ATTACHMENT C

VOLUME 3 OF 3

FINAL INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION

APPENDICES

ORANGE COUNTY TRANSPORTATION AUTHORITY
TRANSIT SECURITY AND OPERATIONS CENTER PROJECT

ANAHEIM, CALIFORNIA

SCH NO. 2018101071

LSA

October 2018

FINAL IS/MND CONTENTS

The Final IS/MND proposed for adoption by the Orange County Transportation Authority (OCTA) Board of Directors includes three volumes. Volume 1 consists of the IS/MND as published for public review on October 30, 2018. Volume 2 consists of the Responses to Comments document, which includes all comments received during the public review period, responses to those comments, as well as other information included as part of the Final IS/MND under consideration. Volume 3 consists of the Appendices to the IS/MND as published for public review on October 30, 2018.

Volume 1: IS/MND (as published on October 30, 2018)

Volume 2: Responses to Comments

Volume 3: IS/MND Appendices (as published on October 30, 2018)

A: UTILITY INVESTIGATION REPORT
B: CEQA INITIAL STUDY CHECKLIST
C: MITIGATION MONITORING AND REPORTING PROGRAM
D: AIR QUALITY MEMORANDUM
E: BIOLOGICAL RESOURCES DATABASE SEARCH
F: CULTURAL RESOURCES REPORT
G: GEOTECHNICAL EVALUATION
H: HAZARDOUS MATERIALS REPORTS PHASE 1 AND PHASE 2, AND HAZARDOUS BUILDING MATERIAL SURVEY
I: CONCEPTUAL DRAINAGE STUDY
J: TRAFFIC MEMORANDUM
K: AB 52 TRIBAL CONSULTATION

APPENDIX A

UTILITY INVESTIGATION REPORT

Prepared for:

Orange County Transportation Authority
Agreement C-6-1108

Transit Security & Operations Center (TSOC)

1512-20 W. Lincoln Ave, Anaheim, California

APN 250-111-03 & 250-122-12

Utility Investigation Report

July 2018

Prepared by:

9130 Anaheim Place, Suite 210
Rancho Cucamonga, CA 91730-8566
STV Project No. 4018849

TABLE OF CONTENTS

1. INTRODUCTION

OCTA plans to build the Transit Security and Operations Center (TSOC), a shared office building and dispatch center at the southwest corner of Manchester Avenue and Lincoln Avenue in the City of Anaheim, California. The site is located in an area designated as Industrial according the City of Anaheim's zoning maps.

The proposed project consists of a 2-story, 24,000 square foot commercial building over a 3 acre lot. This proposed new TSOC will relocate certain agencies from the existing OCTA Garden Grove Maintenance Facility. Most agencies currently located in the Annex building will be relocated to the proposed TSOC, which is intended to house the central operations and security staff for the OCTA transit system. The Bus Operations building and Annex building both share one common parking lot within the Facility. The proposed project will provide about180 parking spaces.

This report identifies the existing utilities available at the existing property, which will be used for the proposed Transit Security and Operation Center (TSOC), located at 1512-1520 W. Lincoln Avenue, Anaheim.

1.1 Project Overview

The new OCTA TSOC is located at 1512-20 W. Lincoln Ave, Anaheim with combined site area of 2.85 ac. The new facility will provide the following functions with improved efficiency and space for future expansion:

- Operations Training (Bus)
- Central Communications (Bus)
- Field Operations (Bus)
- Transit Police Cervices (Bus, Paratransit & Rail)
- Emergency Operations Center (Agency-wide)
- File Storage

See Appendix B for proposed site plan.

2. EXISTING CONDITIONS

The project site consists of two properties (APN 250-111-03 & 250-122-12). The site abuts the existing Union Pacific Railroad right-of-way and is bounded by Lincoln Avenue and Manchester Avenue. The eastern and central portions of the site is currently occupied by automobile repair shop and surface parking. Western portion of the site is currently unimproved.

2.1 Existing Utilities

The existing building has electricity, water, gas and communications utility services. In addition, sewer and storm water connections are hooked up to the property.

The existing building will be demolished after the utility services are terminated. Existing utility points of connection (POC) may not be suitable for the proposed building. It is recommended to obtain new services based on the identified needs for the new TSOC building.

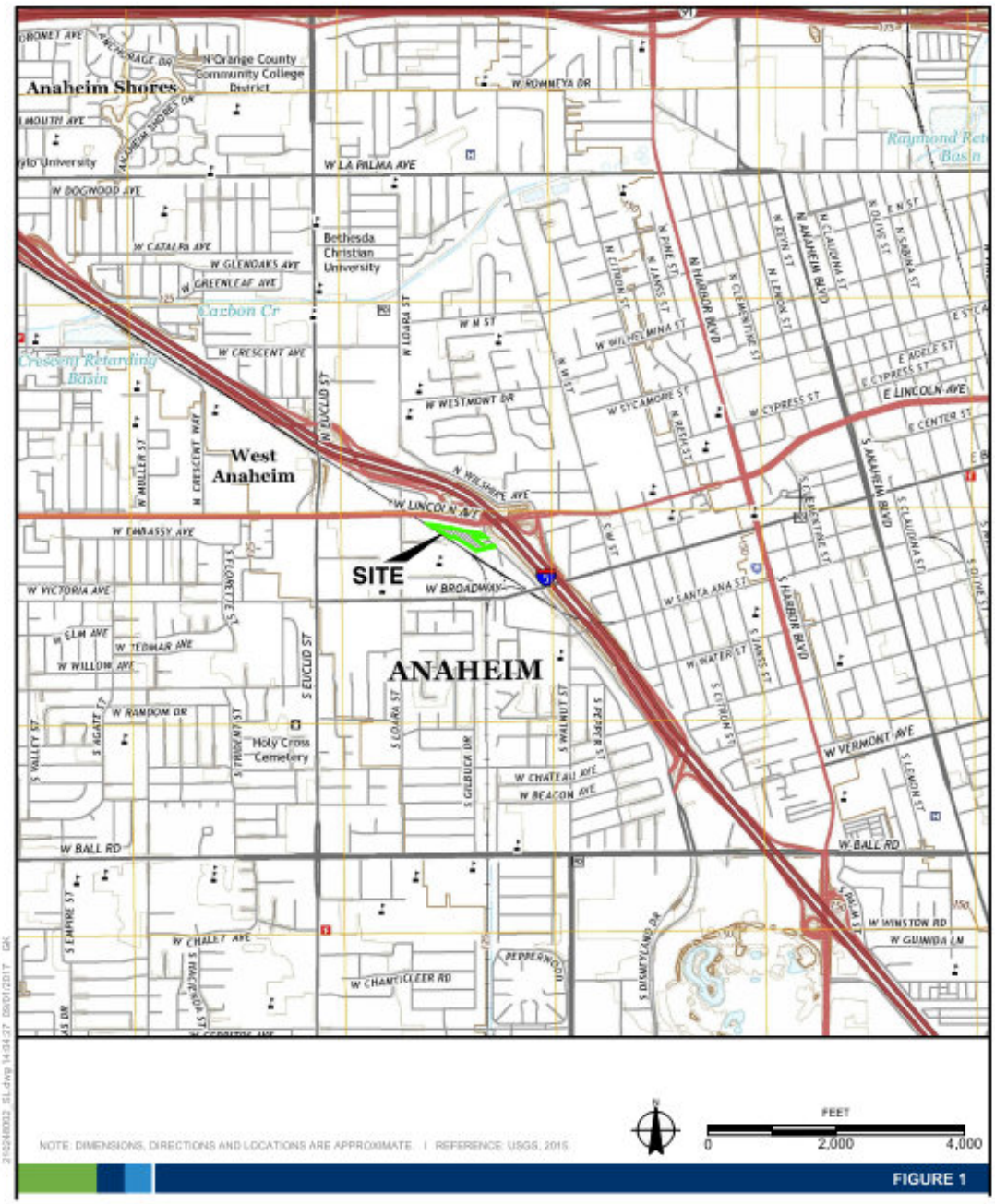
2.2 Coordination with utility Companies and Agencies

STV have been coordinating with all utility companies and agencies in the area and obtained record information including as-builts related to their facilities. Correspondence and as-built information is summarized in Appendix C. The contact information is summarized below.

Utility Contact Information and Disposition

No.	Company/ Agency	Contact Person	Telephone	Address	Email	Disposition
1	City of Anaheim Engineering			P.O. Box 3222 Anaheim, CA 92803		No respond
2	DL FMS	Manuel Caluza	424-703-8266	3171 N. Gaffey San Pedro, CA 90731	linerider@daelbbjv.com	No respond
3	Level 3 Communications	Area Representative	877-366-8344	1025 Eldorado Blvd. Broomfield, CO 80021	relo@level3.com	No respond
4	MPower Communications – ITC Locates (PWA)	Mark Denning	949-864-0296	2698 White Road Irvine, CA 92614	mdenning@telepacific.com	No respond
5	Crown Castle – LA & Ventura	Bryant Lowe	724-416-2193	200 Corporate Dr Canonsburg, PA 15317	fiberdigteam@crowncastle.com	See Attached Page 10 to 14
6	ATT Transmission TCA (TCG)	Maria Guzman	213-787-9996	420 S. Grand Avenue, Room 707 Los Angeles, CA 90071	Mg1371@att.com	See Attached Page 15 & 16
7	AT&T Distribution Substructure Records Request Construction & Engineering		510-645-2929	Call for Mailing Address		No Respond
8	Kinder Morgan Energy Partners	Tim Szto	714-560-4908	1100 Town and Country Road Orange, CA 92867	Tim_szto@kindermorgan.com	No Respond
9	Zayo FNA Abovenet	George Huss	443-403-2023	1060 Hardees Dr. Aberdeen MD 21001	george.huss@zayo.com	No conflict See page 17 to 19
10	Metropolitan Water – Orange County		213-217-6679	P.O. Box 54153 Terminal Annex Los Angeles, CA 90054		No conflict See page 20 & 21
11	SC Gas – Anaheim	Ryan Lopez	714-634-5067	1919 State College Blvd. Anaheim, CA 92806	Rlopez2@semprautilities.com	See Attached Page 31 to 33
12	City of Anaheim Electric	Ken Heffernan	714-765-6843	909 E. Vermont Avenue Anaheim, CA 92805	kheffernan@anaheim.net	No Respond
13	Anaheim Fiber Optic	Jean Pawlicki	714-765-4535	201 S. Anaheim Blvd., #701 Anaheim, CA 92805	jpawlicki@anaheim.net	No Respond
14	Orange County Water District Anaheim Electric	Chris Olsen	714-378-3200	P.O. Box 8300 Fountain Valley, CA 92728	colsen@ocwd.com	No conflict See page 22 to 24
15	Charter Communications	Dave Dolney	714-903-8446	1500 Auto Center Dr. Ontario, CA 921	dave.dolney@charter.com	See Attached Page 25 to 30
16	City of Anaheim Water	Stewart Noble	714-765-4591	201 S. Anaheim Blvd. Suite 601 Anaheim, CA 92805	snoble@anaheim.net	No Respond

APPENDIX A – Location Map

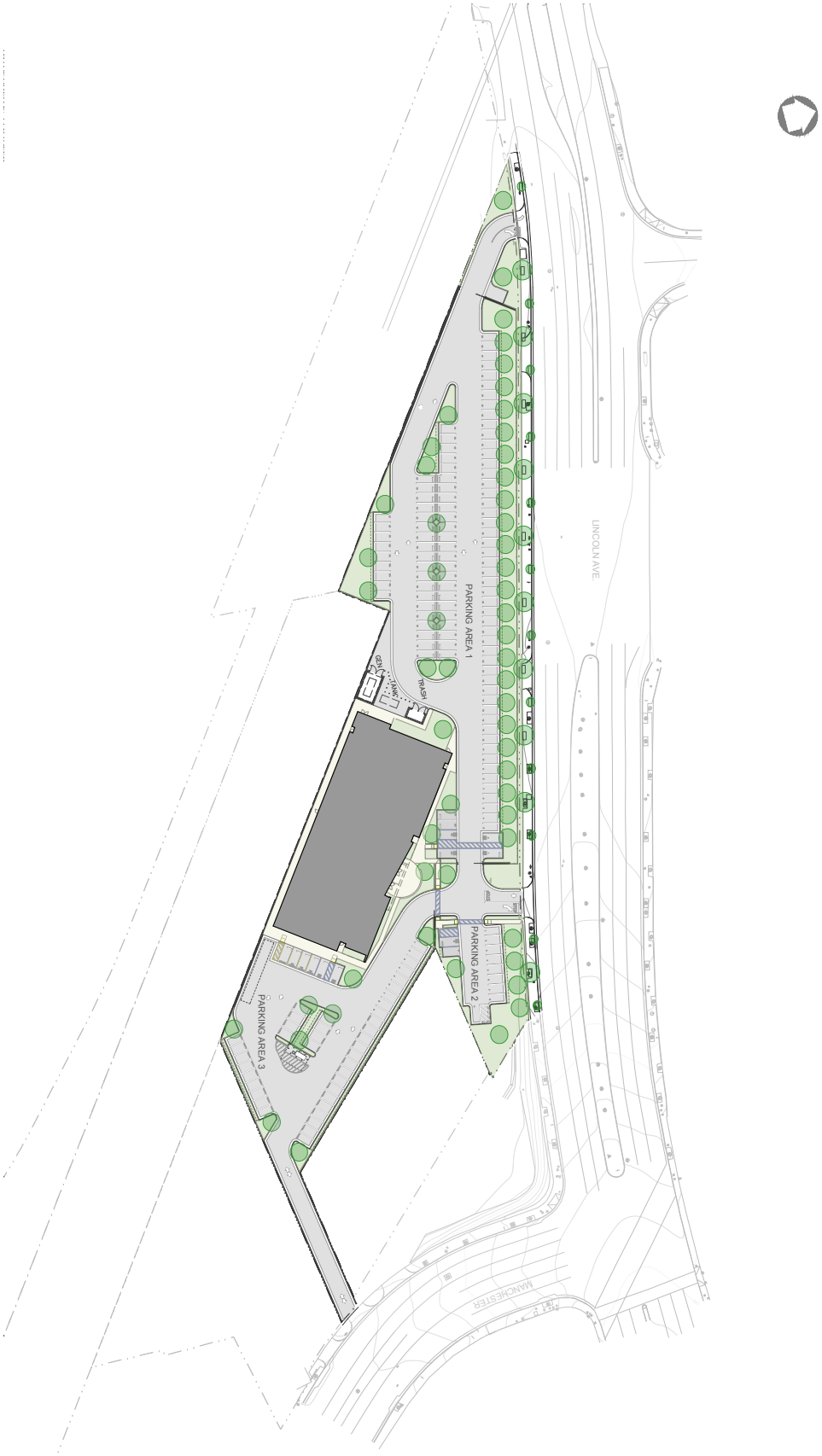


SITE LOCATION

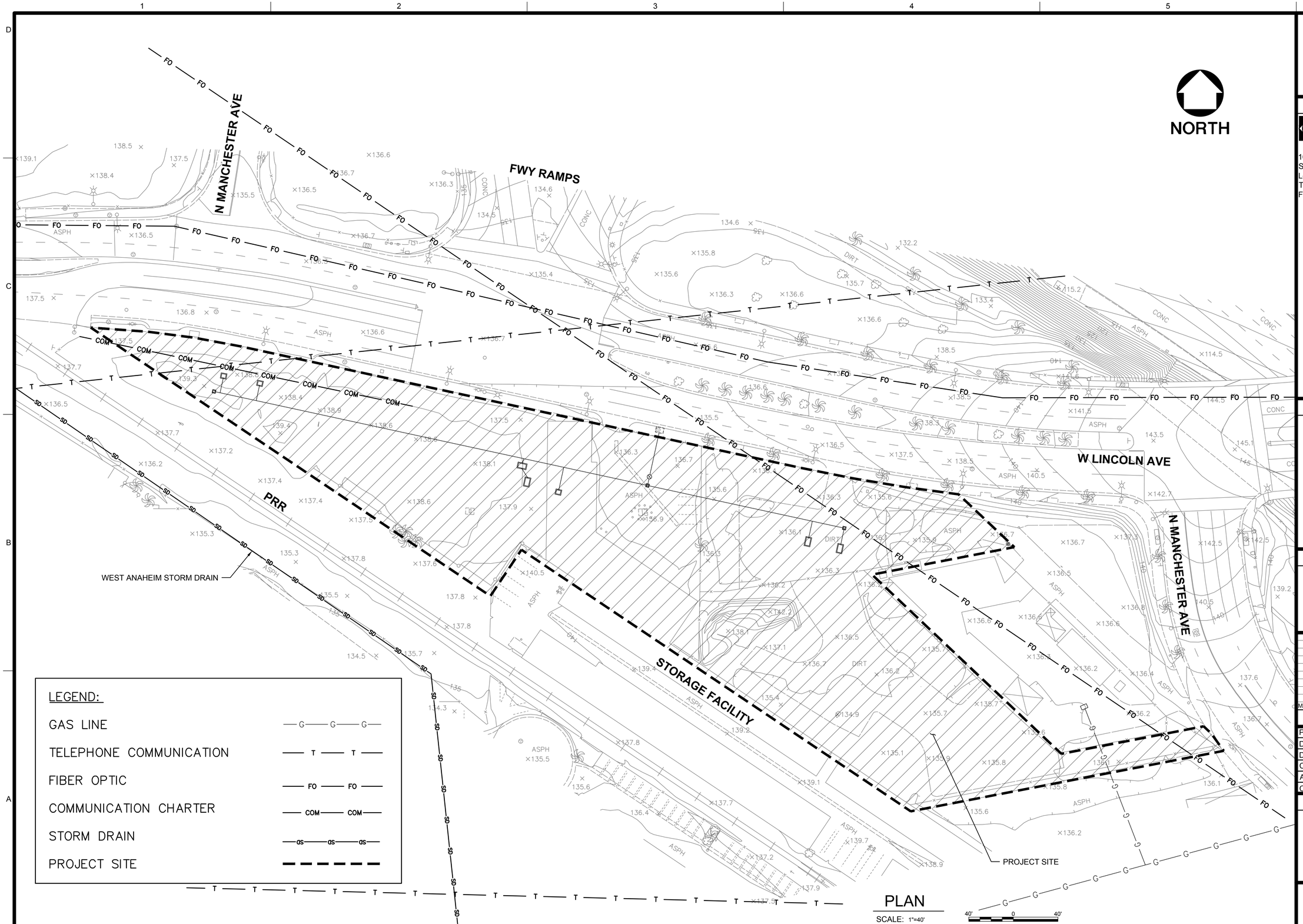
OCTA TRANSIT SECURITY AND OPERATIONS CENTER

ANAHEIM, CALIFORNIA

APPENDIX B – Proposed Site Map



APPENDIX C – Utility Correspondence/As-builts



PLAN

SCALE: 1"=40'

40' 0 40'

OCTA

CONSULTANTS

STV 100 Years

1055 West Seventh Street
Suite 3150
Los Angeles, CA 90017
Tel: (213) 482-9444
Fax: (213)482-5278

SEALS

PROJECT IDENTIFICATION

PRELIMINARY ENGINEERING
OCTA - TRANSIT SECURITY & OPERATIONS CENTER

MARK	DATE	DESCRIPTION	BY

ISSUE BLOCK

PROJECT NO.:	4018849
DESIGNED BY:	-
DRAWN BY:	-
CHECKED BY:	-
APPROVED BY:	-
COPYRIGHT:	-

SHEET TITLE

UTILITY MAP EXISTING CONDITIONS

DWG NO:	SHT NO:
-	-

I:\Projects\4018849\4018849_0001\30_CAD Models and Sheets\04_C_Civil Working\Utilities Plan.dwg Jun 20, 2018 - 2:34pm,Olm2M

CROWN CASTLE (Fiber)

Nafar, Rose

From: Antol, David <David.Antol@crowncastle.com>
Sent: Thursday, April 19, 2018 11:40 AM
To: Nafar, Rose
Cc: Fiber Dig Facilities
Subject: RE: OCTA TSOC Utilities Conflict-Fiber Reply...
Attachments: Doc1 AS BLT UPDATE TEMPL- 2018 FIB WILCON AS BLD.PDF

Hello Rose,

After review, Crown Castle's own fiber is NOT PRESENT within this project's limits.

However, another fiber network, WILCON, does have facilities present. (Please see attachment)

If you need more details, let us know.

Sincerely,

DAVID ANTOL
Utility Coordinator
724-416-2180
(1-888-632-0931 Opt. 2)

CROWN CASTLE
2000 Corporate Dr. I Canonsburg, PA 15317

Fiber.dig@CrownCastle.com

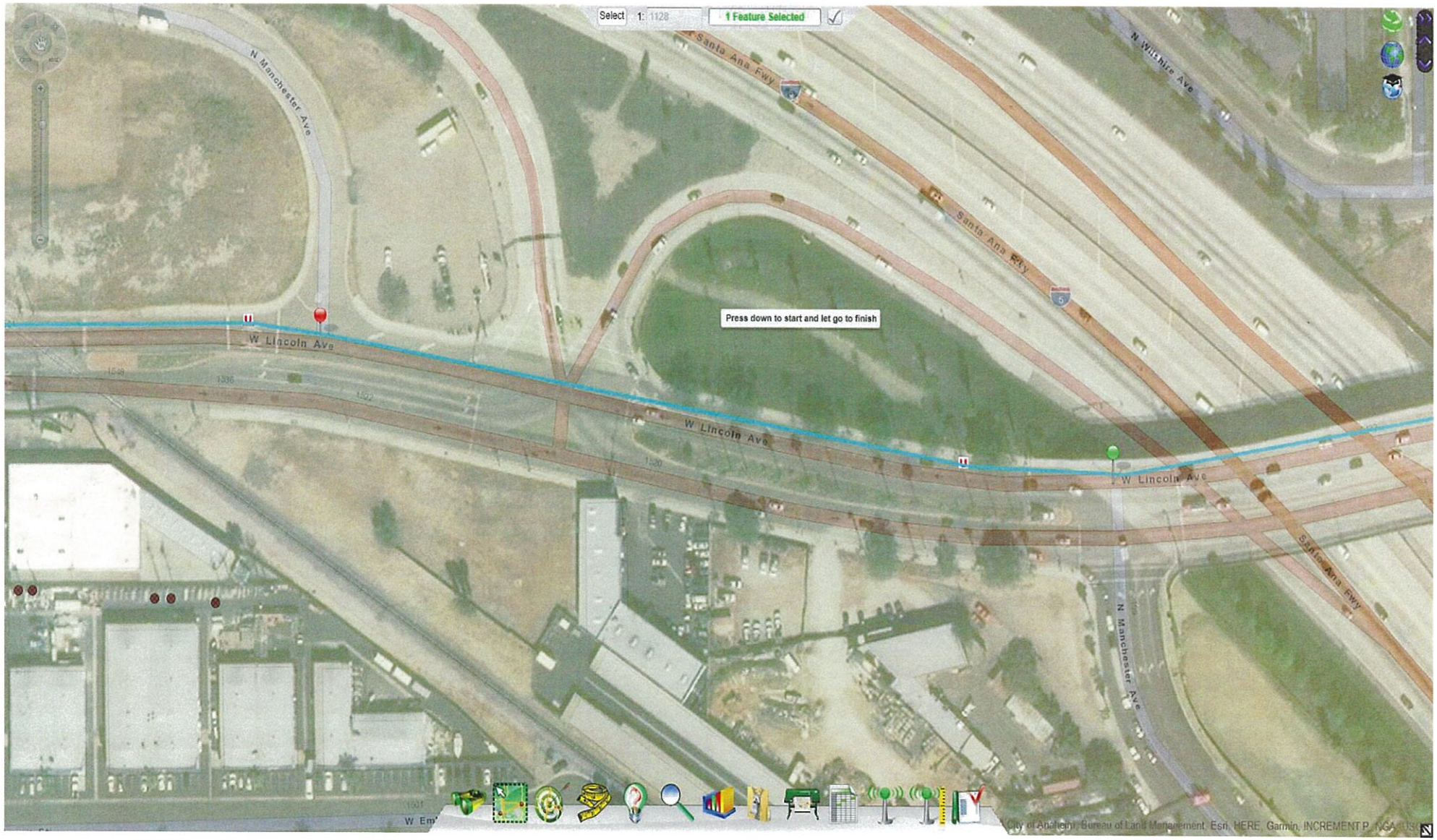
From: Nafar, Rose <Rose.Nafar@stvinc.com>
Sent: Wednesday, April 18, 2018 5:22 PM
To: Fiber Dig Team <FiberDigTeam@crowncastle.com>
Subject: OCTA TSOC Utilities Conflict

Hello Bryant,

My company has a project with OCTA, Please see the attachment for the area of our work. We need to make sure there is no Utilities that is in conflict with our work.
Please let me know if there are any lines in this area of your jurisdiction. And If the answer is yes, please share with me the lay out.
I really appreciate your help on this matter.

Thank you,

Rose Nafar
Project Engineer
STV 100 Years
9130 Anaheim Place, Suite 210
Rancho Cucamonga, CA 91730-8540
Office No: (909)484-0660
Direct Tel No: (909)694-2950
Fax No: (909)484-1360



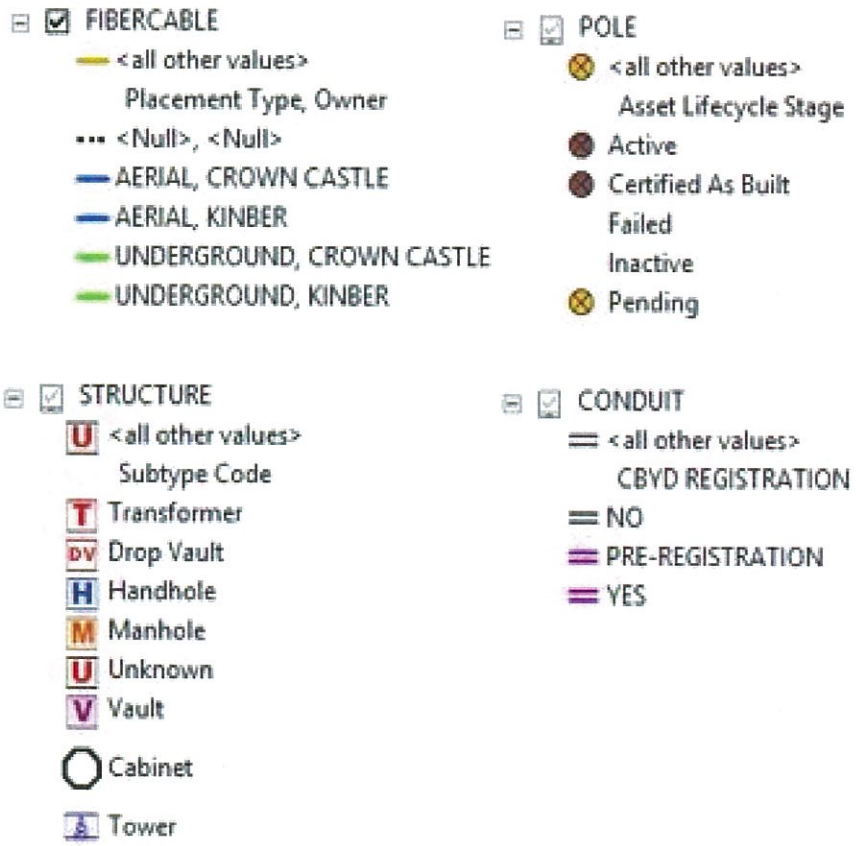
WILCON Network UG Fiber IS PRESENT along W Lincoln Ave.

STV Inc.
Project: OCTA TSOC Utilities Conflict
UTR-0418-147

David Antol
Utility Coordinator
2000 Corporate Dr.l Canonsburg, PA 15317
Fiber.dig@CrownCastle.com

CROWN CASTLE

Map Key



CROWN CASTLE

STV Inc.
Project: OCTA TSOC Utilities Conflict
UTR-0418-147

David Antol
Utility Coordinator
2000 Corporate Dr.l Canonsburg, PA 15317
Fiber.dig@CrownCastle.com

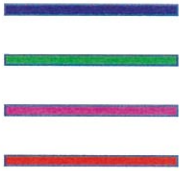
CROWN CASTLE

Google Maps COLOR KEY FOR CROWN AND SUNESYS

CROWN

Yellow	Aerial Fiber	As Built
Purple	UG	As Built
Brown	UG	As Built
DK Blue	Leased	
Red	Exact UG Conduit	

SUNESYS



Blue	Aerial Fiber
Green	UG
Magenta	Proposed Fiber
Red	Leased/Managed Fiber

CROWN CASTLE

The Foundation for a Wireless World.

STV Inc.
Project: OCTA TSOC Utilities Conflict
UTR-0418-147

David Antol
Utility Coordinator
2000 Corporate Dr.l Canonsburg, PA 15317
Fiber.dig@CrownCastle.com

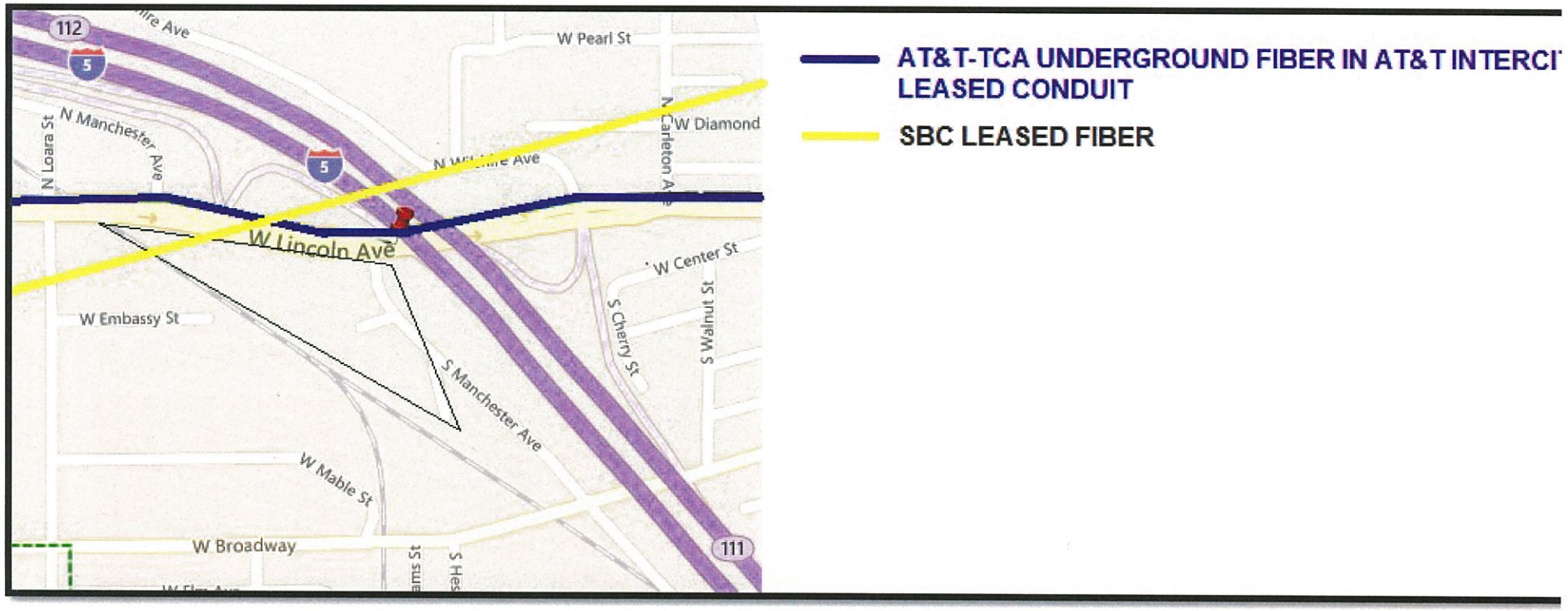
CROWN CASTLE

ATT

Nafar, Rose

From: GUZMAN, MARIA <mg1371@att.com>
Sent: Wednesday, April 18, 2018 5:39 PM
To: Nafar, Rose
Cc: TCGLosAngelesUtilityCon
Subject: FW: OCTA TSOC Utilities Conflict
Attachments: 117-042_Design_sf_working file rev2.pdf

Rose,
This response is for "AT&T–TCA" only. ***Name change from TCG (Teleport Communications Group) to TCA (Teleport Communications America, LLC) - Effective date of the merger is January 1, 2013***



Thank you,
Maria Guzman
Utility Information Contact - LA, SF/Bay Area and Oregon

From: Nafar, Rose [mailto:Rose.Nafar@stvinc.com]
Sent: Wednesday, April 18, 2018 2:27 PM
To: GUZMAN, MARIA <mg1371@att.com>
Subject: OCTA TSOC Utilities Conflict

Hello Maria,

My company has a project with OCTA, Please see the attachment for the area of our work. We need to make sure there is no Utilities that is in conflict with our work.
Please let me know if there are any lines in this area of your jurisdiction. And If the answer is yes, please share with me the lay out.
I really appreciate your help on this matter.

Thank you,

Rose Nafar
Project Engineer
STV 100 Years
9130 Anaheim Place, Suite 210
Rancho Cucamonga, CA 91730-8540
Office No: (909)484-0660
Direct Tel No: (909)694-2950
Fax No: (909)484-1360

Zayo (Fiber Optic)

Nafar, Rose

From: Thomas Bruiniers <thomas.bruiniers@zayo.com>
Sent: Friday, April 20, 2018 6:56 AM
To: Nafar, Rose
Cc: George Huss
Subject: FW: OCTA TSOC
Attachments: 117-042_Design_sf_working file rev2.pdf

Good Morning,
Zayo facilities West of your project area fall within UPRR right of way.
Thank you.

