Phases)
Threshold 4.8-3	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)
Threshold 4.8-4	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)
City of Newport Beach					
Threshold 4.8-5	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (Phases 1 and 2) Significant unavoidable impact(Phase 3)	Significant unavoidable impact (All Phases)	Less than significant impact (All Phases)
Threshold 4.8-6	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)
Threshold 4.8-7	Less than significant with mitigation impact (All Phases)	Less than significant with mitigation impact (All Phases)	Less than significant with mitigation impact (All Phases)	Less than significant with mitigation impact (All Phases)	Less than significant with mitigation impact (All Phases)

TABLE 4.8-94
SUMMARY OF SIGNIFICANCE OF TRAFFIC IMPACTS
AFTER MITIGATION

Threshold	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Threshold 4.8-8	Less than significant (All Phases)	Less than significant (All Phases)	Less than significant (All Phases)	Less than significant (All Phases)	Less than significant (All Phases)
City of Costa Mesa					
Threshold 4.8-9	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (Phases 1 and 2) Significant unavoidable (Phase 3)	Less than significant impact (All Phases)
Caltrans					
Threshold 4.8-10	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)
Threshold 4.8-11	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)
Threshold 4.8-12	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Significant unavoidable impact (All Phases)	Less than significant impact (All Phases)
Threshold 4.8-13	Less than significant impact (Phase 1) Significant unavoidable impact (Phases 2 and 3)	Less than significant impact (Phases 1 and 2) Significant unavoidable impact (Phase 3)	Less than significant impact (Phase 1) Significant impact unavoidable (Phases 2 and 3)	Significant unavoidable impact (All Phases)	Less than significant impact (All Phases)
Orange County Transportation Authority Congestion Management Plan					
Threshold 4.8-14	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)
Threshold 4.8-15	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)
Air Traffic Patterns					
Threshold 4.8-16	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)	Less than significant impact (All Phases)

4.8.8 REFERENCES

AECOM. 2014 (April). *John Wayne Airport Settlement Agreement Amendment Environmental Impact Report Capacity Analysis Technical Report.* Orange, CA: AECOM (Appendix F).

Fehr & Peers. 2014 (April). *John Wayne Airport Transportation Impact Analysis Report.* Anaheim, CA: Fehr & Peers (Appendix G).

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4.9 UTILITIES AND SERVICE SYSTEMS

This section describes existing utilities and service systems serving the Airport and identifies and addresses potential impacts related to the following utilities, with the service provider indicated in parentheses:

- Wastewater conveyance and treatment (Orange County Sanitation District ["OCSD"]) and
- Water supplies (Mesa Water District).

As discussed in Section 1.6, EIR Focus and Effects Found Not to be Significant, and in the Notice of Preparation ("NOP")/Initial Study in Appendix A, the Project would not require or result in the construction or expansion of storm drainage facilities, would be served by a landfill(s) with sufficient permitted capacity to serve the Project, and would comply with federal, State, and local solid waste regulations. Therefore, these topics are not discussed in this section.

4.9.1 REGULATORY SETTING

STATE/REGIONAL

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 the urban water plans every 5 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.

Mesa Water District ("Mesa Water"; formerly Mesa Consolidated Water District) provides potable (domestic) 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. John Wayne Airport ("JWA") is located within the northeastern portion of Mesa Water's service area. Mesa Water adopted its *2010 Urban Water Management Plan* ("UWMP") in May 2011.

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

[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.*

be prepared in conjunction with the land use approval process associated with a project and must 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. An SB 610 WSA is required for any "project" that is subject to CEQA and that proposes, among other things,) 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 size and nature of the Project, the State of California, through SB 610, does not require that a WSA be completed to evaluate the potential effect of the proposed development on current and future water supplies.

4.9.2 METHODOLOGY

Information presented in this section was derived from the JWA Environmental Impact Report ("EIR") 582, the *John Wayne Airport Settlement Agreement Amendment Greenhouse Gas Technical Report* ("GHG Report") prepared by Environ for the Project (Environ 2014; provided in Appendix E of this Draft EIR), and publicly available publications of Mesa Water and the OCSD as referenced herein. In addition, Mesa Water and the OCSD were provided with the NOP and were consulted regarding whether the agency could serve the increased water demand and wastewater generation, respectively, associated with the increase in annual passengers for Proposed Project and each alternative.

4.9.3 EXISTING CONDITIONS

WASTEWATER

Wastewater treatment requirements have been issued by the California Regional Water Quality Control Board ("RWQCB") for 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.

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 JWA. OCSD currently operates two wastewater treatment plants: Plant No. 1 in Fountain Valley and Plant No. 2 in Huntington Beach, which treat wastewater to secondary standards. In addition, OCSD in partnership with Orange County Water District operates Orange County Groundwater Replenishment System and Green Acres Project (OCSD 2013). The area is tributary to two Sanitation District 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 Mac Arthur Boulevard on the eastside of JWA in the area referred to as the Irvine Business Complex. (DEIR 582).

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 to accommodate all future discharges and ensure adequate capacity to serve 10.24 MAP[2]. This agreement assumed wastewater discharge for 10.24 MAP having a rated flow of 2.5 gallons per flush. In 2005, in conjunction with the issuance of a "will serve" letter for the Terminal C improvements

[2] As originally approved, the 1985 Master Plan provided for 10.24 MAP to be served at JWA. As a result of the Settlement Agreement, this number was reduced to 8.4 MAP through 2005.

and 10.8 MAP, this agreement was modified. The "will serve" letter indicates that by installing water-efficient facilities (not more than one gallon per flush), that the resulting discharge for 10.8 MAP would be over 20 percent less than the earlier anticipated volume for the 10.24 MAP (OCSD 2005). The required water-efficient facilities have been installed throughout the Terminal Buildings (Terminals A through C). The expected flows have not been realized because JWA has not reached the allowed 10.8 MAP.

WATER SUPPLY

Mesa Water provides water service to JWA. As of the preparation of the 2010 UWMP, Mesa Water received its water from two main sources: (1) the Lower Santa Ana River Groundwater Basin ("Basin"), which is managed by the Orange County Water District ("OCWD") and (2) imported water from the Municipal Water District of Orange County ("MWDOC"). Groundwater was pumped from six wells that pump clear water from the Basin and two wells that pump colored water (amber-colored from historic redwood forests). The colored water is treated at the Mesa Water Reliability Facility ("MWRF"; formerly the Colored Water Treatment Facility) and imported water is treated at the Diemer Filtration Plant and is delivered to Mesa Water through the imported water connections (Mesa Water 2011).

In late 2012, Mesa Water completed improvements to the MWRF that increased the capacity from 5.8 million gallons per day ("mgd") to 8.6 mgd, a 50 percent increase in water production, and eliminates the need for Mesa Water to use imported water. With implementation of the upgraded MWRF, 100 percent of Mesa Water's supply is local groundwater from the Basin (Mesa Water 2012).

According to the *Greenhouse Gas Technical Report* (Table 4.4-1), provided in Appendix E, JWA currently has an annual water usage of 4.46 acre-feet per year ("afy"). Based on the Irvine Ranch Water District ("IRWD") *2010 Urban Water Management Plan*, an average house in Irvine uses approximately 0.32 acre-foot per year (IRWD 2010). Therefore, the current usage at the Airport is roughly the equivalent water usage of 14 single-family residential units per year.

It is noted that JWA incorporates water conservation features into its daily operations, such as installation of ultra-low flow fixtures; efficient landscape watering; increasing ground water percolation; and runoff diversion.

4.9.4 THRESHOLDS OF SIGNIFICANCE

In accordance with the County's Environmental Analysis Checklist, the Project would result in a significant impact related to public services and utilities if it:

Threshold 4.9-1 Would exceed the wastewater treatment requirements of the applicable Regional Water Quality Control Board ("RWQCB").

Threshold 4.9-2 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 4.9-3 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 4.9-4 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.

4.9.5 IMPACT ANALYSIS

Because the demand for potable water supplies and generation of wastewater increases with increasing intensity of Airport operations, the following analysis is focused on potential impacts from the addition of the ultimate flight operations (Phase 3) to the existing conditions for the Proposed Project and all alternatives.

Threshold 4.9-1 Would the project exceed the wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Threshold 4.9-2 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?[3]

Threshold 4.9-4 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?

WASTEWATER

Proposed Project

As previously indicated, wastewater generated the Proposed Project is currently and would continue to be treated by facilities owned and operated by OCSD. The Proposed Project would continue to comply with the wastewater requirements of OCSD, which is consistent with the requirements of the RWQCB. Therefore, the Project would not exceed wastewater treatment requirements of the RWQCB.

Throughout the years, JWA has coordinated with OCSD to ensure there is sufficient capacity to serve the Airport facilities. As previously indicated, in 2005 and confirmed with OCSD staff in 2014, OCSD has assumed the higher wastewater discharge provided for in the 1990 service agreement with the Airport (10.24 MAP and a rated flow of 2.5 gallons per flush) (personal communication, Daisy Covarrubias, 2014). Using the estimate in the 2005 "will serve" letter, the resulting discharge for 10.8 MAP would be over 20 percent less than the earlier anticipated volumes; therefore, 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). Since the Proposed Project would only provide for up to 12.5 MAP in Phase 3, it has been determined that implementation of the Proposed Project would not result in a significant impact related to the wastewater conveyance facilities that serve JWA because there is excess capacity in the conveyance facilities. Thus, the Proposed Project does not have the potential to require or result in the construction of new

[3] The following analysis addresses wastewater only. The analysis of potable water facilities under this threshold is addressed below in this section.

wastewater treatment facilities or expansion of existing facilities. Less than significant impacts are expected.

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.*

Alternative A

The analysis provided for the Proposed Project for these thresholds would also be applicable to Alternative A with respect to consistency with wastewater treatment requirements and ability to serve the demand generated by Alternative A, Phase 3. As indicated above, based on the use of the water efficient facilities, it is anticipated that the OCSD would have the capacity to serve up to 12.96 MAP within its current allocation for the Airport. Thus, Alternative A 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.

Impact Conclusion: *Alternative A 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.*

Alternative B

Based on the analysis provided above under the Proposed Project, OCSD would have the capacity to serve up to 12.96 MAP within its current allocation for the Airport. However, since Alternative B, Phases 2 and 3 assumes 13.0 MAP and 15.0 MAP, respectively, Alternative B would exceed the current allocation assumed for the Airport. Based on discussion with OCSD, other factors regarding the capacity of the lines and expected flows from other uses in the area would need to be evaluated before it can be determined if additional improvements would be required to serve the Alternative B, Phases 2 and 3 MAP levels. Additionally, since the 13.0 MAP and 15.0 MAP would not occur prior to 2021 and 2026, respectively, the analysis would need to consider other improvements that OCSD have programmed as part of their long-term planning. However, without assurances that Alternative B does not exceed capacity, it has been determined that exceeding the allocation already in place for JWA would be a potentially significant impact. However, if Alternative B is selected, JWA would coordinate with OCSD to determine, what if any improvements are required to meet all the RWQCB's wastewater treatment requirements (see Mitigation Measure U-1). It is anticipated that this may require increasing the size of the wastewater conveyance lines and would require separate CEQA documentation.

Impact Conclusion: *Alternative B would exceed the wastewater flow allocations assumed by OCSD for the Airport. Coordination with OCSD would be required and potential improvements may be needed to ensure treatment requirements of the Santa Ana RWQCB are achieved. This is a potentially significant impact prior to mitigation.*

Alternative C

The analysis provided for the Alternative B for these thresholds would also be applicable to Alternative C. Alternative C (all phases) assumes 16.9 MAP, which would exceed the current allocation assumed for the Airport. As with Alternative B, other factors regarding the capacity of the lines and expected flows from other uses in the area would need to be evaluated before it can be determined if additional improvements would be required to serve the Alternative C MAP levels. However, with Alternative C, the ability to increase to 16.9 MAP would occur in 2016. Without assurances that Alternative C does not exceed capacity, it has been determined that exceeding the discharge allocation already in place for JWA would be a potentially significant impact. However, if Alternative C is selected, JWA would coordinate with OCSD to determine, what if any improvements are required to meet all the RWQCB's wastewater treatment requirements (see Mitigation Measure U-1). It is anticipated that this may require increasing the size of the wastewater conveyance lines and would require separate CEQA documentation.

Impact Conclusion: *Alternative C would exceed the wastewater flow allocations assumed by OCSD for the Airport. Coordination with OCSD would be required and potential improvements may be needed to ensure treatment requirements of the Santa Ana RWQCB are achieved. This is a potentially significant impact prior to mitigation.*

No Project Alternative

The No Project Alternative would not increase the MAP level beyond the 10.8 MAP provided for in the 2005 "will serve" letter. As previously indicated, the OCSD estimated by using water efficient facilities at the Airport, the 10.8 MAP results in water discharges approximately 20 percent less than what was assumed to support the 1985 Master Plan. Therefore, no impacts are anticipated.

Impact Conclusion: *The No Project Alternative 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. No impacts are anticipated.*

Threshold 4.9-2 **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?[4]**

Threshold 4.9-3 **Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?**

[4] The following analysis addresses potable water supply only. The analysis of wastewater treatment facilities under this threshold is addressed above in this section.

WATER SUPPLY

Proposed Project and All Alternatives

As discussed above, Mesa Water supplies potable water to JWA, and the current annual water usage at the Airport is 4.46 afy, or 0.48 afy per million annual passengers. Based on this usage, the current and projected water usage under the Proposed Project, Alternatives A, B, and C, and the No Project Alternative, for each phase, are shown in Table 4.9-1. As shown, through implementation of Phase 3 of the Proposed Project and each alternative, there would be an estimated incremental increase in water demand varying from 0.79 afy for the No Project Alternative to 3.75 afy for Alternative C.

As discussed above, a WSA is required when 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. Based on the factor used by IRWD in the *2010 Urban Water Management Plan*, this would be the equivalent of approximately 160 afy. As shown in Table 4.9-1, the Proposed Project and all the alternatives are substantially below this threshold.

TABLE 4.9-1
EXISTING AND PROJECTED WATER DEMAND FOR THE PROPOSED PROJECT AND ALL ALTERNATIVES

	Estimated Water Demand (afy)				Total Estimated Increase (af)
	Baseline	Phase 1	Phase 2	Phase 3	
Proposed Project	4.46	5.25	5.73	6.07	1.61
Alternative A	4.46	5.25	5.54	6.22	1.76
Alternative B	4.46	5.25	6.32	7.29	2.83
Alternative C	4.46	8.21	8.21	8.21	3.75
No Project Alternative	4.46	5.25	5.25	5.25	0.79

MAP: Million Annual Passengers; afy: acre-feet per year

Source: *Greenhouse Gas Technical Report*, Table 4.6-17a, (converted to acre feet) Environ 2014.

Mesa Water was consulted regarding the sufficiency of potable water supplies to serve these estimated increases in water demand. Mesa Water concluded there are sufficient water supplies (which inherently included water treatment) to meet the estimated water demand for the Proposed Project and any of the alternatives through Phase 3, as provided in Table 4.9-1. Further, Mesa Water is currently in the process of updating their Water Master Plan and intends to incorporate the anticipated future water demand from JWA based on increased annual passenger throughput, depending on the scenario approved (Lauri 2014). Therefore, there would be sufficient water supplies to serve the Airport in addition to Mesa Water's existing and anticipating future entitlements. The Proposed Project and all alternatives 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 Proposed Project and all alternatives 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.*

4.9.6 MITIGATION PROGRAM

No mitigation measures would be required for the Proposed Project, Alternative A, or the No Project Alternative. The following mitigation measure would apply if Alternative B or Alternative C is selected.

U-1 Prior to allocation of flights that would allow greater than 12.96 MAP for either Alternative B or Alternative C, the County of Orange/JWA shall coordinate with the OCSD to clearly delineate any improvements that would be required to ensure that wastewater discharges can be accommodated and treated in compliance with the Santa Ana RWQCB standards. If physical improvements are required, separate environmental documentation pursuant to CEQA shall be required, which will be funded by the County of Orange/JWA. JWA shall not allocate flights that would result in wastewater discharge in excess of the allocated discharge for JWA, which is estimated to correspond to 12.96 MAP, until such time as the improvements are completed or OCSD confirms that capacity is available.

Implementation: Alternative B, Phase 3 and Alternative C exceed the wastewater capacity assumed in the Sewer Service Agreement issued by the OCSD for JWA in 2005. Upgrading conveyance facilities may be necessary if there is not sufficient capacity in the existing lines. This would involve physical improvements. Sewer lines are generally located in the street right-of-way. As such, if the facilities need to be upsized, the impacts are expected to be construction related impacts, such as short-term air quality emissions and noise associated with construction equipment and traffic delays if a roadway lane needs to be closed during construction. Generally, these impacts are less than significant; however, this determination would be made when improvements are prepared. Additionally, because full implementation of the subject improvement is outside the jurisdiction and control of the County of Orange/JWA and, therefore, implementation cannot be assured, in the event the improvement is not fully operational prior to JWA serving 12.96 MAP, the Project's impacts would remain significant.

4.9.7 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impacts on utilities associated with the Proposed Project and Alternative A are less than significant and no mitigation is required. There would be no impacts on utilities with the No Project Alternative. Impacts on utilities for Alternative B or Alternative C would be less than significant with mitigation.

TABLE 4.9-2
SUMMARY OF UTILITIES AND SERVICE SYSTEMS IMPACTS

Threshold	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Threshold 4.9-1	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact	No impact
Threshold 4.9-2	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact	No impact
Threshold 4.9-3	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact	No impact
Threshold 4.9-4	Less than significant impact	Less than significant impact	Significant unavoidable impact	Significant unavoidable impact	No impact

4.9.8 REFERENCES

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4.10 WATER QUALITY

This section discusses Project-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 Project does not propose any construction or change to the nature of Airport operations. Therefore, the Project would not alter the existing drainage pattern or groundwater supplies; it would not subject structures or housing to a 100-year flood hazard; it would not result in exposure 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. These topics are not discussed in this section (refer to the Notice of Preparation ["NOP"]/Initial Study in Appendix A)).

4.10.1 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 U.S."[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, manmade 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 Project are discussed later in this section.

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.

According to the current (2010) Clean Water Act Section 303(d) list approved by the State Water Resources Control Board ("SWRCB"), receiving waters downstream of JWA (specifically Santa Ana Delhi Channel and Upper Newport Bay) are on the 303(d) list. Table 4.10-1 below

[1] "Waters of the U.S." 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.

summarizes the pollutants affecting the water quality limited segments downstream of JWA, their TMDL requirement status, and potential pollutant sources, as provided on the current 303(d) list.

TABLE 4.10-1
SUMMARY OF 303(D) LIST FOR JWA RECEIVING WATER BODIES

Water Body	Pollutant	TMDL Requirement Status[a]	Potential Pollutant Sources (Where Identified)
Upper Newport Bay	Chlordane (Pesticide)	5A (2019)	N/A
	DDT (Pesticide)	5A (2019)	N/A
	Pesticides	5B	Agriculture; Unknown Nonpoint Source
	Copper	5A (2007)	N/A
	Metals	5A (2019)	Urban Runoff/Storm Sewers
	Nutrients	5B	N/A
	Polychlorinated biphenyls ("PCBs"; Other Organics)	5A (2019)	N/A
	Indicator Bacteria	5B	N/A
	Sediment Toxicity	5A (2019)	N/A
	Sedimentation/Siltation	5B	Land Development; Habitat Modification; Hydromodification; Agriculture
Santa Ana Delhi Channel	Indicator Bacteria	5A (2021)	N/A

TMDL: total maximum daily load; N/A- source is unknown; DDT: Dichlorodiphenyltrichloroethane; PCBs: Polychlorinated Biphenyls.

[a] 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: 2010 California 303(d) List of Water Quality Limited Segments, SWRCB 2011.

STATE/REGIONAL

California Porter-Cologne Act

California's Porter-Cologne Water Quality Control Act of 1970 ("Porter-Cologne Act") grants the SWRCB and the Regional Water Quality Control Boards ("RWQCBs") the power to protect 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 RWQCBs 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 also 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 apply directly to discharges of urban runoff, such as from JWA, but rather apply within the specified receiving waters. The NPDES permit requirements applicable to the Project are described below.

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, those project applicants 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.

Industrial General Permit

The airside portion of JWA operates under the State's NPDES Permit for the Discharge of Storm Water Associated with Industrial Activities (Order No. 97-03-DWQ, "Industrial General Permit"), adopted by the SWRCB in 1997. Order 97-03-DWQ has expired but remains in effect until a new industrial general permit is adopted; the effort to develop and adopt a new permit was initiated by the SWRCB in 2003. As of the preparation of this EIR, the SWRCB had prepared and circulated the *Draft Industrial General Permit* for a public comment period that closed on March 4, 2014. Responses to comments were posted on March 28, 2014 and the SWRCB approved the permit on April 1, 2014. The new permit becomes effective on July 1, 2015. The new permit updates the documentation, monitoring and reporting requirements for covered uses.

The current Industrial General Permit does not establish effluent limitations. Rather, in order to comply with the requirements of the permit, it prohibits non-storm water discharges and

requires facilities to implement Best Management Practices ("BMPs"[3]) to reduce or prevent pollutants associated with industrial activity in storm water discharges. The BMPs implemented at JWA pursuant to the Industrial General Permit, until such time as a new Industrial General Permit is adopted, are discussed below under "Existing Conditions".

Municipal Storm Water Permitting

The landside (non-industrial) areas of the Airport are under the jurisdiction of Orange County's 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, the Orange County Flood Control District, and the northern Orange County cities (collectively "the Co-Permittees"). To implement the requirements of the MS4 Permit, the Co-Permittees developed the 2003 Drainage Area Master Plan ("DAMP") that includes a Model New Development and Redevelopment Program. This Model Program provides a framework and a process for following the MS4 Permit requirements to incorporate watershed protection/storm water quality management principles into the Co-Permittees' General Plan process, environmental review process, and development permit approval process. A revised Orange County MS4 Permit was adopted on May 22, 2009 (Order No. R8-2009-0030, Amended by Order No. R8-2010-0062) and applies to ongoing activities at JWA.

COUNTY OF ORANGE

Local Implementation Plan

Per the requirements in the DAMP and the 2002 MS4 Permit, the County of Orange and the Orange County Flood Control District adopted a Local Implementation Plan ("LIP") containing the policy and implementation documents for compliance with the DAMP. Orange County revised its LIP in December 2010 to comply with the updated 2009 MS4 Permit. Section A-7 of the County's LIP contains the new development and redevelopment component based upon the Orange County Model Water Quality Management Plan. Because the Project would not include any development or redevelopment of physical facilities, implementation documents for the DAMP and the County's LIP are not applicable.

4.10.2 METHODOLOGY

The effects of the Project on surface water quality were assessed by comparing the existing operational parameters with those of the Proposed Project and each alternative. This was done by first establishing the existing conditions baseline for water quality parameters currently required in the existing JWA NPDES permit, then characterizing the potential change in surface water quality (i.e., increase, decrease, type of pollutants) due to implementation of the Proposed Project and each alternative; this change was assessed in light of the existing water quality management program in place at JWA.

[3] BMPs are defined as schedules of activities, prohibitions of practices, maintenance procedures or other management practices, treatment measures, operating procedures, and practices to control erosion, facility site runoff, spillage or leaks, sludge or waste disposal or drainage from raw material storage. BMPs may include any type of pollution prevention and pollution control measures necessary to achieve compliance.

4.10.3 EXISTING CONDITIONS

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 that drains to Upper Newport Bay via the Santa Ana Delhi Channel.

SURFACE WATER QUALITY MANAGEMENT

As discussed above, the airside portion of JWA operates under the NPDES Industrial General Permit. As part of the Industrial General Permit requirements, JWA has prepared and operates under the provisions of a Storm Water Pollution Prevention Plan ("SWPPP") and a Monitoring Program Plan ("MPP"), which were submitted for review and comment to the SWRCB. The SWPPP is designed to identify potential sources of storm water quality degradation at the facility and to identify and implement work practices and management procedures to minimize impacts to storm water. All Airport fuelers and Fixed Based Operators ("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 required to be implemented 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 in such a manner as to prevent wash water from flushing into the storm drain system.

In furtherance of the Airport's SWPPP, JWA and its tenants upgraded the Airport's fueling and storm water pollution prevention facilities in 2000. The commercial fuel farm and hydrant fuel systems were upgraded to eliminate all direct discharges into the storm drain system. The storm drain system now includes two clarifiers and six oil/water separators. Five of these are Petro Pack equipped and have associated alarm systems, and four are equipped with automatic storm water samplers and flow meters. This system provides coverage for all drainage areas where industrial activities are performed.

JWA submits an Annual Report to the Santa Ana RWQCB on its Industrial General Permit compliance. This report contains inspection reports, storm water quality analytical results, and a description and evaluation of JWA's storm water pollution preventive measures pursuant to the Industrial General Permit.

As also discussed above, the landside (non-industrial) areas of the Airport are under the jurisdiction of Orange County's MS4 Permit. In 2003, JWA amended its parking lot and landscape maintenance contracts to reflect recent changes in MS4 Permit rules. Contractors are required to implement BMP procedures to reduce runoff and pollution into the storm drain system. Under the new rules, 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 must be swept-up and properly disposed of offsite. A self-contained scrubbing machine is used to clean oil and grease from the parking lots. Wash water from this machine is disposed of into the industrial sewer

system. Pesticides, herbicides, fertilizers, industrial cleaning products or other hazardous materials are also tightly regulated and monitored through the requirements imposed by the MS4 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, 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 4.10-1 above can be grouped into the following categories: pesticides, metals, pathogens, nutrients and other organics, and sediment. These are typical pollutants generated by an urban area with dense land development and a wide variety of land uses. It is noted that the existing and/or approved TMDLs for the pollutants identified for these water bodies do not apply directly to discharges of urban runoff, such as from JWA, but rather apply within the specified receiving waters. The primary source of pollutants 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) 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 thousands of miles before being deposited (USEPA 2001). For example, it is now known that dust from China often reaches the west coast of the U.S. (UCLA 2006)

Human, or anthropogenic, sources of airborne pollutants include the combustion of fossil fuels for power generation and transportation, the release of chemical byproducts 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. 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).