Thomas Bruiniers
Zayo Fiber Solutions
Western Region OSP Project Manager
Southern California
thomas.bruiniers@zayo.com
(213) 283-3601 Office
(909) 319-1607 Mobile
530 W 6th St. Suite 720
Los Angeles, CA, 90014

From: George Huss [mailto:george.huss@zayo.com]
Sent: Friday, April 20, 2018 5:07 AM
To: Thomas Bruiniers <thomas.bruiniers@zayo.com>
Subject: FW: OCTA TSOC

George Huss
Manager - Network Protection | **Zayo Group**
1060 Hardees Drive | Suite H | Aberdeen, MD 21001
O: 443-403-2023 | M: 443-250-1816 | George.Huss@zayo.com|

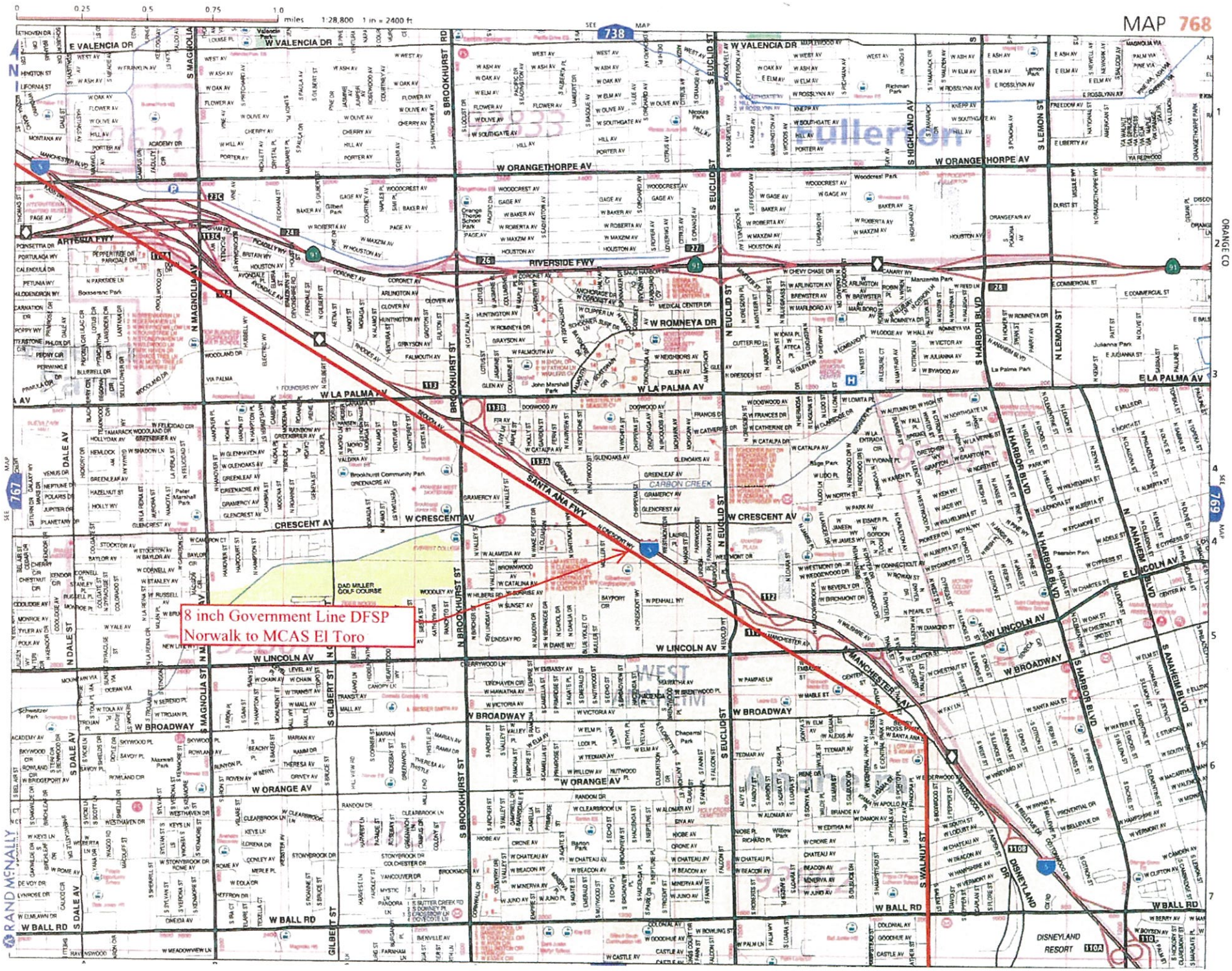
From: Nafar, Rose [mailto:Rose.Nafar@stvinc.com]
Sent: Wednesday, April 18, 2018 5:14 PM
To: george.huss@zayo.com
Subject: OCTA TSOC

Hello George,

My company has a project with OCTA, Please see the attachment for the area of our work. We need to make sure there is no Utilities that is in conflict with our work.
Please let me know if there are any lines in this area of your jurisdiction. And If the answer is yes, please share with me the lay out.
I really appreciate your help on this matter.

Thank you,

Rose Nafar
Project Engineer
STV 100 Years
9130 Anaheim Place, Suite 210
Rancho Cucamonga, CA 91730-8540
Office No: (909)484-0660
Direct Tel No: (909)694-2950
Fax No: (909)484-1360


MAP 768
8 inch Government Line DFSP
Norwalk to MCAS El Toro
SANTA ANA FWY
RIVERSIDE FWY
ARTESIA FWY
W VALENCIA DR
W ORANGETHORPE AV
W ROMNEYA DR
W LA PALMA AV
W CRESCENT AV
W LINCOLN AV
W BROADWAY
W ORANGE AV
W BALL RD
S MAGNOLIA AV
S BROOKHURST ST
S EUCLID ST
S HARBOR BLVD
N HARBOR BLVD
S DALE AV
N DALE AV
S GILBERT ST
S HIGHLAND AV
S LEMON ST
N LEMON ST
N MAGNOLIA AV
N BROOKHURST ST
N EUCLID ST
S ANAHEIM BLVD
N ANAHEIM BLVD
E LA PALMA AV
E LINCOLN AV
MANCHESTER BLVD
DISNEYLAND DR
DISNEYLAND RESORT
CARBON CREEK
DAD MILLER GOLF COURSE
Brookhurst Community Park
Fullerton
ORANGE CO
MAP 767
MAP 769
SEE MAP 738
SEE MAP 768
RAND McNALLY

Metropolitan Water

STV 100 Years

RECEIVED APR 30 2018

April 25, 2018

Metropolitan Water – Orange County
Substructures Team
P.O. Box 54153 – Terminal Annex
Los Angeles, CA 90054

Dear Sir or Madam:

My company has a project with Orange County Transportation Authority (OCTA). Please see the attachment for the area of our work. We need to make sure there are no utilities that are in conflict with our work.

Please let me know if there are any lines in this area of your jurisdiction. If the answer is yes, please share with me the lay out. Your help in this matter is greatly appreciated.

Thank you very much.

Rose Nafar
Project Engineer
9130 Anaheim Place, Suite 210
Rancho Cucamonga, CA 91730-8540
Office No. 909-484-0660
Direct Tel No. 909-694-2950
rose.nafar@stvinc.com

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
HAS NO EXISTING OR PROPOSED FACILITIES OR RIGHTS OF WAY
WITHIN THE LIMITS OF THIS PROJECT.

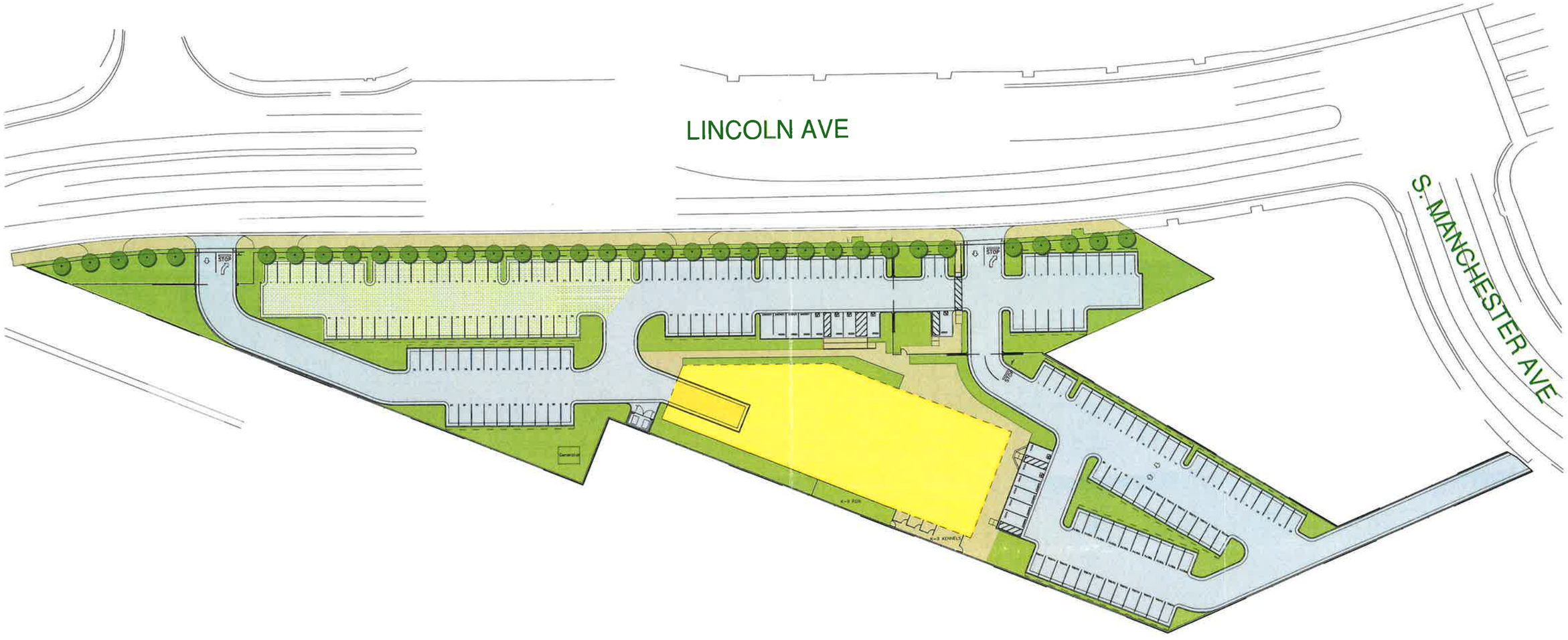
X

4-30-18

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA
KEN CHUNG
(213) 217-7670
MWD # 0000-18-197

9130 ANAHEIM PLACE, SUITE 210
RANCHO CUCAMONGA, CALIFORNIA 91730-8540
(909) 484-0660 FAX: (909) 484-1360

RECEIVED APR 3 0 2018



SINCE 1933

ORANGE COUNTY WATER DISTRICT

Orange County's Groundwater Authority

TRANSMITTAL LETTER

DATE: April 23, 2018

TO: Rose Nafar
Project Engineer – STV Inc.
9130 Anaheim Place, Suite 210
Rancho Cucamonga, CA 91730-8540
(909)484-0660
(909)694-2950

THE BELOW ITEMS(S) ARE SUBMITTED:

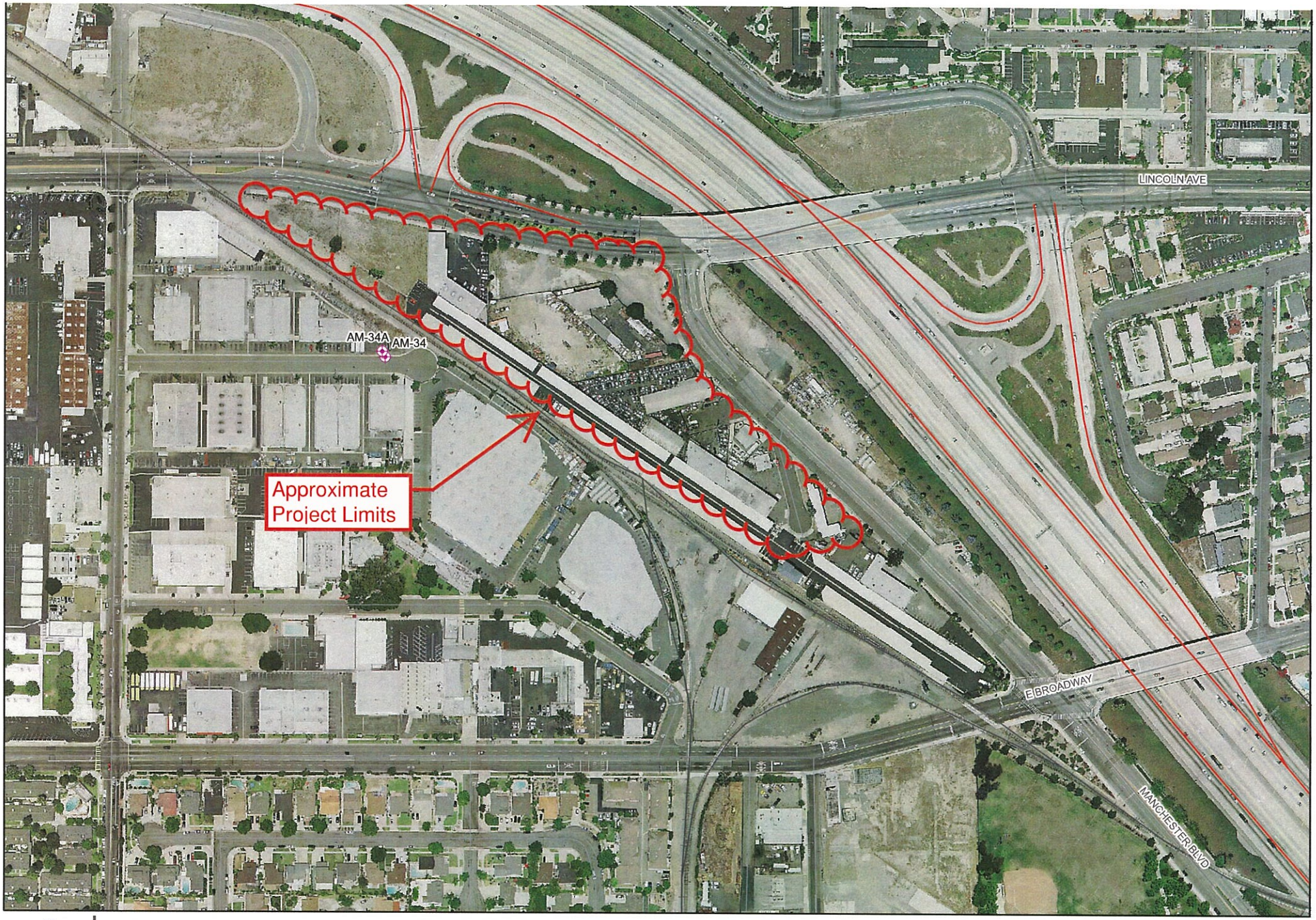
X	At Your Request	_____	For Your Action
_____	For Your Files	_____	For Your Signature
_____	For Your Review	_____	For Your Information

NO. OF COPIES	DESCRIPTION
1	REQUEST BY: STV Inc. Utility Information Request PROJECT NAME: N/A – OCTA Project CLIENT NAME: OCTA

In response to your utility location request, OCWD has identified no conflicting utilities within your described project area.

BY _____

Christian Elders
Engineering Intern
Orange County Water District
18700 Ward Street,
Fountain Valley, CA 92708
(714) 378-3200
celders@ocwd.com



Utility Location Request
STV Inc. / OCTA

Figure 1 of 1

om: Nafar, Rose <Rose.Nafar@stvinc.com>
ent: Wednesday, April 18, 2018 2:41 PM
o: Olsen, Chris <COlsen@ocwd.com>
ubject: OCTA TSOC Utilities Conflict

ello Chris,

y company has a project with OCTA, Please see the attachment for the area of our work. We need to make sure there is no Utilities that is in conflict with our work.
ease let me know if there are any lines in this area of your jurisdiction. And If the answer is yes, please share with me the lay out.
eally appreciate your help on this matter.

hank you,

ose Nafar
roject Engineer
STV 100 Years
130 Anaheim Place, Suite 210
ancho Cucamonga, CA 91730-8540
ffice No: (909)484-0660
irect Tel No: (909)694-2950
ax No: (909)484-1360

Charter
COMMUNICATIONS

[Communications charter]

4/20/2018

Rose Nafar
STV
9130 Anaheim Place, Suite 210
Rancho Cucamonga, CA 91730-8540

Requester Project:	Existing Utilities Request
Project Name	OCTA TSOC Utilities Conflict
DOCK/PRISM Project Name:	Lincoln Ave. and S. Manchester near Hwy 5
Conflict:	YES

Thank you for your recent Utility Request to Charter Communications for: OCTA TSOC Utilities Conflict

Please review the attached maps for any possible conflicts with Charter facilities.
There ***ARE*** existing Charter aerial/or underground facilities within the project limits.

We have provided maps showing where our services are located but cannot make any comment on how to deal with possible conflicts during construction. This type of information should come from the Construction Manager, Supervisor or Construction Coordinator for the area in question.

If you should require any field meet or any further coordination of the project with Charter please contact the Construction Manager listed below.

Construction Manager Contact:
Simons, Don
Construction Manager - Zone 8
7142 Chapman Ave
Garden Grove, CA 92841
714-591-4871
don.simons@charter.com

If you have any questions about the maps provided, please contact DL-socal-charter-engineering@charter.com. This communication is for a project being handled by Charter Communications or Spectrum, a Charter Communications brand name, or Legacy Time Warner Cable.

Sincerely,

Dave Dolney

Dave Dolney
Sr. Manager, PACWEST Construction
Charter Communications
12051 Industry Street
Garden Grove, CA 92841

Nafar, Rose

From: Brad A. Broullire <brad.broullire@ccisystems.com>
Sent: Friday, April 20, 2018 4:56 AM
To: Nafar, Rose
Subject: RE: OCTA TSOC Utilities Conflict
Attachments: LOCATION IMAGE.PDF; MAP.PDF; COVER LETTER.PDF

Hello,

We have completed your request. Please see attached for requested information. If you should have any questions or concerns, please feel free to reach out to the following address.
please use DL-socal-charter-engineering@charter.com only, You are also welcome to email me directly regarding this request, thank you.

From: Nafar, Rose [mailto:Rose.Nafar@stvinc.com]
Sent: Thursday, April 19, 2018 2:10 PM
To: Brad A. Broullire <brad.broullire@ccisystems.com>
Subject: RE: OCTA TSOC Utilities Conflict

Brad,
Here is the Google screenshot per your request. Please let me know if you have any questions.
Thanks,


The Biltmore
Lincoln Ave
Lincoln Ave
Yency's Tires
Lincoln Ave
Lincoln Ave
Stone
Center
Pest Options Inc
N Manchester Ave
W Embassy St
American Solar Direct
Import Auto
Supply & Salvage
Chucks Creations
Auto Body & Paint
Doll Hut
S Adams St
Coast Sign
Fairmont Private
Schools - Historic...
Penn Corporate
Relocation Services
Extra Space Stora
Earl Scheil
Wilson &

From: Brad A. Broullire [mailto:brad.broullire@ccisystems.com]
Sent: Thursday, April 19, 2018 11:57 AM
To: Nafar, Rose <Rose.Nafar@stvinc.com>
Subject: RE: OCTA TSOC Utilities Conflict

Hello, could I please get a bit more information , google earth screenshot etc ?

From: Dolney, Dave J [mailto:Dave.Dolney@charter.com]
Sent: Wednesday, April 18, 2018 4:47 PM
To: DL-socal-charter-engineering <DL-socal-charter-engineering@charter.com>
Cc: Echeverri, Allan <Allan.Echeverri@charter.com>; Rose.Nafar@stvinc.com
Subject: FW: OCTA TSOC Utilities Conflict

Dear Colleagues,

Please see below and attached facility request.

Charter
COMMUNICATIONS

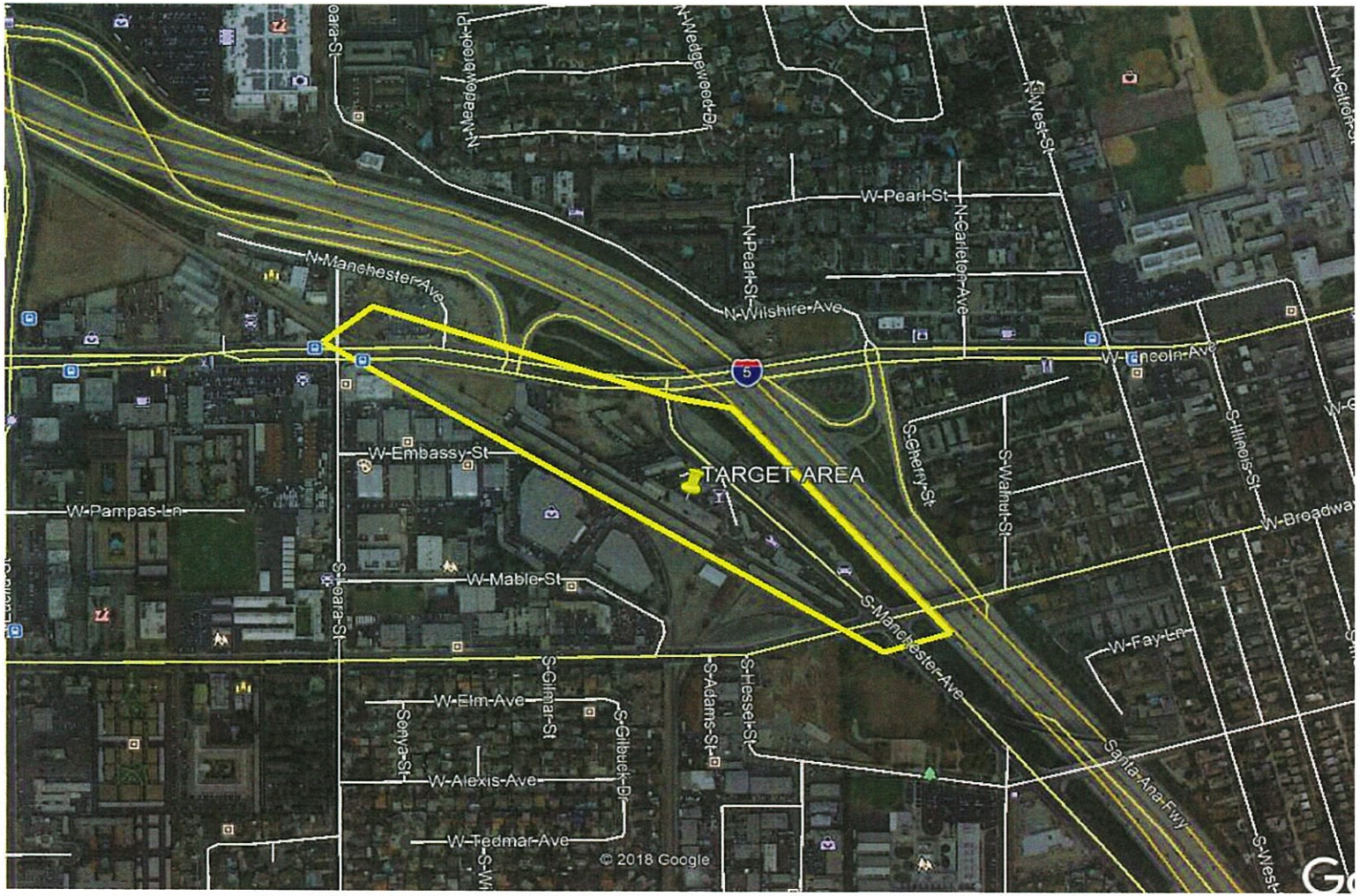
Dave Dolney | Senior Construction Manager | Office 951-406-1635 Cell 714.715.4706
7337 Central Ave | Riverside, CA 92504

From: Nafar, Rose [mailto:Rose.Nafar@stvinc.com]
Sent: Wednesday, April 18, 2018 2:43 PM
To: Dolney, Dave J <Dave.Dolney@charter.com>
Subject: OCTA TSOC Utilities Conflict

Hello Dave,

My company has a project with OCTA, Please see the attachment for the area of our work. We need to make sure there is no Utilities that is in conflict with our work.
Please let me know if there are any lines in this area of your jurisdiction. And If the answer is yes, please share with me the lay out.
I really appreciate your help on this matter.

Thank you,

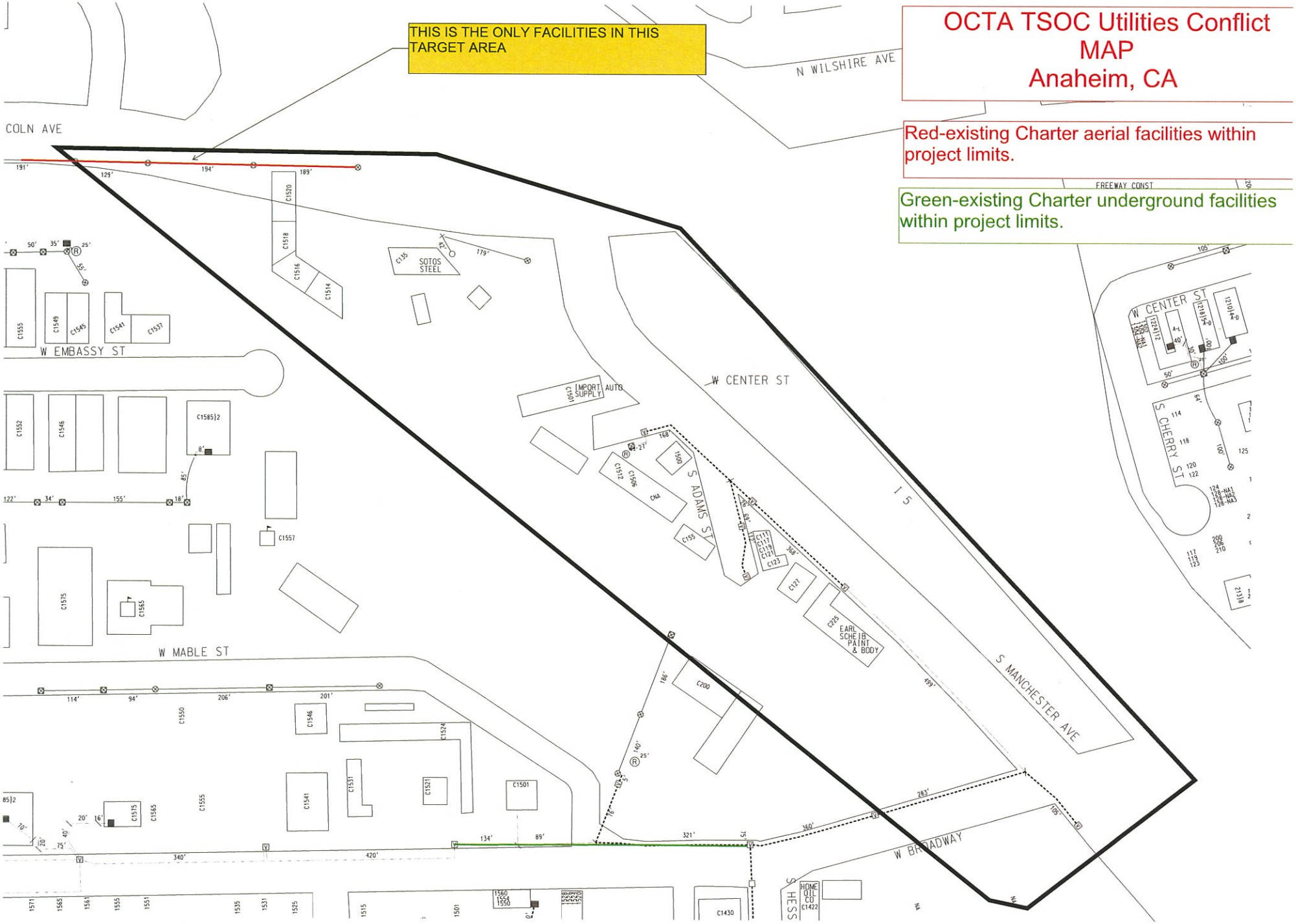

W-Pearl-St
N-Pearl-St
N-Carleton-Ave
N-Manchester-Ave
N-Wilshire-Ave
W-Lincoln-Ave
5
TARGET AREA
W-Embassy-St
S-Cherry-St
S-Walnut-St
S-Illinois-St
W-Pampas-Ln
W-Mable-St
S-Manchester-Ave
W-Fay-Ln
W-Elm-Ave
S-Gilmar-St
S-Adams-St
S-Hesse-St
W-Alexis-Ave
W-Tedmar-Ave
Santa Ana Fwy
© 2018 Google

OCTA TSOC Utilities Conflict MAP
Anaheim, CA

THIS IS THE ONLY FACILITIES IN THIS TARGET AREA

Red-existing Charter aerial facilities within project limits.

Green-existing Charter underground facilities within project limits.



1919 S. State College Blvd.
Anaheim, CA 92806-6114

April 26, 2018

STV, Inc
9130 Anaheim Place, Suite 210
Rancho Cucamonga, CA 91730

Attn: Rose Nafar

Subject: Map Request for W Lincoln Ave and S Manchester Ave; Anaheim.

Enclosed is the information you requested relating to the location of gas facilities within the area of your project. The information we have provided was obtained from a search of all our available records and are approximate in nature. Due to numerous factors, the depths of our facilities vary and should not be taken for granted. If exact depth location and information is required at points of possible interference, it will be necessary to physically check the facility in question.

It is extremely important that you furnish us with **"signed"** final plans and subsequent plan revisions as soon as they are available. A minimum of twelve (12) weeks is needed to analyze your plans and to design required alterations due to any conflicting facilities. Depending on the magnitude of the work involved, additional time may then be required to clear the conflict. Please keep us informed of construction schedules, preconstruction meetings, etc., so that our work can be scheduled accordingly.

Upon request, at least two (2) working days prior to the start of construction, we will locate and mark our active underground facilities for the contractor at no cost. Please call Underground Service Alert (USA) at (800) 422-4133.

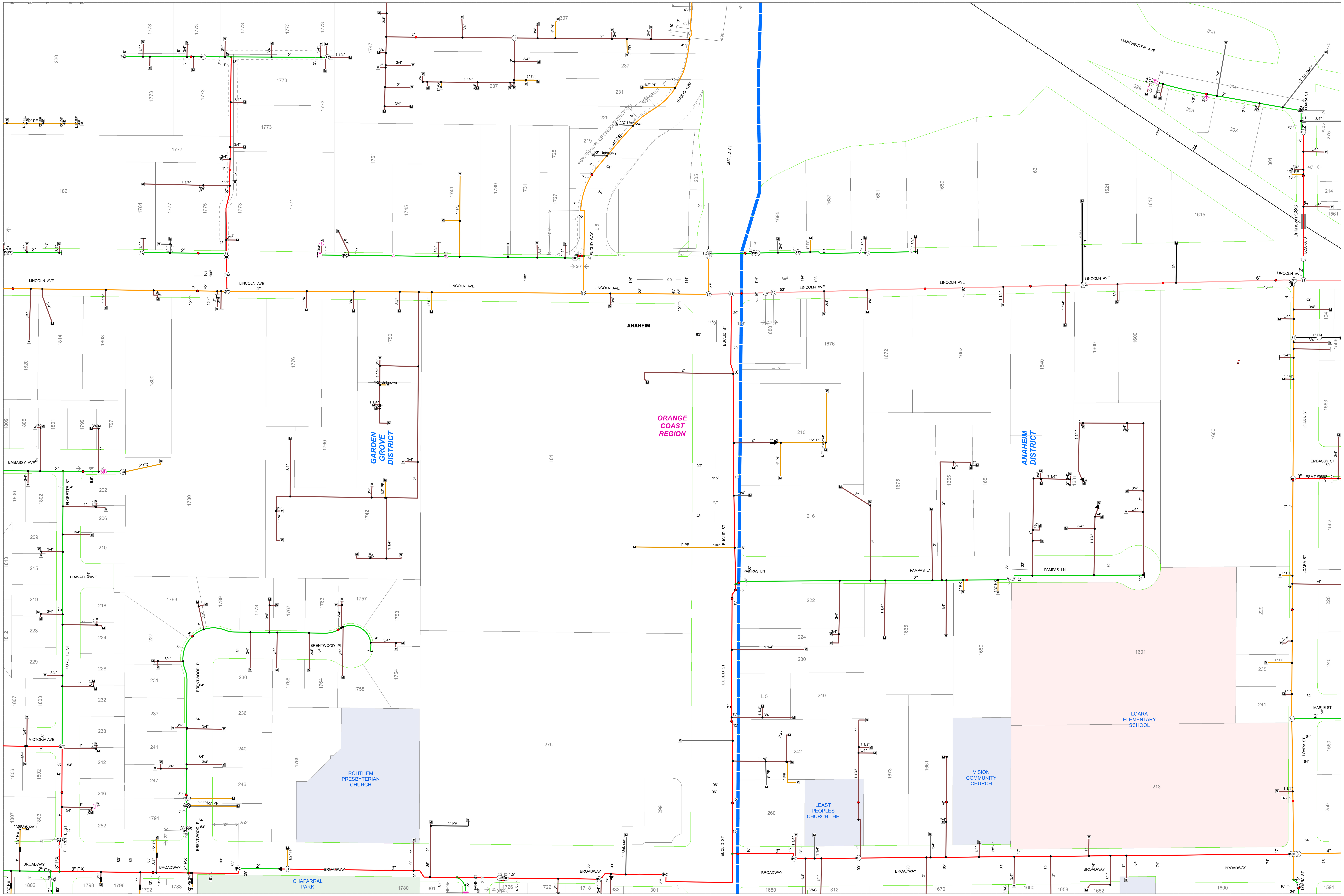
You will also have to contact our Transmission Department regarding the above-mentioned request. CPUC Regulations require notification of both So Cal Gas Distribution and Transmission of all work being conducted. Please contact Southern Region Transmission, at 9400 Oakdale Avenue, Chatsworth, CA 91313, SoCalGasTransmissionUtilityRequest@semprautilities.com. They will need a notification letter and plans.