The 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 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 the atmosphere, in Los Angeles and elsewhere (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 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, 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 comprised 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[4] are not conclusive since they used different 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.

The City of Newport Beach performed a study entitled "Field Measurements of Ambient Particles and Associated Trace Elements and Hydrocarbons" (Boyle 2010). The study indicates that the purpose was to "measure airborne concentrations of particulate pollutants, and to characterize the chemical composition of these particles, at different locations in the City of Newport Beach, California." Data was collected at six locations over approximately five sampling dates (note that data was collected at all sites on every sampling date). The study concludes that the data

[4] 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 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.)

"indicate that ambient PM2.5 [concentration] at the locations sampled in the City of Newport Beach is well within federal air quality standards" (Boyle 2010, page 4). 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." 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/vehicle traffic (see Section 4.1, Air Quality, for a detailed discussion of air emissions associated with the Airport). Accordingly, with rainfall, 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. However, as noted above in Table 4.10-1, with the exception of sediment, and potentially metals, the pollutants of concern for the waterways on the 303(d) list are not the pollutants generally associated with emissions from aviation activities. Oil and grease are generally associated with aviation activities, and Newport Bay is not impacted by those pollutants.

As described, the contaminants of concern for Newport Bay are PCBs, pesticides, bacteria, nutrients, sediment, and metals. No construction is being conducted for this project and therefore very little sediment is being discharged, particularly because all discharges are settled into large clarifiers before stormwater goes off site. JWA may have sources of dissolved metals such as fencing and roofing, or from tires and brakes, however, these same pollutants are also generated along every major freeway in southern California, as well as at the numerous airports of various sizes throughout the South Coast Air Basin, including, but not limited to: JWA, Long Beach Airport, Fullerton Municipal Airport, Ontario International Airport, Chino Airport, Los Angeles International Airport, Bob Hope Airport, and Van Nuys Airport.

4.10.4 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 water quality impact if it would:

Threshold 4.10-1 Violate any water quality standards or waste discharge requirements.

Threshold 4.10-2 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 4.10-3 Otherwise substantially degrade water quality.

4.10.5 IMPACT ANALYSIS

Because there is no way to readily or reliably quantify the increment of increased water quality pollutants for each of the various phases (i.e., 2016–2020, 2021–2025, 2026–2030) and because the increment between each Project phase would be nominal, the following analysis is based on the addition of the operational assumptions of the 2026–2030 phase to the existing conditions.

Additionally, because of the interrelated nature of the thresholds, they have been evaluated collectively.

THRESHOLDS EVALUATION

Threshold 4.10-1 Would the project violate any water quality standards or waste discharge requirements?

Threshold 4.10-2 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?

Threshold 4.10-3 Would the project otherwise substantially degrade water quality?

Proposed Project

The Proposed Project would result in an increase of up to approximately 13 to 16 percent (depending on 2026–2030 capacity increase) in the number of million annual passengers ("MAP") permitted and a 12 percent increase in the number of permitted Class A average daily noise-regulated passenger flights ("ADDs") relative to existing conditions. The increase in passengers and commercial flights would increase the concentration of oils, grease, and total petroleum hydrocarbons ("TPH") within storm water and other runoff at JWA due to increased passenger jet emissions on runways and increased automobile traffic and associated emissions in parking lots.

These fuel-related pollutants are dominant constituents of the existing runoff stream at JWA; therefore, appropriate BMPs for these petrochemical pollutants are already in place to meet NPDES permit requirements (i.e., the Industrial General Permit and MS4 Permit). For example, there are large oil-water separators and clarifiers located throughout the airfield that treat runoff from each of the aircraft parking aprons. Wastewater and sediment/sludge from the oil-water separators are taken off site for recycling and disposal, as appropriate. Normal Airport maintenance requires high frequency sweeping of all airfield pavement to prevent possible jet 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. Additionally, because the Project does not propose any construction or other change to the nature of the Airport operations that would increase the extent of impervious surfaces, there would be no change in the volume of runoff generated at JWA.

Because water quality BMPs are in place for petrochemical pollutants and because there would be no increase in the volume of runoff generated at JWA, it is anticipated that these and other BMPs in place to minimize impacts to surface water quality would accommodate the increase in the concentration of petrochemicals within the existing runoff flows. For the past 15 years, JWA has provided the Santa Ana RWQCB with stormwater runoff sampling data that demonstrates that the Airport is in compliance with the requirements of the Stormwater Pollution Prevention Plan (JWA 2009). JWA will continue to prepare and submit an Annual Report to the Santa Ana RWQCB that assesses the effectiveness of all NPDES-related BMPs; the Annual Report provides a mechanism to ensure the effectiveness of all NPDES-related BMPs regardless of the intensity of Airport operations

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 increased number of flights associated with the Proposed Project would result in an increase in the amount of suspended particles associated with the Airport; therefore, reasonably it would add incrementally to the atmospheric pollutant deposition in the receiving waters downstream of JWA. However, it is not reasonable to assume all emissions from JWA 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 contribution of the Proposed Project's pollution to downstream receiving waters is not possible.

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 (Appendix D). It also must be noted that the BMPs described above pertaining to runway cleaning reduce the resuspension of metals and dust during airplane landings and takeoffs.

Most of the pollutants identified on the 303(d) for the downstream waterways are associated with agriculture and urban development, not aviation uses (e.g., pesticides, bacteria, nutrients, and pathogens). Based upon available information, the increase in average daily flights and annual passengers under the Proposed Project would not violate 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: *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.*

Alternative A

Alternative A would result in an increase of up to approximately 18 percent in the MAP served and a 59 percent increase in the number of noise-regulated ADDs relative to existing conditions. Accordingly, the increase in the concentration of petrochemicals associated with the increased operation of aircraft and automobiles collected in the storm water runoff from JWA would be greater for Alternative A than the Proposed Project. However, while the incremental increases in MAP are similar, the increases in ADDs (and aircraft-related pollutants) would be higher and occur sooner than with the Proposed Project.

As discussed for the Proposed Project, water quality BMPs are in place for petrochemical pollutants, and there would be no increase in the volume of runoff generated at JWA. Therefore, it is anticipated that continued implementation of NPDES-related BMPs would accommodate the increased concentration of petrochemicals within the existing runoff flows. Annual reporting to the Santa Ana RWQCB would ensure the effectiveness of water quality BMPs regardless of the intensity Airport operations. Therefore, the increase in average daily flights and annual passengers under Alternative A would not violate water quality standards; would not contribute

substantial additional sources of polluted runoff; and would not otherwise substantially degrade water quality. Alternative A would result in a less than significant impact and no mitigation is required.

Impact Conclusion: *Alternative A 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.*

Alternative B

Alternative B would result in an increase of up to approximately 39 percent of MAP served and 35 percent of noise-regulated ADDs relative to existing conditions. Accordingly, the increase in the concentration of petrochemicals associated with the increased operation of aircraft and automobiles collected in the storm water runoff from JWA would be greater for Alternative B than the Proposed Project. Compared to the Proposed Project, the increases in both MAP and ADDs (and related pollutants) would be higher and would occur sooner.

As discussed for the Proposed Project, water quality BMPs are in place for petrochemical pollutants, and there would be no increase in the volume of runoff generated at JWA. Therefore, it is anticipated that continued implementation of NPDES-related BMPs would accommodate the increased concentration of petrochemicals within the existing runoff flows. Annual reporting to the Santa Ana RWQCB would ensure the effectiveness of water quality BMPs regardless of the intensity of Airport operations. Therefore, the increase in average daily flights and annual passengers under Alternative B would not violate water quality standards; would not contribute substantial additional sources of polluted runoff; and would not otherwise substantially degrade water quality. Alternative B would result in a less than significant impact and no mitigation is required.

Impact Conclusion: *Alternative B 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.*

Alternative C

Alternative C would result in an increase of up to approximately 56 percent in the MAP served and 168 percent (i.e., approximately 1.7 times) in the noise-regulated ADDs relative to existing conditions. Accordingly, the increase in concentration of petrochemicals associated with the increased operation of aircraft and automobiles collected in the storm water runoff from JWA would be greater for Alternative C than the Proposed Project. Compared to the Proposed Project, the increases in both MAP and ADDs (and related pollutants) would be higher and occur sooner with Alternative C than with all other alternatives, except the No Project Alternative.

As discussed for the Proposed Project, water quality BMPs are in place for petrochemical pollutants, and there would be no increase in the volume of runoff generated at JWA. Therefore, it is anticipated that continued implementation of NPDES-related BMPs would accommodate the increased concentration of petrochemicals within the existing runoff flows. Annual reporting to

the Santa Ana RWQCB would ensure the effectiveness of water quality BMPs regardless of the intensity Airport operations. Therefore, the increase in average daily flights and annual passengers under Alternative C would not violate water quality standards; would not contribute substantial additional sources of polluted runoff; and would not otherwise substantially degrade water quality. Alternative C would result in a less than significant impact and no mitigation is required.

Impact Conclusion: *Alternative C 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.*

No Project Alternative

The No Project Alternative would result in an approximately 1.63 MAP increase and 5 noise-regulated ADDs relative to existing conditions. Accordingly, there would be no increase in the concentration of petrochemicals associated with the increased operation of aircraft and automobiles collected in the storm water runoff from JWA. JWA would continue to implement, monitor, and report on the effectiveness of all NPDES-related BMPs in compliance with permit requirements such that there is no impact to water quality compared to the existing conditions; no mitigation is required.

While there would be no direct impact to water quality associated with the No Project Alternative, this alternative has the potential to indirectly result in increased petrochemical pollutant emissions because the Settlement Agreement would no longer be in effect. Contingent upon additional discretionary action and CEQA compliance by the County's Board of Supervisors, Airport operations under the No Project Alternative in terms of MAP and ADDs could ultimately be similar to, or the same as, Alternative C, which is based on the current physical capacity of JWA's airfield. In addition, other changes may be made to Airport operations in the absence of the Settlement Agreement, and these would require detailed analysis when formulated. As discussed for the Proposed Project, if Airport operations are expanded in the absence of the Settlement Agreement, it is anticipated that continued implementation of NPDES-related BMPs would accommodate the increased concentration of petrochemicals within the existing runoff flows; annual reporting to the Santa Ana RWQCB would ensure the effectiveness of water quality BMPs. Therefore, an increase in Airport operations under the No Project Alternative would not violate water quality standards; would not contribute substantial additional sources of polluted runoff; and would not otherwise substantially degrade water quality. The No Project Alternative would result in a less than significant impact and no mitigation is required.

Impact Conclusion: *The No Project Alternative 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*.

4.10.6 MITIGATION PROGRAM

No significant water quality impacts would result from the implementation of any Project scenario. Therefore, no water quality mitigation measures have been identified.

4.10.7 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Due to the lack of significant project impacts, no mitigation measures were necessary. As a result, there would be no significant unavoidable impacts associated with any Project scenario.

These findings are summarized in Table 4.10-2.

TABLE 4.10-2
SUMMARY OF WATER QUALITY IMPACTS

Threshold	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Threshold 4.10-1	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact
Threshold 4.10-2	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact
Threshold 4.10-3	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact	Less than significant impact

4.10.8 REFERENCES

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5.0 CUMULATIVE IMPACTS

5.1 INTRODUCTION

In requiring the State Office of Planning and Research to develop guidelines for the implementation of CEQA, the *Public Resources Code* Section 21083(b) 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.

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.

5.2 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".[1]

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 Proposed Project, both the list approach (Section 15130(b)(A)) and the growth projections approach (Section 15130(b)(B)) to the analysis have been used. In keeping with the State 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. Section 5.2.1 below provides an overview of how the regional projections have been incorporated from adopted plans into the cumulative evaluation. Section 5.2.2 provides a summary of the related projects that have been identified as potentially cumulative.

As indicated below in Section 5.2.2, surrounding jurisdictions were contacted in October and November 2013 to provide input on additional related projects that should be included in the analysis. The jurisdictions that were contacted include County of Orange, City of Newport Beach, City of Costa Mesa, City of Irvine, City of Santa Ana, and City of Tustin. The related projects that these jurisdictions identified are listed in Tables 5-1 through 5-6 and graphically in Section 5.2.2 below.

[1] *Sierra Club v. West Side Irrigation Dist.* (2005) 128 Cal.App.4th 690, 700.

The cumulative study area varies from one environmental topic to another depending upon the nature of impacts related to that particular issue, as described further below.

5.2.1 ORANGE COUNTY PROJECTIONS – 2010 MODIFIED

For this Project, one component of the cumulative analysis is the growth projected in the OCP-2010 Modified socioeconomic projections for the study area.[2] The OCP-2010 Modified projections 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. The purpose of establishing countywide projections is to establish a consistent database for jurisdictions to use for planning efforts. The OCP-2010 Modified projections are used in the demographic projections for this EIR to ensure consistency with local and regional planning efforts.

To ensure that the adopted socioeconomic data reflects the current conditions in Orange County, the data sets 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 of Orange, 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-2010 Modified projections provide forecasts to the year 2035 and take into account the projected growth Orange County in its entirety. OCP-2010 Modified projections are particularly useful in evaluating the cumulative impacts associated with traffic, air quality, greenhouse gas ("GHG") emissions, and noise because they provide growth assumptions consistent with the local general plans that have been developed with a long-range horizon year. This allows the cumulative analysis to go beyond just a listing of projects, which would not adequately reflect conditions at Project buildout.

The OCP-2010 Modified projections reflect not just local growth but the anticipated growth for the region. Therefore, these numbers are also integrated into the regional planning programs, such as the Air Quality Management Plan ("AQMP"), the Regional Transportation Plan ("RTP"), and 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.

The OCP-2010 Modified projections are incorporated into the traffic modeling effort which, in turn, is used for the traffic-related noise, air quality and GHG emissions analyses. Therefore, the long-range (2030) analyses done for air quality, GHG, noise, and transportation/traffic (contained in Sections 4.1, 4.3, 4.6, and 4.8, respectively) incorporate the effects of all the development assumed in the OCP-2010 Modified projections.

[2] OCP-2010 Modified socioeconomic projections are available for review at the John Wayne Airport, 3160 Airway Avenue, Costa Mesa, California and the California State University at Fullerton, Center for Demographic Research, 2600 Nutwood Avenue, Suite 750, Fullerton, California.

5.2.2 REASONABLY FORESEEABLE PROBABLE FUTURE PROJECTS

As indicated above, the growth assumed in the OCP-2010 Modified projections is used in the evaluation of cumulative impacts. To ensure that the cumulative impact analysis also provides as much detail as possible regarding other projects in the study area, the County of Orange and the cities of Newport Beach, Costa Mesa, Irvine, Tustin and Santa Ana were contacted for input on potential cumulative impacts. The cities provided a listing of possible cumulative projects to use as part of the evaluation in this EIR. The use of the specific projects in the evaluation allows for a closer scrutiny of potential cumulative impacts.

Tables 5-1 through 5-6 identify known projects that were provided by the above-listed jurisdictions to be considered as cumulative projects. Efforts have been made to get the current status of the projects. A number of them appear to be on hold; however, they have been included in the listings to ensure that the analysis is comprehensive and because they are reasonably foreseeable. The locations of the cumulative projects listed in Tables 5-1 through 5-6 are shown on Exhibits 5-1 through 5-6.

TABLE 5-1
POTENTIAL CUMULATIVE PROJECTS – COUNTY OF ORANGE

Project	Proposed Land Uses	Location	Determination/Status
John Wayne Airport ("JWA") New Jet Fuel Pipeline and Tank Farm	Wickland Pipelines LLC is proposing construction of an approximately 5-mile long, 12-inch common carrier jet fuel pipeline connecting JWA to an existing 16-inch pipeline operated by Kinder Morgan Energy Partners. The proposed pipeline will be 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 pipeline will be horizontally directionally drilled under several major channels and roadways, including Interstate 405.	The proposed pipeline would connect to the existing Kinder Morgan products pipeline at a location near the planned intersection of Edinger Avenue and Tustin Ranch Road, and would proceed southwest to the new proposed fuel farm on Airport property in close proximity to the existing Airport fuel tank farm.	The IS/MND (Errata, MMRP) and the Encroachment application were conditionally approved subject to applicable Findings and Conditions of Approval (COA) on May 8, 2014 by the Director, OC Planning. The NOD was also filed on May 8, 2014. However, the Encroachment Permit will not be issued until all applicable COAs are satisfied.
Parking Structure C, Phase 2 ("C2")	Construction of Parking Structure C2 would add 1,381 parking spaces.	John Wayne Airport; 18601 Airport Way (Santa Ana)	Parking Structure C was evaluated in EIR No 582 (SCH No. 2003091046) and approved by the County in October 19, 2004. Though design is complete, construction will not occur until demand warrants. .
5 Unit Townhome Complex	5-unit townhome complex.	2562 Santa Ana Avenue (Costa Mesa)	PA130032 for a Use Permit was approved by the Planning Commission on January 8, 2014.

TABLE 5-2
POTENTIAL CUMULATIVE PROJECTS – NEWPORT BEACH

Project	Proposed Land Uses	Location	Determination/Status	Discretionary Actions
919 Bayside Drive	Development of 17 individual residential lots; 1 common recreational lot with possible pool and trellis structure; 2 landscape/open space lots; waterfront and dock lots.	919 Bayside Dr.; southwest of Bayside Dr. and Jamboree Rd	IS/MND and project approved in 2008. The CDP has been approved by the Coastal Commission. Project has not been constructed.	• IS/MND • Code Amendment • Use Permit • TTM • CDP (Coastal Commission)
AERIE	Residential development including the following: (a) the demolition of the existing residential structures on the 1.4-acre site; (b) the development of 8 residential condominium units; and (c) the replacement, reconfiguration, and expansion of the existing gangway platform, pier walkway, and dock facilities on the site.	201–207 Carnation Ave and 101 Bayside Pl; southwest of Bayside Dr. between Bayside Pl and Carnation Ave, Corona del Mar	Final EIR was certified and project approved by the City on July 14, 2009. The CDP has been approved by the Coastal Commission. The Project has not been constructed.	• EIR • GP Amendment • CLUP Amendment • Zone Change • Tract Map • Modification Permit • CDP (Coastal Commission)
Back Bay Landing	Request for legislative approvals to accommodate the future redevelopment of a portion of the property with a mixed-use waterfront project. The Planned Community Development Plan would allow for the development of a new enclosed dry stack boat storage facility for 140 boats, 61,534 sf of visitor-serving retail and recreational marine facilities, and up to 49 attached residential units.	300 E. Coast Highway (generally located at the northwesterly corner of east Coast Highway and Bayside Drive)	Draft EIR was circulated for a 45 day public review period from October 3, 2013 through November 18, 2013. The project was approved by the City Council on February 11, 2014.	• General Plan Amendment • Coastal Land Use Plan Amendment • Planned Community Development Plan • Lot Line Adjustment

TABLE 5-2
POTENTIAL CUMULATIVE PROJECTS – NEWPORT BEACH

Project	Proposed Land Uses	Location	Determination/Status	Discretionary Actions
Balboa Marina Expansion	City of Newport Beach Public Access and Transient Docks and Expansion of Balboa Marina. Project to include 25 boat slips, 20,000 sf restaurant, and 15,000 sf marine commercial.	201 E. Coast Highway	Application submitted on November 19, 2013. On December 19, 2013, the City requested additional information for the application. The IS/MND is currently being prepared. Construction anticipated to begin Fall 2015.	• IS/MND • Site Development Review • CDP (Coastal Commission)
Banning Ranch	Development of 1,375 residential dwelling units, a 75-room resort inn and ancillary resort uses, 75,000 sf of commercial uses, approximately 51.4 gross acres of parklands, and approximately 252.3 gross acres of permanent open space.	Generally located north of West Coast Highway, south of 19th Street, and east of the Santa Ana River	The City Council approved the project and certified the Final EIR in July 2012. The project and California Environmental Quality Act (CEQA) documentation were litigated. In November 2013, the Superior Court of California upheld the adequacy of the Final EIR but overturned the project because of the project's inconsistency with a General Plan policy. The City is in the process of appealing the decision.	• Development Agreement • General Plan Amendment to the Circulation Element • Code Amendment • Pre-annexation Zone Change • Planned Community Development Plan • Master Development Plan • Tentative Tract Map • Affordable Housing Implementation Plan • Traffic Phasing Ordinance Traffic Study

TABLE 5-2
POTENTIAL CUMULATIVE PROJECTS – NEWPORT BEACH

Project	Proposed Land Uses	Location	Determination/Status	Discretionary Actions
Beauchamp Project	5-unit residential development.	2000–2016 East Balboa Blvd; east of East Balboa St and L Street	Draft IS/MND was released for public review on January 12, 2010. Planning Commission recommended approval on March 4, 2010. The IS/MND and the project was approved by the City Council on May 25, 2010. The CDP has been approved by the California Coastal Commission. The project has not been constructed.	• GP Amendment • CLUP Amendment • CDP (California Coastal Commission)
Coast Community College District - Newport Beach Learning Center Project	3-story, 67,000-sf learning facility.	505–1533 Monrovia Ave; west of Monrovia Ave and north of the terminus of 15th St	IS/MND and project approved August 2009. Pursuant to the City's Traffic Phasing Ordinance, a traffic study is required. The traffic study and parcel map were approved by the City on April 22, 2010. The project has been constructed and is complete.	• IS/MND • Parcel Map • Traffic Study

TABLE 5-2
POTENTIAL CUMULATIVE PROJECTS – NEWPORT BEACH

Project	Proposed Land Uses	Location	Determination/Status	Discretionary Actions
General Plan Land Use Element Amendment	The Project is an amendment to the City of Newport Beach General Plan Land Use Element. The amendment is intended to shape future development within the City and invoices the alteration, intensification, and redistribution of land uses in certain subareas of the City, including Newport Center/Fashion Island, Newport Coast, and the Airport Area near JWA. The Airport Area modifications are focused on four areas: The Hangars, Saunders Properties, Lyon Communities, and UAP Companies. Combined, these four projects would allow 334,877 square feet of retail, 1,179 residences (850 identified as replacement units), a 150 room hotel, and a congregate care facility. The Amendment also includes Land Use Element policy revisions and updates/refinements, and amendments to the Zoning Code, Zoning Map, and Coastal Land Use Plan.	City of Newport Beach	A Draft Supplemental Environmental Impact Report (SEIR) was released for 45-day public review and comment period, which ended on April 30, 2014. Public hearings on the amendment are tentatively scheduled for July 2014. If approved by the City Council, the amendment will be placed on the November 2014 ballot for voter approval pursuant to Section 423 of the Charter of the City of Newport Beach.	• GP Amendment • Coastal LUP Amendment • Zoning Map Amendment • Zoning Code Amendment

TABLE 5-2
POTENTIAL CUMULATIVE PROJECTS – NEWPORT BEACH

Project	Proposed Land Uses	Location	Determination/Status	Discretionary Actions
Golf Realty Tennis Club	Demolition of existing tennis and golf clubhouses to construct a new 3,735 sf tennis clubhouse and 35,000 sf golf clubhouse. Included in the project are 27 short-term, visitor-serving units (bungalows); a bungalow spa/fitness area and concierge and guest meeting facilities; and 5 single-family residential dwelling units (villas).	1600 East Coast Hwy	The City Council approved the construction of a new 3,735 sf. tennis clubhouse, 27 hotel units with spa/fitness area and concierge and guest meeting facilities; and five single-family residential dwelling units. The project was approved by the City Council on March 27, 2012 and by the California Coastal Commission in April 2013. The project has not been constructed.	• Development Agreement • PC Development Plan Amendment • TTM • Transfer of Development Rights • CDP (Coastal Commission)
Hoag Memorial Hospital Presbyterian Master Plan Update	General Plan Amendment to reallocate up to 225,000 sf of previously approved (but not constructed) square footage from the Lower Campus to the Upper Campus.	1 Hoag Dr.; northwest of West Coast Hwy and Newport Blvd	Final EIR certified and project approved on May 13, 2008. No new development has been constructed.	• EIR • GP Amendment • Planned Community Development Plan (PC) Text Amendment • Development Agreement Amendment • CDP (California Coastal Commission)
Hyatt Regency Newport Beach Expansion	Improvements to the existing hotel, which include the addition of 88 new timeshare units; a 24,387 sf, 800-seat ballroom/meeting building; a 10,072-sf spa and new pool; and a 2-level parking garage.	1107 Jamboree Rd; northwest of Back Bay Dr. and Jamboree Rd	Final EIR certified and project approved on February 24, 2009. The project has not obtained a CDP; therefore, the City's entitlements cannot be implemented.	• EIR • Use Permit • Parcel Map • Modification Permit • Development Agreement • CDP (California Coastal Commission)

TABLE 5-2
POTENTIAL CUMULATIVE PROJECTS – NEWPORT BEACH

Project	Proposed Land Uses	Location	Determination/Status	Discretionary Actions
Koll Mixed Use Development	Development of 260 residential units.	4343 Von Karman Ave	Application submitted. No activity.	• PC Development Plan Amendment • Traffic Study (TPO) • Development Agreement • Airport Land Use Commission
Lido House Hotel	Construction and operation of the 130-room, Lido House Hotel project to be located at the former City Hall site.	3300 Newport Boulevard and 475 32nd Street	Application submitted. Notice of Availability was released on April 29, 2014 for a 45-day public review period.	• EIR • GP Amendment • Coastal Land Use Plan Amendment • Zoning Code Amendment
Lido Villas (DART)	Request for the demolition of an existing church and office building and legislative approvals for the development of 23 attached three-story townhome condominiums. The Planned Community would allow for site specific setbacks and an increase in the height limit up to 35 ft 4 inches and 39 ft for architectural projections.	3303 and 3355 Via Lido Generally bounded by Via Lido, Via Oporto, and Via Malaga.	MND was approved by the Planning Commission on September 9, 2013 and by the City Council in November 2013. Construction has not starting pending approval from the CCC. CCC permit application was submitted April 4, 2014.	• GP Amendment • Coastal Land Use Plan Amendment • Zoning Code Amendment • PC Development Plan • Tentative Tract Map
MacArthur at Dolphin-Striker Way	Demolition of a 7,996 sf restaurant and 12,351 sf commercial retail development.	4221 Dolphin-Striker Way	MND, Transfer of Development Rights, Traffic Study, CUP, Waiver of DA, and Modification Permit were approved by City Council on October 25, 2011. PC Development Plan Amendment approved on November 22, 2011. The project is completed, except for one freestanding building pad.	• PC Development Plan Amendment • Transfer of Development Rights • Traffic Study (TPO) • CUP • Waiver of DA • Modification Permit