If you have any questions or require additional information please contact me at (714) 634-5069

Sincerely,

Adalberto Rodriguez
ARodriguez2@semprautilities.com
Planning Associate
SouthEast Region - Anaheim Planning & Engineering

AR/ao
enclosure
atlas.doc



1 inch = 100 feet

100 0 100 200 300 400 Feet

Grid ID

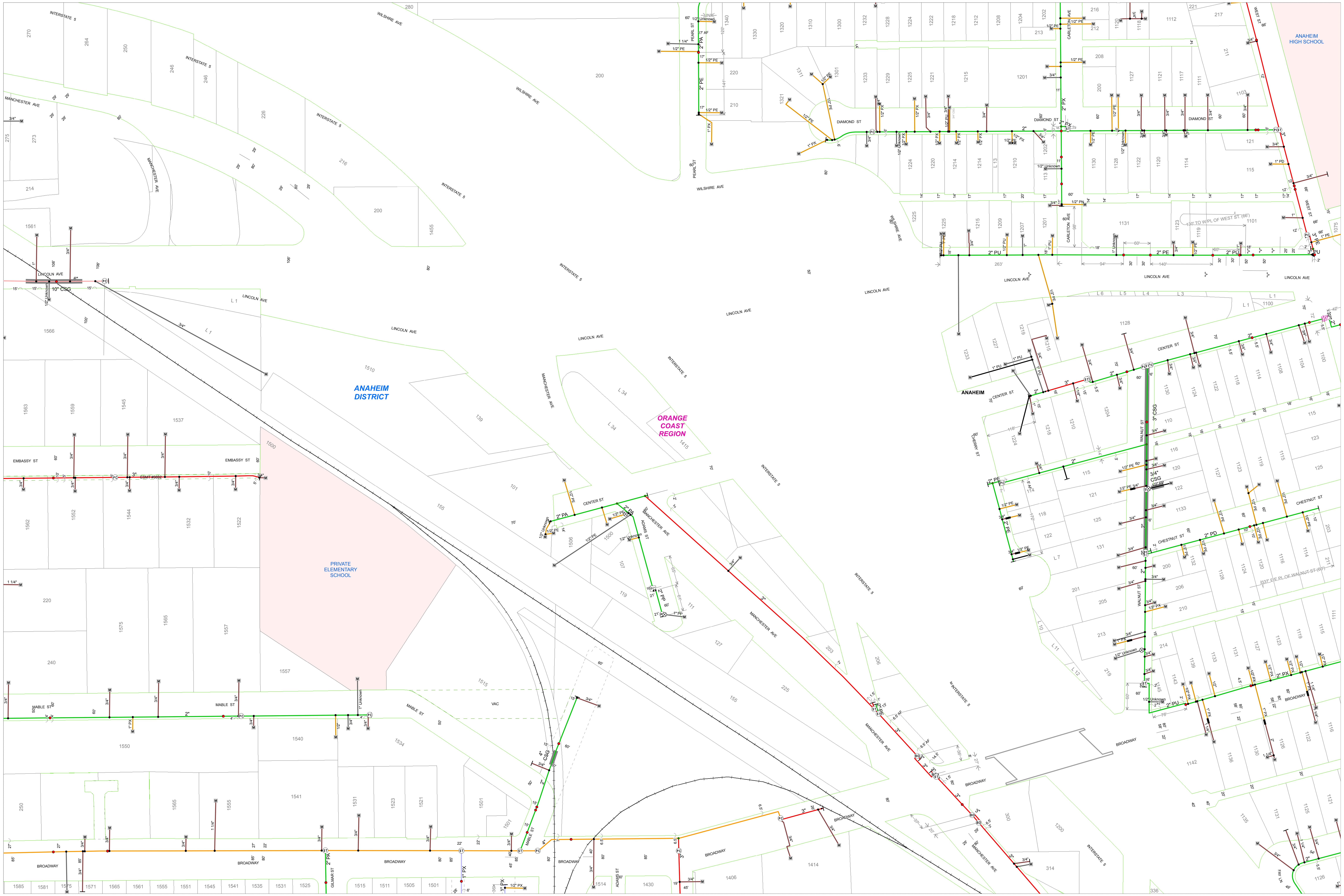
Map Number:

Map Type: Gas Asset Map

Printed By: User

Printed Date: 4/26/2018

SoCalGas
A Sempra Energy utility



1 inch = 100 feet

Map Number: Grid ID

Map Type: Gas Asset Map

Printed By: User

Printed Date: 4/26/2018

SoCalGas
A Sempra Energy utility

100 0 100 200 300 400 Feet

APPENDIX B

CEQA INITIAL STUDY CHECKLIST

CEQA Environmental Checklist

PROJECT DESCRIPTION AND BACKGROUND:

Project Title:	Transportation Security and Operations Center
Lead agency name and address:	Orange County Transportation Authority 550 South Main Street P.O. Box 14184 Orange, CA 92863-1584
Contact person and phone number:	George Olivo, Program Manager, Rail Programs & Facilities Engineering (714) 560-5872
Project Location:	1512-20 W. Lincoln Avenue Anaheim California
Project sponsor's name and address:	Same as above
General plan description:	General Commercial
Zoning:	General Commercial and Industrial
Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation.)	The Orange County Transportation Authority (OCTA) is proposing to construct a new operations center for its transit and emergency security functions on a three-acre parcel in Anaheim. The proposed Transit Security and Operations Center (TSOC) is planned to be a two-story facility that is approximately 27,000 square feet (sf), with a roof-mounted microwave tower, a fueling station, electric vehicle charging stations, and dedicated parking for employees, patrol vehicles, and visitors.
Surrounding land uses and setting; briefly describe the project's surroundings:	The project site is surrounded by commercial and industrial uses such as auto repair, manufacturing and warehousing.
Other public agencies whose approval is required (e.g. permits, financial approval, or participation agreements):	Utilities Agreements, Federal Communication Commission tower permit, Federal Transit Administration funding

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project. Please see the checklist beginning on page 3 for additional information.

☐	Aesthetics	☐	Agriculture and Forestry	☒	Air Quality
☒	Biological Resources	☒	Cultural Resources	☒	Geology/Soils
☐	Greenhouse Gas Emissions	☒	Hazards and Hazardous Materials	☒	Hydrology/Water Quality
☐	Land Use/Planning	☐	Mineral Resources	☐	Noise
☐	Population/Housing	☐	Public Services	☐	Recreation
☒	Transportation/Traffic	☐	Tribal Cultural Resources	☐	Utilities/Service Systems
☐	Mandatory Findings of Significance				

DETERMINATION:

On the basis of this initial evaluation:

☐	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
☒	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
☐	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
☐	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
☐	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature:	**Date:** 10/18/18
Printed Name: George Olivo **Program Manager, Rail Programs & Facilities Engineering**	**For:** OCTA

CEQA Environmental Checklist

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐
II. AGRICULTURE AND FOREST RESOURCES: Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) 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)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

IV. BIOLOGICAL RESOURCES: Would the project:

a) 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 California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) 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 California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) 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?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

V. CULTURAL RESOURCES: Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐
VI. GEOLOGY AND SOILS: Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☒	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☒	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☒	☐	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
VII. GREENHOUSE GAS EMISSIONS: Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) 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?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) 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?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a 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?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒
IX. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow	☐	☐	☐	☒

X. LAND USE AND PLANNING: Would the project:

a) Physically divide an established community?	☐	☐	☐	☒
b)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?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

XI. MINERAL RESOURCES: Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XII. NOISE: Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
XIII. POPULATION AND HOUSING: Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
XIV. PUBLIC SERVICES:				
a) 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:				
Fire protection?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

XV. RECREATION:

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

XVI. TRANSPORTATION/TRAFFIC: Would the project:

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XVII. TRIBAL CULTURAL RESOURCES: Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☒	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐
XVIII. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) 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?	☐	☐	☒	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XIX. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a 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)?	☐	☒	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

APPENDIX C

MITIGATION MONITORING AND REPORTING PROGRAM

MITIGATION MONITORING AND REPORTING PROGRAM

This Mitigation Monitoring and Reporting Program (MMRP) was formulated based on the findings of the Initial Study/Mitigated Negative Declaration (IS/MND) for the Orange County Transportation Authority (OCTA) Transit Security and Operations Center (TSOC) Project. This MMRP includes mitigation measures (MMs) and applicable standard conditions (SC) cited in the IS/MND. This MMRP is also in compliance with Section 15097 of the California Environmental Quality Act (CEQA) Guidelines, which requires that the Lead Agency "adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects."

Measure No.	Mitigation Measure/Condition of Approval	Monitoring and Reporting Process	Monitoring Milestone	Party Responsible for Monitoring
SC AQ-1	The following measures from the South Coast Air Quality Management District (SCAQMD) Rule 403 are required for fugitive dust suppression: • Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for 10 days or more). • Water active sites at least twice daily (locations where grading is to occur will be thoroughly watered prior to earthmoving). • Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 2 feet (ft) (0.6 meter [m]) of freeboard (vertical space between the top of the load and the top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114. • Pave construction access roads at least 100 ft (30 m) onto the site from the main road. • Reduce traffic speeds on all unpaved roads to 15 miles per hour (mph) or less.	Construction contractor during all site disturbance activity	Final Project Specification and notes on plans	OCTA Construction Contractor
MM BIO-1	Any vegetation removal should take place outside of the active nesting bird season (i.e., February 15–August 15), when feasible, to ensure compliance with the California Fish and Game Code and the Migratory Bird Treaty Act. Prior to construction activities, the OCTA Construction Contractor shall hire a qualified biologist to conduct a nesting bird survey to ensure that birds are not engaged in active nesting within 100 feet (ft) of the project site. If nesting birds are discovered during preconstruction surveys, the biologist should identify an appropriate buffer (i.e., up to 500 ft, depending on the circumstances and specific bird species) where no construction activities or other disturbances are allowed to occur until after the birds have fledged from the nest or the nest is no longer active.	Construction contractor during all site disturbance activity	Final Project Specification and notes on plans	OCTA Construction Contractor

Measure No.	Mitigation Measure/Condition of Approval	Monitoring and Reporting Process	Monitoring Milestone	Party Responsible for Monitoring
MM CR-1	Prior to starting grading activities (excluding demolition), the OCTA Construction Contractor shall retain a project archaeologist who meets the Secretary of the Interior's Professional Qualifications Standards and is eligible for or listed in the Register of Professional Archaeologists and is registered or certified by the County of Orange. The archaeologist shall monitor grading activities. If potential archaeological resources are identified during monitoring of grading, the archaeologist shall order the temporary diversion of work outside a 100-foot radius around the discovery until the archaeologist has evaluated whether they are eligible for the listing in the California Register of Historical Resources or the National Register of Historic Places. After the archaeologist determines that the resources are not significant, or if significant, have been successfully recovered, work may resume in the area where the archaeological resources were encountered. If archaeological resources are found to be eligible and thus are significant historical resources under California Environmental Quality Act (CEQA), a data recovery plan shall be prepared and approved by the OCTA Construction Contractor. Implementation of the plan shall be overseen by the OCTA Construction Contractor and archaeologist. This data recovery plan shall include methods for hand-excavation, analysis, and report writing and shall also provide procedures for the curation of any collected material and associated project material at a facility meeting federal standards. A final report on any find and their historical significance shall be prepared and submitted to the Construction Contractor and OCTA for the project file. The final report should be submitted to the South Central Coastal Information Center (SCCIC). The historical resource shall be recorded in accordance with requirements of the Office of Historic Preservation (i.e., using Department of Parks and Recreation 523 Series forms).	Contractor during excavation	Prior to grading activities and Final Project Specification and notes on plans	OCTA Construction Contractor

Measure No.	Mitigation Measure/Condition of Approval	Monitoring and Reporting Process	Monitoring Milestone	Party Responsible for Monitoring
MM CR-2	Prior to the start of construction, the Paleontological Resources Impact Mitigation Program (PRIMP) enumerated below shall be required. Paleontological Resources Impact Mitigation Program (PRIMP). A qualified paleontologist shall be retained by the OCTA Construction Contractor to develop a PRIMP for this project. The PRIMP shall include the methods that will be used to protect paleontological resources that may exist within the project area, as well as procedures and activities for monitoring, fossil preparation and identification, curation into a reputable repository, and preparation of a report at the conclusion of grading as follows: • Excavation and grading activities shall be monitored by a paleontological monitor. No monitoring is required for excavations in rocks or areas with no or low paleontological sensitivity (i.e., Artificial Fill). • If paleontological resources are encountered during the excavation and grading activities, the paleontological monitor shall have the authority to temporarily redirect construction away from the area of the find in order to assess its significance. • In the event that paleontological resources are encountered when a paleontological monitor is not present, work in the immediate area of the find shall be redirected and a paleontologist should be contacted to assess the find for significance. If determined to be significant, the fossil shall be collected from the field. • Collected resources shall be prepared to the point of identification, identified to the lowest taxonomic level possible, cataloged, and curated into the permanent collections of a scientific institution. • At the conclusion of the monitoring program, a report of findings shall be prepared to document the results of the monitoring program and submitted to the OCTA Construction Contractor and OCTA for the project file.	Contractor during excavation	Prior to grading activities and Final Project Specification and notes on plans	OCTA Construction Contractor

Measure No.	Mitigation Measure/Condition of Approval	Monitoring and Reporting Process	Monitoring Milestone	Party Responsible for Monitoring
SC CR-3	If human remains are unearthed, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD will have the opportunity to offer recommendations for the disposition of the remains.	Grading/Excavation	Grading/Excavation and notes on plans	OCTA Construction Contractor
SC GEO-1	As part of final design, OCTA's Design Consultant shall have prepared a Geotechnical Report and conduct borings as part of a geotechnical investigation for review by OCTA, and acceptance by OCTA's Design Consultant. The Geotechnical Report will identify appropriate measures for building design to ensure compliance with Title 24 of the California Building Code, in particular compliance with the Essential Services Buildings Seismic Safety Act (ESBSSA). Recommendations in the geotechnical report will be reviewed and incorporated into the project's final design.	Incorporation of recommendations into final design plans	Prior to final design	OCTA Design Consultant
SC HAZ-1	Prior to any fuel deliveries to the site, a spill prevention plan for potentially hazardous materials including fuels would be prepared and implemented by OCTA. The plan would include proper procedures for handling and storing potentially hazardous materials, as well as for cleaning up and reporting any spills. The plan would be located on site with responsibility, and oversight specifically identified, and on-site training will be required on a regular basis (no less than every 6 months) to ensure the effective implementation of the plan.	Ongoing hazardous materials management	Prior to first fuel delivery	OCTA Health, Safety and Environmental Compliance

Measure No.	Mitigation Measure/Condition of Approval	Monitoring and Reporting Process	Monitoring Milestone	Party Responsible for Monitoring
MM HAZ-2	Prior to demolition of the on-site structures, hazardous materials would need to be removed by a certified hazardous materials remediation company and legally disposed of at a landfill that accepts hazardous waste. Completion of this mitigation measure must precede all other construction activities and would need to be verified by the OCTA Construction Contractor as having been completed.	Construction Contract Management	Prior to demolition of existing buildings	OCTA Property Manager
MM HAZ-3	Prior to grading operations, OCTA shall have a soil management plan prepared that addresses issues associated with the impacted soils that will be encountered during future site excavation/grading activities. Impacted soils would require special handling and should be removed in accordance with local environmental health regulations and requirements.	Construction Contract Management	Prior to grading	OCTA Design Consultant
SC WQ-1	Construction General Permit. Prior to the start of the construction, OCTA shall obtain coverage for the project under the State Water Resources Control Board National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, National Pollutant Discharge Elimination System No. CAS000002) (Construction General Permit). This shall include submission of Permit Registration Documents (PRDs), including a Notice of Intent (NOI) for coverage under the permit to the State Water Resources Control Board (SWRCB). A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared and implemented for the project in compliance with the requirements of the Construction General Permit. The SWPPP shall identify construction Best Management Practices (BMPs) to be implemented to ensure that the potential for soil erosion and sedimentation is minimized and to control the discharge of pollutants in stormwater runoff as a result of construction activities.	Project Engineer for final construction drawings	Incorporated into final construction plans	OCTA, OCTA Design Consultant and OCTA Construction Contractor

Measure No.	Mitigation Measure/Condition of Approval	Monitoring and Reporting Process	Monitoring Milestone	Party Responsible for Monitoring
SC WQ-2	Operational Best Management Practices. Prior to the start of construction, OCTA shall ensure that operational BMPs are incorporated into the final project design. The proposed BMPs may include, but not be limited to, biofiltration strips, biofiltration swales, pervious pavement, and/or biofiltration devices with underdrains. The BMPs shall be designed to reduce stormwater runoff to at or below existing conditions. If the project is determined to be a Priority Project, a Final Water Quality Management Plan (WQMP) shall be prepared consistent with the Anaheim Municipal Separate Storm Sewer System (MS4) Permit, Drainage Area Management Plan, Model WQMP, and Technical Guidance Document. The Final WQMP shall specify BMPs to be incorporated into the design of the project.	Project Engineer for final construction drawings	Incorporated into final construction plans	OCTA and OCTA Design Consultant
MM TR-1	Prior to the commencement of construction activities, the OCTA Construction Contractor shall prepare a construction traffic management plan (TMP) for approval by the City of Anaheim including protocols for construction trucks leaving and entering the project site, appropriate training, markers and signage, and coordination with the City of Anaheim should any lane closures be required. The TMP must be included with the construction plans and be available for inspection on site.	Construction Contract Management in coordination with the City of Anaheim	Prior to construction activities	OCTA Design Consultant and OCTA Construction Contractor

APPENDIX D

AIR QUALITY MEMORANDUM

AIR QUALITY AND GREENHOUSE GAS ANALYSIS

ORANGE COUNTY TRANSPORTATION AUTHORITY

TRANSIT SECURITY AND OPERATIONS CENTER PROJECT

ANAHEIM, CALIFORNIA

LSA

August 2018

AIR QUALITY AND GREENHOUSE GAS ANALYSIS

ORANGE COUNTY TRANSPORTATION AUTHORITY

TRANSIT SECURITY AND OPERATIONS CENTER PROJECT

ANAHEIM, CALIFORNIA

Submitted to:
OCTA
550 South Main Street
Orange, California 92868

Prepared by:

LSA
20 Executive Park, Suite 200
Irvine, California 92614-4731
(949) 553-0666

Project No. STI1701

LSA

August 2018

EXECUTIVE SUMMARY

LSA has prepared this Air Quality and Greenhouse Gas (GHG) Analysis for the proposed Orange County Transportation Authority (OCTA) Transit and Security Operations Center (project) in Anaheim, California. This Air Quality and GHG Analysis provides a discussion of the proposed project, the physical setting of the project area, and the regulatory framework for air quality. The report provides data on existing air quality and evaluates potential air quality impacts associated with the proposed project. Modeled air emissions are consistent with the trip generation estimates developed for the proposed project (*Trip Generation for Proposed Transit Security and Operations Center*, LIN Consulting June 2018).

Estimated project construction emissions, calculated with the California Emissions Estimator Model (CalEEMod; Version 2016.3.2), would not exceed the criteria pollutant thresholds established by the South Coast Air Quality Management District (SCAQMD). Compliance with SCAQMD Rules and Regulations during construction will reduce construction-related air quality impacts from fugitive dust emissions and construction equipment emissions. Standard dust suppression measures have been identified for short-term construction to meet SCAQMD emission thresholds. The proposed project would also not exceed the localized significance thresholds (LSTs) for construction activities.

Estimated project operational emissions, also calculated with CalEEMod, would not exceed the SCAQMD mass daily thresholds for any criteria pollutants. Operational LSTs would not be exceeded by long-term emissions from project operation. Historical air quality data show that existing motor vehicle carbon monoxide (CO) emission levels for the project area and the general vicinity do not exceed either State or federal ambient air quality standards. The proposed project would not result in any significant localized impact in CO concentrations at intersections within the project vicinity.

The proposed project is located in Orange County, which has not been identified to have serpentine and ultramafic rock in its soil. Therefore, the potential risk for naturally occurring asbestos during project construction is small and less than significant.

In September 2010, SCAQMD proposed an analysis methodology using a tiered approach for the evaluation of GHG emissions for development projects. The applicable tier for this development project is Tier 3. GHG emissions from the proposed project would not exceed this SCAQMD Tier 3 GHG threshold of 3,500 metric tons of carbon dioxide emissions per year and would thus be less than significant.

The project site land use designation is General Commercial in the City of Anaheim (City) General Plan. The proposed use of the site is consistent with the City General Plan. The City General Plan is consistent with the Southern California Association of Governments Regional Comprehensive Plan Guidelines and the SCAQMD Air Quality Management Plan (AQMP). Therefore, the proposed project would be consistent with the General Plans and the regional AQMP.

This evaluation was prepared in conformance with appropriate standards, using procedures and methodologies in the SCAQMD *CEQA Air Quality Handbook* (SCAQMD 1993) and associated updates. This report includes air quality data posted on the respective websites of the California Air Resources Board and the United States Environmental Protection Agency to document the local air quality environment.

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LIST OF ABBREVIATIONS AND ACRONYMS

°F	degrees Fahrenheit
°C	degrees Celsius
µg/m^3	micrograms per cubic meter
AAQS	ambient air quality standards
AB	Assembly Bill
AQMP	Air Quality Management Plan
Basin	South Coast Air Basin
CAA	Federal Clean Air Act
CAAQS	California ambient air quality standards
CalEEMod	California Emissions Estimator Model
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFCs	chlorofluorocarbons
CH_4	methane
City	City of Anaheim
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
cy	cubic yards
Department	Anaheim Public Utilities Department
EO	Executive Order
EOC	Loma Ridge Emergency Response Operations Center
EPA	United States Environmental Protection Agency
ft	feet/foot

GCC	global climate change
GHG	greenhouse gas
GWP	global warming potential
H_2S	hydrogen sulfide
HFCs	hydrofluorocarbons
IPCC	Intergovernmental Panel on Climate Change
kW	kilowatts
lbs/day	pounds per day
LST	localized significance threshold
m	meter(s)
mg/m^3	milligrams per cubic meter
mi	mile(s)
MMT	million metric tons
MMT CO_2e	million metric tons of carbon dioxide equivalent
mph	miles per hour
MPO	Metropolitan Planning Organization
MT	metric tons
MT CO_2e	metric tons of carbon dioxide equivalent
N_2O	nitrous oxide
NAAQS	national ambient air quality standards
NO	nitric oxide
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
O_3	ozone (or smog)
OCTA	Orange County Transportation Authority
PFCs	perfluorocarbons
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in size
$PM_{2.5}$	particulate matter less than 2.5 microns in size
ppm	parts per million
ppb	parts per billion

project	Orange County Transportation Authority Transit and Security Operations Center
PV	photovoltaic
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SF_6	sulfur hexafluoride
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_X	sulfur oxides
SRA	Source Receptor Area
State	State of California
TBACT	Toxics Best Available Control Technology
VMT	vehicle miles traveled
VOCs	volatile organic compounds
Working Group	GHG CEQA Significance Threshold Stakeholder Working Group

PROJECT DESCRIPTION

INTRODUCTION

This Air Quality and Greenhouse Gas (GHG) Analysis has been prepared to evaluate the potential air quality impacts and mitigation measures associated with the proposed Orange County Transportation Authority Transit Security and Operations Center (project) at the intersection of West Lincoln Avenue and South Manchester Avenue in Anaheim, California. This report provides a project-specific Air Quality and GHG Analysis by examining the impacts of the proposed project on adjacent sensitive uses, as well as the impacts of the proposed project on the regional air quality. Guidelines identified by the South Coast Air Quality Management District (SCAQMD) in its *California Environmental Quality Act (CEQA) Air Quality Handbook* (SCAQMD 1993) and associated updates were followed in this Air Quality and GHG Analysis.

PROJECT LOCATION AND DESCRIPTION

The project site is approximately three acres and is located at the intersection of West Lincoln Avenue and South Manchester Avenue, next to Interstate 5, in Anaheim, California. The project site land use designation is General Commercial in the City of Anaheim General Plan. The proposed use of the site is consistent with the City General Plan. Figure 1 shows the project location. Construction is anticipated to take approximately 12 months to complete. The proposed project would include the following:

1. A two-story facility that is approximately 27,000 square feet;

2. A roof-mounted microwave tower (not to exceed 70 feet in from ground elevation);

3. A fueling island with a 2,000-gallon aboveground storage tank for fueling security operation patrol cars;

4. Up to 10 electric vehicle charging stations; and

5. Up to 176 parking spaces for employees, patrol vehicles and visitors.

The following Department and/or Functions will operate 24 hours per day, 7 days per week from the proposed facility:

- Central Communications (route, dispatcher, rail, supervisors)
- Emergency Operations Center and back-up Generator
- Transit Police Services and K-9 Units (no kennels would be required)
- Field Operations and Operations Training
- Information Systems and Technology
- File storage

Figure 1: Project Location

One element of the project includes a 60-foot-tall (from ground elevation) microwave communications tower. This tower will provide a crucial link to the County's Loma Ridge Emergency Response Operations Center (EOC) located at the intersection of Santiago Canyon Road and the State Route 241 Toll Road. The tower must have a clear line-of-sight to the EOC. This system supports critical systems of the bus network, such as computer aided dispatch, automatic vehicle location, and radio communications. Figure 2 illustrates the conceptual site plan.

Earthwork and Grading

The project site is a partially vacant lot with three active automotive repair shops and a tire business currently on site. OCTA owns the project site and plans to cease the leases with the existing tenants prior to project construction. At the commencement of construction, these structures would be demolished along with a block wall and other associated pavement. The demolition is expected to yield approximately 2,000 cubic yards (cy) of demolished construction material to be exported off-site. Preliminary grading plans of cut-and-fill for the proposed project anticipate 6,535 cy of soil would be exported off site and 1,935 cy imported on site. Construction is anticipated to take approximately 12 months to complete.

EXISTING SENSITIVE LAND USES IN THE PROJECT AREA

The project site is surrounded primarily by Interstate 5, and commercial and industrial development. The areas adjacent to the project site include the following uses:

- Northeast (across Interstate 5): Residential development
- Southeast: Industrial development
- Southwest: Industrial development; a school
- Northwest: Commercial development; a church

The closest sensitive receptors are the Fairmont Private School, located 675 ft to the southwest of the project boundary, and the Agape Prayer House, located 740 ft to the northwest of the project boundary.

Figure 2: Conceptual Site Plan

PROJECT SETTING

REGIONAL AIR QUALITY

The project site is in Anaheim, California, which is part of the South Coast Air Basin (Basin) and is under SCAQMD's jurisdiction. Both the State and the federal governments have established health-based ambient air quality standards (AAQS) for seven air pollutants. As detailed in Table A, these pollutants include ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than 10 microns in size (PM_{10}), particulate matter less than 2.5 microns in size ($PM_{2.5}$), and lead. In addition, the State has set standards for sulfates, hydrogen sulfide (H_2S), vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Table B summarizes the primary health effects and sources of common air pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety (United States Environmental Protection Agency [EPA]), these health effects would not occur unless the standards are exceeded by a large margin or for a prolonged period. State AAQS are as or more stringent than federal AAQS. O_3 and particulate matter ($PM_{2.5}$ and PM_{10}) are considered pollutants with regional effects, whereas the other criteria pollutants have more localized effects.

The California Clean Air Act (CCAA) provides SCAQMD and other air districts with the authority to manage transportation activities at indirect sources. Indirect sources of pollution include any facility, building, structure, or installation, or combination thereof, that attracts or generates mobile source activity that results in emissions of any pollutant. In addition, the local air districts also manage area source emissions that are generated when minor sources collectively emit a substantial amount of pollution (e.g., motor vehicles at an intersection, a mall, and on highways). SCAQMD also regulates stationary sources of pollution throughout its jurisdictional area. Direct emissions from motor vehicles are regulated by the California Air Resources Board (CARB) and the EPA.

Climate/Meteorology

Air quality in the planning area is not only affected by various emission sources (e.g., mobile and industry), but also by atmospheric conditions (e.g., wind speed, wind direction, temperature, and rainfall). The combination of topography, low mixing height, abundant sunshine, and emissions from the second-largest urban area in the United States gives the Basin some of the worst air pollution problems in the nation.

Table A: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)[8]	1-Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM_{10})[9]	24-Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter ($PM_{2.5}$)[9]	24-Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1-Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8-Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1-Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		53 ppb (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1-Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3-Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24-Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30-Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[13]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility-Reducing Particles[14]	8-Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24-Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24-Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Source: CARB. Ambient Air Quality Standards (CARB 2016).

The footnotes for this table are provided on the following page.

Footnotes:

[1] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once per year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the EPA for further clarification and current national policies.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Any equivalent measurement method which can be shown to the satisfaction of CARB to give equivalent results at or near the level of the air quality standard may be used.

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

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

[7] Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.

[8] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[9] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/^{3}, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[10] To attain the 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[11] On June 2, 2010, the new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard, the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

[12] The CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[13] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standards are approved.

[14] In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

°C = degrees Celsius
µg/m^3 = micrograms per cubic meter
CARB = California Air Resources Board
EPA = United States Environmental Protection Agency
mg/m^3 = milligrams per cubic meter
ppb = parts per billion
ppm = parts per million

Table B: Summary of Health Effects of the Major Criteria Air Pollutants

Pollutant	Health Effects	Examples of Sources
Particulate matter ($PM_{2.5}$ and PM_{10}: less than or equal to 2.5 or 10 microns, respectively)	• Hospitalizations for worsened heart diseases • Emergency room visits for asthma • Premature death	• Cars and trucks (especially diesels) • Fireplaces, woodstoves • Windblown dust from roadways, agriculture, and construction
Ozone (O_3)	• Cough, chest tightness • Difficulty taking a deep breath • Worsened asthma symptoms • Lung inflammation	• Precursor sources:[1] motor vehicles, industrial emissions, and consumer products
Carbon monoxide (CO)	• Chest pain in heart patients[2] • Headaches, nausea[2] • Reduced mental alertness[2] • Death at very high levels[2]	• Any source that burns fuel, such as cars, trucks, construction and farming equipment, and residential heaters and stoves
Nitrogen dioxide (NO_2)	• Increased response to allergens	• See CO sources
Toxic air contaminants	• Cancer • Chronic eye, lung, or skin irritation • Neurological and reproductive disorders	• Cars and trucks (especially diesels) • Industrial sources, such as chrome platers • Neighborhood businesses, such as dry cleaners and service stations • Building materials and products

Source: CARB Fact Sheet: Air Pollution and Health. Website: http://www.arb.ca.gov/research/health/fs/fs1/fs1.htm, accessed July 2018.

[1] Ozone is not generated directly by these sources. Rather, chemicals emitted by these precursor sources react with sunlight to form ozone in the atmosphere.

[2] Health effects from CO exposures occur at levels considerably higher than ambient.

CARB = California Air Resources Board
CO = carbon monoxide
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size

The annual average temperature varies little throughout the Basin, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station closest to the site is the Anaheim Station, which provides weather data monitored between 1989 and 2016.[1] The monthly average maximum temperature recorded at this station ranged from 70.0°F in January to 87.1°F in August, with an annual average maximum of 77.4°F. The monthly average minimum temperature recorded at this station ranged from 47.5°F in January to 64.5°F in August, with an annual average minimum of 55.4°F. These levels are still representative of the project area. January is typically the coldest month, and August is typically the warmest month in this area of the Basin.

The majority of annual rainfall in the Basin occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the Basin and along the coastal side of the mountains. The Anaheim Station monitored precipitation from August 1989 to June 2016. Average monthly rainfall during that period varied from 3.47 inches in February to 0.53 inch or less between May and

[1] Western Regional Climate Center. Recent Climate in the West. Website: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca0192 (accessed July 2018).

October, with an annual total of 14.09 inches. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

The Basin experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the Pacific high. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon is observed in midafternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by midmorning.

Winds in the project area blow predominantly from the south-southwest, with relatively low velocities. Wind speeds in the project area average about 5 miles per hour (mph). Summer wind speeds average slightly higher than winter wind speeds. Low average wind speeds, together with a persistent temperature inversion, limit the vertical dispersion of air pollutants throughout the Basin. Strong, dry, north or northeasterly winds, known as Santa Ana winds, occur during the fall and winter months, dispersing air contaminants. The Santa Ana conditions tend to last for several days at a time.

The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly onshore into Riverside and San Bernardino Counties. In the winter, the greatest pollution problems are CO and nitrogen oxides (NO_X) because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and brighter sunshine combine to cause a reaction between hydrocarbons and NO_X to form photochemical smog.

Description of Global Climate Change and its Sources

Global climate change (GCC) is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other significant changes in climate (e.g., precipitation or wind) that last for an extended period of time. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred to "global warming" because it helps convey that there are other changes in addition to rising temperatures.