TABLE 5-2
POTENTIAL CUMULATIVE PROJECTS – NEWPORT BEACH

Project	Proposed Land Uses	Location	Determination/Status	Discretionary Actions
Marina Park	Development includes a public park and beach with recreational facilities; restrooms; a new Girl Scout House; a public short-term visiting vessel marina and sailing center; and a new community center with classrooms and ancillary office space.	1700 Balboa Blvd; west of 15th St and east of 19th St	The Final EIR was certified and the project approved on May 11, 2010. The CDP application has been approved. Construction is proposed to start late Winter 2014.	• EIR • General Construction Activity Storm Water (NPDES) Permit (RWQCB) • CDP (California Coastal Commission) • Section 401 Certification (RWQCB)
Mariner's Medical Arts Project	A 12,763 sq. ft. addition to an existing 17,500 sq. ft. medical office complex. The existing medical office complex was designed by Master architect Richard Neutra and is considered to be significant historical resource.	1901 Westcliff Dr.	Application was withdrawn on January 22, 2013.	n/a
Mariner's Pointe	A 19,905-sf, two-story commercial building and a three-story parking structure.	200-300 West Coast Highway	An IS/MND was released for public review on April 11, 2011. The MND was certified and the project approved by the City Council on August 9, 2011. As of February 2014, construction is nearing completion.	• GP Amendment • Code Amendment • CUP • Variance • Site Development Review • Traffic Study
Megonigal Residence	3,566 sf single-family residence.	2333 Pacific Dr., Corona del Mar	Final EIR and project approved on January 12, 2010. The CDP has been approved. Building permits have been issued for this project. The project is currently under construction.	• EIR • Modification Permit

TABLE 5-2
POTENTIAL CUMULATIVE PROJECTS – NEWPORT BEACH

Project	Proposed Land Uses	Location	Determination/Status	Discretionary Actions
Newport Beach City Hall and Park Development	Relocation of City Hall (except for the Fire Department). Construction and operation of the following: (a) an approximate 90,000 sf City Hall building, meeting hall, and Council Chambers; (b) a 450-space parking structure; (c) an approximate 20,000 sf expansion of the Newport Beach Central Library; and (d) construction of a public park.	1100 Avocado Ave; between Avocado Ave and MacArthur Blvd	Final EIR certified and project approved on November 24, 2009. Project construction began in May 2010. Construction has been completed.	• EIR • Design plans • Exemption from Zoning Code and PC 27
Newport Beach Country Club Inc.	Demolition of existing golf course and clubhouse to construct of a new 51,213 sf golf clubhouse and ancillary facilities, including a cart barn and bag storage.	1600 East Coast Hwy; northwest of Pacific Coast Hwy and Newport Center Dr.	This project was approved by the City Council on February 28, 2012 and approved by the California Coastal Commission in December 2012. In January 2014, a new application was filed for minor changes to the plans.	• GP Amendment • Planned Community (PC) Text Adoption • Temporary Use Permit • Development Agreement • Approval-in-Concept for CDP (California Coastal Commission)
Newport Business Plaza	Demolition of 2 existing connected buildings to construct a new 46,044 gross sf business plaza.	4699 Jamboree Rd and 5190 Campus Dr.	The City Council approved the project on January 25, 2011. Ordinance became effective on February 25, 2011. The project has not been constructed.	• GP Amendment • PC text amendment • Tentative Parcel Map
Newport Harbor Yacht Club	Demolition of the approximately 20,500 sf yacht club facility and construction of a new 23,163 sf facility. The yacht club use will remain on the subject property.	720 West Bay Avenue, 800 West Bay Avenue, 711-721 West Bay Avenue, and 710-720 Balboa Boulevard	Project approved by the City Council on February 25, 2014. The Coastal Land Use Plan for the Project was submitted to the California Coastal Commission on April 23, 2014.	• GP Amendment • Coastal Land Use Plan Amendment • Zoning Code Amendment • Planned Development Permit • CUP

TABLE 5-2
POTENTIAL CUMULATIVE PROJECTS – NEWPORT BEACH

Project	Proposed Land Uses	Location	Determination/Status	Discretionary Actions
Newport Beach Marina	A mixed-use development consisting of 27 residential units and approximately 36,000 sf of retail and office uses.	2300 Newport Boulevard	Final EIR certified and project approved on December 7, 2006. Tentative Tract Map extended in October 2010. Building permits issued February 2012. The project is currently under construction.	• Site Plan Review • Use Permit • Tentative Tract Map
North Newport Center Planned Community	The North Newport Center Planned Community (PC) Development Plan serves as the controlling zoning ordinance for the sub-areas identified in the PC Development Plan and is authorized and intended to implement the provision of the Newport Beach General Plan.	The North Newport Center PC District is comprised of seven sub-areas that include Fashion Island and Block 600 and portions of Block 100, Block 400, Block 500, Block 800, and San Joaquin Plaza.	As of December 31, 2010, the remaining entitlement consists of 126,933 sf of retail in Fashion Island; 430 du in Block 500; and 434,736 sf of office in Block 600.	• Addendum to the Newport Beach General Plan Program EIR
Old Newport GPA	Demolition of 3 existing buildings to construct a new 25,000 sf medical office building.	328, 332, and 340 Old Newport Blvd	The IS/MND and project were approved on March 9, 2010. No current activity.	• Modification Permit • Traffic Study • Use Permit • GP Amendment
Plaza Corona Del Mar	Development of 1,750 sf new office space and six (6) detached townhomes.	3900-3928 East Coast Highway	Application approved by Planning Commission on January 3, 2013. No activity.	• Tentative Tract Map • MUP • CUP • Site Development Review • Zoning Code Amendment
PRES Office Building B Project	Increase the maximum allowable entitlement by 11,544 gross sf; increase the maximum allowable entitlement in office suite B by 9,917 net sf to allow for development of a new 2-level office building over a ground-level parking structure.	4300 Von Karman Ave	An IS/MND was released for public review on May 19, 2010. The MND was certified and the project approved by the City Council on February 22, 2011.	• GP Amendment • PC Text Amendment • Parcel Map

TABLE 5-2
POTENTIAL CUMULATIVE PROJECTS – NEWPORT BEACH

Project	Proposed Land Uses	Location	Determination/Status	Discretionary Actions
Rhine Channel Contaminated Sediment Cleanup	Dredging of approximately 150,000 cy of contaminated sediments within portions of Lower Newport Harbor, specifically from the Rhine Channel and nearby areas bayward of Marina Park, the American Legion Post and 15th Street. Transport sediment by ocean barge for disposal and beneficial reuse within the approved Port of Long Beach Middle Harbor Redevelopment Project confined aquatic disposal facility.	In the vicinity of Marina Park, the American Legion Post, and 15th Street	An IS/MND and conceptual project were approved by City Council on July 27, 2010. The project has been completed.	• Section 404 Permit (USACE) • Section 10 Permit (USACE) • 401 Water Quality Certification (RWQCB) • CDP (California Coastal Commission) • Dredging Lease (California State Lands Commission)
Santa Barbara Condominiums (now Meridian)	79 condominium units totaling approximately 205,232 net sf; approximately 97,231 gross sf of subterranean parking structures for a total of 201 parking spaces on site; approximately 79,140 sf of open space and approximately 21,300 sf of recreational area.	Santa Barbara Dr. west of Fashion Island	IS/MND and project approved in January 2006. The CDP has been approved by the Coastal Commission. Plan check has been submitted for building permits. The project is currently under construction.	• IS/MND • GP Amendment • CLUP Amendment • Code Amendment • Parcel Map • TTM • Modification Permit • CDP (California Coastal Commission)
Sunset Ridge Park	Develop the approximate 13.67-acre site with active and passive recreational uses.	Northwest of West Coast Hwy and Superior Ave; contiguous to Project site to the east	The Final EIR was certified and the project approved by the City on March 23, 2010. The California Coastal Commission approved the project in August 2012. The Coastal Commission issued the CDP in 2013. The City started construction in January 2014.	• EIR • Site Plan • CDP (California Coastal Commission) • Streambed Alteration Agreement (CDFG) • Section 7 (USFWS)

TABLE 5-2
POTENTIAL CUMULATIVE PROJECTS – NEWPORT BEACH

Project	Proposed Land Uses	Location	Determination/Status	Discretionary Actions
Uptown Newport Mixed Use Development	Development of 1,244 residential units and 11,500 sf of commercial retail.	4311 & 4321 Jamboree Rd	EIR, Tentative Tract Map, Traffic Study, and AHIP were approved by City Council on 2/26/2013. The PC Development Plan and Development Agreement were approved on 3/12/2013. In January 2014, the applicant requested to amend the AHIP related to the timing and amount of affordable housing that must be constructed.	• PC Development Plan Amendment and Adoption • Tentative Tract Map • Traffic Study (TPO) • AHIP • DA • Airport Land Use Commission

TABLE 5-3
POTENTIAL CUMULATIVE PROJECTS – COSTA MESA

Project	Proposed Land Uses	Location	Determination/Status	Discretionary Actions
West 17th Street and Superior Avenue Live/Work Project	Demolish existing commercial/industrial uses that currently exist at 643-651 West 17th Street and 1677 Superior Avenue to construct a 29-unit, three-story, attached live/work development.	643-651 West 17th Street and 1677 Superior Avenue	An IS/MND was released for public review from October 1, 2013 to October 30, 2013. Approved by Planning Commission on November 12, 2013.	• IS/MND • VTTM • Master Plan • Demolition Permit • Grading Permit • Building Permit
125 East Baker Street Apartment Project	Demolish existing office building to construct a new five-story 240-unit residential apartment building.	125 East Baker	The EIR was released for public review from December 20, 2013 to February 3, 2014. Approved by City Council on May 6, 2014.	• EIR • GP Amendment • Zoning Code Amendment • Rezone • Master Plan
Anchor Live/Work Project, 1527 Newport Boulevard	Construct a 40-unit, three-story, attached live/work development in place of a 43-unit mobilehome/recreational vehicle park.	1527 Newport Boulevard	An IS/MND was released for public review from November 21, 2012 to December 21, 2012. The project was approved on January 13, 2013. Demolition is currently underway.	• IS/MND • Master Plan • VTTM
2626 Harbor Boulevard 33-Unit Residential Common Interest Development	Development of 33 single-family detached homes on a 3.71 acre site.	Northeast corner of Harbor Boulevard/Merrimac Way intersection	The IS/MND was approved on September 9, 2011. Construction has not started and, the applicant has requested a time extension.	• IS/MND • GP Amendment • Rezone • Master Plan • TTM
Pacific Gateway Residences Project	Construct 113 for-lease residential units on a 2.46-acre area.	421 Bernard Street	The project is currently under construction.	• Addendum to FEIR 1050 • Master Plan Amendment

TABLE 5-4
POTENTIAL CUMULATIVE PROJECTS – CITY OF IRVINE

Project	Proposed Land Uses	Location	Status
PA 6 Residential	575 condominiums.	Generally east of SR-133, north of Irvine Boulevard and south of Portola Parkway	An Addendum to the Northern Sphere Area Final Program EIR was prepared in 2011. Construction has been initiated.
PAs 17 and 33 General Plan Amendment and Zone Change	An amendment to the General Plan Land Use Element Intensity Table (Table A-1) is proposed to transfer 600,000sf of non-residential intensity from PA 33 (Regional Commercial) to PA 17 (Research / Industrial). Additionally, a revision to Section 9-33-3 of the Irvine Zoning Code is proposed to reduce non-residential intensity in PA 33 by 600,000 sf; a revision to Section 9-17-3 of the Irvine Zoning Code is also proposed to increase the 5.5C Medical and Science designation's intensity in PA 17 by 600,000 sf. The intensity transferred to PA 17 would be added to the currently entitled but undeveloped 1,060,000 sf of Medical and Science intensity designated for the project site in the northeast area of PA 17.	PA 17 is located east of Shady Canyon Drive, south of I-405 and west of SR-133. PA 33 is a triangle-shaped area bound by I-5 to the northeast, I-405 to the south, and SR-133 to the northwest.	On September 26, 2000, the City certified the Final Program EIR for Planning Area 17 (SCH Number 2000021051). A Supplemental EIR is currently in preparation for the proposed GPA and ZC.
PA 33 Spectrum Restaurant	14,427 sf restaurant.	31-115 Fortune Drive	Modification of an existing entitlement and the 14,427 sf restaurant was analyzed as part of the EIR for General Plan Amendment and Zone Change for Planning Areas 18, 34, 39, and Lot 109 of Planning Area 33.
PA 40 East Residential	485 apartments and 54,987 sf office.	Project site is bound by Nightmist to the south, Roosevelt to the North, 133 to the East and Sand Canyon to the west.	Project analyzed as part of Program EIR (Planning Area 40/12 GPA and Zone Change EIR).

TABLE 5-4
POTENTIAL CUMULATIVE PROJECTS – CITY OF IRVINE

Project	Proposed Land Uses	Location	Status
PA 51 High School	High school with a capacity of 2,600 students.	Southeast corner of Irvine Boulevard and future "B" Street, east of Sand Canyon and Highway 133 and west of Alton and Bake Parkways	EIR was certified on November 12, 2013.
Campos Verdes (formerly New Irvine Technology Center)	1,600 residential units; up to 17,000 sf retail/restaurant uses; and up to 23,000 sf accessory retail/resident serving uses.	Northwest corner of Jamboree Road/Campus Drive intersection	Application submitted to City. No environmental documentation currently available.
96 Corporate Park	37,587 sf medical office.	96 Corporate Park	A Conditional Use Permit was submitted for this project, but the project is currently on hold. The expected environmental documentation is an exemption.
Hilton Garden Inn	170-room extended stay hotel.	2381 Morse	Urban infill exemption applied to this project.
Homewood Suites	161-room extended stay hotel and 3,100 sf of general retail.	17330 Red Hill Avenue	Urban infill exemption applied to this project.
2852 McGaw/17321 & 17351 Murphy residential	280 dwelling units.	2852 McGaw/17321 & 17351 Murphy	Project is on hold, and there is no environmental documentation available for review yet.
2772 Main/ 2699 & 2719 White residential	362 dwelling units.	2772 Main/ 2699 & 2719 White	Project is incomplete and currently inactive; no environmental determination has been made.

TABLE 5-5
POTENTIAL CUMULATIVE PROJECTS – TUSTIN

Project	Proposed Land Uses	Location	Determination/Status
Tustin Legacy (MCAS Tustin Specific Plan)	Approximately 1,606 gross acre Specific Plan for the maximum development in Tustin of 4,199 dwelling units, 8.2 million sf of commercial development, 2.0 million sf of institutional/recreational development, and 133,294 sf of transitional housing.	Project site is surrounded by Red Hill Avenue on the west, Edinger Avenue and Irvine Center Drive on the north, Harvard Avenue on the east, and Barranca Parkway on the south. Jamboree Road transects the site.	Final EIS/EIR for MCAS Tustin approved January 2001. Several zone changes and Specific Plan amendments have occurred with the most recent SP Amendment in May 2013. 2,105 dwellings, 1.0 million sf of commercial development, 128,122 sf of institutional uses, and 123,664 sf in Village of Hope are complete.
Pacific Center East Specific Plan	Approximately 126 gross acre site. Maximum of 2,200,000 sf of new commercial, office, hotel, and research and development uses.	Project site is bound by the Costa Mesa Freeway (SR-55) to the west, the northern limit of the Santa Ana-Santa Fe Channel (F-lO) to the north, Red Hill Avenue and MCAS (H) Tustin to the east, and Valencia Avenue to the south.	Pacific Center East Final EIR approved August 1990. 57,151 sf in Pacific Business Center, 66,578 sf in Pacific Office Plaza, one 4-story Residence Inn with 149 guest rooms, one 4-story Fairfield Inn with 144 guest rooms, one 8,900 sf restaurant building, and one 7,300 sf retail building have been completed.
Assisted Living/Congregate Care Facility	201 unit age-restricted (62 years or older) assisted living/congregate care facility.	13841 Red Hill Avenue	MND approved by City Council on January 2, 2008 including General Plan Amendment 07-001, Zone Change 07-002, Design Review 07-012, and Conditional Use Permit 07-011. GPA and ZC are still in effect; however, entitlements for DR 07-012 and CUP 07-011 expired on July 2, 2010 due to inactivity on the project.
Newport Avenue Extension	Extension of Newport Avenue from its present cul-de-sac north of the railway line underneath the tracks to intersect with Edinger Avenue.	Newport Avenue	Supplement to Pacific Center East Final EIR approved May 2003.
Tustin Ranch Road Extension	Project includes a grade separation and 403-foot concrete bridge as part of the extension of Tustin Ranch Road from its current terminus at Walnut Avenue.	Tustin Ranch Road between Walnut Avenue and Valencia North Loop Road	Supplement to Final EIS/EIR for MCAS Tustin approved December 2004. Project completed in November 2013.

TABLE 5-6
POTENTIAL CUMULATIVE PROJECTS – CITY OF SANTA ANA

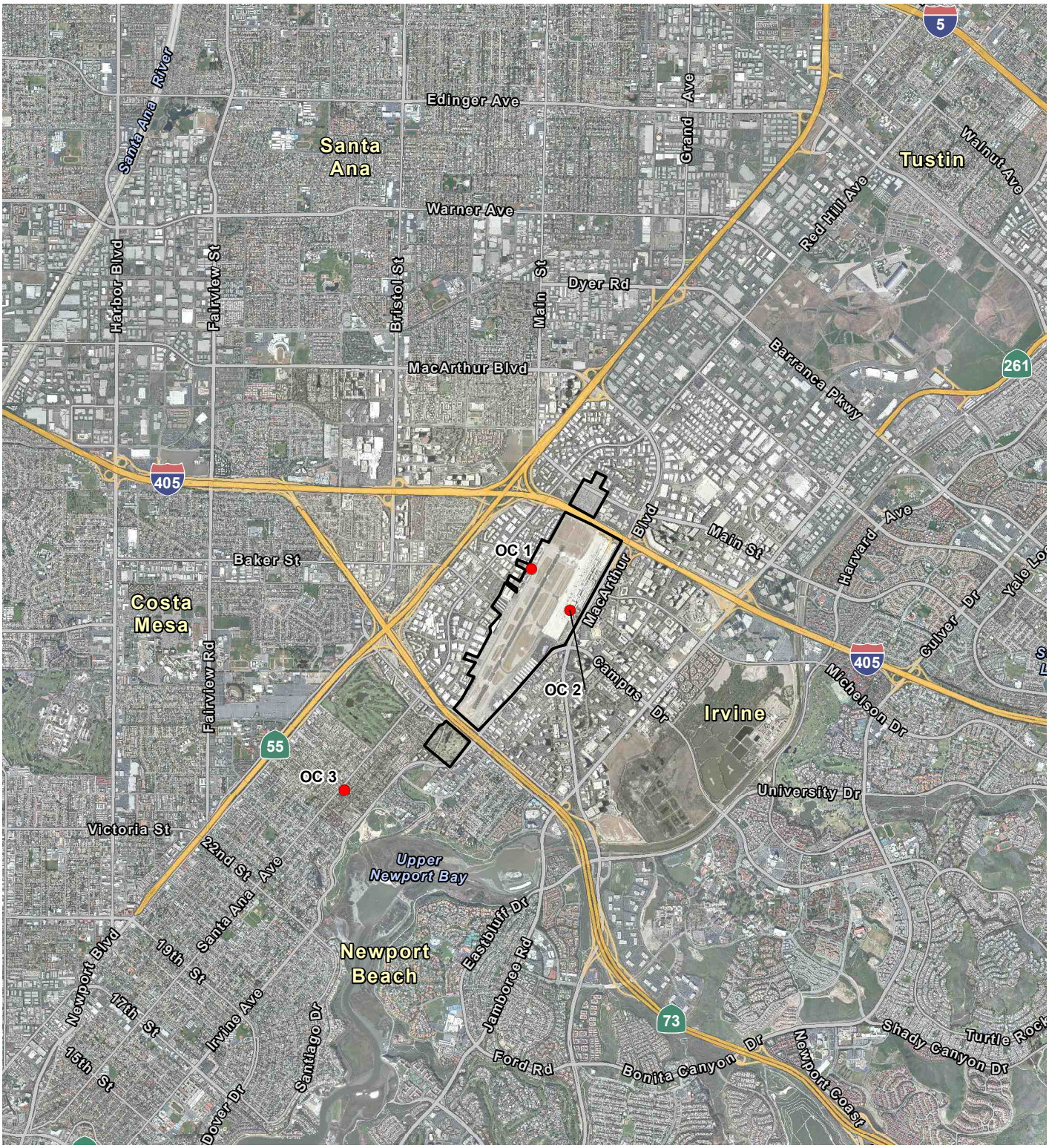
Project	Proposed Land Use	Location	Determination/Status
Alliance Church of Orange	21,000 sf Church Addition for a Gym/Classroom	2130 N. Grand Avenue	Project entitled in January 2009
Bat Nha Buddhist Meditation Center	27,428 sf Sanctuary Addition	803 S. Sullivan Street	City Council approved September 2013, currently in plan check.
Boys & Girls Club	2,700 sf Community Center Expansion	950 W. Highland Avenue	Project in Site Plan Review
Bristol-Memory Commercial Building	6,900 sf Commercial Development	2702 N. Bristol	Project approved December 2012
Catalina Retail Building	5,580 sf Commercial Development	2102 N. Tustin Avenue	Project in Site Plan Review
Christ Our Savior Cathedral	2,650 seat sanctuary	2001 W. MacArthur Boulevard	Project Entitled 2005
City Venture: Magnolia Lane	28 Single Family Residences	4226 W. Fifth Street	Negative Declaration was prepared. City Council to take action on March 18, 2014.
City Venture	8 Residential Condo	606-620 E. Fifth Street	Site Plan approved. Project currently in grading and plan check
City Venture	17 Single Family Residences	1030 S. Euclid Avenue	Project in Site Plan Review
City Venture	73 Live/Work & Residential Townhouse	1010 S. Harbor Boulevard	Project in Site Plan Review
Compass Mediation Center	16,093 sf Community Center	520 S. Harbor Boulevard	Project in Site Plan Review
Depot at Santiago	Residential apartments	923 N. Santiago	Project in Site Plan Review
Discovery Science Center Expansion	53,384 sf Commercial Development	2500 N. Main Street	Project Entitled in 2012
Discovery Science Center Ph. II	48,428 sf Expansion of the Existing Center	2500 N. Main Street	Project in Plan Check
Fifth & Harbor Commercial Building	35,349 sf Commercial Development	421 N. Harbor Boulevard	Site Plan Approved

TABLE 5-6
POTENTIAL CUMULATIVE PROJECTS – CITY OF SANTA ANA

Project	Proposed Land Use	Location	Determination/Status
Lotus Townhomes	8 Residential Townhomes	627 E. Washington Avenue	Project in Site Plan Review
Lyon Communities	250 Residential apartments	1901 E. First Street	City Council approved on October 21, 2013. Project currently in Plan Check.
Lyon Communities	14 Residential Townhomes (rental)	1901 E. First Street	City Council approved on October 21, 2013. Project currently in Plan Check.
Mater Dei Park Structure	3 story Parking Structure	1202 W. Edinger Avenue	Project in Site Plan Review/future EIR
Mater Dei Performing Arts Building	Demo Old Gymnasium (reduction of 21,320 sf)	1202 W. Edinger Avenue	Project Entitled in 2001. The gymnasium project has been completed.
Mater Dei Performing Arts Building	36,000 sf Performing Art Center	1202 W. Edinger Avenue	Project Entitled in 2001. The performing arts center has not been constructed.
Metro Town Square Expansion	6,000 sf Retail/Restaurant	3719 S. Plaza Drive	Project Entitled in 2011
One Broadway Plaza	518,000 sf Office Tower	1109 N. Broadway	Applicant in process of resubmitting plans.
One Broadway Plaza	16,000 sf Restaurant	1109 N. Broadway	Applicant in process of resubmitting plans.
ProWash Xpress Car Wash	3,300 sf Retail	4426 W. First Street	Project under construction
Sexlinger Homes	24 Single Family Residence	1584 E. Santa Clara Avenue	City Council approved on March 4, 2014
Skyline Phase II	150 unit Residential Condo	10 E. Hutton Centre	Project Entitled in Sept 2005
South Coast Speedwash	118,048 sf Commercial Development	2402 S. Bristol Street	Project in Site Plan Review
The Roost	1 Reuse of commercial to live/work unit (reduction of 109 sf)	601 E. Santa Ana Boulevard	Project in Site Plan Review

TABLE 5-6
POTENTIAL CUMULATIVE PROJECTS – CITY OF SANTA ANA

Project	Proposed Land Use	Location	Determination/Status
The 301	182 Multi-Family Residential	301 E. Jeanette Lane	City Council approved in December 2013
The Academy Charter High School	8 “Family" apartments	1901 N. Fairview Street	Project on hold.
The Academy Charter High School	110,500 sf Educational facility (high school)	1901 N. Fairview Street	Project under construction, anticipated opening Spring 2014
The Marke by Lyon Realty	300 unit Residential Condo/Rental	100-130 E. MacArthur Boulevard	Project Under construction
The MET	272 unit Residential Condo/Rental	200 E. First American Way	Project Entitled in August 2013
Town and Country Independent Living	174 unit Multi-Family Residential Condo	555 E. Memory	Project EIR in Process



Airport Property Boundary

Project Locations

OC 1: John Wayne Airport New Jet Fuel Pipeline and Tank Farm
OC 2: John Wayne Airport Parking Structure C (Phase 2)
OC 3: 5-Unit Townhome Complex

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County of Orange Cumulative Projects

Exhibit 5-1

John Wayne Airport Settlement Agreement Amendment

N W E S

1 0.5 0 1 Miles

JOHN WAYNE AIRPORT ORANGE COUNTY



Airport Property Boundary

Project Locations

NB 1: 919 Bayside Drive
NB 2: AERIE Project
NB 3: Coast Community College District - Newport Beach Learning Ctr
NB 4: Hoag Hospital Master Plan Update
NB 5: Hyatt Regency Newport Beach Expansion Project
NB 6: Back Bay Landing
NB 7: Newport Beach City Hall and Park Development
NB 8: Santa Barbara Condominiums
NB 9: Beauchamp
NB 10: Newport Business Plaza Project
NB 11: Marina Park Project
NB 12: Mariner's Medical Arts Project
NB 13: Megonigal Residence
NB 14: Newport Beach Country Club
NB 15: Pres Office Building B Project
NB 16: Shaoulian/Old Newport GPA Project
NB 17: Rhine Channel Contaminated Sediment Cleanup Project
NB 18: Sunset Ridge Park Project
NB 19: Uptown Newport Village Specific Plan Project
NB 20: North Newport Center Planned Community
NB 21: Newport Marina - ETCO Development
NB 22: Mariner's Pointe
NB 23: Balboa Marina Expansion
NB 24: Banning Ranch
NB 25: Golf Realty Tennis Club
NB 26: Koll Mixed Use Development
NB 27: Lido Villas
NB 28: MacArthur at Dolphin-Striker Way
NB 29: Newport Beach Country Club
NB 30: Newport Harbor Yacht Club
NB 31: Old City Hall Complex Redevelopment
NB 32: Plaza Corona Del Mar
NB 33: General Plan Land Use Amendment Airport Area
NB 33A: Saunders Properties
NB 33B: The Hangars
NB 33C: Lyon Properties
NB 33D: UAP Companies

Newport Beach Cumulative Projects

Exhibit 5-2

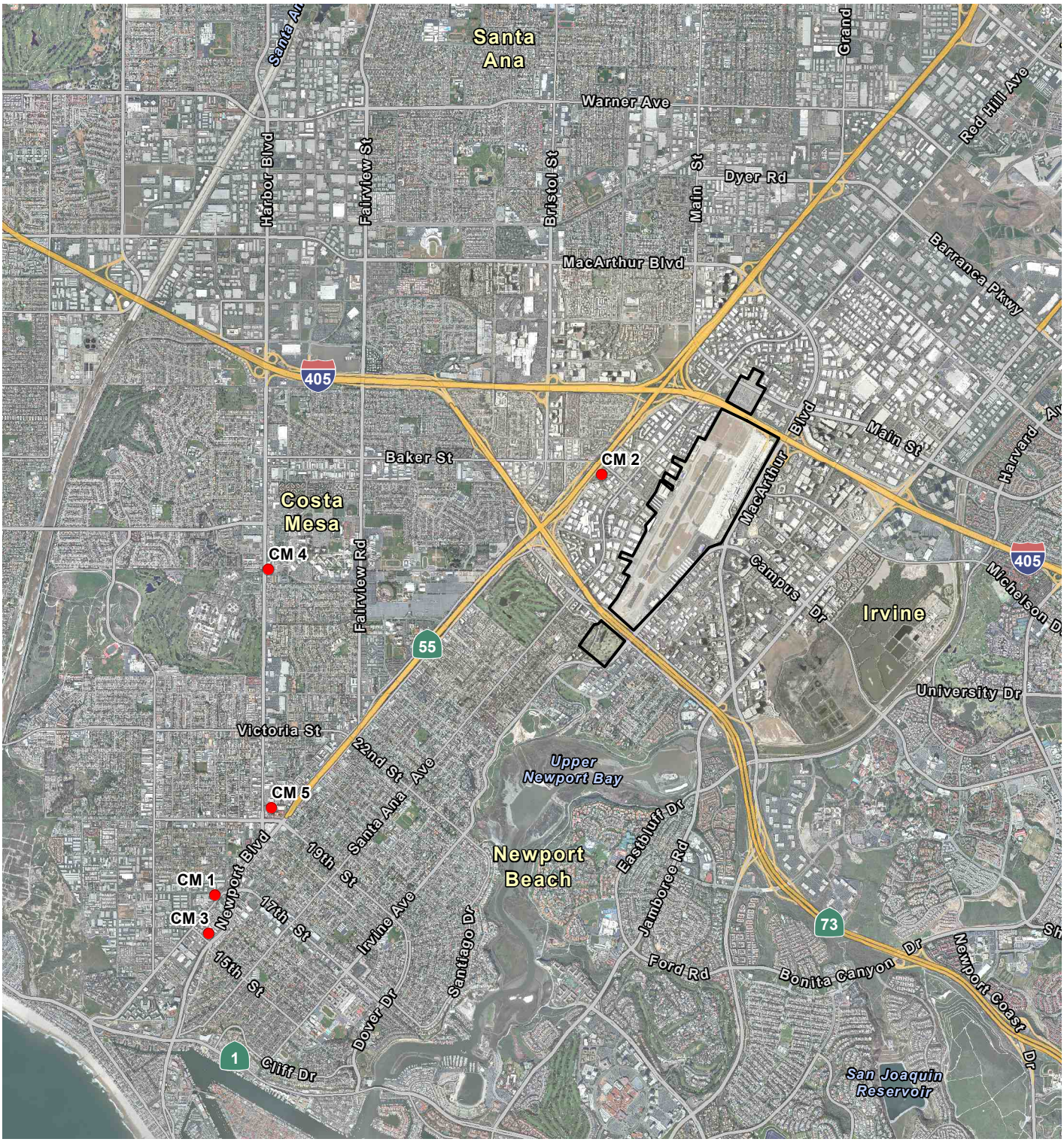
John Wayne Airport Settlement Agreement Amendment

N W E S

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JOHN WAYNE AIRPORT ORANGE COUNTY

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Airport Property Boundary

Project Locations

CM 1: West 17th Street and Superior Avenue Live/Work Project
CM 2: 125 East Baker Street Apartment Complex
CM 3: Anchor Live/Work Project, 1527 Newport Boulevard
CM 4: 2626 Harbor Boulevard 33-Unit Residential Common Interest Development
CM 5: Pacific Gateway Residences Project

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Costa Mesa Cumulative Projects

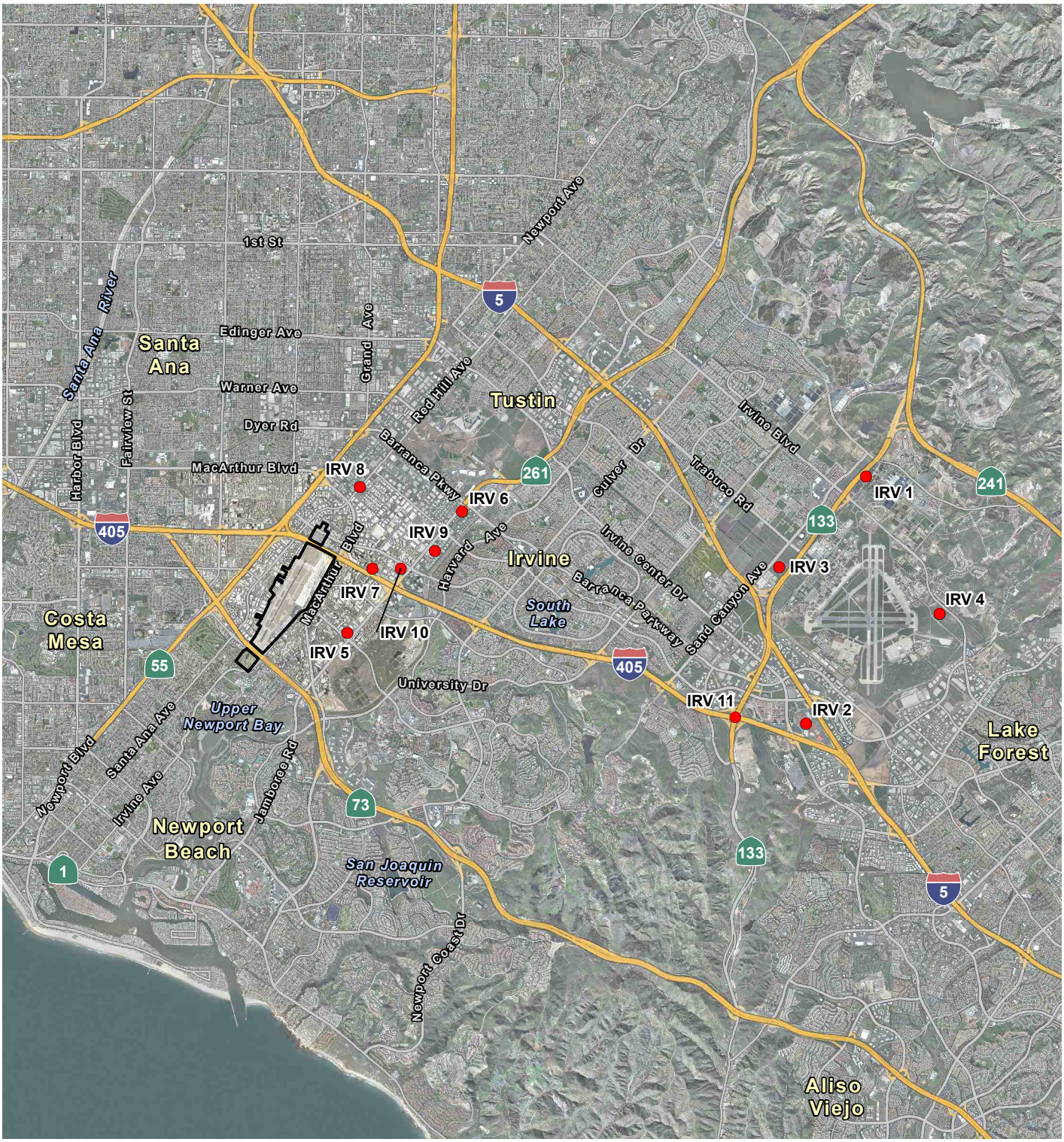
Exhibit 5-3

John Wayne Airport Settlement Agreement Amendment

N W E S

1 0.5 0 1 Miles

JOHN WAYNE AIRPORT ORANGE COUNTY



Airport Property Boundary

Project Locations

IRV 1: PA 6 Residential
IRV 2: PA 33 Spectrum Restaurant
IRV 3: PA 40 East Residential
IRV 4: PA 51 High School
IRV 5: Campos Verdes (formerly New Irvine Technology Center)
IRV 6: 96 Corporate Park
IRV 7: Hilton Garden Inn
IRV 8: Homewood Suites
IRV 9: 2852 McGaw/17321 & 17351 Murphy residential
IRV 10: 2772 Main/2699 & 2719 White residential
IRV 11: PAs 17 and 33 General Plan Amendment and Zone Change

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Irvine Cumulative Projects

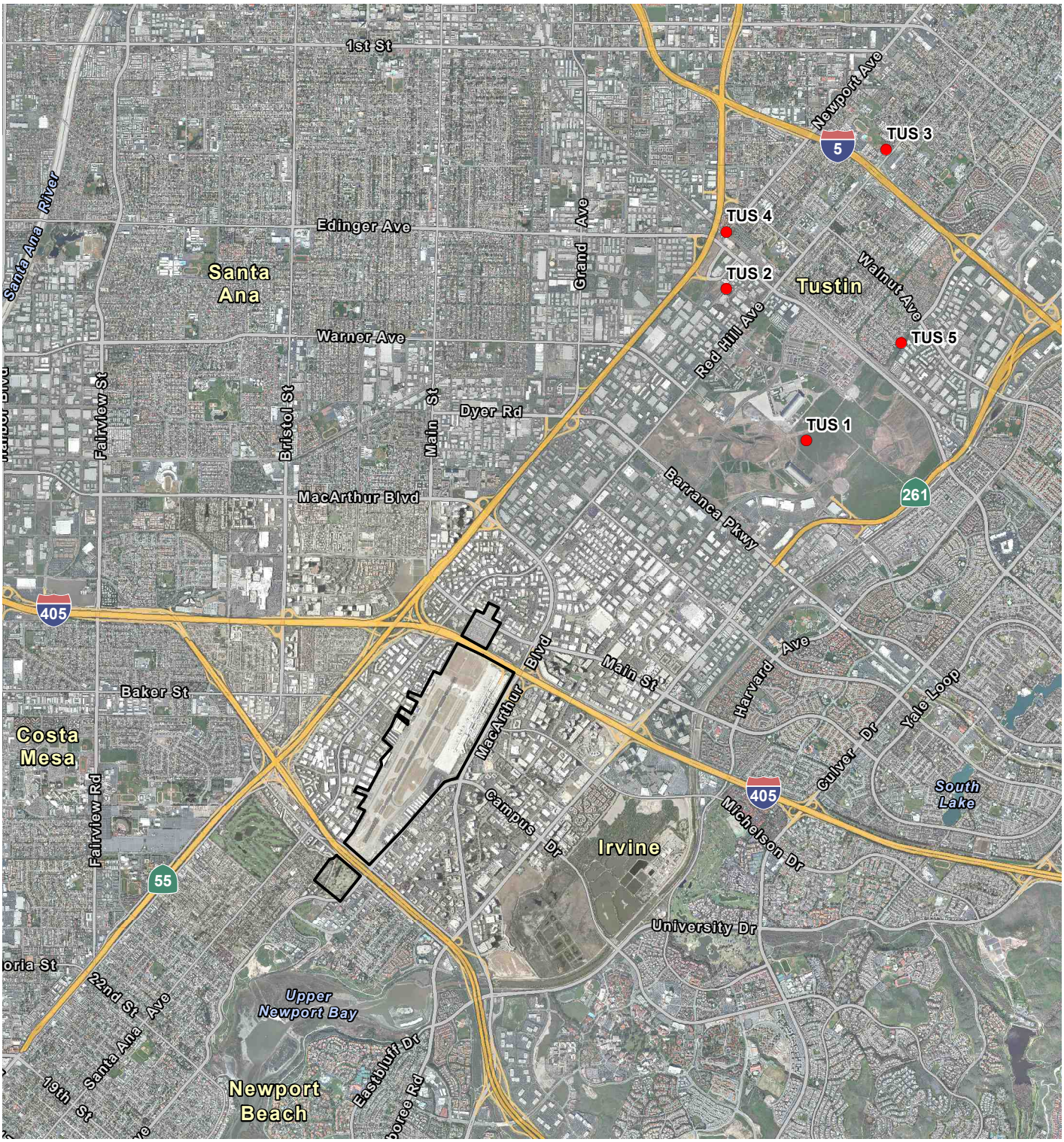
Exhibit 5-4

John Wayne Airport Settlement Agreement Amendment

N W E S

2 1 0 2 Miles

JOHN WAYNE AIRPORT ORANGE COUNTY



Airport Property Boundary

Project Locations

TUS 1: Tustin Legacy (MCAS Tustin Specific Plan)
TUS 2: Pacific Center East Specific Plan
TUS 3: Assisted Living/Congregate Care Facility
TUS 4: Newport Avenue Extension
TUS 5: Tustin Ranch Road Extension

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Tustin Cumulative Projects

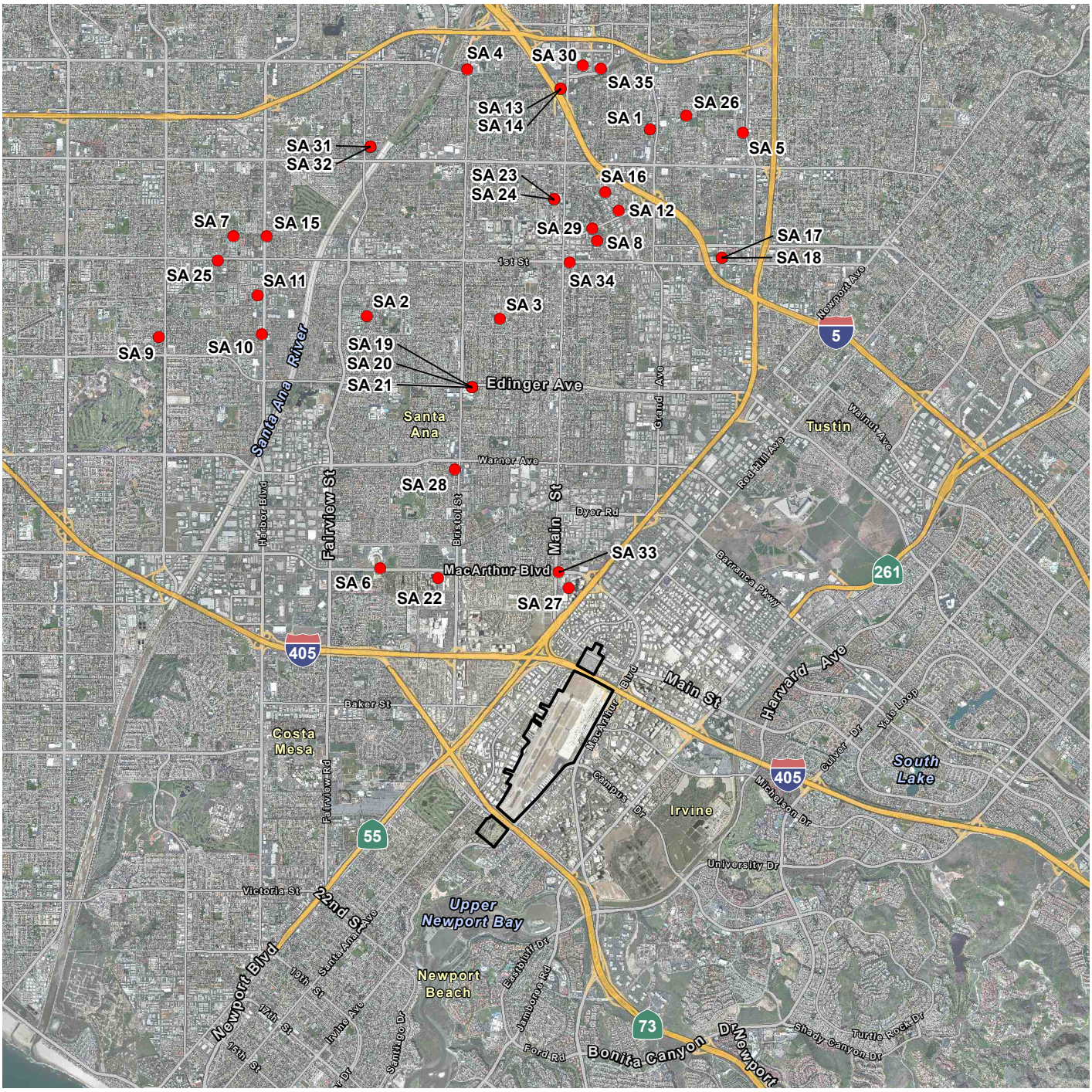
Exhibit 5-5

John Wayne Airport Settlement Agreement Amendment

N W E S

1 0.5 0 1 Miles

JOHN WAYNE AIRPORT ORANGE COUNTY



Airport Property Boundary

Project Locations

SA 1: Alliance Church of Orange
SA 2: Bat Nha Buddhist Meditation Center
SA 3: Boys & Girls Club
SA 4: Bristol-Memory Commercial Building
SA 5: Catalina Retail Building
SA 6: Christ Our Savior Cathedral
SA 7: City Venture (Magnolia Lane)
SA 8: City Venture
SA 9: City Venture
SA 10: City Venture
SA 11: Compass Mediation Center
SA 12: Depot at Santiago
SA 13: Discovery Science Center Expansion
SA 14: Discovery Science Center Phase II
SA 15: Fifth & Harbor Commercial Building
SA 16: Lotus Townhomes
SA 17: Lyon Communities
SA 18: Lyon Communities
SA 19: Mater Dei Park Structure
SA 20: Mater Dei Performing Arts Building
SA 21: Mater Dei Performing Arts Building
SA 22: Metro Town Center Expansion
SA 23: One Broadway Plaza
SA 24: One Broadway Plaza
SA 25: ProWash Xpress Car Wash
SA 26: Sexlinger Homes
SA 27: Skyline Phase II
SA 28: South Coast Speedwash
SA 29: The Roost
SA 30: The 301
SA 31: The Academy Charter High School
SA 32: The Academy Charter High School
SA 33: The Marke by Lyon Realty
SA 34: The MET
SA 35: Town and Country Independent Living

Santa Ana Cumulative Projects

Exhibit 5-6

John Wayne Airport Settlement Agreement Amendment

N W E S

1.5 0.75 0 1.5 Miles

JOHN WAYNE AIRPORT ORANGE COUNTY

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5.3 CUMULATIVE IMPACT ANALYSIS

This section analyzes potential cumulative impacts to the environment that could be associated with implementation of the Proposed Project in concert with the cumulative projects and projected growth, including the above-listed projects. As discussed above, the OCP-2010 Modified projections are used for projecting regional growth that would occur in the study area, even though this growth is not currently tied to specific projects. As part of the technical analysis done for this EIR, the cumulative projects listed in Tables 5-1 through 5-6 have been reviewed to ensure that the level of growth that would occur with these projects is provided for in the OCP-2010 Modified projections. This data was then used to evaluate the potential for cumulative impacts as a result of implementing the Proposed Project.

The threshold of significance used to determine whether the cumulative projects considered would create a significant impact on the environment, as provided in the CEQA Environmental checklist, and is as follows:

> **Does the project have impacts that are individually limited, but cumulatively considerable? "Cumulatively considerable" means that the incremental effects of an applicable 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.**

The cumulative analysis provided below addresses each of the topical issues addressed in Section 4.

5.3.1 AIR QUALITY

The study area for the consideration of regional emissions is the South Coast Air Basin (SCAB), which includes Los Angeles, Orange, and the urbanized portions of Riverside and San Bernardino Counties, including the Project site. The study area for localized health risk impacts extends to 1,000 meters from the Project site.

Cumulative impacts analysis for air quality is based on the guidance provided by South Coast Air Quality Management District ("SCAQMD") (Environ 2014).

> As Lead Agency, the SCAQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant (TAC) emissions. . .
>
> Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant.

This analysis also conservatively assumes the same non-cancer Hazard Index ("HI") significance threshold for the cumulative analysis.

The related projects are shown in Section 5.2 above. These projects may result in construction and/or operational criteria air pollutant and toxic air contaminant emissions that could contribute to cumulative impacts. However, information that could be quantitatively evaluated in combination with the Proposed Project and alternatives is generally not available for most projects listed. Without specific information for all of the related cumulative projects, it would be speculative to quantitatively evaluate the cumulative effects of these related projects. Further, based on SCAQMD's methodology to evaluating cumulative impacts, it is not necessary to develop emission estimates for the related projects to assess the Project's cumulative impacts.

Though the cumulative projects may generate short-term construction air emissions, the Project would not contribute to cumulatively significant construction impacts because the Project plans for no construction.

Based on SCAQMD's methodology, if the project exceeds the SCAQMD's recommended significance thresholds for project-specific operational air emissions, then the project would also have a cumulatively considerable increase in emissions for those pollutants. The direct, and therefore cumulatively considerable operational impacts for the Proposed Project and alternatives are as follows. Each exceedance would be a cumulatively significant impact.

- For the Proposed Project, "criteria air pollutants" ("CAPs") emissions would exceed the SCAQMD's threshold for nitrogen oxides ("NOx") in all three phases, for volatile organic compounds ("VOCs") in Phases 2 and 3, and for PM10 in Phase 3. For toxic air contaminants ("TACs") emissions, the acute non-cancer hazard index ("HI") at a worker receptor would exceed the SCAQMD threshold. [3]

- For Alternative A, CAP emissions would exceed the SCAQMD's threshold for NOx in all three phases and for VOCs and PM10 in Phase 3. For TAC emissions, the acute non-cancer HI at a worker receptor would exceed the SCAQMD threshold.

- For Alternative B, CAP emissions would exceed the SCAQMD's threshold for NOx in all three phases and for VOC, PM10, and PM2.5 in Phases 2 and 3. For TAC emissions, the acute non-cancer HI at a worker receptor would exceed the SCAQMD threshold.

- For Alternative C, CAP emissions would exceed the SCAQMD's thresholds for NOx, VOC, PM10, PM2.5 and SOx in all three phases. For TAC emissions, the cancer burden and the acute non-cancer HI at all receptor would exceed the SCAQMD thresholds.

- For the No Project Alternative, CAP emissions would exceed the SCAQMD's threshold for NOx. For TAC emissions, no SCAQMD thresholds would be exceeded.

The mitigation measures (AQ/GHG-1 through AQ/GHG-15) provided in Section 4.1, Air Quality, would serve to minimize the impacts associated with Proposed Project and alternatives; however, air quality impacts would remain a significant, unavoidable impact. Because the Project would have significant and unavoidable impacts described above, these impacts would be cumulatively considerable. Therefore, the Project would have a significant and unavoidable cumulative air quality impact.

[3] TAC impacts were evaluated for Phase 3 of the Proposed Project and each alternative.

5.3.2 BIOLOGICAL RESOURCES

For evaluation of specific projects, the biological resources cumulative study area includes development within the jurisdictions adjacent to the Airport. These are the cumulative projects listed in Tables 5-1 through 5-6. For consideration of the potential long-term growth of the region, the Orange County Central-Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan ("NCCP/HCP") area has been considered.

For both the long-term growth, as well as listing of specific projects, an understanding of the NCCP/HCP process is important. The Orange County Central-Coastal NCCP/HCP uses a multi-species habitat conservation approach rather than a species-specific approach and was developed to take a broad-based ecosystem approach to planning for the protection and management of coastally occurring wildlife and plant communities. This program anticipated and planned for impacts to native habitats and associated wildlife in the coastal subregion with a corresponding reserve system that permanently preserved coastal lands that are biologically important to the area. The reserve system for the Orange County Central-Coast NCCP/HCP encompasses 37,380 acres (CDFW 2014) In this context, habitat impacts resulting from cumulative projects discussed in Section 5.2 above would be covered under the NCCP/HCP and would not be considered cumulatively significant provided the development is located outside the designated reserve system and the cumulative projects are consistent with the program guidelines. The County of Orange and the City of Newport Beach are participating jurisdictions in the Central-Coastal NCCP/HCP.