Climate change refers to any change in measures of weather (e.g., temperature, precipitation, or wind) lasting for an extended period (decades or longer). Climate change may result from natural factors (e.g., changes in the sun's intensity), natural processes within the climate system (e.g., changes in ocean circulation), or human activities (e.g., the burning of fossil fuels, land clearing, or agriculture). The primary observed effect of GCC has been a rise in the average global tropospheric[1] temperature of 0.36°F per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling shows that further warming may

[1] The troposphere is the zone of the atmosphere characterized by water vapor, weather, winds, and decreasing temperature with increasing altitude.

occur, which may induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of the State could include higher sea levels, drier or wetter weather, changes in ocean salinity, changes in wind patterns, or more energetic aspects of extreme weather, including droughts, heavy precipitation, heatwaves, extreme cold, and increased intensity of tropical cyclones. Specific effects in the State might include a decline in the Sierra Nevada snowpack, erosion of the State's coastline, and seawater intrusion in the Sacramento-San Joaquin River Delta.

Global surface temperatures have risen by 1.33°F (±0.32°F) over the last 100 years. The rate of warming over the last 50 years is almost double that over the last 100 years (Intergovernmental Panel on Climate Change [IPCC] 2013). The latest projections, based on state-of-the-art climate models, indicate that temperatures in the State are expected to rise 3–10.5°F by the end of the century (State of California 2013). The prevailing scientific opinion on climate change is that "most of the warming observed over the last 60 years is attributable to human activities" (IPCC 2013). Increased amounts of carbon dioxide (CO_2) and other GHGs are the primary causes of the human-induced component of warming. The observed warming effect associated with the presence of GHGs in the atmosphere (from either natural or human sources) is often referred to as "the greenhouse effect."[1]

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced GCC are:[2]

- CO_2
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF_6)

Over the last 200 years, human activities have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect. Although GHGs produced by human activities include naturally occurring GHGs (e.g., CO_2, CH_4, and N_2O), some gases (e.g., HFCs, PFCs, and SF_6) are completely new to the atmosphere. Certain other gases (e.g., water vapor) are short-lived in the atmosphere compared to these GHGs, which remain in the atmosphere for significant periods of time and contribute to climate change in the long term. Water vapor is generally excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are

[1] The temperature on Earth is regulated by a system commonly known as the "greenhouse effect". Just as the glass in a greenhouse allows heat from sunlight in and reduces the amount of heat that escapes, GHGs such as CO_2, CH_4, and N_2O in the atmosphere keep the Earth at a relatively even temperature. Without the greenhouse effect, the Earth would be a frozen globe; thus, the *naturally occurring* greenhouse effect is necessary to keep our planet at a comfortable temperature.

[2] The GHGs listed are consistent with the definition in Assembly Bill 32 (Government Code 38505), as discussed later in this section.

largely determined by natural processes (e.g., oceanic evaporation). For the purposes of this air quality study, the term "GHGs" will refer collectively to the six gases identified in the bulleted list provided above.

These gases vary considerably in terms of global warming potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. GWP is based on several factors, including the relative effectiveness of a gas in absorbing infrared radiation and the length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of metric tons[1] of "CO_2 equivalents" (MT CO_2e). For example, N_2O is 298 times more potent at contributing to global warming than CO_2. Table C identifies the GWP for each GHG analyzed in this report.

Table C: Global Warming Potential for Selected Greenhouse Gases

Pollutant	Lifetime (Years)	Global Warming Potential (100-year)[1]
Carbon Dioxide (CO_2)	~100[2]	1
Methane (CH_4)	12	25
Nitrous Oxide (N_2O)	114	298

Source: CARB. First Update to the Climate Change Scoping Plan (2014).

[1] The 100-year global warming potential estimates are from Section 2.10.2 of The Direct Global Warming Potentials in the IPCC 2007 Fourth Assessment Report (AR4). Website: https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html (accessed July 2018).

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

CARB = California Air Resources Board

IPCC = Intergovernmental Panel on Climate Change

The following discussion summarizes the characteristics of the six primary GHGs.

Carbon Dioxide

In the atmosphere, carbon generally exists in its oxidized form, as CO_2. Natural sources of CO_2 include the respiration (breathing) of humans, animals, and plants; volcanic outgassing; decomposition of organic matter; and evaporation from the oceans. Human-caused sources of CO_2 include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. The Earth maintains a natural carbon balance, and when concentrations of CO_2 are upset, the system gradually returns to its natural state through natural processes. Natural changes to the carbon cycle work slowly, especially compared to the rapid rate at which humans are adding CO_2 to the atmosphere. Natural removal processes (e.g., photosynthesis by land- and ocean-dwelling plant species) cannot keep pace with this extra input of human-made CO_2, and

[1] A metric ton is equivalent to 1.1 tons.

consequently the gas is building up in the atmosphere. The concentration of CO_2 in the atmosphere has risen approximately 30 percent since the late 1800s[1].

The transportation sector remained the largest source of GHG emissions in 2015, representing 37 percent of the State's GHG emission inventory[2]. The largest emissions category within the transportation sector is on-road, which consists of passenger vehicles (cars, motorcycles, and light-duty trucks) and heavy-duty trucks and buses. Emissions from on-road sources constitute more than 92 percent of the transportation sector total. Industry and electricity generation were the State's second- and third-largest categories of GHG emissions, respectively.

Methane

CH_4 is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources of CH_4 include fires, geologic processes, and bacteria that produce CH_4 in a variety of settings (most notably, wetlands) (EPA 2010). Anthropogenic sources include rice cultivation, livestock, landfills and waste treatment, biomass burning, and fossil fuel combustion (e.g., the burning of coal, oil, and natural gas). As with CO_2, the major removal process of atmospheric CH_4—a chemical breakdown in the atmosphere—cannot keep pace with source emissions, and CH_4 concentrations in the atmosphere are increasing.

Nitrous Oxide

N_2O is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural source emissions. N_2O is also a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion sources emit N_2O. The quantity of N_2O emitted varies according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N_2O emissions in the State.

Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride

HFCs are primarily used as substitutes for O_3-depleting substances regulated under the Montreal Protocol.[3] PFCs and SF_6 are emitted from various industrial processes, including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no aluminum or magnesium production in the State; however, the rapid growth in the semiconductor industry, which is active in the State, has led to greater use of PFCs. However,

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1 California Environmental Protection Agency. Climate Action Team Report to Governor Schwarzenegger and the Legislature. Website: http://www.climatechange.ca.gov/climate_action_team/reports/2006report/2006-04-03_FINAL_CAT_REPORT.PDF (accessed July 2018).

2 California Environmental Protection Agency. Air Resources Board. California GHG Emission Inventory. Website: https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2014/ghg_inventory_trends_00-14_20160617.pdf, accessed July 2018.

3 The Montreal Protocol is an international treaty that was approved on January 1, 1989, and was designated to protect the O_3 layer by phasing out the production of several groups of halogenated hydrocarbons that are believed to be responsible for O_3 depletion and are also potent GHGs.

there are no known project-related emissions of these three GHGs; therefore, these substances are not discussed further in this analysis.

Emissions Sources and Inventories

An emissions inventory that identifies and quantifies the primary human-generated sources and sinks of GHGs is a well-recognized and useful tool for addressing climate change. This section summarizes the latest information on national, State, and local GHG emission inventories. However, because GHGs persist for a long time in the atmosphere (Table C), accumulate over time, and are generally well mixed, their impact on the atmosphere and climate cannot be tied to a specific point of emission.

United States Emissions

In 2016, the United States emitted 6.511 billion MT CO_2e, down from 7.4 billion MT in 2007. Total United States emissions increased by 2.4 percent from 1990 to 2016, and emissions increased from 2015 to 2016 by 1.9 percent (126.8 million MT CO_2e). Of the six major sectors nationwide—the electric power industry, transportation, industry, agriculture, commercial, and residential—the electric power industry and transportation sectors combined account for approximately 70 percent of the GHG emissions; the majority of the electric power industry and all of the transportation emissions are generated from direct fossil fuel combustion. Greenhouse gas emissions in 2016 were 11.1 percent below 2005 levels (EPA 2018).

State of California Emissions

According to CARB emission inventory estimates, the State emitted 429.4 million metric tons of CO_2e (MMT CO_2e) in 2016. This is a decrease of 12 MMT CO_2e from 2015. This puts total emissions just below the 2020 target of 431 MMT CO_2e (CARB 2018).

CARB estimates that transportation was the source of 39 percent of the State's GHG emissions in 2016, followed by electricity generation (both in State and out of State) at 16 percent, and industrial sources at 21 percent. The remaining sources of GHG emissions were residential at 7 percent, commercial activities at 5 percent, agriculture at 8 percent, and other unspecified sources at less than 1 percent (CARB 2018).

Air Pollution Constituents and Attainment Status

CARB coordinates and oversees both State and federal air pollution control programs in the State. CARB oversees activities of local air quality management agencies and maintains air quality monitoring stations throughout the State in conjunction with the EPA and local air districts. CARB has divided the State into 15 air basins based on meteorological and topographical factors of air pollution. CARB and the EPA use data collected at these stations to classify air basins as attainment, nonattainment, nonattainment-transitional, or unclassified, based on air quality data for the most recent three calendar years compared with the AAQS.

Attainment areas may be:

- Attainment/unclassified ("unclassifiable" in some lists), which have never violated the air quality standard of interest or do not have enough monitoring data to establish attainment or nonattainment status.

- Attainment-maintenance (national ambient air quality standards [NAAQS] only), which violated NAAQS that are currently in use (were nonattainment) in or after 1990, but now attains the standard and is officially redesignated as attainment by the EPA with a maintenance State Implementation Plan (SIP).

- Attainment (usually only for California ambient air quality standards [CAAQS], but sometimes for NAAQS), which have adequate monitoring data to show attainment, have never been nonattainment, or, for NAAQS, have completed the official maintenance period.

Nonattainment areas are imposed with additional restrictions as required by the EPA. The air quality data are also used to monitor progress in attaining air quality standards. Table D lists the attainment status for the criteria pollutants in the Basin.

Table D: Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
O_3 1-hour	Nonattainment	N/A
O_3 8-hour	Nonattainment	Extreme Nonattainment[1]
PM_{10}	Nonattainment	Attainment/Maintenance
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Attainment/Maintenance
NO_2	Attainment	Unclassified/Attainment (1-hour) Attainment/Maintenance (Annual)
SO_2	Attainment	Unclassified/Attainment
Lead	Attainment[2]	Unclassified/Attainment[2]
All Others	Attainment/Unclassified	Attainment/Unclassified

Source 1: South Coast Air Quality Management District. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) Attainment Status for South Coast Air Basin Website: www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqs-feb2016.pdf (accessed July 2018).
Source 2: United States Environmental Protection Agency. Nonattainment Areas for Criteria Pollutants (Green Book). Website: https://www.epa.gov/green-book, accessed July 2018.
[1] Area has a design value of 0.175 ppm and above.
[2] The Los Angeles County portion of the Basin is in Nonattainment for Lead
CO = carbon monoxide
N/A = not applicable
NO_2 = nitrogen dioxide
O_3 = ozone
PM_{10} = particulate matter less than 10 microns in diameter
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
SO_2 = sulfur dioxide

Ozone

O_3 (smog) is formed by photochemical reactions between NO_X and volatile organic compounds (VOCs) rather than being directly emitted. O_3 is a pungent, colorless gas typical of Southern California smog. Elevated O_3 concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors (e.g., the sick, the elderly, and young children). O_3 levels peak during summer and early fall. The entire Basin is designated as a nonattainment area for the State 1-hour and 8-hour O_3 standards. The EPA has officially designated the status for most of the Basin regarding the 8-hour O_3 standard as "extreme nonattainment," which means the Basin has until 2024 to attain the federal 8-hour O_3 standard.

Carbon Monoxide

CO is formed by the incomplete combustion of fossil fuels, almost entirely from automobiles. CO is a colorless, odorless gas that can cause dizziness, fatigue, and impairments to central nervous system functions. The entire Basin is in attainment for the State standards for CO. The Basin is designated as an "attainment/maintenance" area under the federal CO standards.

Nitrogen Oxides

NO_2, a reddish brown gas, and nitric oxide (NO), a colorless, odorless gas, are formed from fuel combustion under high temperature or pressure. These compounds are referred to as nitrogen oxides, or NO_X. NO_X is a primary component of the photochemical smog reaction. NO_x also contributes to other pollution problems, including a high concentration of fine particulate matter ($PM_{2.5}$), poor visibility, and acid deposition (i.e., acid rain). NO_x decreases lung function and may reduce resistance to infection. The entire Basin is designated as attainment for the State NO_2 standard and as an "attainment/maintenance" area under the federal NO_2 standard.

Sulfur Dioxide

SO_2 is a colorless, irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO_2 levels. SO_2 irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight. The entire Basin is in attainment with both federal and State SO_2 standards.

Lead

Lead is found in old paints and coatings, plumbing, and a variety of other materials. Once in the bloodstream, lead can cause damage to the brain, the nervous system, and other body systems. Children are highly susceptible to the effects of lead. The entire Basin is in attainment with both federal and State lead standards, except in Los Angeles County.

Particulate Matter

Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles (PM_{10}) derive from a variety of sources, including windblown dust and grinding operations. Fuel combustion and resultant exhaust from power plants and diesel buses and trucks are primarily responsible for $PM_{2.5}$ levels. Fine particles can also be formed in the atmosphere through chemical reactions. PM_{10} can accumulate in the respiratory system and aggravate health

problems (e.g., asthma). The EPA's scientific review concluded that $PM_{2.5}$, which penetrates deeply into the lungs, is more likely than PM_{10} to contribute to the health effects listed in a number of recently published community epidemiological studies at concentrations that extend well below those allowed by the current PM_{10} standards. These health effects include premature death and increased hospital admissions and emergency room visits (primarily among the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease [e.g., asthma]); decreased lung function (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms. The Basin is designated nonattainment for the federal and State $PM_{2.5}$ standards and State PM_{10} standard, and attainment/maintenance for the federal PM_{10} standard.

Volatile Organic Compounds

VOCs, (also known as reactive organic gases and reactive organic compounds) are formed from the combustion of fuels and the evaporation of organic solvents. VOCs are not defined as criteria pollutants; however, because VOCs accumulate in the atmosphere more quickly during the winter, when sunlight is limited and photochemical reactions are slower, they are a prime component of the photochemical smog reaction. There are no attainment designations for VOCs.

Sulfates

Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfurous compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and subsequently is converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of the State due to regional meteorological features. The entire Basin is in attainment for the State standard for sulfates.

Hydrogen Sulfide

H_2S is a colorless gas with the odor of rotten eggs. H_2S is formed during bacterial decomposition of sulfur-containing organic substances. In addition, H_2S can be present in sewer gas and some natural gas and can be emitted as the result of geothermal energy exploitation. In 1984, a CARB committee concluded that the ambient standard for H_2S is adequate to protect public health and to significantly reduce odor annoyance. The entire Basin is unclassified for the State standard for H_2S.

Visibility-Reducing Particles

Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials (e.g., metals, soot, soil, dust, and salt). The Statewide standard is intended to limit the frequency and severity of visibility impairment due to regional haze. The entire Basin is unclassified for the State standard for visibility-reducing particles.

LOCAL AIR QUALITY

SCAQMD, together with CARB, maintains ambient air quality monitoring stations in the Basin. The air quality monitoring station closest to the site is the Anaheim station, which monitors most air pollutant data, except SO_2, data for which were obtained from the Costa Mesa station. The air quality trends from these two stations are used to represent the ambient air quality in the project area. The pollutants monitored are CO, O_3, PM_{10}, $PM_{2.5}$, and NO_2.[1,2] The ambient air quality data in Table E show that NO_2, SO_2, 24-hour and annual average PM_{10}, and CO levels are below the applicable State and federal standards.

The State 1-hour O_3 standard was exceeded up to two times per year in the past 3 years. The federal 8-hour O_3 standard was exceeded up to two times per year in the past 3 years, and the State 8-hour O_3 standard was exceeded up to four times per year in the past 3 years. The State 24-hour PM2.5 standard was exceeded up to three times per year in the past 3 years.

REGULATORY SETTINGS

Federal Regulations/Standards

Pursuant to the federal Clean Air Act (CAA) of 1970, the EPA established the NAAQS. The NAAQS were established for six major pollutants, termed "criteria" pollutants. Criteria pollutants are defined as those pollutants for which the federal and State governments have established AAQS, or criteria, for outdoor concentrations to protect public health.

The EPA has designated the Southern California Association of Governments (SCAG) as the Metropolitan Planning Organization (MPO) responsible for ensuring compliance with the requirements of the Federal Clean Air Act (CAA) for the Basin.

In an effort to help federal agencies ensure the integrity of their environmental reviews and promote sound governmental decision making, the Council on Environmental Quality (CEQ) issued on January 14, 2011 final guidance on the "Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact." This guidance was developed as part of CEQ's effort to modernize and reinvigorate federal agency implementation of the National Environmental Policy Act.

The United States has historically had a voluntary approach to reducing GHG emissions. However, on April 2, 2007, the United States Supreme Court ruled that the EPA has the authority to regulate CO_2 emissions under the CAA.

On December 7, 2009, the EPA Administrator signed a final action under the CAA, finding that six GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) constitute a threat to public health and welfare, and that the combined emissions from motor vehicles cause and contribute to GCC.

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1 United States Environmental Protection Agency. AirData: 2015–2017 Air Quality Data. Website: http://www.epa.gov/airquality/airdata (accessed July 2018).

2 California Air Resources Board. iADAM: Air Quality Data Statistics. Website: http://www.arb.ca.gov/adam (accessed July 2018).

Table E: Ambient Air Quality Monitored in the Project Vicinity

Pollutant	Standard	2015	2016	2017
Carbon Monoxide (CO) – Anaheim Monitoring Station				
Maximum 1-hr concentration (ppm)		3.1	2.6	2.5
Number of days exceeded:	State: > 20 ppm	0	0	0
	Federal: > 35 ppm	0	0	0
Maximum 8-hr concentration (ppm)		2.2	2.1	2.1
Number of days exceeded:	State: ≥ 9.0 ppm	0	0	0
	Federal: ≥ 9.0 ppm	0	0	0
Ozone (O_3) – Anaheim Monitoring Station				
Maximum 1-hr concentration (ppm)		0.1	0.103	0.09
Number of days exceeded:	State: > 0.09 ppm	1	2	0
Maximum 8-hr concentration (ppm)		0.08	0.074	0.076
Number of days exceeded:	State: > 0.07 ppm	1	4	4
	Federal: > 0.07 ppm	1	0	2
Coarse Particulates (PM_{10}) – Anaheim Monitoring Station				
Maximum 24-hr concentration (µg/m^3)		59	74.0	95.7
Number of days exceeded:	State: > 50 µg/m^3	0	0	0
	Federal: > 150 µg/m^3	0	0	0
Annual arithmetic average concentration (µg/m^3)		27	ND	ND
Exceeded for the year:	State: > 20 µg/m^3	Yes	No	No
Fine Particulates ($PM_{2.5}$) – Anaheim Monitoring Station				
Maximum 24-hr concentration (µg/m^3)		45.8	44.4	53.9
Number of days exceeded:	Federal: > 35 µg/m^3	3	1	0
Annual arithmetic average concentration (µg/m^3)		14.7	9.4	7
Exceeded for the year:	State: > 12 µg/m^3	Yes	No	ND
	Federal: > 15 µg/m^3	No	No	ND
Nitrogen Dioxide (NO_2) – Anaheim Monitoring Station				
Maximum 1-hr concentration (ppm)		0.059	0.064	0.081
Number of days exceeded:	State: > 0.18 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.015	0.015	0.014
Exceeded for the year:	State: > 0.030 ppm	No	No	No
	Federal: > 0.053 ppm	No	No	No
Sulfur Dioxide (SO_2) – Costa Mesa Monitoring Station				
Maximum 24-hr concentration (ppm)		0.0045	0.0033	0.002
Number of days exceeded:	State: > 0.04 ppm	0	0	0
	Federal: > 0.14 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.00051	0.00047	0.00042
Exceeded for the year:	Federal: > 0.030 ppm	No	No	No

Source 1: United States Environmental Protection Agency. AirData: 2015–2017 Air Quality Data. Website: https://www.epa.gov/outdoor-air-quality-data/air-quality-index-report (accessed July 2018).
Source 2: California Air Resources Board. iADAM: Air Quality Data Statistics. Website: http://www.arb.ca.gov/adam, accessed July 2018.
µg/m^3 = micrograms per cubic meter
hr = hour
ND = no data available
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
ppm = parts per million

State Regulations/Standards

In 1967, the State Legislature passed the Mulford-Carrell Act, which combined two Department of Health bureaus (i.e., the Bureau of Air Sanitation and the Motor Vehicle Pollution Control Board), to establish CARB. Since its formation, CARB has worked with the public, the business sector, and local governments to find solutions to the State's air pollution problems.

The California Air Pollution Control Officers Association (CAPCOA) is a nonprofit association of the air pollution control officers from all 35 local air quality agencies throughout California. CAPCOA was formed in 1976 to promote clean air and to provide a forum for sharing knowledge, experience, and information among the air quality regulatory agencies around the State. CAPCOA meets regularly with federal and State air quality officials to develop statewide rules and to assure consistent application of rules and regulations. CAPCOA works with specialized task forces (including regulated industry) by participating actively in the legislative process, and continuing to coordinate local efforts with those of State and federal air agencies. The goal is to protect public health while maintaining economic vitality.

California adopted the CCAA in 1988. CARB administers the CAAQS for the 10 air pollutants designated in the CCAA. These 10 State air pollutants are the six criteria pollutants designated by the federal CAA as well as four others: visibility-reducing particulates, H_2S, sulfates, and vinyl chloride.

California Climate Action Milestones

In 1988, Assembly Bill (AB) 4420 directed the California Energy Commission (CEC) to report on "how global warming trends may affect the State's energy supply and demand, economy, environment, agriculture, and water supplies" and offer "recommendations for avoiding, reducing and addressing the impacts." This marked the first statutory direction to a State agency to address climate change.

The California Climate Action Registry was created to encourage voluntary reporting and early reductions of GHG emissions with the adoption of Senate Bill (SB) 1771 in 2000. The CEC was directed to assist by developing metrics and identifying and qualifying third-party organizations to provide technical assistance and advice to GHG emission reporters. The next year, SB 527 amended SB 1771 to emphasize third-party verification.

SB 1771 also contained several additional requirements for the CEC, including (1) updating the State's GHG inventory from an existing 1998 report and continuing to update it every 5 years; (2) acquiring, developing, and distributing information on GCC to agencies and businesses; (3) establishing a State interagency task force to ensure policy coordination; and (4) establishing a climate change advisory committee to make recommendations on the most equitable and efficient ways to implement GCC requirements. In 2006, AB 1803 transferred preparation of the inventory from the CEC to CARB; CARB updates the inventory annually.

AB 1493, authored by Assemblymember Fran Pavley in 2002, directed CARB to adopt regulations to achieve the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles. CARB approved the so-called "Pavley" regulations, or Clean Car regulations, in 2004. On September 24, 2009, CARB adopted amendments to AB 1493 that reduced GHG emissions in new passenger vehicles from 2009 through 2016. AB 1493 also directed the State's Climate Action Registry to adopt

protocols for reporting reductions in GHG emissions from mobile sources prior to the operative date of the regulations.

Executive Order (EO) S-3-05 (June 2005) established GHG targets for the State (e.g., returning to year 2000 emission levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050). EO S-3-05 directed the Secretary of the California Environmental Protection Agency to coordinate efforts to meet the targets with the heads of other State agencies. This group became the Climate Action Team.

In 2006, the State Legislature passed the California Global Warming Solutions Act of 2006 (AB 32), which created a comprehensive, multiyear program to reduce GHG emissions in California. AB 32 required CARB to develop a scoping plan that describes the approach California will take to reduce GHGs to achieve the goal of reducing emissions to 1990 levels by 2020. CARB first approved the scoping plan in 2008; it must be updated every 5 years. CARB approved the First Update to the Climate Change Scoping Plan on May 22, 2014. In 2016, the State Legislature passed SB 32, which codifies a 2030 GHG emission reduction target of 40 percent below 1990 levels. With SB 32, the State Legislature passed companion legislation, AB 197, which provides additional direction for developing the scoping plan. CARB released the second update to the scoping plan in November 2017 to reflect the 2030 target set by EO B-30-15 and codified by SB 32.

Senate Bill 32 and Assembly Bill 197

SB 32 and AB 197 (enacted in 2016) are companion bills that set a new statewide GHG reduction targets; make changes to CARB's membership, and increase legislative oversight of CARB's climate change-based activities; and expand dissemination of GHG and other air quality-related emission data to enhance transparency and accountability.

More specifically, SB 32 codified the 2030 emission reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, to provide ongoing oversight over implementation of the State's climate policies. AB 197 also added two members of the Legislature to CARB as nonvoting members; requires CARB to make available and update (at least annually via its website) emission data for GHGs, criteria air pollutants, and toxic air contaminants from reporting facilities; and requires CARB to identify specific information for GHG emission reduction measures when updating the scoping plan.

Building Energy

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes building energy efficiency standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. The CEC is required by law to adopt standards every 3 years that are cost effective for homeowners over the 30-year lifespan of a building. These standards are updated to consider and to incorporate new energy-efficient technologies and construction methods. As a result, these standards save energy, increase electricity supply reliability,

increase indoor comfort, avoid the need to construct new power plants, and help to preserve the environment.

The 2016 Title 24 standards are the currently applicable building energy efficiency standards, and became effective on January 1, 2017. The 2016 Title 24 standards will further reduce energy used and the associated GHG emissions. In general, single-family homes built to the 2016 standards are anticipated to use about 28 percent less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2013 standards, and nonresidential buildings built to the 2016 standards will use an estimated 5 percent less energy than those built to the 2013 standards (CEC 2015). It should be noted that the 2016 Title 24 energy data are used in the California Emission Estimator Model (CalEEMod) version 2016.3.2.

Mobile Sources

California is implementing the world's first Low Carbon Fuel Standard for transportation fuels, pursuant to both EO S-01-07 (signed January 2007) and AB 32. The standard requires a reduction of at least 10 percent in the CO intensity of the State's transportation fuels by 2020. This reduction is expected to reduce GHG emissions in 2020 by 17.6 MMT CO_2e. Also in 2007, AB 118 created the Alternative and Renewable Fuel and Vehicle Technology Program. The CEC and CARB administer the program. This act provides funding for alternative fuel and vehicle technology research, development, and deployment to attain the State's climate change goals, achieve the State's petroleum reduction objectives and clean air and GHG emission reduction standards, develop public-private partnerships, and ensure a secure and reliable fuel supply.

In addition to vehicle emissions regulations and the Low Carbon Fuel Standard, the third effort to reduce GHG emissions from transportation is the reduction in the demand for personal vehicle travel (i.e., vehicle miles traveled [VMT]). This measure was addressed in September 2008 through the Sustainable Communities and Climate Protection Act of 2008, or SB 375. SB 375 initiated an important new regional land use planning process to mitigate GHG emissions by integrating and aligning planning for housing, land use, and transportation for California's 18 MPOs. The bill directed CARB to set regional GHG emission reduction targets for most areas of the State. SB 375 also contained important elements related to federally mandated regional transportation plans and the alignment of State transportation and housing planning processes.

Also codified in 2008, SB 97 required the Governor's Office of Planning and Research to develop GHG emissions criteria for use in determining project impacts under CEQA. These criteria were developed in 2009, and went into effect in 2010.

Adaptation Plan

EO S-13-08 launched a major initiative for improving the State's adaptation to climate impacts from sea level rise, increased temperatures, shifting precipitation, and extreme weather events. EO S-13-08 ordered a California Sea Level Rise Assessment Report request from the National Academy of Sciences. It also ordered the development of a Climate Adaptation Strategy. The strategy, published in December 2009, assesses the State's vulnerability to climate change impacts, and outlines possible solutions that can be implemented within and across State agencies to promote resiliency. The Strategy focused on seven areas: public health, biodiversity and habitat,

ocean and coastal resources, water management, agriculture, forestry, and transportation and energy infrastructure.

The initiatives, EOs, and statutes outlined above compose the major milestones in California's efforts to address climate change through coordinated action on climate research, GHG mitigation, and climate change adaptation. State agencies and departments have undertaken numerous other related efforts to address specific questions and programmatic needs. The Climate Action Team coordinates these efforts and others, which compose the State's climate program.[1]

Regional Air Quality Planning Framework

The 1976 Lewis Air Quality Management Act established SCAQMD and other air districts throughout the State. The federal CAA Amendments of 1977 required that each state adopt an implementation plan outlining pollution control measures to attain the federal standards in nonattainment areas of the State.

CARB is responsible for incorporating air quality management plans for local air basins into a SIP for EPA approval. Significant authority for air quality control within them has been given to local air districts that regulate stationary-source emissions and develop local nonattainment plans.

Regional Air Quality Management Plan

SCAQMD and SCAG are responsible for formulating and implementing the AQMP for the Basin. The main purpose of an AQMP is to bring the area into compliance with federal and State air quality standards. SCAQMD prepares a new AQMP every 3 years, updating the previous plan and 20-year horizon.

The latest plan is the 2016 AQMP, which incorporates the latest scientific and technological information and planning assumptions, including the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and updated emission inventory methodologies for various source categories (SCAQMD 2017a). The 2016 AQMP included the integrated strategies and measures needed to meet the NAAQS, implementation of new technology measures, and demonstrations of attainment of the 1-hour and 8-hour ozone NAAQS as well as the latest 24-hour and annual $PM_{2.5}$ standards. Key elements of the 2016 AQMP include:

- Calculation and credit for cobenefits from other planning efforts (e.g., climate, energy, and transportation)
- A strategy with fair-share emission reductions at the federal, State, and local levels
- Investment in strategies and technologies meeting multiple air quality objectives
- Identification of new partnerships and significant funding for incentives to accelerate deployment of zero and near-zero technologies

[1] State of California. 2015. Highlights of the California Climate Change Program. Website: http://www.climatechange.ca.gov/state/highlights.html#year2015 (accessed July 2018).

- Enhanced socioeconomic assessment, including an expanded environmental justice analysis
- Attainment of the 24-hour $PM_{2.5}$ standard in 2019 with no additional measures
- Attainment of the annual $PM_{2.5}$ standard by 2025 with implementation of a portion of the ozone strategy
- Attainment of the 1-hour ozone standard by 2022 with no reliance on "black box" future technology (CAA Section 182(e)(5) measures)

Local Policies

City of Anaheim General Plan

As the largest city in Orange County and the only one that owns its own public utilities, Anaheim has made a longstanding commitment to promoting energy conservation. The City of Anaheim (City) adopted the Green Element of the General Plan in June 2018. It sets forth the goals, objectives, and policies that guide the City on the implementation of its energy improvement programs and strategies. The following goals and policies are applicable to the proposed project.

Goal 15.2: Continue to encourage site design practices that reduce and conserve energy.

Policy (1): Encourage increased use of passive and active solar design in existing and new development (e.g., orienting buildings to maximize exposure to cooling effects of prevailing winds and locating landscaping and landscape structures to shade buildings).

Policy (2): Encourage energy-efficient retrofitting of existing buildings throughout the City.

Policy (3): Continue to provide free energy audits to the public.

Goal 17.1: Encourage building and site design standards that reduce and conserve energy.

Policy (1): Encourage designs that incorporate solar and wind exposure features such as daylighting design, natural ventilation, space planning and thermal massing.

Anaheim Greenhouse Gas Reduction Plan

The Anaheim Greenhouse Gas Reduction Plan was developed by the Anaheim Public Utilities Department and published in July 2015. The Department's targets are to reduce GHG emissions by 20 percent below 1990 levels by 2020 and to reduce GHG emissions by 40 percent below 1990 levels by 2030. Key activities and targets for reducing emissions focus on investments in renewable energy water conservation, energy efficiency, installation of photovoltaic (PV) systems, and electric transportation.

- **Renewables Portfolio:** The Department achieved 20 percent of its electrical supply from renewable energy in 2015. The Department seeks to increase renewable energy sources including solar, wind, biogas, geothermal, and small hydropower. The Department's targets are to achieve 33 percent renewables by 2020, and 40 to 50 percent renewables by 2030.

- **Water Conservation:** Water conservation measures have contributed to a 17-percent reduction in 2015. Annual water savings has led to energy savings as well as reduction in GHG emissions. Water conservation measures applied in 2015 include: 1) Expanding turf removal rebates and introduction of a zero-interest loan program; 2) outreach on mandatory measures; and 3) provision of water rebate programs to residents and businesses. The Department has set a water conservation 2020 Target of reducing per capita water use by 20 percent. The 2030 target is a 25 percent decrease in per capita water use.

- **Energy Efficiency:** In 2015, the City achieved 10 percent energy efficiency of retail consumption. The City aims to increase energy efficiency from retail use to 15 percent by 2020, and 30 percent by 2030.

- **School Energy Efficiency:** In 2015, the City completed 30 school energy audits and provided rebate opportunities. The City has a goal of increasing the number of energy audits conducted in schools to 50 schools energy audits by 2020 and 80 energy audits by 2030.

- **PV Systems for Homes and Businesses:** In 2015, the City installed 16,000 kilowatts (kW) of PV systems on rooftops of homes and businesses. The City aims to increase the amount of energy produced from PV systems installed on rooftops of homes and businesses to 27,000 kW by 2020, and 37,000 kW by 2030.

- **PV Systems for Schools:** In 2015, the City installed nine PV systems on school rooftops. The City aims to increase the number of installed PV systems on school rooftops 14 by 2020, and 24 by 2030.

- **Electric Transportation:** In 2015, there were 900 low- or zero-emission vehicles registered in the City. The Department of Public Utilities has installed 31 public charging stations throughout the City to encourage use of electric vehicles. The City aims to increase the number of low or zero emission vehicles to 2,000 by 2020, and 5,000 by 2030.

- **Utility Fleet Vehicles:** In 2015, two percent of the utility fleet vehicles were low of zero emission vehicles. The City aims to increase the number of low or zero emission vehicles in the utility fleet to 10 percent by 2020, and 20 percent by 2030.

THRESHOLDS OF SIGNIFICANCE

Certain air districts (e.g., SCAQMD), have created guidelines and requirements to conduct air quality analysis. SCAQMD's current guidelines, the *CEQA Air Quality Handbook* (SCAQMD 1993) with associated updates and City guidelines were followed in this assessment of air quality and GCC impacts for the proposed project.

Based on the Guidelines for the Implementation of CEQA, Appendix G, Public Resources Code Sections 15000–15387, a project would normally be considered to have a significant effect on air quality if the project would violate any State AAQS, contribute substantially to an existing air quality violation, expose sensitive receptors to substantial pollutant concentrations, or conflict with adopted environmental plans and goals of the community in which it is located.

POLLUTANTS WITH REGIONAL EFFECTS

SCAQMD has established daily emission thresholds for construction and operation of a proposed project in the Basin. The emission thresholds were established based on the attainment status of the Basin with regard to air quality standards for specific criteria pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety (EPA), these emission thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

Regional Thresholds for Construction and Operational Emissions

Table F lists the CEQA significance thresholds for construction and operational emissions established for the Basin:

Table F: Regional Thresholds for Construction and Operational Emissions

Emissions Source	Pollutant Emissions Threshold (lbs/day)					
	VOC	NO_x	CO	PM_{10}	$PM_{2.5}$	SO_x
Construction	75	100	550	150	55	150
Operations	55	55	550	150	55	150

Source: SCAQMD. Website: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf (accessed July 2018).
CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
SCAQMD = South Coast Air Quality Management District
SO_X = sulfur oxides
VOC = volatile organic compounds

Projects in the Basin with construction-related emissions or operational-related emissions that exceed any of their respective emission thresholds would be considered significant under SCAQMD guidelines.

Local Microscale Concentration Standards

The significance of localized CO project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below State and federal CO standards. Because ambient CO levels are below the standards throughout the Basin, a project would be considered to have a significant CO impact if project emissions result in an exceedance of one or more of the 1-hour or 8-hour standards. The following are applicable local emission concentration standards for CO:

- California State 1-hour CO standard of 20 ppm
- California State 8-hour CO standard of 9 ppm

Localized Significance Threshold Impacts Analysis

SCAQMD published its *Final Localized Significance Threshold Methodology* in June 2003 and updated it in July 2008 (SCAQMD 2003), recommending that all air quality analyses include an assessment of both construction and operational impacts on the air quality of nearby sensitive receptors. LSTs represent the maximum emissions from a project site of up to 5 acres that are not expected to result in an exceedance of the NAAQS or the CAAQS, as shown in Table A. LSTs are based on the ambient concentrations of that pollutant within the project Source Receptor Area (SRA) and the distance to the nearest sensitive receptor. For this project, the appropriate SRA for the LST analysis is the Central Orange County area (SRA 17).

If the total acreage disturbed is less than or equal to 5 acres per day, then the SCAQMD's screening look-up tables can be used to determine if a project has the potential to result in a significant impact. In the case of CO and NO_2, because ambient levels are below the NAAQS and CAAQS, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or federal standard, then project emissions are considered significant if they increase ambient concentrations by a measurable amount. This would apply to PM_{10} and $PM_{2.5}$, both of which are nonattainment pollutants (SCAQMD 2005). For these two, the significance criteria are the pollutant concentration thresholds presented in SCAQMD Rules 403 and 1303. The Rule 403 threshold of 10.4 micrograms per cubic meter ($\mu g/m^{3)}$ applies to construction emissions. The Rule 1303 threshold of 2.5 $\mu g/m^3$ applies to operational activities.

Based on the SCAQMD recommended methodology[1] and the construction equipment planned, no more than 3.5 acres[2] would be disturbed on any one day; thus, the 3.5-acre LSTs have been used for construction emissions. On-site operational emissions would occur from stationary and mobile sources. However, on-site vehicle emissions are the largest source of emissions, and the on-site travel routes for the proposed project would be equivalent to driving over 3 acres of surface area. Therefore, the 3-acre thresholds would apply during project operations:

1 SCAQMD. *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds*. Website: www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod-guidance.pdf (accessed July 2018).

2 A maximum disturbance of 3.5 acre would occur during the grading phase from the use of one excavator, one grader, one rubber-tired bulldozer and three tractors for 8 hours per day. It is assumed that one of the three tractors/loaders/backhoes will be used as a backhoe.

Sensitive receptors include residences, schools, hospitals, and similar uses that are sensitive to adverse air quality. The nearest sensitive receptor is the Fairmont Private School of Anaheim 675 feet to the southwest of the project boundary. Table G lists the emissions thresholds that apply during project construction and operation.

Table G: SCAQMD LST Thresholds (lbs/day)

Emissions Source Category	NO_X	CO	PM_{10}	$PM_{2.5}$
Construction (3.5-acre, 675 foot distance)	176	3,453	80	30
Operations (3-acre, 675 foot distance)	167	3,229	19	7

Source: SCAQMD LST Guidance Manual (SCAQMD 2008a)
LST = localized significance threshold
SCAQMD = South Coast Air Quality Management District

GLOBAL CLIMATE CHANGE

State CEQA Guidelines Section 15064(b) provides that the "determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data", and further states that an "ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

A project would normally have a significant effect on the environment if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or

- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

On December 30, 2009, the Natural Resources Agency adopted amendments to the State *CEQA Guidelines* that became effective on March 18, 2010. The amendments to the State *CEQA Guidelines* include new requirements to evaluate GHG emissions. Pursuant to the amended State *CEQA Guidelines,* a lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment:

1. The extent to which the project may increase (or reduce) GHG emissions compared to the existing environmental setting;

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

3. The extent to which the project complies with regulations or requirements adopted to implement an adopted statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, SCAQMD convened a GHG CEQA Significance Threshold Stakeholder Working Group (Working Group).[1] Based on the last Working Group meeting (Meeting No. 15) held in September 2010, SCAQMD proposed an analysis methodology using a tiered approach for the evaluation of GHG emissions for development projects where SCAQMD is not the lead agency (SCAQMD 2010). The applicable screening tier for this operations center project is Tier 3 (if GHG emissions are less than 3,500 MT CO_2e/year, project-level and cumulative GHG emissions would be considered less than significant).

[1] South Coast Air Quality Management District. Greenhouse Gases (GHG)—CEQA Significance Thresholds. Website: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ghg-significance-thresholds/ (accessed July 2018).

IMPACTS AND MITIGATION

Air pollutant emissions associated with the project would occur over the short term from construction activities (e.g., fugitive dust from site preparation and grading, and emissions from equipment exhaust). Long-term regional emissions would be associated with project-related vehicular trips and energy consumption (e.g., electricity and natural gas usage).

CONSTRUCTION IMPACTS

Equipment Exhausts and Related Construction Activities

Construction activities produce combustion emissions from various sources (e.g., grading, site preparation, utility engines, tenant improvements, and motor vehicles transporting the construction crew). Exhaust emissions from construction activities envisioned on site would vary daily as construction activity levels change. The use of construction equipment on site would result in localized exhaust emissions. Table H lists the tentative project construction schedule anticipated to occur over the course of 12 months for the proposed project based on project plans.

Table H: Tentative Project Construction Schedule

Phase Number	Phase Name	Number of Days/Week	Number of Days
1	Demolition	5	20
2	Site Preparation	5	3
3	Grading and Excavation	5	6
4	Building Construction	5	220
5	Architectural Coatings	5	10
6	Paving	5	10

Source: Estimated from site plan, assuming a 2020 opening year, and CalEEMod defaults (2018).
CalEEMod = California Emissions Estimator Model

Table I lists the estimated construction equipment that would be used during project construction. The most recent version of CalEEMod (Version 2016.3.2) was used to calculate the construction emissions. Table J shows the construction emissions. The emissions rates shown in the table are from the CalEEMod output tables listed as “Mitigated Construction”, even though the only measures that have been applied to the analysis are the required construction emission control measures, or standard conditions. They are also the combination of the on- and off-site emissions.

Because no exceedances of any criteria pollutants are expected, no significant impacts would occur for project construction. Standard measures are discussed later in this report. Details of the emission factors and other assumptions are included in Appendix A.

Table I: Diesel Construction Equipment Utilized by Construction Phase

Construction Phase	Off-Road Equipment Type	Off-Road Equipment Unit Amount	Hours Used per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	1	8	81	0.73
	Excavators	3	8	158	0.38
	Rubber-Tired Bulldozers	2	8	247	0.40
Site Preparation	Rubber-Tired Bulldozers	3	8	247	0.40
	Tractors/Loaders/Backhoes	4	8	97	0.37
Grading	Excavators	1	8	158	0.38
	Graders	1	8	187	0.41
	Rubber-Tired Bulldozers	1	8	247	0.40
	Tractors/Loaders/Backhoes	3	8	97	0.37
Building Construction	Cranes	1	7	231	0.29
	Forklifts	3	8	89	0.20
	Generator Sets	1	8	84	0.74
	Tractors/Loaders/Backhoes	3	7	97	0.37
	Welders	1	8	46	0.45
Architectural Coating	Air Compressors	1	6	78	0.48
Paving	Cement and Mortar Mixers	2	6	9	0.56
	Pavers	1	8	130	0.42
	Paving Equipment	2	6	132	0.36
	Rollers	2	6	80	0.38
	Tractors/Loaders/Backhoes	1	8	97	0.37

Source: Compiled by LSA (July 2018).

Table J: Short-Term Regional Construction Emissions

Construction Phase	Total Regional Pollutant Emissions, lbs/day							
	VOC	NO_X	CO	SO_X	Fugitive PM_{10}	Exhaust PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$
Demolition	4	37	23	<1	<1	2	<1	2
Site Preparation	4	46	23	<1	8	3	5	2
Grading	4	69	27	<1	6	2	2	1
Building Construction	3	23	19	<1	1	1	<1	1
Architectural Coatings	14	2	2	<1	<1	<1	<1	<1
Paving	2	13	13	<1	<1	1	<1	1
Peak Daily	**14**	**69**	**27**	**<1**	**11**		**7**	
SCAQMD Thresholds	**75**	**100**	**550**	**150**	**150**		**55**	
Significant Emissions?	**No**	**No**	**No**	**No**	**No**		**No**	

Source: Compiled by LSA (July 2018).
Assumes the Building Construction and Architectural Coating phases overlap. PM_{10} and $PM_{2.5}$ fugitive emissions are from the Mitigated results - the only "mitigation" applied in this modeling is required dust control measures per SCAQMD Rule 403. Numbers may not appear to add correctly due to rounding.
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
SCAQMD = South Coast Air Quality Management District
SO_X = sulfur oxides
VOC = volatile organic compounds

Fugitive Dust

Fugitive dust emissions are generally associated with land clearing and exposure of soils to the air and wind, as well as cut-and-fill grading and excavation operations. Dust generated during construction varies substantially on a day-by-day basis, depending on the level of activity, the specific operations, and weather conditions at the time of construction. The proposed project will be required to comply with SCAQMD Rule 403 to control fugitive dust.

Table J lists total construction emissions (i.e., fugitive-dust emissions and construction-equipment exhausts) that have incorporated the following Rule 403 measures that would be implemented to significantly reduce PM_{10} emissions from construction. The Rule 403 measures that were incorporated in the CalEEMod analysis are as follows:

- Water active sites at least twice daily (locations where grading is to occur will be thoroughly watered prior to earthmoving).
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 2 ft (0.6 m) of freeboard (vertical space between the top of the load and the top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114.
- Reduce traffic speeds on all unpaved roads to 15 mph or less.

Architectural Coatings

Architectural coatings contain VOCs that are part of the O_3 precursors. Based on the proposed project, application of the architectural coatings for the proposed peak construction day is estimated to result in a peak of 14 pounds per day (lbs/day) of VOC. Therefore, this VOC emission will not exceed the SCAQMD VOC threshold of 75 lbs/day.

Localized Impacts Analysis

Table K shows the portion of the construction emissions that would be emitted on the project site compared to the LST thresholds. Table K shows that the localized construction emissions would not result in a locally significant air quality impact.

Table K: Construction Localized Impacts Analysis

Emissions Sources	Pollutant Emissions (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
On-Site Emissions	46	22	11	7
LST Thresholds	**176**	**3,453**	**80**	**30**
Significant Emissions?	**No**	**No**	**No**	**No**

Source: Compiled by LSA (July 2018).
Note: Source Receptor Area – Central Orange County, 3.5 acres, receptors at 675 feet
CO = carbon monoxide
lbs/day = pounds per day
LST = local significance threshold
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size

Odors

Heavy-duty equipment in the project area during construction would emit odors, primarily from equipment exhaust. No other sources of objectionable odors have been identified for the proposed project, and no mitigation measures are required.

SCAQMD Rule 402 regarding nuisances states: "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property." The proposed uses are not anticipated to emit any objectionable odors; therefore, objectionable odors affecting a substantial number of people would not occur as a result of the proposed project.

Naturally Occurring Asbestos

The project site is in Orange County, which is not among the counties that have been found to have serpentine and ultramafic rock in their soils.[1] Therefore, the potential risk for naturally occurring asbestos during project construction is small and less than significant.

Construction Emissions Conclusions

Table J shows that daily regional construction emissions would not exceed the daily thresholds of any criteria pollutant emission thresholds established by SCAQMD. Table K shows that, during construction, there will be no locally significant impacts.

LONG-TERM REGIONAL AIR QUALITY IMPACTS

Long-Term Project Operational Emissions

Long-term air pollutant emission impacts are those associated with stationary sources and mobile sources involving any project-related changes. The proposed project would result in net increases in both stationary and mobile-source emissions. The area wide source emission categories include both stationary and off-road mobile sources. Stationary sources in CalEEMod include gasoline-dispensing pumps, aboveground storage tanks, consumer products, whereas off-road mobile sources include off-road equipment such as landscaping equipment.[2]

Based on trip generation factors provided in the *Trip Generation for Proposed Transit Security and Operations Center* (LIN Consulting 2018), the project would generate up to 920 daily trips. These trips were entered in the CalEEMod model. In addition, estimated VOC emissions from the gasoline dispensing pumps is included in the operational emission analysis under stationary sources. The long-term operational emissions associated with the proposed project is shown in Table L.

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1 California Department of Conservation. Asbestos. Website: http://www.conservation.ca.gov/cgs/minerals/hazardous_minerals/asbestos/Pages/index.aspx (accessed July 2018).

2 California Air Resources Board. Information on Areawide Source Categories. Website: https://www.arb.ca.gov/ei/areasrc/moreareainfo.htm (accessed July 2018; page last reviewed February 11, 2013).

Table L: Project Regional Operational Emissions

Source	Pollutant Emissions, lbs/day					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area	<1	<1	<1	0	<1	<1
Energy	<1	<1	<1	<1	<1	<1
Mobile	2	6	20	<1	6	2
Stationary	10	0	0	0	0	0
Total Project Emissions	**12**	**6**	**20**	**0**	**6**	**2**
SCAQMD Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Compiled by LSA (July 2018).
CO = carbon monoxide
lbs/day = pounds per day
NO_x = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SO_x = sulfur oxides
VOC = volatile organic compounds

As shown in Table L, project-related increases of all criteria pollutants would not exceed the corresponding SCAQMD daily emission thresholds for any criteria pollutants.

Localized Impacts Analysis

Table M shows the calculated emissions for the proposed operational activities compared with the appropriate LSTs. By design, the localized impacts analysis only includes on-site sources; however, the CalEEMod outputs do not separate on-site and off-site emissions for mobile sources. For a worst-case scenario assessment, the emissions shown in Table M include all on-site project-related area sources and 5 percent of the project-related mobile sources, which is an estimate of the amount of project-related vehicle traffic that would occur on site. Five percent would be considered conservative because the average trip lengths assumed are 16.6 miles (mi) for home to work, 8.4 mi for home to shopping, and 6.9 mi for other types of trips. The average on-site distance driven is unlikely to be even 1,000 ft, which is approximately 2 percent of the total miles traveled. Considering the total trip length included in the CalEEMod, the 5 percent assumption is conservative.

Table M: Long-Term Operational Localized Impacts Analysis

Emissions Sources	Pollutant Emissions (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
On-Site Emissions	<1	1	<1	<1
LST Thresholds	**167**	**3,229**	**19**	**7**
Significant Emissions?	**No**	**No**	**No**	**No**

Source: Compiled by LSA (July 2018).
Note: Source Receptor Area – Central Orange County, 3 acres, receptors at 675 feet, on-site traffic 5 percent of total.
CO = carbon monoxide
lbs/day = pounds per day
LST = localized significance thresholds
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size

Table M shows that the localized operational emissions would not exceed the LSTs for the sensitive receptors near the project site. Therefore, the proposed operational activity would not result in a locally significant air quality impact.

STATIONARY SOURCE

The project would operate one 2,000-gallon aboveground fuel tank. For the purpose of the air quality analysis, it would take approximately 12 fuel delivery truck trips per year (i.e., by a 9,000-gallon, two-axle fuel truck) to deliver an estimated annual maximum of 24,000 gallons of fuel to the project site. The gasoline dispensing facility would generate criteria pollutant emissions directly and indirectly, specifically by the fuel delivery trucks, VOC losses from the storage tank and dispensing system, and combustion of fuel in the vehicles.

SCAQMD Rule 461 - Gasoline Transfer and Dispensing, requires the installation of enhanced vapor recovery systems that would reduce the amount of vapor that would be emitted into the atmosphere by 95 to 98 percent from levels without such systems. All gasoline-dispensing facilities under SCAQMD jurisdiction have Phase I and II vapor recovery systems to control gasoline emissions. Phase I vapor recovery refers to the collection of gasoline vapors displaced from storage tanks when cargo tank trucks make gasoline deliveries. Phase II vapor recovery systems control the vapors displaced from vehicle fuel tanks during refueling. In addition, all gasoline would be stored in an aboveground storage tank with fill tubes equipped with vapor-tight seals and caps to further control gasoline emissions. Emissions from gasoline transfer and dispensing mainly occur during loading, breathing, refueling, and spillage.

According to the SCAQMD Annual Emission Reporting (AER) Program, the default organic emission factor for gasoline fuel dispensing pump station with fuel storage and dispensing system is 0.396 pounds of VOC per 1,000 gallons of fuel dispensed (SCAQMD 2017b). For purposes of the analysis of this project, it is assumed that the 2,000-gallon aboveground storage tank would contain gasoline and be filled 12 times throughout the year, resulting in an estimated annual VOC emission of 9.5 pounds per year (i.e., 24,000 gallons × 0.396 lb VOC per 1,000 gallons).

Toxic Air Contaminant Emissions

Dispensing gasoline products has the potential to introduce air toxics (primarily benzene emissions) into the local environment. The SCAQMD regulates these air toxics emissions through a permitting process (and its corresponding Health Risk Assessment) that applies to all gasoline dispensing stations within the Basin. As part of its permitting process, SCAQMD performs an analysis of potential cancer risk associated with anticipated benzene emissions from individual gasoline dispensing pumps.

The SCAQMD has established thresholds of significance that account for site-specific factors such as gasoline throughput and the locations of nearby receptors. If the analysis indicates that the cancer risk at a nearby receptor location (i.e., an area where persons reside, work, or attend school—not including streets or sidewalks) is less than one case per million persons, the risk is considered less than significant and no mitigation is required. If the analysis results indicate that the lifetime cancer risk is between 1 and 10 cases per million, the impact is considered less than significant with the application of Toxics Best Available Control Technology (TBACT). Under existing SCAQMD

regulations, a permit cannot be issued for a gasoline-dispensing pump with an identified cancer risk between 1 and 10 unless TBACT is made a part of the project. CARB must certify all vapor recovery equipment that is used at gasoline-dispensing pumps, which would satisfy the TBACT requirement. If the analysis indicates that the cancer risk is greater than 10 cases per million, the impact is considered significant and SCAQMD would further constrain the gasoline dispensing service station's operations to stay below a cancer risk of 10 cases per million.

SCAQMD staff has indicated on previous gas station projects that only a very high throughput service station in close proximity to a school or other sensitive receptor would be likely to exceed the 10 cases per million threshold. At present, SCAQMD staff runs individual cancer risk assessments on all new service stations or projects where a school is within 1,000 feet of the project site and there is an increase in emissions. There is a school located approximately 675 feet of the project. The nearest sensitive receptor to the project site is a residential area approximately 675 feet to the west and 700 feet to the south. Compliance with existing SCAQMD rules and regulations would ensure potential impacts associated with air toxics would be less than significant.

As indicated in Table M, project operational emissions of criteria pollutants would be below SCAQMD significance thresholds; thus, they are not likely to have a significant impact on these residences given the distance and the dispersion that would occur. Exposure by individuals pumping gasoline would be limited in time, so the dose level for employees would be low. In addition, SCAQMD Rule 461 requires the installation of enhanced vapor recovery systems. This would further limit doses and exposures, reducing potential health risks related to gasoline vapors to a less than significant level. Overall, project impacts related to exposure of sensitive receptors to stationary source emissions would be considered less than significant.

Odors

CEQA and the SCAQMD Guide consider objectionable odors as a potentially significant environmental impact. SCAQMD Rule 402 prohibits the discharge of air contaminants that could be a nuisance or an annoyance. This prohibition includes potential odors. Potential sources of odors associated with the project include the release of gasoline vapors. Such odors in general would be confined mainly to the project site, and would readily dissipate. In accordance with SCAQMD Rule 461, enhanced vapor recovery systems on gasoline dispensing pumps would be required. Project impacts related to odors are considered less than significant.

GREENHOUSE GAS EMISSIONS

This section evaluates potentially significant impacts to GCC that could result from implementation of the proposed project. Because it is not possible to tie specific GHG emissions to actual changes in climate, this evaluation focuses on the project's emission of GHGs. Mitigation measures are identified as appropriate.

Greenhouse Gas Emissions Background

Emission estimates for the proposed project are discussed below. GHG emission estimates are provided herein for informational purposes only, as there is no established quantified GHG emission threshold. Bearing in mind that CEQA does not require "perfection", but instead "adequacy,

completeness, and a good faith effort at full disclosure", the analysis below is based on methodologies and information available to the City and the applicant at the time this analysis was prepared. Estimation of GHG emissions in the future does not account for all changes in technology that may reduce such emissions; therefore, the estimates are based on past performance and represent a scenario that is worse than what is likely to be encountered (after energy-efficient technologies have been implemented).

Although information is presented below to assist the public and decision-makers in understanding the project's potential contribution to GCC impacts, the information available to the City is not sufficiently detailed to allow a direct comparison between particular project characteristics and particular climate change impacts, nor between any particular proposed mitigation measure and any reduction in climate change impacts.

Project construction and operation would generate GHG emissions, with the majority of energy consumption (and associated generation of GHG emissions) occurring during the project's operation (as opposed to during its construction). Typically, more than 80 percent of the total energy consumption takes place during the use of buildings and less than 20 percent of energy is consumed during construction (United Nations Environment Programme 2007).

Table N lists the annual CO_2e emissions for each of the planned construction phases based on the results from CalEEMod. Per SCAQMD guidance (SCAQMD 2008b), due to the long-term nature of the GHGs in the atmosphere, instead of determining significance of construction emissions alone, the total construction emissions are amortized over 30 years (an estimate of the life of the proposed project), added to the operational emissions, and compared to the applicable GHG significance threshold.

Table N: Construction Greenhouse Gas Emissions

Construction Phase		Total Regional Pollutant Emissions (MT/yr)			
		CO_2	CH_4	N_2O	CO_2e
2019	Demolition	38	<1	0	38
	Site Preparation	5	<1	0	5
	Grading and Excavation	40	<1	0	40
	Building Construction	343	<1	0	344
	Paving	9	<1	0	9
	Architectural Coating	<1	<1	0	<1
2020	Architectural Coating	1	<1	0	1
Total Construction Emissions		**438**	**<1**	**0**	**440**
Amortized over 30 years		**15**	**<1**	**0**	**15**

Source: Compiled by LSA (July 2018).
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
MT/yr = metric tons per year
N_2O = nitrous oxide

Long-term operation of the proposed project would generate GHG emissions from area and mobile sources and indirect emissions from stationary sources associated with energy consumption. Mobile-source emissions of GHGs would include project-generated vehicle trips. Area-source

emissions would be associated with activities including landscaping and maintenance of the proposed project, natural gas for heating, and other sources. Increases in stationary-source emissions would also occur at off-site utility providers as a result of demand for electricity, natural gas, and water by the proposed project.

The GHG emission estimates presented in Table O shows the emissions associated with the level of development envisioned by the proposed project at opening. Appendix A includes the worksheets for the GHG emissions. As shown in Table O, the project would result in GHG emissions of 1,300 MT CO_2e/yr.

Table O: Operational Greenhouse Gas Emissions

Source	Pollutant Emissions, MT/year					
	Bio- CO_2	**NBio- CO_2**	**Total CO_2**	**CH_4**	**N_2O**	**CO_2e**
Construction emissions amortized over 30 years	0	15	15	<1	0	15
Operational Emissions						
Area Sources	0	<1	<1	<1	0	<1
Energy Sources	0	295	295	<1	<1	295
Mobile Sources	0	903	903	<1	0	904
Waste Sources	5	0	5	<1	0	13
Water Usage	2	67	68	<1	<1	73
Total Project Emissions	**7**	**1,279**	**1,285**	**0**	**0**	**1,300**
					SCAQMD Threshold	**3,500**
					Would Emissions Exceed Threshold?	**No**

Source: Compiled by LSA (July 2018).
Note: Numbers in table may not appear to add up correctly due to rounding of all numbers.
Bio-CO_2 = biologically generated CO_2 MT/yr = metric tons per year
CH_4 = methane N_2O = nitrous oxide
CO_2 = carbon dioxide NBio-CO_2 = Non-biologically generated CO_2
CO_2e = carbon dioxide equivalent SCAQMD = South Coast Air Quality Management District

Area Sources

Area sources of GHG emissions include consumer products and landscaping. The project would result in a very minor GHG emission from area sources (less than 1 MT CO_2e/year).

Energy Sources

Buildings represent 39 percent of the United States' primary energy usage and 70 percent of its electricity consumption (United States Energy Information Administration 2018). The proposed project would increase the demand for electricity and natural gas due to the on-site building area. The project would indirectly result in GHG emissions from off-site electricity generation at power plants and on-site natural gas consumption (295 MT CO_2e/year).

Mobile Sources

Mobile sources (vehicle trips and associated VMT) are the largest source of GHG emissions in California and represent approximately 39 percent of annual CO_2 emissions generated in the State. Like most land use development projects, VMT is the most direct indicator of CO_2 emissions from

the proposed project, and associated CO_2 emissions function as the best indicator of total GHG emissions. Emissions from vehicle exhaust would comprise 70 percent of the project's total CO_2e emissions. The project would directly result in GHG emissions from mobile sources (904 MT CO_2e/year). Emissions from vehicle exhaust are controlled by the State and federal governments and are outside the City's control.

Waste Sources

The proposed project would also generate solid waste during the operation phase of the project. Default solid waste generation rates in CalEEMod were used to estimate solid waste emissions related to the project. The project would indirectly result in GHG emissions from solid waste treatment at treatment plants (13 MT CO_2e).

Water Usage

Water-related energy use consumes 19 percent of California's electricity every year (CEC 2006). Energy use and related GHG emissions are based on electricity used for water supply and conveyance, water treatment, water distribution, and wastewater treatment. The project would result in increased GHG emissions from off-site electricity generation at power plants and on-site natural gas consumption (73 MT CO_2e/year).

Ozone Depleting Substances

At present, there is a federal ban on chlorofluorocarbons (CFCs); therefore, it is assumed the project would not generate emissions of CFCs. The project may emit a small amount of HFCs from leakage and service of refrigeration and air-conditioning equipment and from disposal at the end of the life of the equipment. However, the details regarding refrigerants to be used at the project site are unknown at this time. PFCs and SF_6 are typically used in industrial applications, neither of which would be used on the project site. Therefore, the project is not anticipated to contribute significant emissions of these additional GHGs.

Greenhouse Gas Analysis Summary

The proposed project would result in the generation of 1,300 MT CO_2e/year of GHG emissions. This emission level is less than the applicable SCAQMD GHG threshold of 3,500 MT CO_2e/year. Therefore, GHG emissions associated with the proposed project would be less than significant.

Long-Term Microscale (Carbon Monoxide Hot Spot) Analysis

Vehicular trips associated with the proposed project would contribute to congestion at intersections and along roadway segments in the project vicinity. Localized air quality impacts would occur when emissions from vehicular traffic increase as a result of the proposed project. The primary mobile-source pollutant of local concern is CO, a direct function of vehicle idling time and, thus, of traffic flow conditions. CO transport is extremely limited; under normal meteorological conditions, it disperses rapidly with distance from the source. However, under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthful levels, affecting local sensitive receptors (e.g., residents, schoolchildren, the elderly, and hospital patients). Typically, high CO concentrations are associated with roadways or intersections operating

at unacceptable levels of service or with extremely high traffic volumes. In areas with high ambient background CO concentrations, modeling is recommended to determine a project's effect on local CO levels.

An assessment of project-related impacts on localized ambient air quality requires that future ambient air quality levels be projected. Ambient CO levels monitored at the Anaheim Station showed a highest recorded 1-hour concentration of 3.1 ppm (the State standard is 20 ppm) and a highest 8-hour concentration of 2.2 ppm (the State standard is 9 ppm) during the past 3 years (Table E). The highest CO concentrations would normally occur during peak traffic hours; hence, CO impacts calculated under peak traffic conditions represent a worst-case analysis.

Reduced speeds and vehicular congestion at intersections results in increased CO emissions. As described in the *Trip Generation for Proposed Transit Security and Operations Center* prepared for the proposed project (LIN Consulting 2018), with the addition of the proposed project in the existing setting and all future scenarios, vehicle speeds and vehicular congestion at all intersections surrounding the project site would not substantially degrade with the project.

Therefore, the project could be implemented in an existing setting with no significant peak-hour intersection impacts. Given the extremely low level of CO concentrations in the project area and the lack of traffic impacts at any surrounding intersections, project-related vehicles are not expected to contribute significantly to CO concentrations exceeding the State or federal CO standards. Because no CO hot spot would occur, there would be no project-related impacts on CO concentrations.

AIR QUALITY MANAGEMENT PLAN CONSISTENCY

A consistency determination plays an essential role in local agency project review by linking local planning and unique individual projects to the air quality plans. A consistency determination fulfills the CEQA goal of fully informing local agency decisionmakers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are addressed. Only new or amended General Plan elements, Specific Plans, and significantly unique projects need to undergo a consistency review due to the air quality plan strategies being based on projections from local General Plans.

The AQMP is based on regional growth projections developed by SCAG. The proposed project is a Transit Security and Operations Center and is not defined as a regionally significant project under CEQA; therefore, it does not meet the SCAG's Intergovernmental Review criteria.

The proposed general commercial use of the site is consistent with the zoning designation for the project site and its surrounding area, which is consistent with the City's General Plan. The City's General Plan is consistent with the SCAG Regional Comprehensive Plan Guidelines and the SCAQMD AQMP. Pursuant to the methodology provided in Chapter 12 of the 1993 SCAQMD *CEQA Air Quality Handbook*, consistency with the Basin 2016 AQMP is affirmed when a project (1) does not increase the frequency or severity of an air quality standard violation or cause a new violation and (2) is consistent with the growth assumptions in the AQMP. Consistency review is presented below:

1. The project would result in short-term construction and long-term pollutant emissions that are less than the CEQA significance emission thresholds established by SCAQMD, as demonstrated above; therefore, the project would not result in an increase in the frequency or severity of any air quality standard violation and will not cause a new air quality standard violation.

2. The *CEQA Air Quality Handbook* indicates that consistency with AQMP growth assumptions must be analyzed for new or amended General Plan elements, Specific Plans, and significant projects. Significant projects include airports, electrical generating facilities, petroleum and gas refineries, designation of oil-drilling districts, water ports, solid waste disposal sites, and offshore drilling facilities; therefore, the proposed project is not defined as significant.

Based on the consistency analysis presented above, the proposed project is consistent with the City's General Plan and the regional AQMP.

STANDARD CONDITIONS

Construction

The project is required to comply with regional rules that assist in reducing short-term air pollutant emissions. SCAQMD Rule 403 requires that fugitive dust be controlled with best-available control measures so the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source (SCAQMD 2005a). In addition, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable dust suppression techniques from Rule 403 are summarized below. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus, the PM_{10} component). Compliance with these rules would reduce impacts on nearby sensitive receptors (SCAQMD 2005a). As shown in Table H of this report, implementation of Rule 403 measures results in dust emissions below SCAQMD thresholds.

The applicable Rule 403 measures are as follows:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for 10 days or more).

- Water active sites at least twice daily (locations where grading is to occur will be thoroughly watered prior to earthmoving).

- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 2 ft (0.6 meter [m]) of freeboard (vertical space between the top of the load and the top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114.

- Pave construction access roads at least 100 ft (30 m) onto the site from the main road.

- Reduce traffic speeds on all unpaved roads to 15 mph or less.

The applicable CalRecycle Sustainable (Green) Building Program Measures are:

- Recycle/reuse at least 60 percent of construction materials (including, but not limited to, soil, mulch, vegetation, concrete, lumber, metal, and cardboard).