As discussed in Section 4.2, Biological Resources, the Project site is located in the Orange County Coastal-Central Subregion NCCP/HCP; however, it is located outside the designated protection areas (reserve system). The closest NCCP/HCP-designated reserve system area is the Newport Bay Ecological Reserve, located in Upper Newport Bay. None of the cumulative projects are proposed for development within the reserve system area. Therefore, no direct impacts on the areas designed to provide for the protection and management of coastally occurring wildlife and plant communities would occur.

The other component of the evaluation is if the Project and cumulative projects would result in indirect impacts potentially diminishing function of the reserve system. No significant indirect were identified for the Proposed Project, Alternatives A and B, or No Project Alternative; however, potential significant unavoidable impacts to local population of listed bird species in Upper Newport Bay were identified with implementation of Alternative C (refer to Section 4.2, Biological Resources). These impacts would be Project-specific and would not be considered cumulative. The nature of the Project's impacts to biological resources is a result of an increase in noise from additional flights and removal of the curfew, whereas none of the cumulative projects would have this same nature of impact that results from overflights. All the cumulative projects are located outside the Central-Coastal NCCP/HCP reserve system. Based on the location of the cumulative projects, it is not expected that they would result in indirect impacts that would interfere with the function of the reserve system. Therefore, significant cumulative impacts to biological resources are not anticipated. As such, from a cumulative perspective, the Central-Coastal NCCP/HCP would serve to ensure that cumulative impacts on biological resources would not be considered significant.

5.3.3 GREENHOUSE GAS EMISSIONS

The study area for greenhouse gas ("GHG") emissions is global. .

There is no scientific or regulatory consensus regarding what particular quantity of GHG emissions would result in a substantial adverse change to the physical conditions resulting in global climate change. Further, no agency with regulatory authority and expertise (such as the California Air Resources Board ["CARB"] or SCAQMD) has adopted numeric GHG thresholds for airports for purposes of CEQA. That being said, the emissions of GHGs and corresponding contribution to global climate change are generally characterized as a cumulative problem (i.e., the incremental contributions of multiple sources across the entire planet influence global climate change).

The criterion selected for evaluating the significance of the Project's forecasted GHG emissions is conformance with the goal established by the State of California in Executive Order S-3-05 and Assembly Bill 32, i.e. the achievement of 1990 GHG emission levels by 2020, and quantified in the CARB 2008 Scoping Plan as 2020 emissions being 28.5 percent less than 2020 Business as Usual/No Action Taken ("NAT") emissions. The GHG emissions reductions for the (the Proposed Project, Alternatives A through C, and the No Project Alternative in 2020, when compared to 2020 NAT would each be less than 28.5 percent. (Threshold 4.3-1 in Section 4.3). Therefore, even with the incorporation of mitigation measures (AQ/GHG-1 through AQ/GHG-15), the Project's GHG emissions impacts would be cumulatively considerable and would be cumulatively significant.

5.3.4 HAZARDS AND HAZARDOUS MATERIALS

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 be collectively pose a significant impact. There are no cumulative projects immediately adjacent to the Airport where combined hazardous materials impacts would occur. Therefore, the hazards and hazardous materials cumulative study area for the Project is the Project site (i.e., the Airport boundary) and considers the cumulative projects identified on JWA.

The Proposed Project and all the alternatives (Alternatives A through C and the No Project Alternative) would result in an increase in fueling activities at JWA's commercial fuel farm; however, as discussed in Section 4.4, this increase in activity at the fuel farm would not result in a significant hazard to the public or environment. The Airport is regulated by State and federal laws that pertain to hazardous materials, and include stringent fuel safety protocols, regulations, and permits. These regulations would apply not only to the existing operations but also to all future activities at the Airport.

The John Wayne Airport New Jet Fuel Pipeline and Tank Farm proposal by Wickland Pipelines LLC, is the cumulative project with the greatest potential to contribute to a significant impact. This project proposes to build a fuel pipeline connecting JWA to the existing Kinder Morgan main jet fuel line located near Edinger Avenue, and to construct 2 new 1.5 million gallon fuel storage tanks within the Airport boundary and located south of the existing Airport fuel tanks. This project is still in the planning phase and has not received all necessary approvals. The project

was conditionally approved by the Director, OC Planning in May 2014 subject to applicable Findings and Conditions of Approval ("COA"). However, the Encroachment permit will not be issued until all applicable COAs are satisfied.

An operational constraint of the proposed pipeline connection is that JWA would only be able to receive weekly fuel deliveries. Total weekly delivery would be approximately 1.7 million gallons. The new tanks would connect directly to the existing fuel tanks on the Airport. Fuel cannot be distributed directly from the large tanks to the hydrant fueling system in place; it must first be transferred into one of the smaller tanks and allowed to settle. A number of project design features and mitigation measures are proposed to reduce the potential impacts of the New Jet Fuel Pipeline and Tank Farm to less than significant (County of Orange 2013).

If implemented, the New Jet Fuel Pipeline and Tank Farm project would increase the fuel storage capacity at JWA. The intent of this project is to reduce the need to truck fuel from refineries to the Airport. Annually, the pipeline would provide sufficient fuel to serve 12.0 MAP. However, as discussed in Section 4.4, Hazards and Hazardous Materials, and Section 4.5, Land Use and Planning, the analysis of the fuel capacity is done for the average day peak month ("ADPM"). An evaluation was prepared to assess the effects of the new fuel pipeline on the fuel delivery at the Airport. The evaluation assumed only one of the new large tanks would be available for useable fuel. The second tank would be used as a flex tank; transferring fuel and storing fuel that does not pass quality inspections. After the 2 large tanks and pipeline are constructed and connected to the rest of the fuel farm, 2 of the smaller tanks would then be available for daily use, increasing the daily working capacity to between 374,000 gallons and 508,000 gallons (existing capacity and with tank modifications, respectively).

As shown in Table 5-7, the Jet Fuel Pipeline and Tank Farm would minimize the number of trucks transporting jet fuel to the Airport. However, supplemental fuel delivered via tanker truck would still be required for the Proposed Project and Alternatives A through C. It is assumed that truck deliveries would occur during the nighttime hours as currently happens, with a maximum of 32 truck deliveries any 1 night. These deliveries would occur near the end of the week as fuel availability dwindles. Since the large tanks would not be directly connected to the truck unloading positions, the trucked fuel would be offloaded directly to one of the small tanks for settling.

TABLE 5-7
WEEKLY FUEL CAPACITY AND TRUCKING REQUIREMENTS
DURING THE PEAK PASSENGER MONTH WITH FUEL PIPELINE

Item	Baseline 2013	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Phase 1						
MAP Level	9.17	10.8	10.8	10.8	16.9	10.8
ADPM Passengers[a]	27,451	32,742	32,742	32,742	51,258	32,742
Required Daily Working Capacity	203,000	242,000	242,000	242,000	379,000	242,000
Days of Capacity[b]		7.0	7.0	7.0	4.5	7.0
Remaining Capacity at Weeks' End		6,000	6,000	6,000	**(953,000)**	6,000

TABLE 5-7
WEEKLY FUEL CAPACITY AND TRUCKING REQUIREMENTS
DURING THE PEAK PASSENGER MONTH WITH FUEL PIPELINE

Item	Baseline 2013	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Additional Trucks Deliveries Required during the Week		0	0	0	120	0
Number of Nights Required to Provide Additional Fuel		0	0	0	4	0
Phase 2						
MAP Level	9.17	11.8	11.4	13.0	16.9	10.8
ADPM Passengers[a]	27,451	35,774	34,581	39,419	51,258	32,742
Required Daily Working Capacity	203,000	265,000	256,000	292,000	379,000	242,000
Days of Capacity[b]		6.4	6.6	5.8	4.5	7.0
Remaining Capacity at Weeks' End		**(155,000)**	**(92,000)**	**(344,000)**	**(953,000)**	6,000
Additional Trucks Deliveries Required during the Week		20	12	43	120	0
Number of Nights Required to Provide Additional Fuel		1	1	2	4	0
Phase 3						
MAP Level	9.17	12.5	12.8	15.0	16.9	10.8
ADPM Passengers[a]	27,451	37,903	38,806	45,484	51,258	32,742
Required Daily Working Capacity	203,000	280,000	287,000	337,000	379,000	242,000
Days of Capacity[b]		6.1	5.9	5.0	4.5	7.0
Remaining Capacity at Weeks' End		**(260,000)**	**(309,000)**	**(659,000)**	**(953,000)**	6,000
Additional Trucks Deliveries Required during the Week		33	39	83	120	0
Number of Nights Required to Provide Additional Fuel		2	2	3	4	0

MAP: million annual passengers; ADPM: Average Day Peak Month

Boldface text denotes a capacity exceedance.

[a] The ADPM passengers levels are from the *Aviation Forecasts Technical Report* (Table 3.5) and are also provided in Section 3 of this EIR in Table 3-2.

[b] Assumes weekly delivery of 1.7 million gallons of fuel from the pipeline.

Source: Data from *Aviation Forecasts Technical Report,* AECOM 2014a (Table 3-5) and from the *Capacity Analysis Technical Report*, AECOM 2014b (Table 4-2).

As seen in Table 5-7, the weekly shortfall of fuel during the peak month ranges from 260,000 gallons for the Proposed Project to 953,000 gallons for Alternative C. This translates into 33 to 120 fuel truck deliveries per week or 2 to 4 nights of fuel deliveries, respectively.

In conclusion, the Jet Fuel Pipeline and Tank Farm project would result in a greater capacity for fuel being stored at the Airport; however, all the regulations and safety requirements currently in place would apply to both the existing commercial fuel farm and to the new facilities. The Jet Fuel Pipeline and Tank Farm would reduce the dependence on fuel tanker truck deliveries. All truck deliveries could be done during the night hours, as is done currently. Therefore, it would reduce the potential risks associated with the truck deliveries. However, it should be noted that the risks associated with the fuel delivery are less than significant.

The construction of Parking Structure C2 would result in the short-term usage of materials classified as hazardous, such as fuel for equipment and paint. State and federal regulations have established protocols for handling and disposing of hazardous materials during construction. Given the nature of the potential impacts associated with cumulative projects on the Airport, the Project would not contribute to a cumulatively significant hazardous materials impact.

5.3.5 LAND USE AND PLANNING

As described in Section 4.5, Land Use and Planning, land use impacts are evaluated with respect to on-site land uses, off-site (surrounding) land uses, and policy consistency. This methodology is carried forward to evaluating the cumulative land uses impacts.

ON-SITE LAND USE EVALUATION

The Project would not require any physical improvements to the terminal or airfield facilities. However, there are two cumulative projects that would occur on site within the Airport boundaries. These are discussed in greater detail below.

Parking Structure C was evaluated in Supplemental EIR 582 and approved by the County in October 19, 2004. Phase 1 of Parking Structure C was completed in in 2011. Design plans for Phase 2 of Parking Structure C ("C2"), which would add 1,381 parking spaces, have been completed and construction will be initiated when the demand warrants.

The second cumulative project with potential for impacts to onsite land uses is the John Wayne Airport New Jet Fuel Pipeline and Tank Farm project proposed by Wickland Pipelines LLC. As previously discussed, this would construct a new, approximate 5-mile-long jet fuel pipeline that would connect the Airport to an existing 16-inch fuel pipeline located near Edinger Avenue and Tustin Ranch Road in Tustin. The intent of this project is to reduce/remove the need to truck fuel from refinery facilities (located in the cities of El Segundo and Carson) to the Airport. This project was conditionally approved by the Director, OC Planning in May 2014 subject to applicable Findings and Conditions of Approval ("COA"). However, the Encroachment permit will not be issued until all applicable COAs are satisfied.

No significant cumulative onsite land uses were identified with either of these two projects. Both of these cumulative projects identified constructing improvements on the Airport, where as there are no physical improvements to the terminal or airfield facilities associated with the Proposed Project and alternatives. Parking Structure C2 is the phased implementation of a planned activity, approved nearly a decade ago. The nature of the impacts associated with Parking Structure C2 would be short-term construction impacts (i.e., construction staging). Closure of existing facilities is not anticipated during construction. The Wickland Pipeline, LLC project, would also result in construction impact on the Airport; however, on the other side of

the airfield. The cumulative projects would not conflict with each other or with any of the Airport operations or ongoing land uses on the Airport. Ultimately, both cumulative projects, if implemented would have beneficial effects on the Airport land uses because they would provide increased efficiency of the Airport operations. Because no construction is proposed with Project, the impacts of the Project and cumulative projects would not be collectively significant and no cumulative land use impacts associated with this project would result.

SURROUNDING LAND USE EVALUATION

The cumulative study area for the surrounding land uses includes the jurisdictions immediately surrounding the Airport. This includes the cities of Newport Beach, Costa Mesa, Irvine, Tustin, and Santa Ana, in addition to the islands of unincorporated areas south of the Airport. As discussed above, these jurisdictions were all contacted and a listing of cumulative projects have been identified in Tables 5-1 through 5-6.

The cumulative projects were evaluated to determine which projects, which when combined with the impacts associated with the Project, would result in collectively significant impacts. The Project's land use compatibility analysis focuses on the creation of incompatible land uses based on changes to the noise environment. As discussed in Section 4.5, the 65 Community Noise Equivalency Level ("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. Significant unavoidable land use impacts were identified for the Proposed Project and all alternatives as it pertained to the County's exterior noise standard for noise-sensitive uses. Potential significant impacts for interior noise have also been identified. Though mitigation has been recommended that would reduce interior noise impacts to a level considered less than significant, there is the potential that, based on the Federal Aviation Administration ("FAA") criteria for providing sound attenuation, not all noise sensitive uses with interior noise levels in excess of 45 CNEL will be eligible for sound attenuation. To be eligible for sound insulation funded by the Airport or FAA, the FAA Program Guidance Letter 12-09, indicates the windows-closed interior noise level of a structure must be 45 dB or greater. The measurement of interior noise levels is an average of all habitable spaces in a particular residential unit, or educational spaces in a school. (FAA 2012) There may be noise-sensitive uses where some rooms exceed the 45 CNEL interior noise levels, but the overall average of the habitable rooms is less than 45 CNEL In these cases, the noise-sensitive use would not be eligible for sound attenuation and the impact would remain a significant and unavoidable impact based on the County of Orange criteria. These significant land use impacts were associated with the increased number of aircraft operations. The noise analysis (presented in Section 4.6) also identified the potential for traffic noise impacts.

Since the Project's land use impacts are noise-related, the cumulative projects with the greatest potential to result in cumulative impacts would be those projects that add to the cumulative noise levels or ones that introduce new noise-sensitive uses within the 65 CNEL or greater noise contour. In evaluating the cumulative impacts to surrounding land uses, none of the other projects would influence the number of aircraft operations. Therefore, there is no potential for cumulative land use impacts associated with aircraft noise. The analysis then focuses on land use incompatibility associated with increased noise levels from traffic. As discussed below in Section 5.3.8, Transportation/Traffic, the traffic analysis takes into consideration the long-range background growth, which would include the cumulative projects. The analysis provided for Threshold 4.6-3 (in Section 4.6, Noise) determined traffic noise would be less than significant for

the Proposed Project and all the alternatives. Therefore, no cumulative surrounding land use compatibility impacts associated with traffic noise are anticipated.

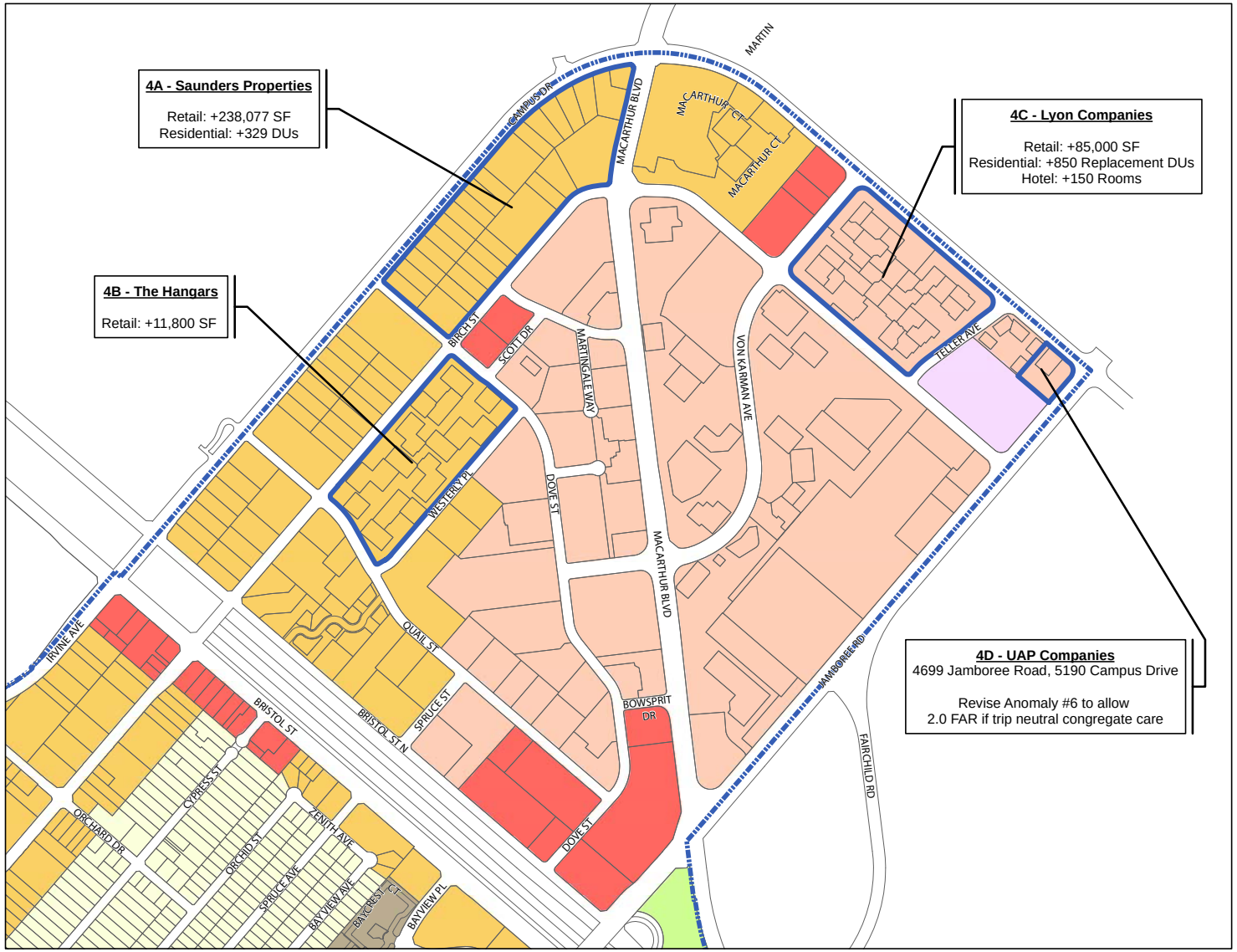
The other potential factor is the introduction of noise-sensitive uses within the Airport 65 CNEL contour. Of the cumulative projects, only the revisions to the Airport Area component of the *City of Newport Beach General Plan's* Land Use Element ("LUE") Amendment would propose noise-sensitive uses within the Airport 65 CNEL contour. As indicated in Table 5-2, the LUE Amendment proposes to increase the development intensity in the Airport Area. As shown on Exhibit 5-7 the subareas proposed for change by the LUE Amendment that are within the JWA Planning Area include the following four projects (Newport Beach 2014):

- **The Hangars:** add 11,800 square feet ("sf") of retail space located at the southwestern corner of the intersection of Dove Street and Birch Street.
- **Saunders Properties:** add 238,077 sf of retail space and add 329 residences located at the southwestern corner of the intersection of Campus Drive and MacArthur Boulevard.
- **Lyon Communities:** add 85,000 sf of retail; add 850 replacement residences; and a 150-room hotel located at the southeastern corner of the intersection of Campus Drive and Von Karman Avenue.
- **UAP Companies:** allow 2.0 Floor Area Ratio ("FAR") of trip-neutral congregate care located at 4699 Jamboree Road and 5190 Campus Drive.

When compared to existing conditions, the Proposed Project and all the alternatives would extend the 65 CNEL contour into areas designed for mixed-use development in the City of Newport Beach's Airport Area. The *City of Newport Beach General Plan's* Noise Element noise/land use compatibility matrix (see Table N2 in the Noise Element, page 12-23) lists mixed use land uses within the 65 CNEL contour as "normally incompatible;" new construction of noise sensitive uses would generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and noise insulation features must be included in the design.

Increasing the area considered unsuitable for residential development presents a conflict with the General Plan Land Use Element policies that call for a mix of housing types and buildings that integrate housing with ground-level convenience retail uses and would be developed at a sufficient scale to achieve a "complete" neighborhood. However, the City of Newport Beach uses the 1985 Master Plan contours (the basis for the Settlement Agreement) when assessing compatibility of land uses.

Two of the developments considered as part of the LUE Amendment that would increase housing in the Airport Area have portions of the property within the 65 CNEL contour (the Saunders Properties and the Hangars). Developing the residential uses on the portion of the properties that are located within the 60 CNEL contour would be feasible and not present a cumulative land use impact for all the scenarios other than Alternative C, Phases 2 and 3. With these phases of Alternative C, all of the Saunders property would be located within the 65 CNEL contour, which if developed with residential uses would result in potential land use incompatibility based on exterior noise levels. Alternative C, Phases 2 and 3 would increase the size of the 65 contour in the area covered by the LUE, resulting in a potential cumulative impact of increasing the amount of incompatible residences adjacent to the Airport.



Source: *Newport Beach 2014*

City of Newport Beach General Plan Land Use Element Amendment
Airport Area Proposed Changes

Exhibit 5-7

John Wayne Airport Settlement Agreement Amendment

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W E
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JOHN WAYNE AIRPORT
ORANGE COUNTY

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The Airport Land Use Commission ("ALUC") has evaluated the LUE Amendment project for consistency with the Airport Environs Land Use Plan ("AELUP") for JWA. The ALUC suggested wording changes to existing policies and suggested creating new policies to address the land use adjacency of the LUE Amendment project to the Airport. With suggested changes, the ALUC would find the LUE Amendment Project consistent with the AELUP for JWA. Policy Consistency Evaluation

The cumulative analysis for policy consistency evaluation would focus on applicable land use plan, policy, or regulation of an agency with jurisdiction over the project, which are the County of Orange and the City of Newport Beach.

Table 4.5-11 in Section 4.5, Land Use and Planning, provides a policy consistency analysis of the Project to relevant planning programs as described in detail in Section 4.5. The County of Orange and City of Newport Beach have jurisdiction over the Project. Alternatives B and C and the No Project Alternative were found to be inconsistent with goals and/or policies from the City of Newport Beach General Plan. These impacts were determined to be significant and unavoidable in Section 4.5. The inconsistency stemmed from impacts associated with the aviation activities or policies regarding maintaining the protections in the Settlement Agreement Amendment. None of the cumulative projects would result in further inconsistencies with these policies. None of the cumulative projects would have this same nature of land use impact (noise) that results from the Project. The cumulative projects under consideration by the County of Orange would not be inconsistent with any of the applicable County policies. Though design plans for the development projects identified as part of the Newport Beach LUE have not been prepared, it is reasonable to assume that the City of Newport Beach would evaluate each of the cumulative projects for policy consistency through the entitlement process. Therefore, the Project would not contribute to any cumulative impacts associated with plan or policy inconsistency.

5.3.6 NOISE

The study areas for cumulative noise impacts are the areas within the 65 CNEL aircraft noise contour for Alternative C, which represents the largest 65 CNEL contour for the Project.

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 that exceed an applicable noise standard (i.e., 65 CNEL for residences). Two noise sources that generate equal noise levels will result in a cumulative noise level that is 3 decibels ("dB") higher than the level that would occur from only one of the sources. Therefore, the noise levels from the louder of two individual sources would generally 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 approximately the same as the louder noise source. Two 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 (Noise Analysis Technical Report, Landrum & Brown 2014).With the Project, the two primary environmental noise sources are aircraft (both from JWA and from other air traffic passing over the area) and roadway traffic. State and federal laws prohibit local municipalities from directly controlling these noise sources. The only practical ways for local municipalities to control noise from these sources is through

planning; separating noise-sensitive uses from major roadways and airports; and by establishing noise standards for new developments located near these noise sources.

Local municipalities can regulate noise sources on private property, such as generators, heating, ventilation, and air conditioning ("HVAC") units, or other noise-generating equipment. The County of Orange and all of the cities in the Project area have adopted noise ordinances that provide noise limits that cannot be exceeded at neighboring properties. These standards limit noise levels on an hourly or shorter basis (e.g., Newport Beach's standards are based on 15 minute average ["L_{eq}"] noise levels). Further, noise level standards in residential areas during the nighttime are 10 dB less than the daytime standards. Facilities operating in compliance with these standards would need to generate the maximum allowable noise levels 24 hours a day at an adjacent residential area to generate a noise level approaching the 65 CNEL residential noise standard. In general, the types of facilities that could cause such impacts are located in industrial areas, away from residential areas; however, the noise consultant is not aware of any existing or proposed facilities located near residential areas that operate under such conditions.

Aircraft and traffic noise could result in cumulative impacts along major roadways that have adjacent residential uses which are exposed to noise levels that approach or exceed the 65 CNEL standard. This would only be expected to occur in the first row of residences along a major roadway. South of the Airport, most of the roadways with adjacent residential uses are not major arterials that would be expected to result in noise levels approaching or exceeding the 65 CNEL standard.

CUMULATIVE NOISE IMPACTS BASED ON COUNTY OF ORANGE SIGNIFICANCE THRESHOLDS

Irvine Avenue has adjacent residences and generates moderate traffic noise levels. However, all of the residences along Irvine Avenue face the roadway and do not have any private outdoor living areas directly exposed to traffic noise. The 65 CNEL standard is not applicable in front yards, but is limited to private outdoor living areas. In this case, the house structure itself is a very effective noise barrier that considerably reduces traffic noise levels in rear yards. Therefore, it is likely that traffic noise levels would be less than 55 CNEL in rear yards and, when added to aircraft noise levels of less than 65 CNEL (outside of the 65 CNEL aircraft noise contour), would not exceed 65 CNEL.

The roadways with considerable traffic noise and adjacent noise-sensitive uses are Jamboree Road and Pacific Coast Highway. The noise contours for Phases 2 and 3 of Alternative C show that aircraft noise levels will approach 59 CNEL along these roadways. Residences exposed to traffic noise levels of 64 CNEL or higher would have a cumulative noise exposure of 65 CNEL or greater. However, the noise level increase would be less than 1.2 dB (less than the 1.5 dB threshold) and, therefore, would not result in a significant cumulative impact. The aircraft noise levels from the other Project alternatives (i.e., Proposed Project, Alternatives A and B, and the No Project Alternative) are much lower in these areas and would not result in a significant cumulative impact.

Phases 2 and 3 of Alternative C would have aircraft noise increases that would significantly impact residences that are located around the edge of Newport Back Bay near Noise Monitoring Stations ("NMS") 4S, 5S, 6S, and 7S. As discussed in Section 4.6, Noise, there are no mitigation measures available to reduce this impact to a less than significant level. While these residences

are not directly exposed to other considerable individual sources, they are subject to the general background din from traffic and other noise sources in the area. Because of this, these residences would be subject to a significant cumulative noise impact.

Phase 3 of Alternative B and all Phases of Alternative C would have aircraft noise increases that would significantly impact residences in the greater Santa Ana Heights area near NMS 1S, 2S, and 3S. However, these residences would be exposed to aircraft noise levels greater than 65 CNEL and, therefore, would be eligible for acoustic insulation funded by the Airport or FAA (federal regulations prohibit the FAA or an airport from funding Acoustic Insulation Programs outside the 65 CNEL contour) (*Noise Analysis Technical Report*, Landrum & Brown, 2014). Mitigation measures N-1 and N-3 (Section 4.6) prescribe an acoustic insulation program ("AIP") where applicable. While noise levels from other noise sources impacting these residences are moderate or low, these residences would be subject to a significant cumulative noise impact without mitigation. With implementation of an AIP, this cumulative impact would be reduced to a less than significant level; however, as discussed above in Section 5.3.5, Land Use and Planning, there is the potential that some noise-sensitive uses would be exposed to noise levels that exceed County standards, but do not qualify for sound attenuation based on FAA criteria. Since this cannot be known until sound readings are taken, this EIR has found the interior noise levels to be a potential significant, unavoidable impact.

CUMULATIVE NOISE IMPACTS BASED ON CITY OF NEWPORT BEACH SIGNIFICANCE THRESHOLDS

The City of Newport Beach has adopted more stringent significance thresholds than those recommended by the FAA (i.e., that that are used for this analysis). This results in more areas being identified as significantly impacted. The Proposed Project, Phase 3, Alternative A, Phase 3, Alternative B, Phases 2 and 3, and all three phases of Alternative C are projected to impact residences around NMS 1S, 2S, and/or 3S. These residences would be exposed to aircraft noise levels that exceed 65 CNEL under these scenarios. Therefore, using the reasoning discussed above, these alternatives would result in significant cumulative noise impacts to the residences around the NMS. As discussed above, these residences would be eligible for an AIP in accordance with mitigation measures N-2 and N-3 that would mitigate the cumulative impact to a less than significant level; however, there is the potential that these residences would not qualify based on the FAA criteria. Therefore, it is assumed that there would be a significant, unavoidable impact related to interior noise impacts.

All three Phases of Alternative C would result in significant impacts at the residences around NMS 4S, 5S, 6S, and/or 7S. Therefore, using the reasoning discussed above, these alternatives would result in significant cumulative noise impacts to the residences around the NMS. As these residences would not be eligible for an AIP, this cumulative impact would be significant and unavoidable.

5.3.7 PUBLIC SERVICES

As defined in Section 4.7, public services includes fire protection and sheriff protection that serve JWA. As a Class I airport, JWA is required to meet certain fire protection safety standards regarding personnel training and equipment. For fire protection services on the airfield and police/security services (Transportation Safety Administration, U.S. Immigration and Customs Enforcement, and the Orange County Sheriff's Department) because of the specific requirements

for the Airport, the public services cumulative study area for the Project is the Project site (i.e., John Wayne Airport). These services are contained on the Airport and only serve JWA. The two on-site cumulative projects listed in Section 5.3.5 above (Parking Structure C2 and the Wickland Pipeline LLC project), would not place substantially increase the demand for these services. The addition of Parking Structure C2 would incrementally increase the facilities Sheriff's Department would service; however, as addressed in Section 4.7, staffing is based on area coverage and sufficient staffing is available to respond to multiple concurrent incidents at the Airport.

Fire and emergency medical service calls for non-airfield portions of the Airport are responded to by the Orange County Fire Authority ("OCFA") from Fire Station 28. However, since the local jurisdictions participate in a mutual agreement, the cumulative analysis considers the potential cumulative impact on first responders in the adjacent jurisdictions. The Project and cumulative projects are located in a developed area where fire stations have already been constructed. There are six fire stations within four miles of the Airport and substantially more stations within other portions of the adjacent cities. There are no known plans to provide an additional station to serve the Airport area. Therefore, no physical impacts associated with the construction of new facilities to address the cumulative projects are anticipated. The intensification of development may result in an increased number of service calls and place additional demands on staff in the existing stations. The mutual aid agreements are designed to provide additional back-up for the stations should a single station receive multiple calls. As development occurs, the need for additional staffing would be evaluated by OCFA and the local fire departments. The growth associated with the cumulative projects is consistent with the long-range projections for Orange County and is considered as the agencies evaluate appropriate staffing levels to meet the needs of the population. Increased staffing, which is paid for through taxes, would not result in an environmental impact.

5.3.8 TRANSPORTATION/TRAFFIC

Section 4.8 evaluated the Project's impact to traffic and circulation within the identified Project study area. By the nature of traffic studies, the analysis evaluates the potential long-range impacts on the circulation network. This system-wide evaluation ensures that regional growth and cumulative projects are included in the analysis. Prior to the completion of the *Transportation Impact Analysis Report*, the list of cumulative projects was reviewed to ensure the traffic associated with these projects were included in the transportation model for the time frames being evaluated. As discussed in Section 4.8, each jurisdiction in the study area was consulted when developing the thresholds of significance that were used for evaluating potential circulation/cumulative impacts within their jurisdiction. Therefore, the analysis presented in Section 4.8 includes the cumulative analysis.

The findings of the *Transportation Impact Analysis Report* concluded the Project would result in cumulative impacts at one intersection in the City of Newport Beach and at seven freeway/mainline segments under Caltrans jurisdiction; the cumulative impacts are summarized below and are shown in Table 5-8, Intersection Impact Summary, and Table 5-9, Freeway Impact Summary. The thresholds from the City of Newport Beach and Caltrans that were used to determine whether cumulative impacts would result are as follows:

- **City of Newport Beach Threshold T-5.** In the City of Newport Beach outside the John Wayne Airport Area shared with the City of Irvine, the addition of project-generated trips

causes the Level of Service ("LOS") at a study intersection to change from LOS D to LOS E or F.

- **Caltrans Freeway Facilities (mainline, ramp, merge/diverge) Threshold T-13**. The addition of project-generated trips increases the traffic on a freeway mainline, freeway ramp, or merge/diverge section by two percent or more on a facility operating at LOS E or F prior to the addition of Project traffic.

Based on Threshold T-5, the following cumulative traffic intersection impact would occur:

- **Campus Drive and Bristol Street North (No Project Alternative, Proposed Project, and Alternatives A through C –).** Impacts associated with the No Project Alternative, the Proposed Project, and Alternatives A through C would contribute to an already deficient condition at this intersection. JWA has completed planning studies for this improvement and is currently in the process of preparing construction plans, which are approximately 70 percent complete as of March 2014. JWA has also agreed to fund necessary ancillary construction work at this location, including any utility relocation that might be required. This improvement (identified as Mitigation Measure ["MM"] T-3 in Section 4.8) is currently scheduled to be completed by 2016, which is the first year in which the impact would occur. With implementation of MM T-3, this cumulative impact would be less than significant.

Based on Threshold T-13, the following cumulative traffic freeway impacts would occur at the following locations:

- **Northbound State Route ("SR") 55: Paularino Avenue On-Ramp** (Alternative C Phases 1, 2, and 3).

- **Northbound SR-55: Paularino Avenue On-Ramp to Interstate ("I") 405 Southbound On-Ramp** (Alternative C Phases 1, 2, and 3).

- **Northbound SR-55: On-Ramp from I-405 Northbound to the MacArthur Boulevard Off-Ramp** (Proposed Project Phases 2 and 3; Alternative A Phase 3; Alternative B Phases 2 and 3; Alternative C Phases 1, 2, and 3).

- **Southbound SR-55: MacArthur Boulevard Direct On-Ramp to I-405 Southbound Off-Ramp** (Alternative C Phases 1, 2, and 3).

- **Northbound SR-73: Bristol Street North On-Ramp to SR-55 Northbound Off-Ramp** (Alternative C Phases 2 and 3).

- **Northbound SR-73: On-Ramp from SR-55 Northbound** (Alternative B Phase 2; Alternative C Phases 2 and 3).

- **Southbound I-405: Jamboree Road Direct On-Ramp** (Alternative C Phases 1, 2, and 3).

The majority of the identified significant freeway impacts result from a cumulative condition; that is, traffic from JWA is added to facilities that would operate at a deficient level even without

Project traffic. The contribution of additional JWA traffic volume (i.e., the Proposed Project and alternatives) to these segments is minimal, and ranges from two percent to five percent.

As indicated in Section 4.8, mitigation measures to reduce impacts to freeways and mainline segments to less than significant levels would require a complete reconstruction of the SR-55, SR-73, and I-405 freeways to add travel lanes and upgrade each of the deficient ramp locations. Since the freeways in the study area are interconnected systems, it would not be possible, nor effective, to provide isolated spot improvements of one segment of the freeway where deficient operations are observed. Because the improvements necessary to mitigate the identified freeway impacts (i.e., providing increased capacity) are beyond the jurisdiction and control of the County, and because the agencies with jurisdiction and control over these facilities (i.e., Caltrans, OCTA, TCA) have no present plans to construct the necessary improvements in the timeframe necessary to mitigate the identified significant impacts, there is no mechanism by which the Project can contribute its fair-share towards the necessary improvements and, consequently, there is no evidence that, even with a fair-share payment, the necessary improvements would be constructed. As such, the mitigation necessary to reduce the identified significant impacts is infeasible and the Project would contribute to cumulative freeway impacts that are significant and unavoidable.

TABLE 5-8
INTERSECTION IMPACT SUMMARY

		Proposed Project								Alternative A								Alternative B								Alternative C								No Project							
		Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3	
#	Intersection Locations	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
4	MacArthur & Michelson								D								D								D				D		D		D							
15	Campus & Airport																								D		D		D		D		D							
17	Campus & Bristol N.		D		C		C		C		D		C		C		C		D		C		C		C		D		C		C		C		D		C		C
25	Santa Ana & Del Mar																														D								
53	Von Karman & Alton								D								D								D							D								

Notes: D = Direct Impact; C = Cumulative Impact; Ex. = Existing + Project
Source: *Traffic Impact Analysis Report,* Fehr & Peers 2014 (Table 12-1).

TABLE 5-9
FREEWAY IMPACT SUMMARY

	Proposed Project								Alternative A								Alternative B								Alternative C								No Project							
	Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3		Existing + Project		Phase 1		Phase 2		Phase 3	
Intersection Locations	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
Northbound SR-55																																								
Paularino Ave On-ramp																										C		C		C		C								
Paularino Ave On-ramp to I-405 SB On-ramp																										C		C		C		C								
On-ramp from I-405 NB to MacArthur Blvd Off-ramp		C				C		C		C						C		C				C		C		C		C		C		C								
Southbound SR-55																																									
MacArthur Blvd Loop On-ramp to MacArthur Blvd Direct On-ramp																									D		D		D		D								
MacArthur Blvd Direct On-ramp to Off-ramp to I-405 SB																									C		C		C		C								
Northbound SR-73																																								
Jamboree Rd On-ramp																																								
Jamboree Rd On-ramp to Bristol St N Off-ramp																																								
Bristol St N On-ramp to SR-55 N Off-ramp																	D								D				C		C								
Off-ramp to SR-55 SB																										C														
On-ramp from SR-55 NB																	D						C		D	C			C		C								
Southbound SR-73																																								
No Impacts																																								
Northbound I-405																																								
No Impacts																																								

TABLE 5-9
FREEWAY IMPACT SUMMARY

	Proposed Project				Alternative A				Alternative B				Alternative C				No Project			
	Existing + Project	Phase 1	Phase 2	Phase 3	Existing + Project	Phase 1	Phase 2	Phase 3	Existing + Project	Phase 1	Phase 2	Phase 3	Existing + Project	Phase 1	Phase 2	Phase 3	Existing + Project	Phase 1	Phase 2	Phase 3
Southbound I-405																				
Jamboree Rd Loop On-ramp																				
Jamboree Rd Direct On-ramp													C							
													C	C	C	C				

Notes: D = Direct Impact; C = Cumulative Impact; Ex. = Existing + Project
Source: *Traffic Impact Analysis Report,* Fehr & Peers 2014 (Table 12-2).

5.3.9 UTILITIES AND SERVICE SYSTEMS

As defined in Section 4.9, utilities includes water and wastewater used at JWA. Although the Project does not propose any physical improvements to facilities, the increase in passengers in the terminals and increase in Airport operations would result in an increase in water/wastewater demand. For water services, the Mesa Water District boundary, which services the Project would be the cumulative study area. As indicated in Section 4.9, the Mesa Water District is in the process of updating their Water Master Plan. The District has indicated that they would incorporate the Project's future water demands into the Master Plan (Lauri 2014). By incorporating the Project as part of the long-range District planning, impacts associated with cumulative water demands would be less than significant.

The Project is served by the Orange County Sanitation District ("OCSD"); therefore, the District serves as the cumulative study area for wastewater services. OCSD conducts long-term planning studies to ensure they have sufficient capacity to serve the uses in their District. As part of those long-term studies, the OCSD has assumed flow rates consistent with the 1990 service agreement with the Airport. The agreement equates to approximately 12.96 Million Annual Passengers ("MAP") when water-efficient systems are used. As discussed in Section 4.9, the Proposed Project, Alternative A, and the No Project Alternative can all be accommodated in the wastewater discharge assumption already incorporated into the long-term planning for the District. Therefore, because this capacity has been planned for within the system, the Proposed Project and Alternative A would not contribute to cumulative impacts for wastewater services.. Alternatives B (Phase 3) and C exceed the discharge amounts equivalent to the 1990 service agreement. The contribution of cumulative projects, especially any facilities that use the same conveyance lines as the Airport, would potentially contribute to a cumulative impact. Mitigation Measure U-1 could reduce Project impacts to a less than significant levelIn conjunction of implementing Mitigation Measure U-1; wastewater flows from cumulative projects would be considered when evaluating the service needs of the Airport area improvements. However, because full implementation of the subject improvement is outside the jurisdiction and control of the County of Orange/JWA and, therefore, implementation cannot be assured, in the event the improvement is not fully operational prior to JWA serving 12.96 MAP, the Project's and any cumulative impacts would remain significant.

5.3.10 WATER QUALITY

The cumulative study area for water quality would be the drainage areas for the Upper Newport Bay and the Santa Ana Delhi Channel, the two water bodies that receive flows from the Airport. As discussed in Section 4.10, the Project would have a less than significant impact on surface water quality as it would not violate water quality standards; would not contribute substantial additional sources of polluted runoff; and would not otherwise substantially degrade water quality. The Airport has appropriate Best Management Practices ("BMPs") for fuel-related pollutants already in place to meet National Pollutant Discharge Elimination System ("NPDES") permit requirements (i.e., the General Industrial Storm Water NPDES Permit and Orange County's Municipal Permit).For example, there are a number of oil-water separators located throughout the airfield that treat runoff from each of the aircraft parking aprons. Normal Airport maintenance requires high frequency sweeping of all airfield pavement to prevent possible jet engine damage due to foreign objects; this has the 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. Additionally, because the Project does not propose any construction or other changes to the nature of the Airport operations that would increase the extent of impervious surfaces, there would be no change in the volume of runoff generated at JWA. With the continuation of the existing BMPs, the quality of the water discharging from the site (including re-suspension of dust on both runways and roadways from airplane/vehicle traffic) would be comparable to current conditions. Thus the EIR need not address the effects of the discharges of the cumulative projects under consideration (PRC 21083(b)(2).

As discussed in Section 4.10, Water Quality, the pollutants identified in the 303(d)-listed water bodies for waters that receive flows from JWA can be grouped into the following categories: pesticides, metals, pathogens, nutrients and other organics, and sediment. These are typical pollutants generated by an urban area with dense land development and a wide variety of land uses. With the exception of sediment, the pollutants of concern for the waterways on the 303(d) list are not the pollutants associated with emissions from aviation activities. As discussed above, JWA has an extensive program to minimize the re-suspension of dust and other sediment. Significant cumulative impacts to water quality are not expected because, even though many of the cumulative projects would discharge into the same drainages, it is anticipated/expected that all future projects within the watersheds will implement treatment and mitigation programs that will reduce pollutants of concern to less than significant levels prior to downstream discharge, consistent with current regulations.

5.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Table 5-10 provides a summary of the findings of significance for cumulative impacts after implementation of the mitigation measures for each topical area.

Topical Area	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Air Quality	Cumulatively significant unavoidable impact	Cumulatively significant unavoidable impact	Cumulatively significant unavoidable impact	Cumulatively significant unavoidable impact	Cumulatively significant unavoidable impact
Biological Resources	Cumulatively, less than significant impact	Cumulatively, less than significant impact	Cumulatively, less than significant impact	Cumulatively, less than significant impact	Cumulatively, less than significant impact
Greenhouse Gas Emissions	Cumulatively significant unavoidable impact	Cumulatively significant unavoidable impact	Cumulatively significant unavoidable impact	Cumulatively significant unavoidable impact	Cumulatively significant unavoidable impact
Hazards and Hazardous Materials	Cumulatively, less than significant impact	Cumulatively, less than significant impact	Cumulatively, less than significant impact	Cumulatively, less than significant impact	Cumulatively, less than significant impact
Land Use and Planning	Cumulatively, less than significant impact	Cumulatively, less than significant impact	Cumulatively, less than significant impact	Cumulatively, less than significant impact	Cumulatively, less than significant impact

Topical Area	Proposed Project	Alternative A	Alternative B	Alternative C	No Project Alternative
Noise	Cumulatively, less than significant impact	Cumulatively, less than significant impact	Cumulatively significant unavoidable impact	Cumulatively significant unavoidable impact	Cumulatively, less than significant impact
Public Services	Cumulatively, less than significant impact	Cumulatively, less than significant impact	Cumulatively, less than significant impact	Cumulatively, less than significant impact	Cumulatively, less than significant impact
Transportation and Traffic	Cumulatively significant unavoidable impact	Cumulatively significant unavoidable impact	Cumulatively significant unavoidable impact	Cumulatively significant unavoidable impact	Cumulatively significant unavoidable impact
Utilities	Cumulatively, less than significant impact	Cumulatively, less than significant impact	Cumulatively significant unavoidable impact	Cumulatively significant unavoidable impact	Cumulatively, less than significant impact
Water Quality	Cumulatively, less than significant impact	Cumulatively, less than significant impact	Cumulatively, less than significant impact	Cumulatively, less than significant impact	Cumulatively, less than significant impact

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6.0 LONG-TERM IMPLICATIONS OF THE PROJECT

6.1 SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE MITIGATED

The environmental effects of the Proposed Project, Alternatives A through C and the No Project Alternative are addressed in Sections 4.1 through 4.10 of this EIR. Implementation of the Project would result in potentially significant impacts for the following topical issues: air quality, biological resources (Alternative C only), greenhouse gas ("GHG") emissions, land use and planning, noise, and transportation/traffic, as discussed in Sections 4.1 through 4.10 and summarized in Table 1-3.

6.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES THAT WOULD BE CAUSED BY THE PROJECT

6.2.1 COMMITMENT OF RESOURCES

Neither the Proposed Project nor the alternatives propose any physical improvements; therefore, the Project would not require a commitment of nonrenewable or slowly renewable building materials associated with construction activities. However, the operation of John Wayne Airport ("JWA") at a higher level of service would require an ongoing commitment for usage of an increased level of resources. The Proposed Project and alternatives would involve an increase in the usage of jet fuel, water, natural gas, and electricity at JWA. The magnitude of the increased usage would be associated with the number of flights and level of passenger service associated with the alternative being evaluated. Assuming the County of Orange maintains the existing, authorized noise and access restrictions, the No Project Alternative would result in the smallest incremental increase in demand for resources because the potential increase in the number of regulated flights and passengers served would be the least of all the scenarios evaluated. Conversely, Alternative C would have the greatest impact because it would have the greatest increase in the number of regulated flights and passengers served. Additionally, it is reasonable to assume that, if the additional flights proposed as part of the Project are not offered at JWA, some of the trips would still occur, which may require passengers to travel to more distant airports or use alternative modes of travel. The travel to these other airports and/or utilization of other modes of travel also would require a commitment of resources.

6.3 GROWTH-INDUCING IMPACTS OF THE PROPOSED ACTION

Pursuant to Sections 15126(d) and 15126.2(d) of the State California Environmental Quality Act ("CEQA") Guidelines (14 *California Code of Regulations* ["CCR"]), this section is provided to examine: (1) ways in which the Project could foster economic or population growth and (2) the construction of additional development, either directly or indirectly, in the surrounding environment. Per Section 15126.2(d) of the State CEQA Guidelines, growth-inducing effects are not necessarily beneficial, detrimental, or of little significance to the environment. This issue is presented to provide additional information on ways in which this Project could contribute to

significant changes in the environment, beyond the direct consequences of the proposed Settlement Agreement Amendment.

When considering growth-inducing impacts, it is important to consider the context and historical growth trends of the area. There are many factors that can affect the amount, location, and rate of growth in Orange County and the region in general. These factors include market demand for housing, employment, and commercial services; the acknowledged desirability of climate and living/working environment and commercial economy; the availability of other services/infrastructure; and the land use and growth management policies of local jurisdictions.

Orange County has experienced significant growth in population over the past 50 years. Population in the County has increased from 703,928 in 1960 to 3,019,356 in 2010 (CDR 2012a). Concurrent with significant increases in population, the economic character of Orange County has dramatically changed. The predominately rural/agricultural character of Orange County has changed to a diversified commercial/industrial economy. High technology industries, biomedical facilities, retail commercial, light manufacturing, administrative and financial services, and tourism have become major components of the County's economy. In 1965, the employment-to-population ratio was 22 percent. By 2010, the ratio had increased to approximately 49 percent countywide (note this was down from 54 percent in 2008). Not only had the proportion of jobs to residents increased, but it was also based on a dramatically larger population. The growth in population and employment is projected to continue through 2030 and beyond. Based on the *Orange County Projections 2010 Modified*, developed by the Center for Demographic Research at California State University at Fullerton, between 2010 and 2030, an approximate 13.0 percent increase in population and a 16.6 percent increase in employment is projected to occur in Orange County (CDR 2012a).

To address this issue, potential growth-inducing effects are examined through analysis of the following questions:

1. **Would this Project remove obstacles to growth (e.g., through the construction or extension of major infrastructure facilities that do not presently exist in the project area or through changes in existing regulations pertaining to land development)?**

   The Project would remove obstacles to growth in terms of the number of flights and the allowed number of passengers served at JWA. However, this growth pertains only to the Airport and has been assumed in the impact analyses presented in Sections 4.1 through 4.10 for the Project.

   The Project does not provide needed infrastructure that would facilitate growth. Additionally, the area surrounding the Airport either is already developed or designated as open space (i.e., Upper Newport Back Bay). The area does not require any improvements associated with the Airport to achieve the planned growth levels. The Project also would not result in any modifications to land uses or land use policies that would encourage the redevelopment of the Project vicinity with more intense land uses.

2. Would this Project result in the need to expand one or more public services to maintain desired levels of service?

The Project would not require the expansion of any public services in order to maintain the desired levels of service at the Airport or in the service districts serving the Airport. The Proposed Project, Alternative A, and the No Project Alternative would not require any utility improvements. With Alternatives B and C, wastewater improvements may be required to accommodate more than 12.96 MAP. However, the improvements, if required, would be expected to be associated with localized facilities at and connecting to JWA rather than improvements that would increase capacity at a district-wide level.

3. Would this Project encourage or facilitate economic effects that could result in other activities that could significantly affect the environment?

JWA is an important contributor to the economy of Orange County. In 2012, the Airport provided 22,000 jobs (19,500 full-time equivalent jobs). The direct employment generated $1.5 billion in gross domestic product ("GDP") and $2.8 billion in economic output. JWA operations contribute an estimated $3.3 billion and $6.0 billion, in total GDP and total economic output, respectively, to the local economy. JWA sustains itself financially through fees and charges and does not receive support from Orange County's general fund. Additionally, in 2012, taxes paid by passengers, employers and employees at JWA totaled $231 million. The majority of the amount collected (73 percent) accrued to the state government, mostly via sales taxes. The federal government received approximately $48 million in income taxes and employment-related taxes (e.g., social security contributions). County and city governments also received approximately $14 million based on activity at JWA, through special user assessment fees and sales taxes. (InterVISTAS Consulting 2014)

The Airport's role in contributing to the local economy is expected to continue for the Project with increases in the number of jobs serving the additional flights and MAP, as well as the tax revenue brought in both directly and indirectly by services at JWA. As discussed above, the economic benefit would likely extend beyond the Airport to other governmental agencies, as well as the general economy.