- Use "green building materials" (e.g., those materials that are rapidly renewable or resource-efficient, and recycled and manufactured in an environmentally friendly way) for at least 10 percent of the project, as specified on the CalRecycle website.[1]

CUMULATIVE IMPACTS

The cumulative impacts analysis is based on projections in the regional AQMP. As described in the consistency analysis presented above, the proposed project is consistent with the growth assumptions in the City's General Plan, the 2016 RTP/SCS, and the regional AQMP. Further, the project does not increase the frequency or severity of an air quality standards violation or cause a new violation. Therefore, the proposed project would not result in a significant long-term cumulative impact.

[1] CalRecycle. Website: http://www.calrecycle.ca.gov (accessed July 2018).

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APPENDIX A

CALEEMOD PRINTOUTS

OCTA Transit Security and Operations Center

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	27.00	1000sqft	1.02	27,000.00	0
Parking Lot	176.00	Space	1.98	70,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2020
Utility Company	Anaheim Public Utilities				
CO2 Intensity (lb/MWhr)	1543.28	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project plans for general office building and parking lot on a 3 acre site.

Demolition -

Grading -

Vehicle Trips - Proportioned Peak Trip Rate from traffic study for weekdays and applied to Saturday and Sunday trip rates.

Architectural Coating - All architectural coatings assumed to comply with SCAQMD Rule 1113

Area Coating - All architectural coatings assumed to comply with SCAQMD Rule 1113

Construction Off-road Equipment Mitigation - Dust control measures as required by SCAQMD Rule 403.

Area Mitigation - All architectural coatings assumed to comply with SCAQMD Rule 1113.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Parking	100.00	50.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblGrading	MaterialExported	0.00	6,535.00
tblGrading	MaterialImported	0.00	1,935.00
tblLandUse	LotAcreage	0.62	1.02
tblLandUse	LotAcreage	1.58	1.98
tblVehicleTrips	ST_TR	2.46	7.60
tblVehicleTrips	SU_TR	1.05	3.24
tblVehicleTrips	WD_TR	11.03	34.07

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.3610	3.2461	2.4937	4.8500e-003	0.1211	0.1735	0.2946	0.0443	0.1628	0.2071	0.0000	436.2138	436.2138	0.0878	0.0000	438.4095
2020	0.0551	6.8200e-003	8.3200e-003	2.0000e-005	3.5000e-004	4.5000e-004	8.0000e-004	9.0000e-005	4.5000e-004	5.4000e-004	0.0000	1.3254	1.3254	9.0000e-005	0.0000	1.3275
Maximum	**0.3610**	**3.2461**	**2.4937**	**4.8500e-003**	**0.1211**	**0.1735**	**0.2946**	**0.0443**	**0.1628**	**0.2071**	**0.0000**	**436.2138**	**436.2138**	**0.0878**	**0.0000**	**438.4095**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.3610	3.2461	2.4937	4.8500e-003	0.0919	0.1735	0.2654	0.0301	0.1628	0.1929	0.0000	436.2134	436.2134	0.0878	0.0000	438.4091
2020	0.0551	6.8200e-003	8.3200e-003	2.0000e-005	3.5000e-004	4.5000e-004	8.0000e-004	9.0000e-005	4.5000e-004	5.4000e-004	0.0000	1.3254	1.3254	9.0000e-005	0.0000	1.3275
Maximum	**0.3610**	**3.2461**	**2.4937**	**4.8500e-003**	**0.0919**	**0.1735**	**0.2654**	**0.0301**	**0.1628**	**0.1929**	**0.0000**	**436.2134**	**436.2134**	**0.0878**	**0.0000**	**438.4091**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**24.02**	**0.00**	**9.87**	**32.13**	**0.00**	**6.87**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2019	3-31-2019	1.1312	1.1312
2	4-1-2019	6-30-2019	0.8312	0.8312
3	7-1-2019	9-30-2019	0.8403	0.8403
4	10-1-2019	12-31-2019	0.7727	0.7727
5	1-1-2020	3-31-2020	0.0553	0.0553
		Highest	1.1312	1.1312

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1159	2.0000e-005	2.6100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.0400e-003	5.0400e-003	1.0000e-005	0.0000	5.3800e-003
Energy	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004	0.0000	294.8362	294.8362	5.5500e-003	1.3400e-003	295.3731
Mobile	0.2033	0.9026	2.7433	9.8100e-003	0.8538	9.9300e-003	0.8637	0.2287	9.3100e-003	0.2380	0.0000	902.6696	902.6696	0.0388	0.0000	903.6407
Waste						0.0000	0.0000		0.0000	0.0000	5.0971	0.0000	5.0971	0.3012	0.0000	12.6279
Water						0.0000	0.0000		0.0000	0.0000	1.5224	66.6154	68.1378	0.1576	3.9500e-003	73.2558
Total	**0.3204**	**0.9147**	**2.7561**	**9.8800e-003**	**0.8538**	**0.0109**	**0.8647**	**0.2287**	**0.0102**	**0.2389**	**6.6195**	**1,264.1262**	**1,270.7458**	**0.5033**	**5.2900e-003**	**1,284.9028**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1159	2.0000e-005	2.6100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.0400e-003	5.0400e-003	1.0000e-005	0.0000	5.3800e-003
Energy	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004	0.0000	294.8362	294.8362	5.5500e-003	1.3400e-003	295.3731
Mobile	0.2033	0.9026	2.7433	9.8100e-003	0.8538	9.9300e-003	0.8637	0.2287	9.3100e-003	0.2380	0.0000	902.6696	902.6696	0.0388	0.0000	903.6407
Waste						0.0000	0.0000		0.0000	0.0000	5.0971	0.0000	5.0971	0.3012	0.0000	12.6279
Water						0.0000	0.0000		0.0000	0.0000	1.5224	66.6154	68.1378	0.1576	3.9500e-003	73.2558
Total	**0.3204**	**0.9147**	**2.7561**	**9.8800e-003**	**0.8538**	**0.0109**	**0.8647**	**0.2287**	**0.0102**	**0.2389**	**6.6195**	**1,264.1262**	**1,270.7458**	**0.5033**	**5.2900e-003**	**1,284.9028**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/28/2019	5	20	
2	Site Preparation	Site Preparation	1/29/2019	1/31/2019	5	3	
3	Grading	Grading	2/1/2019	2/8/2019	5	6	
4	Building Construction	Building Construction	2/9/2019	12/13/2019	5	220	
5	Paving	Paving	12/14/2019	12/27/2019	5	10	
6	Architectural Coating	Architectural Coating	12/28/2019	1/10/2020	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3

Acres of Paving: 1.98

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 40,500; Non-Residential Outdoor: 13,500; Striped Parking Area: 4,224 (Architectural Coating – sqft)

OffRoad Equipment

OCTA Transit Security and Operations Center - Orange County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	53.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	817.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	38.00	16.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.7800e-003	0.0000	5.7800e-003	8.7000e-004	0.0000	8.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0351	0.3578	0.2206	3.9000e-004		0.0180	0.0180		0.0167	0.0167	0.0000	34.6263	34.6263	9.6300e-003	0.0000	34.8672
Total	**0.0351**	**0.3578**	**0.2206**	**3.9000e-004**	**5.7800e-003**	**0.0180**	**0.0237**	**8.7000e-004**	**0.0167**	**0.0176**	**0.0000**	**34.6263**	**34.6263**	**9.6300e-003**	**0.0000**	**34.8672**

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2000e-004	8.1100e-003	1.9300e-003	2.0000e-005	4.5000e-004	3.0000e-005	4.8000e-004	1.2000e-004	3.0000e-005	1.5000e-004	0.0000	2.0608	2.0608	2.2000e-004	0.0000	2.0662
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.3000e-004	4.6000e-004	5.0700e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4724	1.4724	4.0000e-005	0.0000	1.4733
Total	**8.5000e-004**	**8.5700e-003**	**7.0000e-003**	**4.0000e-005**	**2.1000e-003**	**4.0000e-005**	**2.1400e-003**	**5.6000e-004**	**4.0000e-005**	**6.0000e-004**	**0.0000**	**3.5332**	**3.5332**	**2.6000e-004**	**0.0000**	**3.5396**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.6000e-003	0.0000	2.6000e-003	3.9000e-004	0.0000	3.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0351	0.3578	0.2206	3.9000e-004		0.0180	0.0180		0.0167	0.0167	0.0000	34.6263	34.6263	9.6300e-003	0.0000	34.8671
Total	**0.0351**	**0.3578**	**0.2206**	**3.9000e-004**	**2.6000e-003**	**0.0180**	**0.0206**	**3.9000e-004**	**0.0167**	**0.0171**	**0.0000**	**34.6263**	**34.6263**	**9.6300e-003**	**0.0000**	**34.8671**

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2000e-004	8.1100e-003	1.9300e-003	2.0000e-005	4.5000e-004	3.0000e-005	4.8000e-004	1.2000e-004	3.0000e-005	1.5000e-004	0.0000	2.0608	2.0608	2.2000e-004	0.0000	2.0662
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.3000e-004	4.6000e-004	5.0700e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4724	1.4724	4.0000e-005	0.0000	1.4733
Total	**8.5000e-004**	**8.5700e-003**	**7.0000e-003**	**4.0000e-005**	**2.1000e-003**	**4.0000e-005**	**2.1400e-003**	**5.6000e-004**	**4.0000e-005**	**6.0000e-004**	**0.0000**	**3.5332**	**3.5332**	**2.6000e-004**	**0.0000**	**3.5396**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0271	0.0000	0.0271	0.0149	0.0000	0.0149	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.5000e-003	0.0684	0.0331	6.0000e-005		3.5900e-003	3.5900e-003		3.3000e-003	3.3000e-003	0.0000	5.1253	5.1253	1.6200e-003	0.0000	5.1658
Total	**6.5000e-003**	**0.0684**	**0.0331**	**6.0000e-005**	**0.0271**	**3.5900e-003**	**0.0307**	**0.0149**	**3.3000e-003**	**0.0182**	**0.0000**	**5.1253**	**5.1253**	**1.6200e-003**	**0.0000**	**5.1658**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	8.0000e-005	9.1000e-004	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2650	0.2650	1.0000e-005	0.0000	0.2652
Total	**1.1000e-004**	**8.0000e-005**	**9.1000e-004**	**0.0000**	**3.0000e-004**	**0.0000**	**3.0000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2650**	**0.2650**	**1.0000e-005**	**0.0000**	**0.2652**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0122	0.0000	0.0122	6.7000e-003	0.0000	6.7000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.5000e-003	0.0684	0.0331	6.0000e-005		3.5900e-003	3.5900e-003		3.3000e-003	3.3000e-003	0.0000	5.1253	5.1253	1.6200e-003	0.0000	5.1658
Total	**6.5000e-003**	**0.0684**	**0.0331**	**6.0000e-005**	**0.0122**	**3.5900e-003**	**0.0158**	**6.7000e-003**	**3.3000e-003**	**0.0100**	**0.0000**	**5.1253**	**5.1253**	**1.6200e-003**	**0.0000**	**5.1658**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	8.0000e-005	9.1000e-004	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2650	0.2650	1.0000e-005	0.0000	0.2652
Total	**1.1000e-004**	**8.0000e-005**	**9.1000e-004**	**0.0000**	**3.0000e-004**	**0.0000**	**3.0000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2650**	**0.2650**	**1.0000e-005**	**0.0000**	**0.2652**

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0201	0.0000	0.0201	0.0102	0.0000	0.0102	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.7400e-003	0.0850	0.0489	9.0000e-005		4.1900e-003	4.1900e-003		3.8600e-003	3.8600e-003	0.0000	7.9927	7.9927	2.5300e-003	0.0000	8.0559
Total	**7.7400e-003**	**0.0850**	**0.0489**	**9.0000e-005**	**0.0201**	**4.1900e-003**	**0.0243**	**0.0102**	**3.8600e-003**	**0.0140**	**0.0000**	**7.9927**	**7.9927**	**2.5300e-003**	**0.0000**	**8.0559**

3.4 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.4300e-003	0.1251	0.0298	3.1000e-004	7.0000e-003	4.7000e-004	7.4700e-003	1.9200e-003	4.5000e-004	2.3700e-003	0.0000	31.7667	31.7667	3.3700e-003	0.0000	31.8511
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	1.4000e-004	1.5200e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4417	0.4417	1.0000e-005	0.0000	0.4420
Total	**3.6200e-003**	**0.1252**	**0.0313**	**3.1000e-004**	**7.4900e-003**	**4.7000e-004**	**7.9700e-003**	**2.0500e-003**	**4.5000e-004**	**2.5000e-003**	**0.0000**	**32.2084**	**32.2084**	**3.3800e-003**	**0.0000**	**32.2931**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.0600e-003	0.0000	9.0600e-003	4.5800e-003	0.0000	4.5800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.7400e-003	0.0850	0.0489	9.0000e-005		4.1900e-003	4.1900e-003		3.8600e-003	3.8600e-003	0.0000	7.9927	7.9927	2.5300e-003	0.0000	8.0559
Total	**7.7400e-003**	**0.0850**	**0.0489**	**9.0000e-005**	**9.0600e-003**	**4.1900e-003**	**0.0133**	**4.5800e-003**	**3.8600e-003**	**8.4400e-003**	**0.0000**	**7.9927**	**7.9927**	**2.5300e-003**	**0.0000**	**8.0559**

3.4 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.4300e-003	0.1251	0.0298	3.1000e-004	7.0000e-003	4.7000e-004	7.4700e-003	1.9200e-003	4.5000e-004	2.3700e-003	0.0000	31.7667	31.7667	3.3700e-003	0.0000	31.8511
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	1.4000e-004	1.5200e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4417	0.4417	1.0000e-005	0.0000	0.4420
Total	**3.6200e-003**	**0.1252**	**0.0313**	**3.1000e-004**	**7.4900e-003**	**4.7000e-004**	**7.9700e-003**	**2.0500e-003**	**4.5000e-004**	**2.5000e-003**	**0.0000**	**32.2084**	**32.2084**	**3.3800e-003**	**0.0000**	**32.2931**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2597	2.3187	1.8880	2.9600e-003		0.1419	0.1419		0.1334	0.1334	0.0000	258.6146	258.6146	0.0630	0.0000	260.1896
Total	**0.2597**	**2.3187**	**1.8880**	**2.9600e-003**		**0.1419**	**0.1419**		**0.1334**	**0.1334**	**0.0000**	**258.6146**	**258.6146**	**0.0630**	**0.0000**	**260.1896**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.7200e-003	0.2037	0.0554	4.4000e-004	0.0111	1.3600e-003	0.0124	3.2000e-003	1.3000e-003	4.5000e-003	0.0000	43.1399	43.1399	3.7700e-003	0.0000	43.2341
Worker	0.0175	0.0127	0.1414	4.5000e-004	0.0459	3.1000e-004	0.0462	0.0122	2.9000e-004	0.0125	0.0000	41.0317	41.0317	1.0100e-003	0.0000	41.0569
Total	**0.0242**	**0.2164**	**0.1968**	**8.9000e-004**	**0.0570**	**1.6700e-003**	**0.0586**	**0.0154**	**1.5900e-003**	**0.0170**	**0.0000**	**84.1716**	**84.1716**	**4.7800e-003**	**0.0000**	**84.2910**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2597	2.3187	1.8880	2.9600e-003		0.1419	0.1419		0.1334	0.1334	0.0000	258.6143	258.6143	0.0630	0.0000	260.1893
Total	**0.2597**	**2.3187**	**1.8880**	**2.9600e-003**		**0.1419**	**0.1419**		**0.1334**	**0.1334**	**0.0000**	**258.6143**	**258.6143**	**0.0630**	**0.0000**	**260.1893**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.7200e-003	0.2037	0.0554	4.4000e-004	0.0111	1.3600e-003	0.0124	3.2000e-003	1.3000e-003	4.5000e-003	0.0000	43.1399	43.1399	3.7700e-003	0.0000	43.2341
Worker	0.0175	0.0127	0.1414	4.5000e-004	0.0459	3.1000e-004	0.0462	0.0122	2.9000e-004	0.0125	0.0000	41.0317	41.0317	1.0100e-003	0.0000	41.0569
Total	**0.0242**	**0.2164**	**0.1968**	**8.9000e-004**	**0.0570**	**1.6700e-003**	**0.0586**	**0.0154**	**1.5900e-003**	**0.0170**	**0.0000**	**84.1716**	**84.1716**	**4.7800e-003**	**0.0000**	**84.2910**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.3400e-003	0.0638	0.0616	9.0000e-005		3.6000e-003	3.6000e-003		3.3200e-003	3.3200e-003	0.0000	8.3612	8.3612	2.5700e-003	0.0000	8.4255
Paving	2.5900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.9300e-003**	**0.0638**	**0.0616**	**9.0000e-005**		**3.6000e-003**	**3.6000e-003**		**3.3200e-003**	**3.3200e-003**	**0.0000**	**8.3612**	**8.3612**	**2.5700e-003**	**0.0000**	**8.4255**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.0000e-004	3.3800e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9816	0.9816	2.0000e-005	0.0000	0.9822
Total	**4.2000e-004**	**3.0000e-004**	**3.3800e-003**	**1.0000e-005**	**1.1000e-003**	**1.0000e-005**	**1.1100e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.9816**	**0.9816**	**2.0000e-005**	**0.0000**	**0.9822**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.3400e-003	0.0638	0.0616	9.0000e-005		3.6000e-003	3.6000e-003		3.3200e-003	3.3200e-003	0.0000	8.3611	8.3611	2.5700e-003	0.0000	8.4255
Paving	2.5900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.9300e-003**	**0.0638**	**0.0616**	**9.0000e-005**		**3.6000e-003**	**3.6000e-003**		**3.3200e-003**	**3.3200e-003**	**0.0000**	**8.3611**	**8.3611**	**2.5700e-003**	**0.0000**	**8.4255**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.0000e-004	3.3800e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9816	0.9816	2.0000e-005	0.0000	0.9822
Total	**4.2000e-004**	**3.0000e-004**	**3.3800e-003**	**1.0000e-005**	**1.1000e-003**	**1.0000e-005**	**1.1100e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.9816**	**0.9816**	**2.0000e-005**	**0.0000**	**0.9822**

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0135					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7000e-004	1.8400e-003	1.8400e-003	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	0.2553	0.2553	2.0000e-005	0.0000	0.2559
Total	**0.0138**	**1.8400e-003**	**1.8400e-003**	**0.0000**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**	**0.0000**	**0.2553**	**0.2553**	**2.0000e-005**	**0.0000**	**0.2559**

3.7 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.7000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0785	0.0785	0.0000	0.0000	0.0786
Total	**3.0000e-005**	**2.0000e-005**	**2.7000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0785**	**0.0785**	**0.0000**	**0.0000**	**0.0786**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0135					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7000e-004	1.8400e-003	1.8400e-003	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	0.2553	0.2553	2.0000e-005	0.0000	0.2559
Total	**0.0138**	**1.8400e-003**	**1.8400e-003**	**0.0000**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**	**0.0000**	**0.2553**	**0.2553**	**2.0000e-005**	**0.0000**	**0.2559**

3.7 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.7000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0785	0.0785	0.0000	0.0000	0.0786
Total	**3.0000e-005**	**2.0000e-005**	**2.7000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0785**	**0.0785**	**0.0000**	**0.0000**	**0.0786**

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0540					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.7000e-004	6.7400e-003	7.3300e-003	1.0000e-005		4.4000e-004	4.4000e-004		4.4000e-004	4.4000e-004	0.0000	1.0213	1.0213	8.0000e-005	0.0000	1.0233
Total	**0.0549**	**6.7400e-003**	**7.3300e-003**	**1.0000e-005**		**4.4000e-004**	**4.4000e-004**		**4.4000e-004**	**4.4000e-004**	**0.0000**	**1.0213**	**1.0213**	**8.0000e-005**	**0.0000**	**1.0233**

3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	9.0000e-005	9.9000e-004	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3041	0.3041	1.0000e-005	0.0000	0.3042
Total	**1.2000e-004**	**9.0000e-005**	**9.9000e-004**	**0.0000**	**3.5000e-004**	**0.0000**	**3.5000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3041**	**0.3041**	**1.0000e-005**	**0.0000**	**0.3042**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0540					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.7000e-004	6.7400e-003	7.3300e-003	1.0000e-005		4.4000e-004	4.4000e-004		4.4000e-004	4.4000e-004	0.0000	1.0213	1.0213	8.0000e-005	0.0000	1.0233
Total	**0.0549**	**6.7400e-003**	**7.3300e-003**	**1.0000e-005**		**4.4000e-004**	**4.4000e-004**		**4.4000e-004**	**4.4000e-004**	**0.0000**	**1.0213**	**1.0213**	**8.0000e-005**	**0.0000**	**1.0233**

3.7 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	9.0000e-005	9.9000e-004	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.3041	0.3041	1.0000e-005	0.0000	0.3042
Total	**1.2000e-004**	**9.0000e-005**	**9.9000e-004**	**0.0000**	**3.5000e-004**	**0.0000**	**3.5000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3041**	**0.3041**	**1.0000e-005**	**0.0000**	**0.3042**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2033	0.9026	2.7433	9.8100e-003	0.8538	9.9300e-003	0.8637	0.2287	9.3100e-003	0.2380	0.0000	902.6696	902.6696	0.0388	0.0000	903.6407
Unmitigated	0.2033	0.9026	2.7433	9.8100e-003	0.8538	9.9300e-003	0.8637	0.2287	9.3100e-003	0.2380	0.0000	902.6696	902.6696	0.0388	0.0000	903.6407

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	919.89	205.20	87.48	2,251,401	2,251,401
Parking Lot	0.00	0.00	0.00		
Total	919.89	205.20	87.48	2,251,401	2,251,401

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002
Parking Lot	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	281.6671	281.6671	5.2900e-003	1.1000e-003	282.1257
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	281.6671	281.6671	5.2900e-003	1.1000e-003	282.1257
NaturalGas Mitigated	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004	0.0000	13.1691	13.1691	2.5000e-004	2.4000e-004	13.2474
NaturalGas Unmitigated	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004	0.0000	13.1691	13.1691	2.5000e-004	2.4000e-004	13.2474

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	246780	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004	0.0000	13.1691	13.1691	2.5000e-004	2.4000e-004	13.2474
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.3300e-003**	**0.0121**	**0.0102**	**7.0000e-005**		**9.2000e-004**	**9.2000e-004**		**9.2000e-004**	**9.2000e-004**	**0.0000**	**13.1691**	**13.1691**	**2.5000e-004**	**2.4000e-004**	**13.2474**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	246780	1.3300e-003	0.0121	0.0102	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004	0.0000	13.1691	13.1691	2.5000e-004	2.4000e-004	13.2474
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.3300e-003**	**0.0121**	**0.0102**	**7.0000e-005**		**9.2000e-004**	**9.2000e-004**		**9.2000e-004**	**9.2000e-004**	**0.0000**	**13.1691**	**13.1691**	**2.5000e-004**	**2.4000e-004**	**13.2474**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	377730	264.4186	4.9700e-003	1.0300e-003	264.8491
Parking Lot	24640	17.2485	3.2000e-004	7.0000e-005	17.2766
Total		**281.6671**	**5.2900e-003**	**1.1000e-003**	**282.1257**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	377730	264.4186	4.9700e-003	1.0300e-003	264.8491
Parking Lot	24640	17.2485	3.2000e-004	7.0000e-005	17.2766
Total		**281.6671**	**5.2900e-003**	**1.1000e-003**	**282.1257**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1159	2.0000e-005	2.6100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.0400e-003	5.0400e-003	1.0000e-005	0.0000	5.3800e-003
Unmitigated	0.1159	2.0000e-005	2.6100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.0400e-003	5.0400e-003	1.0000e-005	0.0000	5.3800e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0135					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1021					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.5000e-004	2.0000e-005	2.6100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.0400e-003	5.0400e-003	1.0000e-005	0.0000	5.3800e-003
Total	**0.1159**	**2.0000e-005**	**2.6100e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**5.0400e-003**	**5.0400e-003**	**1.0000e-005**	**0.0000**	**5.3800e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0135					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1021					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.5000e-004	2.0000e-005	2.6100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	5.0400e-003	5.0400e-003	1.0000e-005	0.0000	5.3800e-003
Total	**0.1159**	**2.0000e-005**	**2.6100e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**5.0400e-003**	**5.0400e-003**	**1.0000e-005**	**0.0000**	**5.3800e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	68.1378	0.1576	3.9500e-003	73.2558
Unmitigated	68.1378	0.1576	3.9500e-003	73.2558

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	4.79881 / 2.94121	68.1378	0.1576	3.9500e-003	73.2558
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**68.1378**	**0.1576**	**3.9500e-003**	**73.2558**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	4.79881 / 2.94121	68.1378	0.1576	3.9500e-003	73.2558
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**68.1378**	**0.1576**	**3.9500e-003**	**73.2558**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.0971	0.3012	0.0000	12.6279
Unmitigated	5.0971	0.3012	0.0000	12.6279

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	25.11	5.0971	0.3012	0.0000	12.6279
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**5.0971**	**0.3012**	**0.0000**	**12.6279**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	25.11	5.0971	0.3012	0.0000	12.6279
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**5.0971**	**0.3012**	**0.0000**	**12.6279**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

OCTA Transit Security and Operations Center

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	27.00	1000sqft	1.02	27,000.00	0
Parking Lot	176.00	Space	1.98	70,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2020
Utility Company	Anaheim Public Utilities				
CO2 Intensity (lb/MWhr)	1543.28	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project plans for general office building and parking lot on a 3 acre site.

Demolition -

Grading -

Vehicle Trips - Proportioned Peak Trip Rate from traffic study for weekdays and applied to Saturday and Sunday trip rates.

Architectural Coating - All architectural coatings assumed to comply with SCAQMD Rule 1113

Area Coating - All architectural coatings assumed to comply with SCAQMD Rule 1113

Construction Off-road Equipment Mitigation - Dust control measures as required by SCAQMD Rule 403.

Area Mitigation - All architectural coatings assumed to comply with SCAQMD Rule 1113.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Parking	100.00	50.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblGrading	MaterialExported	0.00	6,535.00
tblGrading	MaterialImported	0.00	1,935.00
tblLandUse	LotAcreage	0.62	1.02
tblLandUse	LotAcreage	1.58	1.98
tblVehicleTrips	ST_TR	2.46	7.60
tblVehicleTrips	SU_TR	1.05	3.24
tblVehicleTrips	WD_TR	11.03	34.07

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	13.7928	68.7504	26.5046	0.1370	18.2675	2.3917	20.6592	9.9840	2.2004	12.1844	0.0000	14,851.0917	14,851.0917	2.1595	0.0000	14,905.0783
2020	13.7663	1.7032	2.0933	3.8400e-003	0.0894	0.1115	0.2010	0.0237	0.1115	0.1352	0.0000	368.6515	368.6515	0.0238	0.0000	369.2460
Maximum	**13.7928**	**68.7504**	**26.5046**	**0.1370**	**18.2675**	**2.3917**	**20.6592**	**9.9840**	**2.2004**	**12.1844**	**0.0000**	**14,851.0917**	**14,851.0917**	**2.1595**	**0.0000**	**14,905.0783**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	13.7928	68.7504	26.5046	0.1370	8.3310	2.3917	10.7227	4.5222	2.2004	6.7225	0.0000	14,851.0917	14,851.0917	2.1595	0.0000	14,905.0783
2020	13.7663	1.7032	2.0933	3.8400e-003	0.0894	0.1115	0.2010	0.0237	0.1115	0.1352	0.0000	368.6515	368.6515	0.0238	0.0000	369.2460
Maximum	**13.7928**	**68.7504**	**26.5046**	**0.1370**	**8.3310**	**2.3917**	**10.7227**	**4.5222**	**2.2004**	**6.7225**	**0.0000**	**14,851.0917**	**14,851.0917**	**2.1595**	**0.0000**	**14,905.0783**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**54.13**	**0.00**	**47.63**	**54.58**	**0.00**	**44.33**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6354	1.9000e-004	0.0209	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0444	0.0444	1.2000e-004		0.0474
Energy	7.2900e-003	0.0663	0.0557	4.0000e-004		5.0400e-003	5.0400e-003		5.0400e-003	5.0400e-003		79.5423	79.5423	1.5200e-003	1.4600e-003	80.0150
Mobile	1.5365	6.2217	20.4398	0.0734	6.2855	0.0717	6.3572	1.6808	0.0673	1.7481		7,441.4581	7,441.4581	0.3118		7,449.2520
Total	**2.1792**	**6.2881**	**20.5164**	**0.0738**	**6.2855**	**0.0769**	**6.3623**	**1.6808**	**0.0724**	**1.7532**		**7,521.0448**	**7,521.0448**	**0.3134**	**1.4600e-003**	**7,529.3144**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6354	1.9000e-004	0.0209	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0444	0.0444	1.2000e-004		0.0474
Energy	7.2900e-003	0.0663	0.0557	4.0000e-004		5.0400e-003	5.0400e-003		5.0400e-003	5.0400e-003		79.5423	79.5423	1.5200e-003	1.4600e-003	80.0150
Mobile	1.5365	6.2217	20.4398	0.0734	6.2855	0.0717	6.3572	1.6808	0.0673	1.7481		7,441.4581	7,441.4581	0.3118		7,449.2520
Total	**2.1792**	**6.2881**	**20.5164**	**0.0738**	**6.2855**	**0.0769**	**6.3623**	**1.6808**	**0.0724**	**1.7532**		**7,521.0448**	**7,521.0448**	**0.3134**	**1.4600e-003**	**7,529.3144**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/28/2019	5	20	
2	Site Preparation	Site Preparation	1/29/2019	1/31/2019	5	3	
3	Grading	Grading	2/1/2019	2/8/2019	5	6	
4	Building Construction	Building Construction	2/9/2019	12/13/2019	5	220	
5	Paving	Paving	12/14/2019	12/27/2019	5	10	
6	Architectural Coating	Architectural Coating	12/28/2019	1/10/2020	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3

Acres of Paving: 1.98

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 40,500; Non-Residential Outdoor: 13,500; Striped Parking Area: 4,224 (Architectural Coating – sqft)

OffRoad Equipment

OCTA Transit Security and Operations Center - Orange County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	53.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	817.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	38.00	16.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5778	0.0000	0.5778	0.0875	0.0000	0.0875			0.0000			0.0000
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697		3,816.8994	3,816.8994	1.0618		3,843.4451
Total	**3.5134**	**35.7830**	**22.0600**	**0.0388**	**0.5778**	**1.7949**	**2.3727**	**0.0875**	**1.6697**	**1.7572**		**3,816.8994**	**3,816.8994**	**1.0618**		**3,843.4451**

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0220	0.7855	0.1883	2.0600e-003	0.0461	3.0200e-003	0.0492	0.0126	2.8900e-003	0.0155		228.5818	228.5818	0.0239		229.1783
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0618	0.0405	0.5351	1.6900e-003	0.1677	1.1200e-003	0.1688	0.0445	1.0300e-003	0.0455		168.9210	168.9210	4.1500e-003		169.0249
Total	**0.0839**	**0.8260**	**0.7234**	**3.7500e-003**	**0.2138**	**4.1400e-003**	**0.2179**	**0.0571**	**3.9200e-003**	**0.0610**		**397.5028**	**397.5028**	**0.0280**		**398.2032**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2600	0.0000	0.2600	0.0394	0.0000	0.0394			0.0000			0.0000
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697	0.0000	3,816.8994	3,816.8994	1.0618		3,843.4451
Total	**3.5134**	**35.7830**	**22.0600**	**0.0388**	**0.2600**	**1.7949**	**2.0549**	**0.0394**	**1.6697**	**1.7090**	**0.0000**	**3,816.8994**	**3,816.8994**	**1.0618**		**3,843.4451**

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0220	0.7855	0.1883	2.0600e-003	0.0461	3.0200e-003	0.0492	0.0126	2.8900e-003	0.0155		228.5818	228.5818	0.0239		229.1783
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0618	0.0405	0.5351	1.6900e-003	0.1677	1.1200e-003	0.1688	0.0445	1.0300e-003	0.0455		168.9210	168.9210	4.1500e-003		169.0249
Total	**0.0839**	**0.8260**	**0.7234**	**3.7500e-003**	**0.2138**	**4.1400e-003**	**0.2179**	**0.0571**	**3.9200e-003**	**0.0610**		**397.5028**	**397.5028**	**0.0280**		**398.2032**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.0663**	**2.3904**	**20.4566**	**9.9307**	**2.1991**	**12.1298**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0742	0.0486	0.6421	2.0300e-003	0.2012	1.3400e-003	0.2025	0.0534	1.2400e-003	0.0546		202.7053	202.7053	4.9800e-003		202.8298
Total	**0.0742**	**0.0486**	**0.6421**	**2.0300e-003**	**0.2012**	**1.3400e-003**	**0.2025**	**0.0534**	**1.2400e-003**	**0.0546**		**202.7053**	**202.7053**	**4.9800e-003**		**202.8298**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**8.1298**	**2.3904**	**10.5202**	**4.4688**	**2.1991**	**6.6679**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0742	0.0486	0.6421	2.0300e-003	0.2012	1.3400e-003	0.2025	0.0534	1.2400e-003	0.0546		202.7053	202.7053	4.9800e-003		202.8298
Total	**0.0742**	**0.0486**	**0.6421**	**2.0300e-003**	**0.2012**	**1.3400e-003**	**0.2025**	**0.0534**	**1.2400e-003**	**0.0546**		**202.7053**	**202.7053**	**4.9800e-003**		**202.8298**

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.7120	0.0000	6.7120	3.3917	0.0000	3.3917			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856		2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.7120**	**1.3974**	**8.1093**	**3.3917**	**1.2856**	**4.6772**		**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