Orange County is the third largest county in California by population and sixth largest in the United States. The estimated gross county product for 2012 was $195 billion, which is approximately 10 percent of the gross state product. (CDR 2013) Tourism is an important component of the County's economy, with approximately 42 million visitors each year. (OCVA 2014)

Though an important contributor, the Airport is just one component of the overall economic base of Orange County. With the Project, the Airport is expected to continue supporting the projected population and economic base for the County. Between 2010 and 2030, 247,736 jobs are projected to be added to the Orange County economy. (CDR 2012b). These countywide growth projections reflect the local general plans, which have established land uses necessary to accommodate the growth. Therefore, the increased economic activity associated with the Airport is not expected to change the growth levels or patterns in Orange County. As a result, economic effects associated with the Project would not significantly affect the environment.

4. **Would approval of this Project involve some precedent-setting action that could encourage and facilitate other activities that could significantly affect the environment?**

   The Project would serve as an aviation-related growth-stabilizing factor because the permitted aviation activity at JWA through 2030 would be clearly defined. This action would not affect policies related to any uses off the Airport property. The Project would not result in a precedent or policy that would encourage or facilitate additional growth beyond the Airport.

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7.0 ALTERNATIVES

7.1 INTRODUCTION

Section 15126.6(a)–(b) of the State California Environmental Quality Act ("CEQA") Guidelines (14 *California Code of Regulations* ["CCR"]) provides guidance on the range of alternatives to a proposed project that must be evaluated. The State CEQA Guidelines state:

> (a) Alternatives to the Proposed Project. An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible. The Lead Agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.
>
> (b) Purpose. Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code §21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

As discussed in Section 3.3, Project Description, the County of Orange, the City of Newport Beach, the Airport Working Group ("AWG"), and Stop Polluting Our Newport ("SPON") entered into the Memorandum of Understanding ("MOU") that defines the Proposed Project and contains a non-exclusive list of alternatives (i.e., Alternatives A, B, and C) to be analyzed pursuant to the CEQA, in addition to the CEQA-mandated No Project Alternative. The Proposed Project and those four alternatives have been evaluated in Section 4 of this Environmental Impact Report ("EIR").

The MOU also affirmed the discretion of the County to consider other alternatives that may be capable of feasibly avoiding, mitigating or minimizing the Proposed Project's significant environmental impacts in accordance with CEQA. This section, consistent with the MOU and CEQA, presents one other potentially feasible alternative for consideration (2025 Horizon Year Alternative); evaluates its environmental effects (particularly in comparison to the Proposed Project); and considers its consistency with the Project Objectives identified in Section 3.2 of this EIR.

Additionally, there were comments received on the Notice of Preparation which suggested that a reduction in the existing number of occurring and allowable flights and passengers served at

John Wayne Airport ("JWA") is appropriate. A discussion is provided here to explain why this is not a viable option.

7.2 CRITERIA FOR SELECTING ALTERNATIVES

Several criteria were used to select alternatives to the Proposed Project. These criteria are described below.

7.2.1 ABILITY TO ACHIEVE PROJECT OBJECTIVES

The ability of an alternative to meet most of the project objectives is an important component when evaluating alternatives. When an alternative is selected, not only are the environmental impacts considered but so is the alternative's ability to meet the project's intended objectives. Section 15126.6(f) of the State CEQA Guidelines (14 CCR) states:

> The range of alternatives required in an EIR is governed by a 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project.

Recognizing the role the Settlement Agreement has played in providing a balance between aviation activities and community impacts associated with the operations, the signatories have identified the following Project Objectives:

1. To modify some existing restrictions on aircraft operations at JWA in order to provide increased air transportation opportunities to the air-traveling public using the Airport without adversely affecting aircraft safety, recognizing that aviation noise management is crucial to continued increases in JWA's capacity.
2. To reasonably protect the environmental interests and concerns of persons residing in the vicinity of the JWA, including their concerns regarding "quality of life" issues arising from the operation of JWA, including but not limited noise and traffic.
3. To preserve, protect, and continue to implement the important restrictions established by the 1985 Settlement Agreement, which were "grandfathered" under the Airport Noise and Capacity Act of 1990 ("ANCA") and reflect and accommodate historical policy decisions of the Orange County Board of Supervisors regarding the appropriate point of balance between the competing interests of the air transportation and aviation community and local residents living in the vicinity of the Airport.
4. To provide a reasonable level of certainty to the following regarding the level of permitted aviation activity at JWA for a defined future period of time: surrounding local communities; Airport users (particularly scheduled commercial users); and the air-traveling public.
5. To consider revisions to the regulatory operational restrictions at JWA in light of the current aviation environment; the current needs of the affected communities; and industry interests represented at JWA.

7.2.2 FEASIBILITY

When developing alternatives for evaluation in an EIR, the feasibility of implementing the alternative must be considered. If a range of alternatives are developed but, due to regulatory restrictions, cannot be implemented, the analysis would not meet the intent of CEQA of providing a reasonable range of feasible alternatives. Section 15126.6(f)(1) of the State CEQA Guidelines (14 CCR) states:

> Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553; see *Save Our Residential Environment v. City of West Hollywood* (1992) 9 Cal.App.4th 1745, 1753, fn. 1).

It has been recognized that, for purposes of CEQA, "feasibility" encompasses "desirability," to the extent that the latter is based on a reasonable balancing of the relevant economic, environmental, social and technological factors. (*California Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 1001.) This balancing is harmonized with CEQA's fundamental recognition that policy considerations may render alternatives impractical or undesirable. (*Ibid*.; see also Public Resources Code, §21081; State CEQA Guidelines §§15126.6(c), 15364.)

7.2.3 ELIMINATION/REDUCTION OF SIGNIFICANT IMPACTS

Section 15126.6(b) of the State CEQA Guidelines states that "[b]ecause an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly."

The Proposed Project and the alternatives evaluated in Sections 4 through 6 of this EIR result in a range of impacts. The alternative evaluated later in this section has been developed in an effort to reduce and/or eliminate one or more significant impacts associated with the Proposed Project. Impacts that would remain significant and unavoidable even after mitigation for the Proposed Project are briefly summarized below.

- **Air Quality.** The Proposed Project would result in significant and unavoidable impacts to regional mass emissions of air pollutants and precursors of pollutants for which the region is classified as in nonattainment for federal or State ambient air quality standards. In addition, the Proposed Project would result in significant and unavoidable impacts to local concentrations of air pollutants (Threshold 4.1-1 in Section 4.1). The Proposed

Project also would result in significant and unavoidable impacts for non-cancer health risk (Threshold 4.1-2 in Section 4.1).

- **Greenhouse Gas Emissions.** The Proposed Project would have a significant and unavoidable impact related to achieving greenhouse gas ("GHG") emission reductions consistent with Assembly Bill ("AB") 32 goals (Threshold 4.3-1 in Section 4.3).

- **Land Use and Planning.** With the Proposed Project, there would be an increase in the number of noise-sensitive uses exposed to exterior noise levels in excess of 65 CNEL, resulting in a land use incompatibility. This would be a significant impact. There are no feasible mitigation measures to reduce exterior noise levels to below 65 CNEL, consistent with the County of Orange standards for noise sensitive uses. With the Proposed Project, potential significant impacts for interior noise have been identified. Mitigation is proposed; however, the FAA guidance for implementing sound insulation programs specifically states that the average noise level in all habitable rooms of a residence must be greater than 45 CNEL for the use to be eligible for sound insulation funded by the Airport or FAA. However, the County's noise standards specifically require that the noise level in any habitable room or educational space must be no greater than 45 CNEL. For those residences within the business park and those residences with a habitable room with noise levels in excess of 45 CNEL but the average noise levels in the habitable rooms is less than 45 CNEL, mitigation would not be feasible. Therefore, the impact would be significant and unavoidable due to lack of funding source for implementing the mitigation provided for in Mitigation Measure LU-1.

- **Noise.** Significant exterior noise impacts are projected to occur with each phase of the Proposed Project as residences currently exposed to noise levels less than 65 CNEL are exposed to noise levels greater than or equal to 65 CNEL. As discussed above, under Land Use and Planning, there is also the potential for interior noise levels to exceed the County threshold of 45 CNEL but due to FAA regulations, mitigation would not be feasible, resulting in a significant unavoidable impact.

- **Transportation/Traffic.** The Proposed Project would result in significant impacts at two intersections outside the County of Orange's jurisdiction, as well as cumulative impacts on one segment of the freeway network. Within the City of Irvine, Phase 3 of the Proposed Project would result in significant impacts at the MacArthur Boulevard/Michelson Drive intersection and the Von Karman Avenue/Alton Parkway intersection. Mitigation measures are recommended in Section 4.8; however, because full implementation of the measures is outside the jurisdiction and control of the County of Orange/JWA implementation cannot be assured. In the event the respective improvements are not fully operational prior to JWA serving 12.5 MAP, the Project's impacts at the intersections would remain significant and unavoidable as there is no other feasible mitigation that would fully reduce the identified impacts to less than significant.

  Similarly, the Proposed Project, Phases 2 and 3 would increase traffic by more than 2 percent on the northbound SR-55 between the onramp from the I-405 northbound to the MacArthur Boulevard offramp, a California Department of Transportation ("Caltrans") facility operating at Level of Service ("LOS") E or F prior to the addition of Proposed Project traffic. As there presently are no plans and corresponding fee programs in place

to address the subject deficiency, mitigation in the form of a fair share payment presently is infeasible. As such, a mitigation measure is proposed providing that in the event such plan or fee program is established, the County of Orange/JWA is to pay its fair share of the cost to remedy the identified impact. However, because full implementation of the measures is outside the jurisdiction and control of the County of Orange/JWA, implementation cannot be assured. As such, the impact would remain significant and unavoidable.

The Proposed Project would not result in unavoidably significant impacts to Biological Resources; Hazards and Hazardous Materials; Public Services; Utilities and Service Systems; and Water Quality.

7.3 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

Section 15126.6(c) of the State CEQA Guidelines provides that an "EIR should also identify any alternatives that were considered by the Lead Agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the Lead Agency's determination. . . Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts".

In furtherance of the disclosure objective of Section 15126.6(c), one type of alternative considered but rejected for detailed analysis in this EIR during the scoping process was any alternative that provides *less* operational capacity than currently permitted by the Settlement Agreement (i.e., less than 10.8 Million Annual Passengers ["MAP"] and 85 Class A Average Daily Departures ["ADDs"]). This type of alternative, which also could be described as an alternative providing less operational capacity than the No Project Alternative, was rejected for two important reasons, as discussed below.

First and foremost, such an alternative would be legally unenforceable by the County of Orange and is therefore infeasible. (See State CEQA Guidelines, Section 15364.) More specifically, any operational restrictions that are more prohibitive than the No Project Alternative (i.e., the current Settlement Agreement terms) would result in the County's Settlement Agreement and implementing Access Plan losing their "grandfathered" status under ANCA, which limits an airport operator's right to impose new restrictions on aircraft operations without obtaining federal approval.

Pursuant to the United States Code (Title 49, Section 47524[d][4]), the "grandfathered" status of the County's Settlement Agreement and implementing Access Plan only remains intact if the "subsequent amendment to an airport noise or access agreement or restriction . . . does not reduce or limit aircraft operations or affect aircraft safety." In this instance, this type of alternative would constitute a subsequent amendment to the Settlement Agreement (as most recently amended in 2003) that reduces or limits aircraft operations relative to the existing, authorized regulatory limits (i.e., 10.8 MAP and 85 Class A ADDs), thereby precluding the Federal Aviation Administration ("FAA") from rendering a favorable legal opinion regarding JWA's standing under ANCA (and its Airport Improvement Program grant assurances). Further, because this alternative would reduce aircraft operations, the County would be divested of its legal authority to implement the types of restrictions needed to reduce operation levels to those below the existing parameters of the Settlement Agreement absent the speculative success of a

Part 161 application to the FAA. (See generally 14 *Code of Federal Regulations* ["CFR"] Sections 161.1–161.505; see also 14 CFR Section 161.3[b] ["This part also applies to airports enacting amendments to airport noise and access restrictions in effect on October 1, 1990, but amended after that date, where the amendment reduces or limits aircraft operations or affects aircraft safety."].)

Second, an alternative proposing to reduce operational capacity below the existing levels authorized by the Settlement Agreement, and in violation of ANCA, would fail to meet most of the basic Project Objectives, as explained below:

1. To modify some existing restrictions on aircraft operations at JWA in order to provide increased air transportation opportunities to the air-traveling public using the Airport without adversely affecting aircraft safety, recognizing that aviation noise management is crucial to continued increases in JWA's capacity.

   This type of alternative would not provide "increased air transportation opportunities" at JWA, but would instead reduce air transportation opportunities. Additionally, this type of alternative would threaten the implementation status of JWA's "aviation noise management" regulations due to the loss of the Settlement Agreement's "grandfathered" status under ANCA.

2. To reasonably protect the environmental interests and concerns of persons residing in the vicinity of the JWA, including their concerns regarding "quality of life" issues arising from the operation of JWA, including but not limited noise and traffic.

   This type of alternative would threaten the implementation of JWA's current efforts to "protect the environmental interests and concerns of persons residing in vicinity of JWA" due to the loss of the Settlement Agreement's "grandfathered" status under ANCA. Absent the continuation of that status, the County's ability to protect the community and environment would be constrained by ANCA and subject to the County's ability to successfully process a Part 161 application with the FAA.

3. To preserve, protect, and continue to implement the important restrictions established by the 1985 Settlement Agreement, which were "grandfathered" under ANCA and reflect and accommodate historical policy decisions of the Orange County Board of Supervisors regarding the appropriate point of balance between the competing interests of the air transportation and aviation community and local residents living in the vicinity of the Airport.

   This type of alternative would result in JWA's restrictions losing their "grandfathered" status under ANCA.

4. To provide a reasonable level of certainty to the following regarding the level of permitted aviation activity at JWA for a defined future period of time: surrounding local communities; Airport users (particularly scheduled commercial users); and the air-traveling public.

   This type of alternative would not provide a "reasonable level of certainty" regarding the level of permitted aviation activity for a defined period of time because the loss of JWA's

restrictions being "grandfathered" under ANCA would preclude immediate implementation of the alternative absent the County's ability to successfully process a Part 161 application with the FAA.

5. To consider revisions to the regulatory operational restrictions at JWA in light of the current aviation environment; the current needs of the affected communities; and industry interests represented at JWA.

   This type of alternative, which would reduce existing, permitted operations levels, would not be consistent with the currently anticipated demand for aviation services at JWA, as forecast by the FAA and air carriers operating at the Airport. (See Appendix B, *Aviation Forecast Technical Study*, AECOM 2014.)

In light of the information above, and in accordance with Section 15126.6(c) of the State CEQA Guidelines, this EIR does not give further consideration to any alternative providing less operational capacity than currently authorized by the Settlement Agreement.

7.4 ALTERNATIVES FOR ANALYSIS

In accordance with Section 15126.6(a) of the State CEQA Guidelines, the discussion in this section of the EIR focuses on a reasonable range of alternatives. The analysis provides a comparison of the alternatives' varying environmental effects and their merits and/or disadvantages in relation to the Proposed Project and to each other; their feasibility and ability to achieve project objectives are also discussed.

The following alternatives are analyzed in this EIR:

- **Proposed Project.** Extension through 2030; curfew maintained until 2035; Phase 3 provides for a maximum of 12.5 MAP and 95 ADD; maximum 4 air cargo ADD; and additional gates allowed after 2020.

- **Alternative A.** Extension through 2030; curfew maintained through 2035; Phase 3 provides for 12.8 MAP and 135 ADD; maximum 4 air cargo ADD; and additional gates allowed after 2020.

- **Alternative B.** Extension through 2030; curfew maintained through 2035; Phase 3 provides for 15.0 MAP and 115 ADD; maximum 4 air cargo ADD; and additional gates allowed after 2020.

- **Alternative C.** No term; curfew maintained through 2020; All Phases provide for 16.9 MAP and 228 ADD; maximum 4 air cargo ADD; and no limit on additional gates beginning in 2016.

- **No Project Alternative.** No extension, Settlement Agreement expires at the end of 2015; curfew assumed through 2020; provides for 10.8 MAP and 85 ADD; maximum 4 air cargo ADD; and assumes 20 gates are maintained.

- **2025 Horizon Year Alternative.** Extension through 2025; curfew maintained through 2025; provides for 11.8 MAP and 95 ADD; maximum 4 air cargo ADD; and additional gates allowed after 2020.

The Proposed Project, Alternatives A through C, and the No Project Alternative have been fully analyzed in Sections 4.1 through 4.10. An additional alternative has been developed in the interest of minimizing environmental impacts. The evaluation of this alternative, using the same thresholds of significance identified in Sections 4.1 through 4.10, is provided below in Section 7.4.1.

In accordance with Section 15126.6(a) of the State CEQA Guidelines, the EIR provides a comparison of the environmental effects and their merits and/or disadvantages of the alternative in relation to the Proposed Project, as well as its ability to achieve the Project Objectives. To facilitate the readers' understanding, Table 7-1 provides a matrix that compares of each alternative's ability to meet the Project Objectives. The level of environmental impact and ability to meet Project Objectives is considered as part of the identification of the environmentally superior alternative, which is discussed in Section 7.5.

TABLE 7-1
COMPATIBILITY COMPARISON OF ALTERNATIVES WITH PROJECT OBJECTIVES

Project Objective	Proposed Project	Alternatives				
		A	B	C	No Project	2025 Horizon
1. To modify some existing restrictions on aircraft operations at JWA in order to provide increased air transportation opportunities to the air-traveling public using the Airport without adversely affecting aircraft safety, recognizing that aviation noise management is crucial to continued increases in JWA's capacity.	●	●	●	○	○	●
2. To reasonably protect the environmental interests and concerns of persons residing in the vicinity of the JWA, including their concerns regarding "quality of life" issues arising from the operation of JWA, including but not limited noise and traffic.	●	◒	◒	○	●	◒
3. To preserve, protect, and continue to implement the important restrictions established by the 1985 Settlement Agreement, which were "grandfathered" under ANCA and reflect and accommodate historical policy decisions of the Orange County Board of Supervisors regarding the appropriate point of balance between the competing interests of the air transportation and aviation community and local residents living in the vicinity of the Airport.	●	●	◒	○	○	◒
4. To provide a reasonable level of certainty to the following regarding the level of permitted aviation activity at JWA for a defined future period of time: surrounding local communities; Airport users (particularly scheduled commercial users); and the air-traveling public.	●	●	●	○	○	●
5. To consider revisions to the regulatory operational restrictions at JWA in light of the current aviation environment; the current needs of the affected communities; and industry interests represented at JWA.	●	◒	◒	○	○	◒

Proposed Project—Extension through 2030; curfew maintained until 2035; Phase 3 provides for 12.5 MAP and 95 ADD; maximum 4 air cargo ADD; and additional gates allowed after 2020.
Alternative A—Extension through 2030; curfew maintained through 2035; Phase 3 provides for 12.8 MAP and 135 ADD; maximum 4 air cargo ADD; and additional gates allowed after 2020.
Alternative B—Extension through 2030; curfew maintained through 2035; Phase 3 provides for 15.0 MAP and 115 ADD; maximum 4 air cargo ADD; and additional gates allowed after 2020.
Alternative C—No term; curfew maintained through 2020; All Phases provide for 16.9 MAP and 228 ADD; maximum 4 air cargo ADD; and no limit on additional gates beginning in 2016.
No Project Alternative—No extension, Settlement Agreement expires at the end of 2016; curfew assumed through 2020; provides for 10.8 MAP and 85 ADD; maximum 4 air cargo ADD; and assumes 20 gates are maintained.
2025 Horizon Year Alternative—Extension through 2025; curfew maintained through 2025; provides for 11.8 MAP and 95 ADD; maximum 4 air cargo ADD; and additional gates allowed after 2020.

Legend:

● = Fully Implements
◒ = Partially Implements
○ = Does Not Implement

7.4.1 2025 HORIZON YEAR ALTERNATIVE

The 2025 Horizon Year Alternative would maintain limitations on the operations and facilities at JWA. This alternative proposes the same ADDs and MAP levels ultimately provided by Phase 2 of the Proposed Project, and would only extend the Settlement Agreement through December 31, 2025. This would allow the continuation of the Settlement Agreement, but would not commit to the higher flight and passenger levels provided in Phase 3 of the Proposed Project. More specifically, the 2025 Horizon Year Alternative would increase the number of regulated Class A commercial passenger flights and the number of passengers departing and arriving annually. There would be no change in the permitted number of flights and passengers in the first phase (2016 through 2020). Rather, Phase 1 would permit a maximum of 85 Class A commercial passenger ADDs and a 10.8 MAP cap consistent with the parameters of the Settlement Agreement (as amended in 2003). (This is an increase of 5 ADD and 1.6 MAP over 2013 levels.) On January 1, 2021, the MAP would be permitted to increase to 11.8 and the number of Class A commercial passenger ADDs would increase to 95. This is an increase of up to 1.0 million additional passengers annually compared to what is currently allowed under the Settlement Agreement and an increase of 10 additional ADDs. The number of permitted air cargo operations would not change.

As with the Proposed Project, under the 2025 Horizon Year Alternative, no physical improvements are proposed. The passenger loading bridges would be limited to the 20 existing bridges through December 31, 2020, and hardstanding would be permitted. Similar to the Proposed Project, it is assumed that the 2025 Horizon Year Alternative would be "grandfathered" under the terms of the ANCA; however, this would be subject to change after 2025 unless another Settlement Agreement Amendment were to be processed.

Table 7-2 provides a comparison of the principal terms of the Proposed Project and 2025 Horizon Year Alternative.

TABLE 7-2
COMPARISON OF THE PRINCIPAL TERMS OF THE PROPOSED PROJECT AND 2025 HORIZON YEAR ALTERNATIVE

Principal Restrictions	Proposed Project	2025 Horizon Year Alternative
Term	Through December 31, 2030	Through December 31, 2025
Curfew	Through December 31, 2035	Through December 31, 2030
Annual Passenger Limit (MAP)		
January 1, 2016 – December 31, 2020	10.8 MAP	10.8 MAP
January 1, 2021 – December 31, 2025	11.8 MAP	11.8 MAP
January 1, 2026 – December 31, 2030	12.2 *or* 12.5 MAP*	Not Applicable

TABLE 7-2
COMPARISON OF THE PRINCIPAL TERMS OF THE PROPOSED PROJECT AND 2025 HORIZON YEAR ALTERNATIVE

Principal Restrictions	Proposed Project	2025 Horizon Year Alternative
Passenger Flights (Class A ADDs for passenger service)		
January 1, 2016 – December 31, 2020	85 Class A ADDs	85 Class A ADDs
January 1, 2021 – December 31, 2025	95 Class A ADDs	95 Class A ADDs
January 1, 2026 – December 31, 2030	95 Class A ADDs	Not Applicable
Cargo Flights (Class A ADDs for all-cargo service)		
January 1, 2016 – December 31, 2030	4 Class A ADDs	4 Class A ADDs
Passenger Loading Bridges		
January 1, 2016 – December 31, 2020	20	20
January 1, 2021 – December 31, 2030	No Limit	No Limit

MAP: Million Annual Passengers; ADD: Average Daily Departures

* Trigger for capacity increase to 12.5 MAP: air carriers must be within 5 percent of 11.8 MAP (i.e., 11.21 MAP) in any one year during the January 1, 2021 through December 31, 2025 timeframe.

There would be no guarantees that the flights and passengers levels would not increase at the end of 2025. Rather, prior to the expiration of the terms of the Settlement Agreement in 2025, the signatories may elect to again amend the Settlement Agreement to extend the terms beyond 2025. This would require subsequent CEQA documentation.

IMPACT EVALUATION

Air Quality

The 2025 Horizon Year Alternative would have the same significant and unavoidable impacts of mass air pollutant emissions and local concentrations of air pollutants as the Proposed Project. However, as shown in Table 7-3, the impacts associated with the 2025 Horizon Year Alternative would be less severe than those of the Proposed Project, primarily because the aircraft and traffic emissions generated by the 2025 Horizon Year Alternative, particularly nitrogen oxides ("NOx"), volatile organic compounds ("VOC"), and respirable particulate matter with a diameter of 10 microns or less ("PM10") would be less than the aircraft and traffic emissions generated by the Proposed Project.

TABLE 7-3
MASS EMISSIONS CRITERIA POLLUTANT EMISSIONS
COMPARISON OF PROPOSED PROJECT AND 2025 HORIZON YEAR

	Project Emissions (lbs/day)											
	VOC		**NOx**		**CO**		**SOx**		**PM10**		**PM2.5**	
	Proposed Project	**2025 Horizon Year Alternative**	**Proposed Project**	**2025 Horizon Year Alternative**	**Proposed Project**	**2025 Horizon Year Alternative**	**Proposed Project**	**2025 Horizon Year Alternative**	**Proposed Project**	**2025 Horizon Year Alternative**	**Proposed Project**	**2025 Horizon Year Alternative**
Project Emissions	**111**	**68**	**758**	**632**	-5,343	-4,025	78	63	**164**	130	43	34
SCAQMD Significance Threshold	55	55	55	55	550	550	150	150	150	150	55	55
Significant?	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	**Yes**	No	No	No

lbs/day: pounds per day; VOC: volatile organic compounds; 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

Source: *Air Quality Technical Report,* Table 5.3-3b, Environ 2014.

Biological Resources

Similar to the Proposed Project, the 2025 Horizon Year Alternative would not have any direct or indirect impacts on listed plant species or sensitive natural communities, nor would it interfere with the movement of migratory fish. As with the Proposed Project, bird strikes would not be a major concern for wildlife species. These issues are more fully discussed in Section 4.2, Biological Resources.

The greatest potential for impacts to biological resources would be associated with an increase in noise associated with increased flights. The 2025 Horizon Year Alternative would have the same number of commercial regulated ADD and MAP in Phases 1 and 2 as the Proposed Project. Therefore, the impacts would be the same. Unlike the Proposed Project, the 2025 Horizon Year Alternative does not propose a third phase; therefore, the incremental increase in noise associated with Phase 3 of the Proposed Project would not occur.

Table 7-4 provides a comparison of the acres of the Upper Newport Bay affected by noise levels greater than the 60 CNEL contour for the Proposed Project and the 2025 Horizon Year Alternative.

TABLE 7-4
ACREAGE OF UPPER NEWPORT BAY AFFECTED BY NOISE LEVELS GREATER THAN 60 COMMUNITY NOISE EQUIVALENT LEVEL CONTOUR COMPARISON OF PROPOSED PROJECT AND 2025 HORIZON YEAR ALTERNATIVE

	Proposed Project Acres in 60 dB CNEL Contour	2025 Horizon Year Alternative Acres in 60 dB CNEL Contour
Phase 1	237	237
Phase 2	259	259
Phase 3	274	Not Applicable

dB: decibel; CNEL: Community Noise Equivalent Level
Source: Acreages are based on the noise contours developed as part of the *Noise Analysis Technical Report,* Landrum & Brown 2014.

Based on this information, the increase in noise in Upper Newport Bay associated with the 2025 Horizon Year Alternative would not have substantial adverse effects on the habitats and wildlife species in Upper Newport Bay because this noise level has already been present in Newport Bay and wildlife have habituated to it. The slight increase in noise levels and the areas of Upper Newport Bay subject to these noise levels are below the noise levels evaluated under the original Settlement Agreement (EIR No. 508) and are less than the impacts analyzed in EIR 582 and Addendum EIR 582-1 for the 2003 Settlement Agreement Amendment, which were not found not to be significant.

As with the Proposed Project, the 2025 Horizon Year Alternative would not interfere with the Natural Community Conservation Plan/Habitat Conservation Plan ("NCCP/HCP") goals to establish the reserve system because it does not convert any of the Newport Bay Ecological

Reserve's sensitive habitats to other types of habitat or use. The indirect effects (e.g., incremental increase in noise) would not result in significant impacts to the NCCP/HCP because the additional area in Upper Newport Bay subject to noise is relatively small.

The 2025 Horizon Year Alternative would have less than significant impacts on biological resources. The impacts for the 2025 Horizon Year Alternative are reduced compared to the Proposed Project because it does not extend the Settlement Agreement through 2030. Neither the Proposed Project nor the 2025 Horizon Year Alternative would result in significant impacts on biological resources.

Greenhouse Gas Emissions

Similar to the Proposed Project, the 2025 Horizon Year Alternative would result in significant and unavoidable impacts by not achieving GHG reductions consistent with Assembly Bill ("AB") 32 goals. However, the impacts associated with the 2025 Horizon Year Alternative would be less severe than those of the Proposed Project, primarily because the aircraft and traffic GHG emissions generated by the 2025 Horizon Year Alternative would be less than the aircraft and traffic emissions generated by the Proposed Project, as shown in Table 7-5.

TABLE 7-5
GREENHOUSE GAS EMISSIONS COMPARISON
PROPOSED PROJECT AND 2025 HORIZON YEAR ALTERNATIVE

	GHG Emissions ($MTCO_2e$/year)	
	Proposed Project	**2025 Horizon Year Alternative**
Annual GHG Emissions	59,774	47,661

GHG: greenhouse gas; $MTCO_2e$/year: Metric tonnes carbon dioxide equivalent per year
Source: *Greenhouse Gas Technical Report,* Table 4.6-19, Environ 2014.

Hazards and Hazardous Materials

The 2025 Horizon Year Alternative would result in an increase in fueling activities commensurate with up to ten additional average daily noise-regulated passenger flights (i.e., ADDs), which would be served by JWA's commercial fuel farm. Therefore, this Alternative would continue to involve the routine transport and use of a hazardous material (jet fuel) at the Airport. The increased fueling activity would increase the statistical likelihood of a spill (i.e., upset and accident conditions) over the existing conditions. However, similar to the Proposed Project, the existing regulations and Best Management Practices would reduce the potential for impact to less than significant levels.

As discussed in Section 4.4, the fuel storage capacity was evaluated for the average day peak month ("ADPM"). As with the Proposed Project, to accommodate the passenger levels and number of ADD during the peak period associated with the 2025 Horizon Alternative, Phase 2, modifications to the current operations would be required. Fuel is currently delivered during the nighttime hours (i.e., between 11:30 PM and 5:30 AM). With this alternative, it is estimated that an average of two additional tanker truck deliveries of fuel would be required on a daily basis. Due to the requirements to allow fuel to settle prior to dispensing it to the aircraft, during the

peak month when the demand is greatest, fuel deliveries would need to start earlier in the evening (i.e., before 11:30 PM). This alternative would require fewer tanker truck deliveries than would be required with the Proposed Project, Phase 3, which would require an additional four tanker truck deliveries daily. However, for both the Proposed Project and the 2025 Horizon Year Alternative, this would be a minor modification to the operations and would not result in safety impacts or major disruptions to the Airport operations.

Both the Proposed Project and this alternative would have a less than significant impact related to handling of hazardous materials within ¼ mile of a school because the closest school, Mariner's Christian School, is located 0.27 mile from the fuel trucking route and 0.60 mile from the fuel storage tanks.

The Airport site is not included on a list of hazardous materials sites compiled pursuant to Section 65962.5 of the *California Government Code.* Therefore, there would be no impacts associated with this threshold. Additionally, as with the Proposed Project, this alternative would not conflict with the provisions of the Airport Environs Land Use Plan (AELUP) for JWA. No modifications are proposed to on-site or surrounding land uses as part of this alternative; therefore, it would not introduce obstructions or other urban encroachment that would affect operations at the Airport and would not result in safety hazard for the people residing or working in the area. Though the number of flights and passengers served would change compared to existing conditions, both the Proposed Project and this alternative assume the operational characteristics of the Airport would remain unchanged.

Land Use and Planning

The Land Use and Planning evaluation considers potential impacts to on-site facilities, impacts to off-site land uses, and planning policy consistency.

On-Site Facilities

As discussed in Section 4.5, the Proposed Project would not require new facilities at the Airport; however, starting in Phase 2, the Proposed Project would require that additional fuel deliveries be made in the late evening hours. Phase 3 of the Proposed Project would also require the implementation of the planned and programmed Parking Structure C improvements (anticipated to be completed by 2016). The 2025 Horizon Year Alternative would not exceed the capacity of any of on-site facilities; however, it would require that the fuel deliveries be initiated earlier and the third fuel tank be utilized. The 2025 Horizon Year Alternative would not have to rely on the completion of Parking Structure C to accommodate the projected number of automobiles associated with the 11.8 MAP. Table 7-6 identifies the capacity for the various on-site facilities and provides a comparison of the Proposed Project and the 2025 Horizon Year Alternative.

TABLE 7-6
ON-SITE FACILITIES CAPACITY COMPARISON FOR THE PROPOSED PROJECT AND 2025 HORIZON YEAR ALTERNATIVE

On-Site Facility	Threshold Used to Determine Impact	Proposed Project, Phase 3 Demand	2025 Horizon Year Alternative Demand
Remaining Overnight Spaces ("RON")			
- Commuter RON	5	0	0
- Air Carrier RON	33	26	24
Gate Capacity			
- Daily Departures Per Gate	9.1	7.6	7.1
- Enplanements Per Gate	306,000	282,500	300,000
Projected International Departures	16	11.8	13.8
Fuel Capacity (gallons per day)			
- Daily Working Capacity	254,000	280,000	265,000
- Additional Truck Deliveries	Not Applicable	4	2
General Aviation ("GA")	Displacement of GA facilities	No Displacement	No Displacement
Automobile Parking*			
- Existing Spaces	7,520 spaces	7,719	7,287
- With Structure C, Phase 2	8,763 spaces		

RON: remaining overnight; GA: general aviation

* The threshold assumes an impact when usage exceeds 90 percent of capacity. Currently, there are 8,356 spaces, with the construction of Parking Structure C, Phase 2 there will be 9,737 spaces. Construction on the parking structure is programmed to start in 2015, with improvements completed in 2016.

Source: *Capacity Analysis Technical Report,* Tables 2-3, 3-2, 3-5, 4-1, 5-3, AECOM 2014b; *Parking Adequacy for JWA With Increased MAP and Flights,* Table 1, Fehr & Peers 2014.

Off-Site Land Uses

When the full capacity allowed under the Proposed Project is realized (post-2025), an additional 76 additional residences would be included within the 65 CNEL contour, of which 34 are currently insulated and 44 are not insulated. With the 2025 Horizon Year Alternative, 62 additional residences would be included within the 65 CNEL contour, of which 23 are currently insulated and 39 are not insulated. No other noise-sensitive land uses (i.e., schools or places of worship) would be added to the 65 CNEL contour with either the Proposed Project or the 2025 Horizon Year Alternative.

Residences with outdoor living areas exposed to a greater than 65 CNEL would be incompatible with the County's exterior noise standard. There is no feasible mitigation for the exterior noise levels. Therefore, as the 65 CNEL contour expands beyond existing and includes additional residences, this would be a significant impact. When compared to the Proposed Project, the 2025 Horizon Year Alternative would result in a reduction of residences exposed to exterior noise levels in excess of 65 CNEL.

Indoor noise impact occurs when the interior noise level exceeds 45 CNEL in any habitable room of a residence. This is a potentially significant land use impact. As discussed above, and in Section

4.5, as the 65 CNEL expands beyond the existing contour and includes additional homes, interior noise levels will be evaluated and if interior noise levels are in excess of 45 decibels the Sound Insulation Program ("SIP") would be implemented to achieve interior noise levels consistent with County standards (see Mitigation Measure LU-1). However, as with the Proposed Project, the FAA criteria would apply. For those residences within the business park and those residences with a habitable room with noise levels in excess of 45 CNEL but the average noise levels in the habitable rooms is less than 45 CNEL, mitigation would not be feasible because a funding source would not be available; therefore, the impact would be significant and unavoidable.

Both the Proposed Project and the 2025 Horizon Year Alternative would be consistent with applicable land use plans and policies.

Noise

Similar to Proposed Project, Phases 1 and 2, the 2025 Horizon Year Alternative would not result in noise level increases of 1.0 CNEL or greater and there are no noise monitoring stations ("NMS") in Newport Beach where the noise level would be 75 CNEL or greater. Therefore, there would be no exceedance of the FAA, County of Orange, or City of Newport Beach thresholds for Proposed Project, Phases 1 and 2 or for the 2025 Horizon Year Alternative.

The Proposed Project, Phase 3, would result in a significant noise impact at NMS 2S when the City of Newport Beach Noise Standards are applied. There would be an increase of 1.0 CNEL at NMS 2S in the Santa Ana Heights community of Newport Beach where the forecasted noise level is 66.4 CNEL. Mitigation Measure LU-2 would reduce this impact to less than significant. The 2025 Horizon Year Alternative does not propose a third phase; therefore, the incremental increase in noise would not occur.

Similar to the Proposed Project, no roadways with existing adjacent noise-sensitive uses that are projected to experience a traffic noise level increase of 1.5 dB or greater would result with the 2025 Horizon Year Alternative. In Newport Beach, there are no roadways in the Project area with adjacent noise-sensitive uses with traffic volumes that could generate a noise level approaching 75 A-weighted decibels ("dBA") in a private yard area where the noise standards are applicable. There also are no roadways in Newport Beach with existing adjacent noise-sensitive uses that are projected to experience a traffic noise level increase of 1.0 dB or greater. Impacts would be less than significant for both the Proposed Project and the 2025 Horizon Year Alternative.

In summary, the 2025 Horizon Year Alternative would have less than significant impacts on noise. The impacts for the 2025 Horizon Year Alternative are reduced compared to the Proposed Project.

Public Services

Similar to the Proposed Project, the 2025 Horizon Year Alternative would not have any significant impacts to fire protection services. The existing fire facilities would be sufficient to respond to the need for fire protection services. Therefore, because the existing fire facilities would be able to accommodate the increase in demand, impacts to fire protection services would be less than significant for both the Proposed Project and the 2025 Horizon Year Alternative.

Similar to the Proposed Project, the 2025 Horizon Year Alternative would not have any significant impacts to police/security protection services. Because the Transportation Security Administration ("TSA"), U.S. Immigration and Customs Enforcement services, and Orange County Sheriff's Department would be able to accommodate the increase demand for police/security services without interference with established response times or require new facilities, impacts to police/security services would be less than significant for both the Proposed Project and the 2025 Horizon Year Alternative.

Transportation/Traffic

As part of the *Transportation Impact Analysis Report*, impacts to intersections and freeway/mainline segments in the study area were evaluated. Similar to the Proposed Project, the 2025 Horizon Year Alternative would result in a cumulative intersection impact at the Campus Drive/Bristol Street North intersection. However, this impact would be reduced to less than significant with mitigation. JWA has completed planning studies for this improvement and construction is expected to be completed by 2016. This improvement, is identified as Mitigation Measure T-3 in Section 4.8, would apply to the 2025 Horizon Year Alternative.

Similar to the Proposed Project, the 2025 Horizon Year Alternative would result in a cumulative freeway impact to the on-ramp from Interstate ("I") 405 northbound to the MacArthur Boulevard off-ramp during Phase 2. The impacts of the Proposed Project, Phase 3 would contribute more traffic to this deficient freeway on-ramp, whereas the 2025 Horizon Year Alternative does not propose a third phase. Therefore, the 2025 Horizon Year impacts at this location would be lessened compared to the Proposed Project, Phase 3. As indicated in Section 4.8, mitigation for freeway impacts is infeasible. Therefore, both the Proposed Project and the 2025 Horizon Year Alternative would contribute to cumulative freeway impacts that are significant and unavoidable.

Utilities and Service Systems

Impacts to utilities and service systems were identified as less than significant for both water and wastewater systems. As indicated in Section 4.9, the estimate in the 2005 "will serve" letter from the Orange County Sanitation District ("OCSD") indicated the use of water efficient facilities in the terminals would allow the resulting discharge for 10.8 MAP to be over 20 percent less than the anticipated volumes when the original terminal facilities were built. Using this estimate there is capacity to serve approximately 12.96 MAP (10.8 MAP plus 20 percent). Therefore, for wastewater, neither the Proposed Project nor the 2025 Horizon Year Alternative would result in a significant impact related to the wastewater conveyance facilities that serve JWA. Similarly, the Mesa Water District indicated they would have the capacity to serve the Proposed Project. Therefore, since the 2025 Horizon Year Alternative would have lower MAP levels, it is reasonable to assume there would be no impacts associated with this alternative.

Water Quality

Similar to the Proposed Project, the 2025 Horizon Year Alternative would result in an increase in passengers and commercial flights that would increase the potential for concentration of oils, grease, and total petroleum hydrocarbons in storm water and other runoff at JWA due to increased passenger jet emissions on runways and increased automobile traffic and associated emissions in parking lots. However, water quality Best Management Practices ("BMPs") are in place at JWA for petrochemical pollutants. It is anticipated that the BMPs in place to minimize

impacts to surface water quality would accommodate the increase in the concentration of petrochemicals within the existing runoff flows. Neither the Proposed Project nor the 2025 Horizon Year Alternative would increase the volume of runoff generated at JWA because there would be no physical modifications at the Airport. Therefore, both the Proposed Project and the 2025 Horizon Year Alternative would not violate water quality standards or waste discharge requirements; would not create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; and would not otherwise substantially degrade water quality. Impacts to water quality would be less than significant for both the Proposed Project and the 2025 Horizon Year Alternative.

7.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires the identification of an environmentally superior alternative. Section 15126.6(e)(2) of the State CEQA Guidelines states that if the No Project Alternative is the environmentally superior alternative, as is the case here, then the EIR shall also identify an environmentally superior alternative among the other alternatives.

Based on the evaluation contained in this EIR, the 2025 Horizon Year Alternative would be the environmentally superior alternative because it would reduce the severity of the Proposed Project's impacts by serving fewer passengers and resulting in fewer automobile trips. However, this alternative would extend the benefits of the noise and access restrictions for a shorter duration (10 years, as compared to the Proposed Project's 15 years). As shown in Table 7-1, this alternative is only able to fully meet two of the Project objectives and partially meet the remaining three Project objectives. As part of the decision-making process, these environmental benefits must be weighed against the ability to meet the Project Objectives and other factors.

7.6 REFERENCES

AECOM. 2014 (April). *John Wayne Airport Settlement Agreement Amendment Environmental Impact Report Aviation Forecasts Technical Report.* Orange, CA: AECOM (Appendix B).

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8.0 PERSONS AND ORGANIZATIONS CONSULTED

8.1 CALIFORNIA DEPARTMENT OF TRANSPORTATION, DISTRICT 12

Transportation Engineer ..... Bassem Barsoum
Chief, Regional-Community-Transit Planning ..... Maureen El Harake
Associate Transportation Planner ..... Aileen Kennedy
Transportation Engineer ..... Adam Siddiqui

8.2 CITY OF COSTA MESA

Director of Economic and Development Services ..... Gary Armstrong
Principal Planner ..... Minoo Ashabi
Transportation Services Manager ..... Raja Sethurman
Associate Civil Engineer ..... Pritam Deshmukh

8.3 CITY OF IRVINE

Manager of Planning and Development Services ..... Barry Curtis
Supervising Transportation Analyst ..... Kerwin Lau
Senior Planner ..... David Law
Supervising Transportation Analyst ..... Sun-Sun Murillo

8.4 CITY OF NEWPORT BEACH

Planning Manager ..... Patrick Alford
City Traffic Engineer ..... Tony Brine

8.5 CITY OF SANTA ANA

Principal Planner ..... Vince Fregoso

8.6 CITY OF TUSTIN

Principal Planner ..... Scott Reekstin

8.7 COUNTY OF ORANGE

Traffic Engineering Manager ..... Isaac Alonso Rice
Engineering Technician ..... Tony Small
Planner IV, OC Planning Services ..... Chris Uzo-Diribe
Planner IV, OC Planning Services ..... Richard Vuong

8.8 MESA WATER DISTRICT

District Engineer ..... Phil Lauri

8.9 ORANGE COUNTY SANITATION DISTRICT

Senior Staff Analyst ..... Daisy Covarrubias

8.10 ORANGE COUNTY SHERIFF'S DEPARTMENT, AIRPORT OPERATIONS DIVISION

Captain, Airport Operations Division ..... Mike Hiller

8.11 ORANGE COUNTY TRANSPORTATION AUTHORITY

Director of Strategic Planning ..... Kurt Brotcke
Section Manager, Regional Modeling and Traffic Operations ..... Anup Kulkarni

8.12 TRANSPORTATION CORRIDOR AGENCIES

Director of Design and Construction ..... David Lowe

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9.0 LIST OF PREPARERS

9.1 JOHN WAYNE AIRPORT

Lea Choum, Land Use Manager. Master of Urban and Regional Planning, Bachelor of Arts, Economics. University of California, Irvine. 17 years of planning experience. Contribution: Reviewed the noise and traffic document.

Eric Freed, Manager of Access and Noise. Bachelor of Science, Ag. Business Management, Cal Poly, San Luis Obispo. 25 years of airport/aviation experience. Contribution: Reviewed the noise and aviation documents.

Maria Pope, Airport Environmental Engineer. Bachelor of Science, Geology, San Diego State University; 30 years of environmental experience. Contribution: Provided input to the air quality and hazardous materials sections of the document and provided technical review.

Kari Rigoni, Planning Manager. Bachelor of Science, Natural Resources Planning, Humboldt State University; 33 years of planning experience. Contribution: JWA project director, oversight of JWA project management team.

Lawrence G. Serafini, P.E., Deputy Airport Director Facilities. Bachelor of Science, Civil Engineering, Rensselaer Polytechnic Institute; Master of Science, Civil Engineering, California State University Long Beach; 40 years of construction, design, environmental, maintenance and planning experience. Contribution: Technical review of the environmental document and technical reports.

Courtney C. Wiercioch, Deputy Airport Director, Public Affairs. Bachelor and Master of Science, Political Science, University of California, Irvine; 20 years airport experience. Contribution: reviewed/commented on various portions of the environmental document.

9.2 CONSULTANTS

9.2.1 AECOM

Douglas Sachman, Associate Vice President. Bachelor of Science Aeronautics, Dowling College. 35 years of airport planning experience. Contribution: Managed the preparation of aviation technical reports and analyses.Andrew Scanlon, Project Manager. Masters Business Administration, Technology Management, University of Phoenix Online. Masters Information Systems, University of Phoenix Online. Over 14 years of aviation planning experience. Contribution: Lead forecaster/analyst of aviation forecasts and capacity analysis.

Warren Sprague, Senior Project Manager. Bachelor of Science, Geography/Environmental Studies, University of California, Los Angeles. Masters, Urban and Regional Planning,

University of Southern California; 30 years of aviation planning experience. Contribution: Aviation forecast and capacity analysis documents.

9.2.2 AMEC ENVIRONMENTAL AND INFRASTRUCTURE, INC.

Robert Romansik, Principal Engineer. Bachelor of Engineering, Chemical Engineering, Youngstown State University, EIT; 30 years of environmental engineering experience. Contribution: Assisted in data collection for air quality analyses.

9.2.3 BONTERRA PSOMAS

Julia R. Black, Technical Writer. Bachelor of Arts, English, California State University, Fullerton; 12 years of writing and editing experience. Contribution: Performed technical editing of the environmental document.

Kathleen Brady, AICP, Vice President. Bachelor of Science, Sociology, University of California, Riverside; 36 years of experience in environmental impact assessment, transportation projects, and advanced planning programs. Contribution: Managed the preparation of the environmental document.

Julie A. Cho, Project Manager. Master of Business Administration, University of California, Irvine; Master of Urban and Regional Planning, University of California, Irvine; 21 years of experience in the preparation and management of environmental compliance documents. Contribution: Completed Land Use and Cumulative Sections; assisted in the preparation of the environmental document.

Ann M. Johnston, Vice President. Bachelor of Arts, Biology, California State University, Long Beach; 25 years of experience in biological resources inventories/evaluations; sensitive species surveys; mitigation monitoring; resource agency permitting and processing; conservation and strategic planning; and technical peer reviews. Contribution: Assisted in the preparation of the Biological Resources Section.

Sheryl A. Kristal, Senior Word Processor (Microsoft Office Specialist). General Studies, Golden West College; 8 years of word processing experience. Contribution: Formatted the environmental document.

Megan Larum, Assistant Project Manager. Bachelor of Science, Environmental Policy Analysis and Planning, University of California, Davis; 8 years of CEQA and NEPA experience. Contribution: Performed the land use survey.

Agnieszka "Aga" Napiatek, LEED AP BD+C, Project Manager. Master of Science, Environmental Studies, California State University, Fullerton; 8 years of experience in environmental documentation and biology (specifically the State-listed as Threatened Mohave ground squirrel) consistent with the CEQA and NEPA. Contribution: Assisted in the preparation of the Biological Resources Section; prepared the Public Services and Utilities Sections.

Jillian K. Neary, Assistant Project Manager. Bachelor of Arts, Geology, Indiana University-Purdue University at Indianapolis; 15 years of experience in environmental analysis and

land use investigation. Contribution: Completed the Hazards and Hazardous Materials and Water Quality Sections.

Danaé M. Overman, Editor. Master of Arts, English, Chapman University; 2 years of writing and editing experience. Contribution: Performed the land use survey.

9.2.4 ENVIRON

Shari Libicki, Principal. PhD, Chemical Engineering, Stanford University; MS, Chemical Engineering, Stanford University; BSE, Chemical Engineering, University of Michigan; 25 years of air quality and greenhouse gas management experience. Contribution: Air Quality and Greenhouse Gas Evaluations.

Eric Lu, Principal. Licensed Professional Engineer (CA), Certified Permitting Professional: South Coast Air Quality Management District, Accredited Greenhouse Gas Lead Verifier with Sector Specialty in Refineries and Cement. M.S., Chemical Engineering, University of California, Berkeley; B.S. Chemical Engineering, Brown University. 14 years of air quality and greenhouse gas management experience. Contribution: Air Quality and Greenhouse Gas Evaluations.

Megan Neiderhiser, Senior Associate. Licensed Professional Engineer (CO). M.S., Environmental Engineering, University of California, Berkeley; Bachelor of Science, Environmental Engineering, Tufts University. 10 years of air quality and greenhouse gas management, and information systems experience. Contribution: Air Quality and Greenhouse Gas Evaluations.

9.2.5 FEHR & PEERS

Christopher J. Gray, American Institute of Certified Planners, Senior Associate. Master of Science in Planning (Transportation), Florida State University, Bachelor of Arts in Political Science, University of Florida; 18 years of experience in transportation planning, sustainable transportation, climate change studies, travel demand forecasting, parking studies, transit studies, and Smart Growth. Contribution: Prepared transportation study and met with agencies to review study area and methodology.

Anthony Hernandez, Bachelor of Science, Urban & Regional Planning, California State Polytechnic University, Pomona; 6 years of experience in Transportation and Urban Planning. Contribution: Prepared analysis of intersection impacts.

Paul Herrmann, Bachelor of Science, Civil Engineering, California Polytechnic State University, Pomona; 4 years of experience in transportation engineering and transportation planning. Contribution: Prepared analysis of freeway facility impacts.

John Muggridge, American Institute of Certified Planners, Principal. Master of Science, Transportation Planning and Engineering, University of Leeds, Leeds/UK, Bachelor of Engineering, Mechanical and Process Engineering, University of Sheffield, Sheffield/UK; 16 years of experience in transportation planning and engineering, both in England and in the United States. Contribution: Prepared trip generation analysis.

9.2.6 LANDRUM & BROWN

Matthew B. Jones, P.E., Project Manager: Bachelor of Science, Engineering, University of California, San Diego; 25 years of noise control and acoustical engineering experience. Contribution: Historical noise and operations data analysis, traffic noise analysis, noise impact analysis, GIS mapping, and report preparation.

Vince Mestre, P.E., Managing Director. Bachelor of Science, Engineering, University of California, Irvine; Master of Science Engineering University of California, Irvine; over 35 years of noise control and acoustical engineering experience. Contribution: Managed the preparation of the noise technical report.

Christian Valdes, Project Manager. Bachelor of Science, Aviation Science, San Jose State University; Master of Arts, Geographic Information Science, San Jose State University. Contribution: Aircraft noise modeling (INM).

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