3.4 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.1319	40.3619	9.6761	0.1057	2.3711	0.1550	2.5261	0.6491	0.1483	0.7974		11,745.3639	11,745.3639	1.2261		11,776.0173
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0618	0.0405	0.5351	1.6900e-003	0.1677	1.1200e-003	0.1688	0.0445	1.0300e-003	0.0455		168.9210	168.9210	4.1500e-003		169.0249
Total	**1.1937**	**40.4024**	**10.2112**	**0.1073**	**2.5387**	**0.1561**	**2.6948**	**0.6936**	**0.1493**	**0.8429**		**11,914.2849**	**11,914.2849**	**1.2303**		**11,945.0422**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0204	0.0000	3.0204	1.5263	0.0000	1.5263			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**3.0204**	**1.3974**	**4.4178**	**1.5263**	**1.2856**	**2.8118**	**0.0000**	**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

3.4 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.1319	40.3619	9.6761	0.1057	2.3711	0.1550	2.5261	0.6491	0.1483	0.7974		11,745.3639	11,745.3639	1.2261		11,776.0173
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0618	0.0405	0.5351	1.6900e-003	0.1677	1.1200e-003	0.1688	0.0445	1.0300e-003	0.0455		168.9210	168.9210	4.1500e-003		169.0249
Total	**1.1937**	**40.4024**	**10.2112**	**0.1073**	**2.5387**	**0.1561**	**2.6948**	**0.6936**	**0.1493**	**0.8429**		**11,914.2849**	**11,914.2849**	**1.2303**		**11,945.0422**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0600	1.8157	0.4800	4.0200e-003	0.1022	0.0123	0.1145	0.0294	0.0117	0.0412		436.7502	436.7502	0.0369		437.6720
Worker	0.1566	0.1027	1.3556	4.2900e-003	0.4248	2.8400e-003	0.4276	0.1127	2.6100e-003	0.1153		427.9333	427.9333	0.0105		428.1963
Total	**0.2166**	**1.9184**	**1.8356**	**8.3100e-003**	**0.5270**	**0.0151**	**0.5421**	**0.1421**	**0.0143**	**0.1564**		**864.6835**	**864.6835**	**0.0474**		**865.8683**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0600	1.8157	0.4800	4.0200e-003	0.1022	0.0123	0.1145	0.0294	0.0117	0.0412		436.7502	436.7502	0.0369		437.6720
Worker	0.1566	0.1027	1.3556	4.2900e-003	0.4248	2.8400e-003	0.4276	0.1127	2.6100e-003	0.1153		427.9333	427.9333	0.0105		428.1963
Total	**0.2166**	**1.9184**	**1.8356**	**8.3100e-003**	**0.5270**	**0.0151**	**0.5421**	**0.1421**	**0.0143**	**0.1564**		**864.6835**	**864.6835**	**0.0474**		**865.8683**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2679	12.7604	12.3130	0.0189		0.7196	0.7196		0.6637	0.6637		1,843.3191	1,843.3191	0.5671		1,857.4966
Paving	0.5188					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7867**	**12.7604**	**12.3130**	**0.0189**		**0.7196**	**0.7196**		**0.6637**	**0.6637**		**1,843.3191**	**1,843.3191**	**0.5671**		**1,857.4966**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0824	0.0541	0.7135	2.2600e-003	0.2236	1.4900e-003	0.2251	0.0593	1.3800e-003	0.0607		225.2281	225.2281	5.5400e-003		225.3665
Total	**0.0824**	**0.0541**	**0.7135**	**2.2600e-003**	**0.2236**	**1.4900e-003**	**0.2251**	**0.0593**	**1.3800e-003**	**0.0607**		**225.2281**	**225.2281**	**5.5400e-003**		**225.3665**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2679	12.7604	12.3130	0.0189		0.7196	0.7196		0.6637	0.6637	0.0000	1,843.3191	1,843.3191	0.5671		1,857.4966
Paving	0.5188					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7867**	**12.7604**	**12.3130**	**0.0189**		**0.7196**	**0.7196**		**0.6637**	**0.6637**	**0.0000**	**1,843.3191**	**1,843.3191**	**0.5671**		**1,857.4966**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0824	0.0541	0.7135	2.2600e-003	0.2236	1.4900e-003	0.2251	0.0593	1.3800e-003	0.0607		225.2281	225.2281	5.5400e-003		225.3665
Total	**0.0824**	**0.0541**	**0.7135**	**2.2600e-003**	**0.2236**	**1.4900e-003**	**0.2251**	**0.0593**	**1.3800e-003**	**0.0607**		**225.2281**	**225.2281**	**5.5400e-003**		**225.3665**

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.4934					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	**13.7599**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**282.0423**

3.7 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0330	0.0216	0.2854	9.0000e-004	0.0894	6.0000e-004	0.0900	0.0237	5.5000e-004	0.0243		90.0912	90.0912	2.2100e-003		90.1466
Total	**0.0330**	**0.0216**	**0.2854**	**9.0000e-004**	**0.0894**	**6.0000e-004**	**0.0900**	**0.0237**	**5.5000e-004**	**0.0243**		**90.0912**	**90.0912**	**2.2100e-003**		**90.1466**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.4934					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	**13.7599**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**282.0423**

3.7 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0330	0.0216	0.2854	9.0000e-004	0.0894	6.0000e-004	0.0900	0.0237	5.5000e-004	0.0243		90.0912	90.0912	2.2100e-003		90.1466
Total	**0.0330**	**0.0216**	**0.2854**	**9.0000e-004**	**0.0894**	**6.0000e-004**	**0.0900**	**0.0237**	**5.5000e-004**	**0.0243**		**90.0912**	**90.0912**	**2.2100e-003**		**90.1466**

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.4934					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**13.7356**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0307	0.0194	0.2619	8.7000e-004	0.0894	5.9000e-004	0.0900	0.0237	5.4000e-004	0.0243		87.2035	87.2035	1.9900e-003		87.2532
Total	**0.0307**	**0.0194**	**0.2619**	**8.7000e-004**	**0.0894**	**5.9000e-004**	**0.0900**	**0.0237**	**5.4000e-004**	**0.0243**		**87.2035**	**87.2035**	**1.9900e-003**		**87.2532**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.4934					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**13.7356**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0307	0.0194	0.2619	8.7000e-004	0.0894	5.9000e-004	0.0900	0.0237	5.4000e-004	0.0243		87.2035	87.2035	1.9900e-003		87.2532
Total	**0.0307**	**0.0194**	**0.2619**	**8.7000e-004**	**0.0894**	**5.9000e-004**	**0.0900**	**0.0237**	**5.4000e-004**	**0.0243**		**87.2035**	**87.2035**	**1.9900e-003**		**87.2532**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.5365	6.2217	20.4398	0.0734	6.2855	0.0717	6.3572	1.6808	0.0673	1.7481		7,441.4581	7,441.4581	0.3118		7,449.2520
Unmitigated	1.5365	6.2217	20.4398	0.0734	6.2855	0.0717	6.3572	1.6808	0.0673	1.7481		7,441.4581	7,441.4581	0.3118		7,449.2520

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	919.89	205.20	87.48	2,251,401	2,251,401
Parking Lot	0.00	0.00	0.00		
Total	919.89	205.20	87.48	2,251,401	2,251,401

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002
Parking Lot	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	7.2900e-003	0.0663	0.0557	4.0000e-004		5.0400e-003	5.0400e-003		5.0400e-003	5.0400e-003		79.5423	79.5423	1.5200e-003	1.4600e-003	80.0150
NaturalGas Unmitigated	7.2900e-003	0.0663	0.0557	4.0000e-004		5.0400e-003	5.0400e-003		5.0400e-003	5.0400e-003		79.5423	79.5423	1.5200e-003	1.4600e-003	80.0150

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	676.11	7.2900e-003	0.0663	0.0557	4.0000e-004		5.0400e-003	5.0400e-003		5.0400e-003	5.0400e-003		79.5423	79.5423	1.5200e-003	1.4600e-003	80.0150
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**7.2900e-003**	**0.0663**	**0.0557**	**4.0000e-004**		**5.0400e-003**	**5.0400e-003**		**5.0400e-003**	**5.0400e-003**		**79.5423**	**79.5423**	**1.5200e-003**	**1.4600e-003**	**80.0150**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	0.67611	7.2900e-003	0.0663	0.0557	4.0000e-004		5.0400e-003	5.0400e-003		5.0400e-003	5.0400e-003		79.5423	79.5423	1.5200e-003	1.4600e-003	80.0150
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**7.2900e-003**	**0.0663**	**0.0557**	**4.0000e-004**		**5.0400e-003**	**5.0400e-003**		**5.0400e-003**	**5.0400e-003**		**79.5423**	**79.5423**	**1.5200e-003**	**1.4600e-003**	**80.0150**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6354	1.9000e-004	0.0209	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0444	0.0444	1.2000e-004		0.0474
Unmitigated	0.6354	1.9000e-004	0.0209	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0444	0.0444	1.2000e-004		0.0474

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0739					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5595					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.9600e-003	1.9000e-004	0.0209	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0444	0.0444	1.2000e-004		0.0474
Total	**0.6354**	**1.9000e-004**	**0.0209**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**		**0.0444**	**0.0444**	**1.2000e-004**		**0.0474**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0739					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5595					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.9600e-003	1.9000e-004	0.0209	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0444	0.0444	1.2000e-004		0.0474
Total	**0.6354**	**1.9000e-004**	**0.0209**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**		**0.0444**	**0.0444**	**1.2000e-004**		**0.0474**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

OCTA Transit Security and Operations Center

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	27.00	1000sqft	1.02	27,000.00	0
Parking Lot	176.00	Space	1.98	70,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2020
Utility Company	Anaheim Public Utilities				
CO2 Intensity (lb/MWhr)	1543.28	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Project plans for general office building and parking lot on a 3 acre site.

Demolition -

Grading -

Vehicle Trips - Proportioned Peak Trip Rate from traffic study for weekdays and applied to Saturday and Sunday trip rates.

Architectural Coating - All architectural coatings assumed to comply with SCAQMD Rule 1113

Area Coating - All architectural coatings assumed to comply with SCAQMD Rule 1113

Construction Off-road Equipment Mitigation - Dust control measures as required by SCAQMD Rule 403.

Area Mitigation - All architectural coatings assumed to comply with SCAQMD Rule 1113.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Parking	100.00	50.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblGrading	MaterialExported	0.00	6,535.00
tblGrading	MaterialImported	0.00	1,935.00
tblLandUse	LotAcreage	0.62	1.02
tblLandUse	LotAcreage	1.58	1.98
tblVehicleTrips	ST_TR	2.46	7.60
tblVehicleTrips	SU_TR	1.05	3.24
tblVehicleTrips	WD_TR	11.03	34.07

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	13.7971	69.2850	27.0324	0.1353	18.2675	2.3917	20.6592	9.9840	2.2004	12.1844	0.0000	14,667.9862	14,667.9862	2.1908	0.0000	14,722.7561
2020	13.7703	1.7051	2.0735	3.8000e-003	0.0894	0.1115	0.2010	0.0237	0.1115	0.1352	0.0000	363.9777	363.9777	0.0237	0.0000	364.5696
Maximum	**13.7971**	**69.2850**	**27.0324**	**0.1353**	**18.2675**	**2.3917**	**20.6592**	**9.9840**	**2.2004**	**12.1844**	**0.0000**	**14,667.9862**	**14,667.9862**	**2.1908**	**0.0000**	**14,722.7561**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	13.7971	69.2850	27.0324	0.1353	8.3310	2.3917	10.7227	4.5222	2.2004	6.7225	0.0000	14,667.9862	14,667.9862	2.1908	0.0000	14,722.7561
2020	13.7703	1.7051	2.0735	3.8000e-003	0.0894	0.1115	0.2010	0.0237	0.1115	0.1352	0.0000	363.9777	363.9777	0.0237	0.0000	364.5696
Maximum	**13.7971**	**69.2850**	**27.0324**	**0.1353**	**8.3310**	**2.3917**	**10.7227**	**4.5222**	**2.2004**	**6.7225**	**0.0000**	**14,667.9862**	**14,667.9862**	**2.1908**	**0.0000**	**14,722.7561**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**54.13**	**0.00**	**47.63**	**54.58**	**0.00**	**44.33**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6354	1.9000e-004	0.0209	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0444	0.0444	1.2000e-004		0.0474
Energy	7.2900e-003	0.0663	0.0557	4.0000e-004		5.0400e-003	5.0400e-003		5.0400e-003	5.0400e-003		79.5423	79.5423	1.5200e-003	1.4600e-003	80.0150
Mobile	1.5138	6.4146	19.5825	0.0701	6.2855	0.0720	6.3575	1.6808	0.0676	1.7484		7,108.6239	7,108.6239	0.3104		7,116.3838
Total	**2.1565**	**6.4811**	**19.6591**	**0.0705**	**6.2855**	**0.0772**	**6.3626**	**1.6808**	**0.0727**	**1.7535**		**7,188.2106**	**7,188.2106**	**0.3120**	**1.4600e-003**	**7,196.4462**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6354	1.9000e-004	0.0209	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0444	0.0444	1.2000e-004		0.0474
Energy	7.2900e-003	0.0663	0.0557	4.0000e-004		5.0400e-003	5.0400e-003		5.0400e-003	5.0400e-003		79.5423	79.5423	1.5200e-003	1.4600e-003	80.0150
Mobile	1.5138	6.4146	19.5825	0.0701	6.2855	0.0720	6.3575	1.6808	0.0676	1.7484		7,108.6239	7,108.6239	0.3104		7,116.3838
Total	**2.1565**	**6.4811**	**19.6591**	**0.0705**	**6.2855**	**0.0772**	**6.3626**	**1.6808**	**0.0727**	**1.7535**		**7,188.2106**	**7,188.2106**	**0.3120**	**1.4600e-003**	**7,196.4462**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/28/2019	5	20	
2	Site Preparation	Site Preparation	1/29/2019	1/31/2019	5	3	
3	Grading	Grading	2/1/2019	2/8/2019	5	6	
4	Building Construction	Building Construction	2/9/2019	12/13/2019	5	220	
5	Paving	Paving	12/14/2019	12/27/2019	5	10	
6	Architectural Coating	Architectural Coating	12/28/2019	1/10/2020	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 3

Acres of Paving: 1.98

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 40,500; Non-Residential Outdoor: 13,500; Striped Parking Area: 4,224 (Architectural Coating – sqft)

OffRoad Equipment

OCTA Transit Security and Operations Center - Orange County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	53.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	817.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	38.00	16.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5778	0.0000	0.5778	0.0875	0.0000	0.0875			0.0000			0.0000
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697		3,816.8994	3,816.8994	1.0618		3,843.4451
Total	**3.5134**	**35.7830**	**22.0600**	**0.0388**	**0.5778**	**1.7949**	**2.3727**	**0.0875**	**1.6697**	**1.7572**		**3,816.8994**	**3,816.8994**	**1.0618**		**3,843.4451**

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0226	0.7958	0.1994	2.0300e-003	0.0461	3.0800e-003	0.0492	0.0126	2.9500e-003	0.0156		225.1945	225.1945	0.0245		225.8064
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0697	0.0446	0.4954	1.6000e-003	0.1677	1.1200e-003	0.1688	0.0445	1.0300e-003	0.0455		159.8661	159.8661	3.9400e-003		159.9645
Total	**0.0923**	**0.8404**	**0.6948**	**3.6300e-003**	**0.2138**	**4.2000e-003**	**0.2180**	**0.0571**	**3.9800e-003**	**0.0611**		**385.0605**	**385.0605**	**0.0284**		**385.7709**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2600	0.0000	0.2600	0.0394	0.0000	0.0394			0.0000			0.0000
Off-Road	3.5134	35.7830	22.0600	0.0388		1.7949	1.7949		1.6697	1.6697	0.0000	3,816.8994	3,816.8994	1.0618		3,843.4451
Total	**3.5134**	**35.7830**	**22.0600**	**0.0388**	**0.2600**	**1.7949**	**2.0549**	**0.0394**	**1.6697**	**1.7090**	**0.0000**	**3,816.8994**	**3,816.8994**	**1.0618**		**3,843.4451**

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0226	0.7958	0.1994	2.0300e-003	0.0461	3.0800e-003	0.0492	0.0126	2.9500e-003	0.0156		225.1945	225.1945	0.0245		225.8064
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0697	0.0446	0.4954	1.6000e-003	0.1677	1.1200e-003	0.1688	0.0445	1.0300e-003	0.0455		159.8661	159.8661	3.9400e-003		159.9645
Total	**0.0923**	**0.8404**	**0.6948**	**3.6300e-003**	**0.2138**	**4.2000e-003**	**0.2180**	**0.0571**	**3.9800e-003**	**0.0611**		**385.0605**	**385.0605**	**0.0284**		**385.7709**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991		3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**18.0663**	**2.3904**	**20.4566**	**9.9307**	**2.1991**	**12.1298**		**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0837	0.0535	0.5945	1.9200e-003	0.2012	1.3400e-003	0.2025	0.0534	1.2400e-003	0.0546		191.8393	191.8393	4.7300e-003		191.9574
Total	**0.0837**	**0.0535**	**0.5945**	**1.9200e-003**	**0.2012**	**1.3400e-003**	**0.2025**	**0.0534**	**1.2400e-003**	**0.0546**		**191.8393**	**191.8393**	**4.7300e-003**		**191.9574**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	4.3350	45.5727	22.0630	0.0380		2.3904	2.3904		2.1991	2.1991	0.0000	3,766.4529	3,766.4529	1.1917		3,796.2445
Total	**4.3350**	**45.5727**	**22.0630**	**0.0380**	**8.1298**	**2.3904**	**10.5202**	**4.4688**	**2.1991**	**6.6679**	**0.0000**	**3,766.4529**	**3,766.4529**	**1.1917**		**3,796.2445**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0837	0.0535	0.5945	1.9200e-003	0.2012	1.3400e-003	0.2025	0.0534	1.2400e-003	0.0546		191.8393	191.8393	4.7300e-003		191.9574
Total	**0.0837**	**0.0535**	**0.5945**	**1.9200e-003**	**0.2012**	**1.3400e-003**	**0.2025**	**0.0534**	**1.2400e-003**	**0.0546**		**191.8393**	**191.8393**	**4.7300e-003**		**191.9574**

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.7120	0.0000	6.7120	3.3917	0.0000	3.3917			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856		2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**6.7120**	**1.3974**	**8.1093**	**3.3917**	**1.2856**	**4.6772**		**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

3.4 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.1615	40.8924	10.2436	0.1041	2.3711	0.1584	2.5295	0.6491	0.1516	0.8007		11,571.3134	11,571.3134	1.2577		11,602.7554
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0697	0.0446	0.4954	1.6000e-003	0.1677	1.1200e-003	0.1688	0.0445	1.0300e-003	0.0455		159.8661	159.8661	3.9400e-003		159.9645
Total	**1.2313**	**40.9370**	**10.7390**	**0.1057**	**2.5387**	**0.1595**	**2.6983**	**0.6936**	**0.1526**	**0.8462**		**11,731.1795**	**11,731.1795**	**1.2616**		**11,762.7200**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.0204	0.0000	3.0204	1.5263	0.0000	1.5263			0.0000			0.0000
Off-Road	2.5805	28.3480	16.2934	0.0297		1.3974	1.3974		1.2856	1.2856	0.0000	2,936.8068	2,936.8068	0.9292		2,960.0361
Total	**2.5805**	**28.3480**	**16.2934**	**0.0297**	**3.0204**	**1.3974**	**4.4178**	**1.5263**	**1.2856**	**2.8118**	**0.0000**	**2,936.8068**	**2,936.8068**	**0.9292**		**2,960.0361**

3.4 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.1615	40.8924	10.2436	0.1041	2.3711	0.1584	2.5295	0.6491	0.1516	0.8007		11,571.3134	11,571.3134	1.2577		11,602.7554
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0697	0.0446	0.4954	1.6000e-003	0.1677	1.1200e-003	0.1688	0.0445	1.0300e-003	0.0455		159.8661	159.8661	3.9400e-003		159.9645
Total	**1.2313**	**40.9370**	**10.7390**	**0.1057**	**2.5387**	**0.1595**	**2.6983**	**0.6936**	**0.1526**	**0.8462**		**11,731.1795**	**11,731.1795**	**1.2616**		**11,762.7200**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0626	1.8176	0.5270	3.9200e-003	0.1022	0.0125	0.1147	0.0294	0.0120	0.0414		426.1682	426.1682	0.0388		427.1386
Worker	0.1767	0.1129	1.2551	4.0600e-003	0.4248	2.8400e-003	0.4276	0.1127	2.6100e-003	0.1153		404.9940	404.9940	9.9800e-003		405.2435
Total	**0.2392**	**1.9305**	**1.7821**	**7.9800e-003**	**0.5270**	**0.0153**	**0.5423**	**0.1421**	**0.0146**	**0.1566**		**831.1622**	**831.1622**	**0.0488**		**832.3820**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0626	1.8176	0.5270	3.9200e-003	0.1022	0.0125	0.1147	0.0294	0.0120	0.0414		426.1682	426.1682	0.0388		427.1386
Worker	0.1767	0.1129	1.2551	4.0600e-003	0.4248	2.8400e-003	0.4276	0.1127	2.6100e-003	0.1153		404.9940	404.9940	9.9800e-003		405.2435
Total	**0.2392**	**1.9305**	**1.7821**	**7.9800e-003**	**0.5270**	**0.0153**	**0.5423**	**0.1421**	**0.0146**	**0.1566**		**831.1622**	**831.1622**	**0.0488**		**832.3820**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2679	12.7604	12.3130	0.0189		0.7196	0.7196		0.6637	0.6637		1,843.3191	1,843.3191	0.5671		1,857.4966
Paving	0.5188					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7867**	**12.7604**	**12.3130**	**0.0189**		**0.7196**	**0.7196**		**0.6637**	**0.6637**		**1,843.3191**	**1,843.3191**	**0.5671**		**1,857.4966**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0930	0.0594	0.6606	2.1400e-003	0.2236	1.4900e-003	0.2251	0.0593	1.3800e-003	0.0607		213.1547	213.1547	5.2500e-003		213.2860
Total	**0.0930**	**0.0594**	**0.6606**	**2.1400e-003**	**0.2236**	**1.4900e-003**	**0.2251**	**0.0593**	**1.3800e-003**	**0.0607**		**213.1547**	**213.1547**	**5.2500e-003**		**213.2860**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2679	12.7604	12.3130	0.0189		0.7196	0.7196		0.6637	0.6637	0.0000	1,843.3191	1,843.3191	0.5671		1,857.4966
Paving	0.5188					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7867**	**12.7604**	**12.3130**	**0.0189**		**0.7196**	**0.7196**		**0.6637**	**0.6637**	**0.0000**	**1,843.3191**	**1,843.3191**	**0.5671**		**1,857.4966**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0930	0.0594	0.6606	2.1400e-003	0.2236	1.4900e-003	0.2251	0.0593	1.3800e-003	0.0607		213.1547	213.1547	5.2500e-003		213.2860
Total	**0.0930**	**0.0594**	**0.6606**	**2.1400e-003**	**0.2236**	**1.4900e-003**	**0.2251**	**0.0593**	**1.3800e-003**	**0.0607**		**213.1547**	**213.1547**	**5.2500e-003**		**213.2860**

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.4934					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	**13.7599**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**282.0423**

3.7 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0372	0.0238	0.2642	8.6000e-004	0.0894	6.0000e-004	0.0900	0.0237	5.5000e-004	0.0243		85.2619	85.2619	2.1000e-003		85.3144
Total	**0.0372**	**0.0238**	**0.2642**	**8.6000e-004**	**0.0894**	**6.0000e-004**	**0.0900**	**0.0237**	**5.5000e-004**	**0.0243**		**85.2619**	**85.2619**	**2.1000e-003**		**85.3144**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.4934					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288	0.0000	281.4481	281.4481	0.0238		282.0423
Total	**13.7599**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**282.0423**

3.7 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0372	0.0238	0.2642	8.6000e-004	0.0894	6.0000e-004	0.0900	0.0237	5.5000e-004	0.0243		85.2619	85.2619	2.1000e-003		85.3144
Total	**0.0372**	**0.0238**	**0.2642**	**8.6000e-004**	**0.0894**	**6.0000e-004**	**0.0900**	**0.0237**	**5.5000e-004**	**0.0243**		**85.2619**	**85.2619**	**2.1000e-003**		**85.3144**

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.4934					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**13.7356**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0347	0.0213	0.2420	8.3000e-004	0.0894	5.9000e-004	0.0900	0.0237	5.4000e-004	0.0243		82.5297	82.5297	1.8800e-003		82.5768
Total	**0.0347**	**0.0213**	**0.2420**	**8.3000e-004**	**0.0894**	**5.9000e-004**	**0.0900**	**0.0237**	**5.4000e-004**	**0.0243**		**82.5297**	**82.5297**	**1.8800e-003**		**82.5768**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.4934					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**13.7356**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0347	0.0213	0.2420	8.3000e-004	0.0894	5.9000e-004	0.0900	0.0237	5.4000e-004	0.0243		82.5297	82.5297	1.8800e-003		82.5768
Total	**0.0347**	**0.0213**	**0.2420**	**8.3000e-004**	**0.0894**	**5.9000e-004**	**0.0900**	**0.0237**	**5.4000e-004**	**0.0243**		**82.5297**	**82.5297**	**1.8800e-003**		**82.5768**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.5138	6.4146	19.5825	0.0701	6.2855	0.0720	6.3575	1.6808	0.0676	1.7484		7,108.6239	7,108.6239	0.3104		7,116.3838
Unmitigated	1.5138	6.4146	19.5825	0.0701	6.2855	0.0720	6.3575	1.6808	0.0676	1.7484		7,108.6239	7,108.6239	0.3104		7,116.3838

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	919.89	205.20	87.48	2,251,401	2,251,401
Parking Lot	0.00	0.00	0.00		
Total	919.89	205.20	87.48	2,251,401	2,251,401

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002
Parking Lot	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	7.2900e-003	0.0663	0.0557	4.0000e-004		5.0400e-003	5.0400e-003		5.0400e-003	5.0400e-003		79.5423	79.5423	1.5200e-003	1.4600e-003	80.0150
NaturalGas Unmitigated	7.2900e-003	0.0663	0.0557	4.0000e-004		5.0400e-003	5.0400e-003		5.0400e-003	5.0400e-003		79.5423	79.5423	1.5200e-003	1.4600e-003	80.0150

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	676.11	7.2900e-003	0.0663	0.0557	4.0000e-004		5.0400e-003	5.0400e-003		5.0400e-003	5.0400e-003		79.5423	79.5423	1.5200e-003	1.4600e-003	80.0150
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**7.2900e-003**	**0.0663**	**0.0557**	**4.0000e-004**		**5.0400e-003**	**5.0400e-003**		**5.0400e-003**	**5.0400e-003**		**79.5423**	**79.5423**	**1.5200e-003**	**1.4600e-003**	**80.0150**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	0.67611	7.2900e-003	0.0663	0.0557	4.0000e-004		5.0400e-003	5.0400e-003		5.0400e-003	5.0400e-003		79.5423	79.5423	1.5200e-003	1.4600e-003	80.0150
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**7.2900e-003**	**0.0663**	**0.0557**	**4.0000e-004**		**5.0400e-003**	**5.0400e-003**		**5.0400e-003**	**5.0400e-003**		**79.5423**	**79.5423**	**1.5200e-003**	**1.4600e-003**	**80.0150**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6354	1.9000e-004	0.0209	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0444	0.0444	1.2000e-004		0.0474
Unmitigated	0.6354	1.9000e-004	0.0209	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0444	0.0444	1.2000e-004		0.0474

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0739					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5595					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.9600e-003	1.9000e-004	0.0209	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0444	0.0444	1.2000e-004		0.0474
Total	**0.6354**	**1.9000e-004**	**0.0209**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**		**0.0444**	**0.0444**	**1.2000e-004**		**0.0474**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0739					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5595					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.9600e-003	1.9000e-004	0.0209	0.0000		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005		0.0444	0.0444	1.2000e-004		0.0474
Total	**0.6354**	**1.9000e-004**	**0.0209**	**0.0000**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**		**0.0444**	**0.0444**	**1.2000e-004**		**0.0474**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX E

BIOLOGICAL RESOURCES DATABASE SEARCH

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Anaheim (3311778))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Abronia villosa var. aurita chaparral sand-verbena	PDNYC010P1	None	None	G5T2?	S2	1B.1
Atriplex parishii Parish's brittlescale	PDCHE041D0	None	None	G1G2	S1	1B.1
Bombus crotchii Crotch bumble bee	IIHYM24480	None	None	G3G4	S1S2	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Centromadia parryi ssp. australis southern tarplant	PDAST4R0P4	None	None	G3T2	S2	1B.1
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G5T4	S3S4	SSC
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Nasturtium gambelii Gambel's water cress	PDBRA270V0	Endangered	Threatened	G1	S1	1B.1
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
Sidalcea neomexicana salt spring checkerbloom	PDMAL110J0	None	None	G4	S2	2B.2
Symphyotrichum defoliatum San Bernardino aster	PDASTE80C0	None	None	G2	S2	1B.2

Record Count: 12

APPENDIX F

CULTURAL RESOURCES REPORT

CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

July 31, 2018

Steven Fierce, Architect
Senior Project Manager
STV Incorporated
1055 West Seventh Street, Suite 3150
Los Angeles, California 90017

Subject: Cultural Resources Technical Report for the Orange County Transportation Authority Transit and Security Operations Center Project, Anaheim, Orange County, California (LSA Project No. STI1701)

Dear Mr. Fierce:

As requested, LSA conducted a cultural resources study for the proposed Orange County Transportation Authority Transit and Security Operations Center Project (project) in Anaheim, Orange County, California.

PROJECT DESCRIPTION AND LOCATION

The Orange County Transportation Authority (OCTA) is proposing to construct a new operations center for its transit and emergency security functions. The Area of Potential Effect (APE) of the project is approximately 3 acres in size. The proposed Transit and Security Operations Center (TSOC) is planned to be a two-story facility that is approximately 27,000 square feet, with a 60-foot tall microwave tower, and dedicated parking for employees, patrol vehicles, and visitors.

The project is located at the intersection of Lincoln Avenue and Manchester Avenue next to Interstate 5 in Anaheim, Orange County, California (refer to Figures 1 and 2 in Attachment B). The project site is situated on the United States Geological Survey (USGS) *Anaheim, California* 7.5-minute topographic quadrangle map in Township 4 South, Range 10 West, Section 16, San Bernardino Baseline and Meridian (USGS 1981).

BACKGROUND RESEARCH

On January 23, 2018, a records search was conducted at the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System at California State University, Fullerton. The records search included a review of all recorded historic and prehistoric archaeological sites within a 0.5-mile radius of the APE, as well as a review of known cultural resource survey and excavation reports. In addition, the following inventories were examined:

- National Register of Historic Places (National Register)
- California Register of Historical Resources (California Register)
- California Historical Landmarks
- California Points of Historical Interest
- California Historic Resources Inventory (HRI)

Background Research Results

The SCCIC database indicates that no previous cultural resources studies have covered the APE, and eight studies have been conducted within 0.5 mile of the APE. These eight studies include two survey reports, two records search reports, one finding of effect, one monitoring report, and two reports of unknown type. The records search results also indicated that there are no cultural resources within the APE and no cultural resources within 0.5 mile of the APE (refer to the search results in Attachment C).

The Anaheim HRI lists 10 resources within 0.5 mile of the APE. Nine of these resources have a 6Y status code, indicating that they have been determined ineligible for the National Register by consensus through the Section 106 process, but they have not been evaluated for the California Register or for Local Listings. One HRI resource within 0.5 mile of the APE is of note. This resource, the Mother Colony Pioneer House, is located at 414 North West Street and is approximately 0.4 mile from the APE. It is listed as State Historical Landmark 201. The Mother Colony Pioneer House (Anaheim's first house, built in 1857) is listed with a status code of 7L (indicating that it falls within State Historical Landmarks 1-769 and Points of Historical Interest designated prior to January 1988, and needs to be re-evaluated using current standards) and also with a status code of 3S (indicating that it appears to be eligible for the National Register as an individual property). Given the distance between the APE and the resource, no impacts to the resource are anticipated.

The records search also provided two historic maps, the 1896 *Anaheim, California* 15-minute topographic quadrangle (USGS 1896) and the 1942 *Anaheim, California* 15-minute topographic quadrangle (USACE 1942). Both maps show buildings near the project area. This indicates that development in the APE occurred prior to 1896.

Aerial photographs and historic topographic quadrangle maps of the APE were also examined (NETR 2018). The historic topographic quadrangles available online show similar information to the maps provided by the SCCIC, that development in the APE occurred prior to 1896. Historic aerials of the APE date to as early as 1953 and confirm that the APE underwent development prior to 1953. Buildings that existed in the northwest portion of the APE prior to 1953 were demolished sometime between 1995 and 2003. The roughly L-shaped building that currently houses the Yency's Tires business (located at 1520 West Lincoln Avenue) was built between 1980 and 1994. The recent construction date of the L-shaped building and the recent demolition of the buildings in the northwest portion of APE are evidence that there are no historic-period buildings within the APE. No buildings within the APE need to be considered further in the California Environmental Quality Act (CEQA) or the National Environmental Policy Act (NEPA) processes.

According to the aerial photographs, the dirt section in the center of the APE was a built environment in 1953, but those buildings were demolished and the area appears to have begun use as an informal parking lot by 1963. Between 1995 and 2003, the area was cleared, left as a vacant lot, and may have been used as an informal dump site. Current aerial photographs of the APE (Google Maps 2018) show this portion of the APE being used to stockpile dirt and to park vehicles.

NATIVE AMERICAN CONSULTATION

On January 31, 2018, LSA sent an email to the Native American Heritage Commission (NAHC) requesting a review of the Sacred Lands File to determine the potential presence of Native American cultural resources that might be affected by the project. The NAHC maintains this database and is the official State repository of Native American sacred site location records in California.

NAHC Sacred Lands File Review Results

On February 1, 2018, the NAHC responded to LSA's request, stating that the Sacred Lands File search was completed for the project with negative results. The NAHC also provided a list of tribes with traditional lands or cultural places located within the boundaries of Orange County. LSA understands that OCTA is conducting Native American consultation per Assembly Bill 52.

FIELD SURVEY

On May 10, 2018, LSA Archaeologist Kerrie Collison, M.A., RPA, conducted a pedestrian field survey of the majority of the APE. A follow-up survey to access the remainder of the APE was conducted by LSA Archaeologist Joshua Toney, Ph.D., RPA, on May 29, 2018.

Field Survey Results

No cultural resources were observed during the field survey. Modern trash was scattered throughout the northwestern portion of the APE. This area was mostly covered by grasses and weeds shorter than six inches with small patches of dirt. Ground visibility in this area was approximately 60 percent due to trash and grasses/weeds. The boundary of this parcel is marked by a short wall and the ground becoming clear of grasses and weeds, leading to what is presumably the railroad right-of-way. The Yency's Tires building and parking lot occupies the middle of the APE, and the eastern portion of the APE is currently undeveloped. The entire eastern portion of the APE is covered with gravel fill, concrete, and other modern debris (refer to the site photographs in Attachment D).

SUMMARY AND RECOMMENDATIONS

This study consisted of a records search, Sacred Lands File search, and field survey. The records search was negative for the presence of cultural resources in the project site, as was the Sacred Lands File search and the field survey. However, despite the negative findings of these studies, the potential for encountering buried archaeological deposits or human remains within the project site cannot be ruled out. Because there have been no previous cultural resource studies conducted within the APE and few previous cultural resource studies conducted within 0.5 mile of the APE, the archaeological sensitivity of the APE is unknown. Based on the results of the SCCIC records search, as well as the information gleaned from examining historic aerial photographs and quadrangle maps, there is a moderate potential that project work on the property may encounter and disturb intact subsurface archaeological deposits. Additionally, due to the poor ground visibility during the field survey, the ability to observe historic-period and/or pre-contact archaeological deposits was diminished. It is possible that the proposed project will impact previously unrecorded archaeological deposits that may be considered historical or unique archaeological resources per CEQA (California Public Resources Code [PRC] Sections 21084.1 and 21083.2).

For the above reasons, LSA recommends that a qualified professional archaeologist should monitor construction-related ground disturbance – including clearing and grubbing – during project activities. The monitoring should continue until grading and excavation is complete, or until the monitoring archaeologist, based on field observations, is satisfied that there is no likelihood of encountering intact archaeological deposits. Upon completion of the monitoring and, if necessary, mitigation, the archaeologist should prepare a draft report to document the methods and results of the investigation(s). The draft report should be submitted to the SCCIC.

If archaeological materials are encountered, the archaeological monitor should examine the area closely, temporarily marking the extent of the cultural deposit. If the evaluation determines that the deposit is neither a historic-period nor a unique archaeological resource, the avoidance of potential impacts to the deposit is not necessary. If the deposit is an eligible prehistoric resource, impacts to the resource should be mitigated. Mitigation may consist of excavating the archaeological deposit in accordance with a data recovery plan (see State CEQA Guidelines Section 15126.4(b)(3)(C)) developed in consultation with descendant community representatives; recording the resource; preparing a report of findings; and accessioning recovered archaeological materials at an appropriate curation facility. Public educational outreach may also be appropriate. If human remains are encountered, the regulatory process outlined at California Health and Safety Code Section 7050.5 must be followed, which involves coordination with the NAHC and a Native American Most Likely Descendant.

If you have any questions concerning this study, please contact me at kerrie.collison@lsa.net.

Sincerely,

LSA Associates, Inc.

Kerrie Collison, RPA
Cultural Resources Manager

Attachments: A – References
B – Project Figure
C – Records Search Results
D – Survey Photographs

ATTACHMENT A: REFERENCES

Google Maps
2018 Website: https://www.google.com/maps (accessed February 2018).

National Environmental Title Research (NETR)
2018 Historic Aerials. Electronic document, http://www.historicaerials.com, accessed February 15, 2018.

United States Army Corps of Engineers (USACE)
1942 *Anaheim, California* 15-minute topographic quadrangle map. Reprinted from Military Edition for Civil Use. For sale by United States Geological Survey, Denver, Colorado.

United States Geological Survey (USGS)
1896 *Anaheim, California* 15-minute topographic quadrangle map. United States Geological Survey.

1981 *Anaheim, California* 7.5-minute topographic quadrangle. Prepared in 1965. Photorevised in 1981. United States Geological Survey, Denver, Colorado.

ATTACHMENT B: PROJECT FIGURE

LSA

LEGEND

Project Location

FIGURE 1

N

0 200 400

FEET

SOURCE: Bing (7/2014)

I:\STI1701\GIS\MXD\ProjectLocation_Aerial.mxd (3/28/2018)

OCTA Transit and Security Operations Center Project

Regional Location and Vicinity

ATTACHMENT C: RECORDS SEARCH RESULTS

South Central Coastal Information Center
California State University, Fullerton
Department of Anthropology MH-426
800 North State College Boulevard
Fullerton, CA 92834-6846
657.278.5395 / FAX 657.278.5542
sccic@fullerton.edu
California Historical Resources Information System
Orange, Los Angeles, and Ventura Counties

1/23/2018 Records Search File No.: 18495.

Kerrie Collison
LSA
20 Executive Park, Suite 200
Irvine, CA 92614

Re: Record Search Results for the OCTA TSOC Project (STI1701)

The South Central Coastal Information Center received your records search request for the project area referenced above, located on the Anaheim, CA USGS 7.5' quadrangle. The following reflects the results of the records search for the project area and a ½-mile radius:

As indicated on the data request form, the locations of archaeological resources and report are provided in the following format: ☒ custom GIS maps ☐ shape files ☐ hand-drawn maps

Resources within project area: 0	None
Resources within ½-mile radius: 0	None
Resources listed in the OHP Historic Properties Directory within project area: 0	None
Resources listed in the OHP Historic Properties Directory within ½-mile radius: 10	SEE ATTACHED LIST FOR INDIVIDUAL PROPERTY STATUS CODES – resource locations from the OHP HPD may or may not be plotted on the custom GIS map or provided as a shape file
Reports within project area: 0	None
Reports within ½-mile radius: 8	SEE ATTACHED MAP or LIST

Resource Database Printout (list):	☐ enclosed	☒ not requested	☐ nothing listed
Resource Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Resource Digital Database (spreadsheet):	☐ enclosed	☒ not requested	☐ nothing listed
Report Database Printout (list):	☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Report Digital Database (spreadsheet):	☐ enclosed	☒ not requested	☐ nothing listed
Resource Record Copies:	☐ enclosed	☒ not requested	☐ nothing listed
Report Copies:	☐ enclosed	☒ not requested	☐ nothing listed
OHP Historic Properties Directory:	☒ enclosed	☐ not requested	☐ nothing listed

Archaeological Determinations of Eligibility: ☐ enclosed ☐ not requested ☒ nothing listed
Los Angeles Historic-Cultural Monuments ☐ enclosed ☐ not requested ☒ nothing listed
Historical Maps: ☒ enclosed ☐ not requested ☐ nothing listed
Ethnographic Information: ☒ not available at SCCIC
Historical Literature: ☒ not available at SCCIC
GLO and/or Rancho Plat Maps: ☒ not available at SCCIC
Caltrans Bridge Survey: ☒ not available at SCCIC; please go to http://www.dot.ca.gov/hq/structur/strmaint/historic.htm
Shipwreck Inventory: ☒ not available at SCCIC; please go to http://shipwrecks.slc.ca.gov/ShipwrecksDatabase/Shipwrecks_Database.asp
Soil Survey Maps: (see below) ☒ not available at SCCIC; please go to http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System,

Isabela Kott
GIS Technician/Staff Researcher

Enclosures:

(X) Custom Maps – 1 page

(X) Report Database Printout (list) – 1 page

(X) OHP Historic Properties Directory – 4 pages

(X) National Register Status Codes – 1 page

(X) Historical Maps – 4 pages

(X) Invoice #18495.

ATTACHMENT D: SURVEY PHOTOGRAPHS

View of northwestern portion of APE. Lincoln Avenue on left, Yency's Tires building in background. View to east-southeast. May 10, 2018.

View of debris piles and gravel-covered ground in eastern portion of APE. View to southeast. May 29, 2018.

APPENDIX G

GEOTECHNICAL EVALUATION

Preliminary Geotechnical Evaluation

Orange County Transit District
Transit Security and Operations Center
Anaheim, California

STV Incorporated

1055 West Seventh Street, Suite 3150 | Los Angeles, California 90017

September 8, 2017 | Project No. 210248002

Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

Preliminary Geotechnical Evaluation

Orange County Transit District
Transit Security and Operations Center
Anaheim, California

Mr. Steven Fierce, Architect
Senior Project Manager
STV Incorporated
1055 West Seventh Street, Suite 3150 | Los Angeles, California 90017

September 8, 2017 | Project No. 210248002

Ronald Hallum, PG, CEG
Principal Geologist

Carol A. Price, PG, CEG
Principal Geologist

Kurt S. Yoshii, PE, GE
Principal Engineer

RDH/CAP/KSY/sc

Distribution: (1) Addressee (via e-mail)

CONTENTS

TABLES

FIGURES

1 INTRODUCTION

In accordance with your request and authorization, Ninyo & Moore has performed a preliminary geotechnical evaluation of the proposed Orange County Transit District (OCTA) Transit Security and Operations Center (TSOC) project in the city of Anaheim, California (Figures 1 and 2). Based on information provided by OCTA, the project involves creation of a combined security and operations center.

The purpose of this preliminary geotechnical evaluation was to assess the geologic conditions at the site and develop preliminary conclusions regarding potential geologic and seismic impacts associated with the project. Where appropriate, recommendations to mitigate potential geologic hazards, as noted in this report, have been provided.

This evaluation addresses the site geologic conditions and the impacts associated with potential geologic and seismic hazards in the project area for inclusion in the environmental planning documents for the project. Our geotechnical evaluation was based on review of readily available geologic and seismic data and published geotechnical literature pertinent to the project site, and site reconnaissance. Our evaluation did not include subsurface exploration and associated laboratory testing. The results of our evaluation are intended for preliminary planning purposes. During detailed project design, subsurface exploration should be conducted by the project geotechnical consultant at the location of proposed site improvements to evaluate the site-specific geologic conditions and provide appropriate geotechnical recommendations for design and construction of the project in conjunction with the structural engineer.

2 SCOPE OF SERVICES

Ninyo & Moore's scope of services has included review of geotechnical background materials, geologic reconnaissance of the project area, and geotechnical analysis. Specifically, we have performed the following tasks:

- Review of readily available topographic and geologic maps, published geotechnical literature, geologic and seismic data, soil data, groundwater data, and aerial photographs.
- Review of in-house information related to our previous work in the project vicinity.
- Research and review of readily available geotechnical reports at the State of California GeoTracker (2017) website for commercial properties in the project area that included subsurface geotechnical data relative to the subject evaluation.
- Review of geotechnical aspects of project plans and documents pertaining to the TSOC site vicinity.

- Geotechnical site reconnaissance by a representative from Ninyo & Moore conducted on August 16, 2017, to observe and document the existing surface conditions at the project site and to core the existing pavement at three locations.
- Compilation and analysis of existing geotechnical data pertaining to the site.
- Assessment of the general geologic conditions and seismic hazards affecting the area and evaluation of their potential impacts on the project.
- Preparation of this report presenting the results of our study, as well as our conclusions regarding the project's geologic and seismic impacts, and recommendations to address the impacts to be included in the environmental planning documents.

3 PROJECT DESCRIPTION

Currently, OCTA's core operational and security functions are centralized at the OCTA Garden Grove bus base. Within this existing facility, the following OCTA functions are currently housed:

- Operations Training (Bus)
- Central Communications (Bus)
- Field Operations (Bus)
- Transit Police Services (Bus, Paratransit, and Rail)
- Emergency Operations Center (Agency wide)
- File Storage

We understand that most of these existing functions will be transferred to the new facility upon completion. Although final design is not complete at this time, we anticipate that a two to three-story office-type structure is proposed to be constructed at the site.

4 SITE DESCRIPTION

The roughly 3-acre triangular site is located in the city of Anaheim and is bounded on the north by West Lincoln Avenue, on the east by South Manchester Avenue, and along the southwest by existing railroad tracks and commercial/industrial developments. Interstate Highway 5 is located approximately 250 feet northeast of the property. The central and eastern portions of the site are currently occupied by automobile repair businesses and surface parking. The center of the site is partially paved with a combination of asphalt concrete (AC) and Portland cement concrete (PCC). The western roughly third of the project site is currently unimproved. The project study site is relatively level and is at an existing elevation of approximately 135 feet above Mean Sea Level (MSL).

5 GEOLOGY

5.1 Regional Geology

The State of California is divided into geomorphic provinces defined by geographic location, large-scale bedrock types, and tectonic structure. The project site is situated at the northwest end of the Peninsular Ranges geomorphic province of southern California. This geomorphic province encompasses an area that extends approximately 125 miles from the Transverse Ranges province and the Los Angeles Basin south to the Mexican border, and beyond another approximately 775 miles to the tip of Baja California. The Peninsular Ranges province varies in width from approximately 30 to 100 miles and is characterized by northwest-trending mountain range blocks separated by similarly northwest-trending faults (Norris and Webb, 1990).

The predominant rock type that underlies the Peninsular Ranges province is a Cretaceous-age igneous rock (granitic rock) referred to as the Southern California batholith. Older Jurassic-age metavolcanic and metasedimentary rocks and older Paleozoic limestone, altered schist, and gneiss are present within the province. Cretaceous period marine sedimentary rocks, and younger Tertiary period rocks comprised of volcanic, marine, and non-marine sediments overlie the older rocks (Norris and Webb, 1990). More recent Quaternary period sediments, primarily of alluvial origin, comprise the low-lying valley and drainage areas within the region, while Quaternary marine terrace deposits and beach deposits are present along the coastal areas.

5.2 Site Geology

The TSOC project site is located near the central portion of the Orange County coastal plain. Regional geologic maps indicate the site is underlain by Recent to Holocene-age younger alluvial deposits. These deposits typically consist of moderately to well-consolidated sand, silty sand, and sandy silt. Fill soils of varying thickness and material types related to roadways, utilities, and existing developments are also present over portions of the project area. A regional geologic map of the site vicinity showing the distribution of geologic units is presented on Figure 3.

5.3 Groundwater

The California Geological Survey (CGS) Seismic Hazard Zone report for the project area indicates that the historic high groundwater in the vicinity of the site is greater than 50 feet below the ground surface (CGS, 1997b). Various boring logs and monitoring wells in the vicinity of the project site indicate that the groundwater elevations in the project area range from approximately 65 to over 100 feet below existing grades. Fluctuations in the depth to

groundwater may occur due to flood events, seasonal precipitation, variations in ground elevations, groundwater pumping, and other factors.

5.4 Existing Pavement

During our site reconnaissance on August 16, 2017, our personnel performed three pavement cores in the existing pavement. The approximate location of the cores is indicated on Figure 2.

Core No.	AC Thickness	Base Thickness
C-1	3½	
C-2	3½	
C-3	3	

6 FAULTING AND SEISMICITY

The project site is located in a seismically active area, as is the majority of southern California, and the potential for strong ground motion at the site is considered significant during the design life of proposed improvements. Table 1 lists selected principal known active faults within approximately 50 miles of the site and the maximum moment magnitude (M_{max}) as published by the United States Geological Survey (USGS, 2014a) in general accordance with the Uniform California Earthquake Rupture Forecast, version 3 (Field, et al., 2013). The approximate fault-to-site distances listed in Table 1 were calculated using the USGS web-based program (USGS, 2008).

Table 1 – Principal Regional Active Faults

Fault	Approximate Fault-to-Site Distance miles (kilometers) [1]	Maximum Moment Magnitude (M_{max}) [1]
Puente Hills (Blind Thrust)	2.8 (4.5)	7.1
Elsinore	7.9 (12.8)	6.8
San Joaquin Hills (Blind Thrust)	8.4 (13.5)	7.1
Newport Inglewood	10.5 (16.9)	7.1
San Jose	14.6 (23.6)	6.4
Chino-Central Avenue	15.9 (25.9)	6.7
Upper Elysian Park (Blind Thrust)	18.9 (30.4)	6.4
Raymond	22.2 (35.7)	6.5
Cucamonga	23.4 (37.9)	6.9
Clamshell – Sawpit Canyon	24.1 (39.0)	6.5
Verdugo	24.2 (39.2)	6.9
Hollywood	26.1 (40.0)	6.4
Santa Monica	31.9 (51.7)	6.9
Malibu Coast	36.6 (58.9)	6.4
Sierra Madre (San Fernando)	37.1 (59.7)	7.2
San Jacinto	38.0 (61.2)	6.7
Coronado Bank	38.0 (61.2)	7.1
San Gabriel	38.9 (62.7)	7.1
San Andreas	41.0 (66.4)	7.4

Notes:
[1] United States Geological Survey (USGS), 2008.

The faults in southern California are classified as active, potentially active, and inactive faults. As defined by the CGS, active faults are faults that have ruptured within Holocene time, or within approximately the last 11,000 years. Potentially active faults are those that show evidence of movement during Quaternary time (approximately the last 1.6 million years) but for which evidence of Holocene movement has not been established. Inactive faults have not ruptured in the last approximately 1.6 million years. Figure 4 shows the approximate site location relative to the principal faults in the region based on the Fault Activity Map of California (Jennings and Bryant, 2010).

Active faults in the vicinity of the proposed TSOC site include the Puente Hills Blind Thrust fault zone located approximately 2.8 miles north of the site and the Elsinore fault located approximately 7.9 miles northeast of the site. Blind thrust faults, including the Puente Hills fault, are low-angle faults at depths that do not break the ground surface and are, therefore, not shown on Figure 4. Although blind thrust faults do not have a surface trace, they can be capable of generating damaging earthquakes and are included in Table 1.

Based on our background review, the site vicinity is not transected by known active or potentially active faults. The site is not located within a State of California Earthquake Fault Zone (EFZ) (Hart and Bryant, 2007). The site not is located within a State of California Seismic Hazard Zone as an area considered susceptible to liquefaction (CGS, 2001a, 2001b), as shown on Figure 5.

7 METHODOLOGY FOR GEOLOGIC IMPACT AND HAZARD ANALYSES

As outlined by the California Environmental Quality Act (CEQA), the TSOC project site has been evaluated with respect to potential geologic and seismic impacts associated with the project. Evaluation of impacts due to potential geologic and seismic hazards is based on our review of readily available published geotechnical literature and geologic and seismic data pertinent to the proposed project, and site reconnaissance. The references and data reviewed include, but are not limited to, the following:

- Geologic maps and fault maps from the CGS and USGS.
- Topographic maps from the USGS.
- State of California EFZ Maps.
- State of California Seismic Hazards Zones Reports and Maps.
- Seismic data from the CGS and USGS.

- Geotechnical publications by the CGS and USGS.
- Subsurface geotechnical data from previous subsurface explorations in the project vicinity.
- Aerial photographs.

8 THRESHOLDS OF SIGNIFICANCE

A summary of the potential geologic and seismic impacts that could affect the project site are presented in Table 2. According to Appendix G of the CEQA guidelines (California Environmental Resources Evaluation System [CERES], 2005a, 2005b), a project is considered to have a geologic impact if its implementation would result in or expose people/structures to potential substantial adverse effects, including the risk of loss, injury, or death involving hazards involving one or more of the geologic conditions presented in Table 2. Table 2 also presents the impact potential as defined by CEQA associated with each of the geologic conditions discussed in the following sections.

Table 2 – Summary of Potential Geologic Impacts/Hazards

Geologic Condition	Impact Potential[1]			
	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
Earthquake Fault Rupture			x	
Strong Seismic Ground Shaking		x		
Seismically Related Ground Failure, Including Liquefaction		x		
Landslides				x
Substantial Soil Erosion			x	
Subsidence			x	
Compressible/Collapsible Soils		x		
Expansive Soils		x		
Groundwater and Excavations			x	

Note:
[1]Reference: CERES, 2005, Appendix G – Environmental Checklist Form, Final Text, dated October 26.
Website: http://ceres.ca.gov/topic/envlaw/ceqa/guidelines/appendices.html

9 CONCLUSIONS AND RECOMMENDATIONS FOR POTENTIAL GEOLOGIC AND SEISMIC IMPACTS/HAZARDS

The purpose of our evaluation was to provide an overview of the geotechnical site conditions and the potential geologic/seismic hazards that may affect developing the TSOC project. Our evaluation was based on review of readily available geologic, seismic and groundwater data, previous subsurface exploration data by Ninyo & Moore and others, site reconnaissance, and engineering analyses. Based on the results of our geotechnical evaluation, the construction of the TSOC project is not anticipated to have a significant impact on the geologic environment. However, development within the project area may be subjected to potential impacts from geologic and seismic hazards.

The potential geologic/seismic hazards and geotechnical constraints described in the following sections will involve various types of mitigation in order to reduce the potential impacts and suitably prepare the site and proposed structures for development. Mitigation generally includes sound engineering practice in the design and construction of future development, including the implementation of appropriate geotechnical recommendations prior to the design and construction of the facilities, in the project area. General mitigation concepts regarding the potential geotechnical hazards and constraints at the TSOC site are presented in the following sections. Prior to design of future improvements, detailed subsurface geotechnical evaluation should be performed to address the site-specific conditions at the locations of the planned improvements and to provide detailed recommendations for design and construction.

9.1 Surface Fault Rupture

Surface fault rupture is the offset or rupturing of the ground surface by relative displacement across a fault during an earthquake. Based on our review of referenced geologic and fault hazard data and site reconnaissance, the project site is not transected by known active or potentially active faults. The active Puente Hill Blind Thrust fault is located approximately 2.8 miles north of the site. The site is not located within a State of California EFZ (Hart and Bryant, 2007). Therefore, the potential for surface rupture is considered low. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

9.2 Seismic Ground Shaking

Earthquake events from one of the regional active or potentially active faults near the project area could result in strong ground shaking which could affect the project site and proposed improvements. The level of ground shaking at a given location depends on many factors, including the size and type of earthquake, distance from the earthquake, and subsurface geologic conditions. The type of construction also affects how particular structures and improvements perform during ground shaking.

The 2016 California Building Code (CBC) specifies that the Risk-Targeted, Maximum Considered Earthquake (MCE_R) ground motion response accelerations be used to evaluate seismic loads for design of buildings and other structures. The MCE_R ground motion response accelerations are based on the spectral response accelerations for 5 percent damping in the direction of maximum horizontal response and incorporate a target risk for structural collapse equivalent to 1 percent in 50 years with deterministic limits for near-source effects. The horizontal peak ground acceleration (PGA) that corresponds to the MCE_R for the site was calculated as 0.6g using the USGS (USGS, 2014b) seismic design tool (web-based).

The 2016 CBC specifies that the potential for liquefaction and soil strength loss be evaluated, where applicable, for the mapped PGA (PGA_M) which is defined as the Maximum Considered Earthquake Geometric Mean (MCE_G) PGA with adjustment for site class effects in accordance with the American Society of Civil Engineers (ASCE) 7-10 Standard. The MCE_G PGA is based on the geometric mean PGA with a 2 percent probability of exceedance in 50 years. The MCE_G PGA was calculated using the USGS (USGS, 2014b) seismic design tool that yielded a mapped MCE_G PGA of 0.53g for the site and a site coefficient (F_{PGA}) of 1.00 for Site Class D.

This potential level of ground shaking could have high impacts on project improvements without appropriate design mitigation, and should be considered during the detailed design phase of the project. Mitigation of the potential impacts of seismic ground shaking can be achieved through project structural design. Structural elements of planned improvements can be designed to resist or accommodate appropriate site-specific ground motions and to conform to the current seismic design standards, including CBC building regulations. Appropriate structural design and mitigation techniques would reduce the impacts related to seismic ground shaking.

9.3 Liquefaction

Liquefaction is the phenomenon in which loosely deposited granular soils located below the water table undergo rapid loss of shear strength due to excess pore pressure generation when subjected to strong earthquake-induced ground shaking. Ground shaking of sufficient duration results in the loss of grain-to-grain contact due to rapid rise in pore water pressure causing the soil to behave as a fluid for a short period of time. Liquefaction is known generally to occur in saturated or near-saturated cohesionless soils at depths shallower than 50 feet. Factors known to influence liquefaction potential include composition and thickness of soil layers, grain size, relative density, groundwater level, degree of saturation, and both intensity and duration of ground shaking. The potential damaging effects of liquefaction include differential settlement, loss of ground support for foundations, ground cracking, heaving and cracking of slabs due to sand boiling, buckling of deep foundations due to liquefaction-induced ground settlement.

According to the Seismic Hazard Zones Map published by the State of California (CGS, 1998), the site is not located within an area considered susceptible to liquefaction (Figure 5). Recent data indicate that groundwater depths in the site vicinity are on the order of 60 to 100 feet below the ground surface; and the historic high groundwater depths in the site vicinity are greater than 50 feet.

Although not mapped as being in a known area subject to liquefaction, a detailed assessment of the potential for liquefaction and seismically induced dynamic settlement and its effect on the

TSOC improvements should be performed prior to design and construction of project improvements, and incorporated into the design, as appropriate. Site-specific geotechnical evaluations to assess the liquefaction and dynamic settlement characteristics of the on-site soils would include drilling of exploratory borings, cone penetration tests, evaluation of groundwater depths, and laboratory testing of soils

Structural design and mitigation techniques would be developed to reduce the impacts related to liquefaction. Mitigation alternatives for potential dynamic settlement related to liquefaction include supporting structures on deep pile foundations that extend through the liquefiable zones into competent material or stabilization of the liquefiable soils using in-situ ground improvement techniques such as vibro-replacement stone columns, rammed aggregate piers, compaction grouting, soil-cement mixing, or jet grouting. Soil stabilization would mitigate the liquefaction hazard and the new structures could then be supported on shallow foundation systems.

9.4 Landslides

Landslides, slope failures, and mudflows of earth materials generally occur where slopes are steep and/or the earth materials are too weak to support themselves. Earthquake-induced landslides may also occur due to seismic ground shaking. The site vicinity is relatively level and therefore not considered subject to seismically induced landsliding. Accordingly, the potential for landslides or mudflows to affect the project site is considered low.

9.5 Tsunamis

Tsunamis are long seismic sea waves (long compared to ocean depth) generated by sudden movements of the sea floor caused by submarine earthquakes, landslides, or volcanic activity. Based on the site elevation and inland location of the site, the potential for a tsunami to impact the site is considered low.

9.6 Soil Erosion

Erosion is a process by which soil or earth material is loosened or dissolved and removed from its original location. Future construction at the site will result in ground surface disruption during demolition, excavation, grading, and trenching that would create the potential for erosion to occur. Erosion can occur by varying processes and may occur at the site where bare soil is exposed to wind or moving water (both rainfall and surface runoff). The processes of erosion are generally a function of material type, terrain steepness, rainfall or irrigation levels, surface drainage conditions, and general land uses.

Based on our review of geologic references and site reconnaissance, the materials exposed at the surface of the project site include sands, silty sands, and sandy silt soils. Granular soils

typically have low cohesion, and have a relatively higher potential for erosion from surface runoff when exposed in cut slopes or utilized near the face of fill embankments. Surface soils with higher amounts of clay tend to be less erodible as the clay acts as a binder to hold the soil particles together.

Future construction at the site may create the potential for soil erosion during excavation, grading, and trenching activities. However, a Storm Water Pollution Prevention Program incorporating Best Management Practices (BMPs) for erosion control is typically prepared prior to the start of construction to mitigate erosion during site construction. Typical BMPs include erosion prevention mats or geofabrics, silt fencing, sandbags, plastic sheeting, temporary drainage devices, and positive surface drainage to allow surface runoff to flow away from site improvements or areas susceptible to erosion. Surface drainage design provisions and site maintenance practices would reduce potential soil erosion following site development.

9.7 Subsidence

Subsidence is characterized as a sinking of the ground surface relative to surrounding areas, and can generally occur where deep soil deposits are present. Subsidence in areas of deep soil deposits is typically associated with regional groundwater withdrawal or other fluid withdrawal from the ground such as oil and natural gas. Subsidence can result in the development of ground cracks and damage to subsurface vaults, pipelines and other improvements.

Historic evidence of subsidence is not known to have occurred at the project site and the potential for subsidence in the project area is considered to be relatively low. To evaluate the potential for subsidence to affect future project components, surface reconnaissance and subsurface evaluation should be performed. During the detailed design phase of the project, site-specific geotechnical evaluations would be performed to assess the settlement potential of the on-site natural and fill soils. This may include detailed surface reconnaissance to evaluate site conditions, and drilling of exploratory borings or test pits and laboratory testing of soils, where appropriate, to evaluate site conditions.

9.8 Compressible/Collapsible Soils

Compressible soils are generally comprised of soils that undergo consolidation when exposed to new loading, such as fill or foundation loads. Soil collapse is a phenomenon where the soils undergo a significant decrease in volume upon increase in moisture content, with or without an increase in external loads. Buildings, structures and other improvements may be subject to excessive settlement-related distress when compressible soils or collapsible soils are present.

Based on our background review, the project area is underlain by younger to older alluvial deposits that are considered poorly to relatively well consolidated. Due to the presence of potentially compressible/collapsible soils at the site, there is a potential for differential settlement to affect future improvements without appropriate mitigation during detailed project design and construction.

To evaluate the potential for settlement to affect future project components, surface reconnaissance and subsurface evaluation should be performed. During the detailed design phase of the project, site-specific geotechnical evaluations would be performed to assess the settlement potential of the on-site natural soils and undocumented fill. This may include detailed surface reconnaissance to evaluate site conditions, and drilling of exploratory borings or test pits and laboratory testing of soils, where appropriate, to evaluate site conditions.

Alternatives to mitigate potential settlement due to compressible soils at the site include over-excavation and re-compaction, supporting structures on pile foundations, or in-situ ground improvement to limit settlement to acceptable levels so that structures are not adversely impacted. To mitigate potential settlement for other relatively light minor structures, new pavements and hardscape, loose/soft soils encountered at the subgrade and foundation levels of these improvements during construction can be removed and replaced with suitable compacted fill, based on detailed design stage recommendations.

9.9 Expansive Soils

Expansive soils include clay minerals that are characterized by their ability to undergo significant volume change (shrink or swell) due to variations in moisture content. Sandy soils are generally not expansive. Changes in soil moisture content can result from rainfall, irrigation, pipeline leakage, surface drainage, perched groundwater, drought, or other factors. Volumetric change of expansive soil may cause excessive cracking and heaving of structures with shallow foundations, concrete slabs-on-grade, or pavements supported on these materials.

Although the site vicinity is generally mapped as being underlain by granular soils, variable surface soils are anticipated at the site. Detailed assessment of the potential for expansive soils should be evaluated during the design phase of the project and mitigation techniques would be developed, as appropriate, to reduce the impacts related to expansive soils.

The potential for expansive soils to impact site improvements can be mitigated by removal of near-surface expansive soils and replacement with low expansive material during construction and providing positive surface drainage for site improvements to reduce infiltration of water into the subsurface. Additionally, expansive soil mitigation can involve design of site improvements

to resist the effects of expansive soils, including deepening foundation members and strengthening foundations and slabs with additional reinforcement, or utilizing post-tensioned slabs.

9.10 Groundwater and Excavations

The depth of historic high groundwater at the project site has been mapped as greater than 50 feet below the ground surface (CGS, 1997b). Monitoring wells in the vicinity of the project site indicate that the groundwater elevations in the project area range from approximately 65 to over 100 feet below existing grades.

Proposed future improvements at the project site are anticipated to include excavations and site grading for new structures. Based on the groundwater levels reported in the site vicinity and the anticipated depth of construction activities, groundwater is not anticipated to have a significant impact on excavations for the planned project improvements.

Groundwater levels may be influenced by seasonal variations, precipitation, irrigation, soil/rock types, groundwater pumping, and other factors and are subject to fluctuations. On-site infiltration of stormwater related to low impact development guidelines may have an impact on existing and planned site improvements and should be evaluated during the detailed design phase of the project.

Further study, including subsurface exploration, should be performed during the detailed design phase of planned improvements to evaluate the presence of groundwater, and to evaluate the potential for stormwater infiltration at the site, and the potential impacts on design and construction of project improvements. Mitigation techniques should be developed, as appropriate, to reduce the impacts related to groundwater. The potential impacts due to groundwater would be reduced with incorporation of techniques such as casing, shoring and/or construction dewatering.

10 SOIL EXCAVATABILITY AND REUSE

Based on the mapped soil units at the site (silty sand and sandy silt), excavation should be generally accomplished with heavy-duty earth moving equipment in good condition. Additional subsurface investigation should be performed to further evaluate the excavatability of site earth materials.

On-site soils (other than plastic clays, if encountered) with an organic content of less than approximately 3 percent by volume (or 1 percent by weight) are suitable for reuse as general fill material. Fill material should not contain rocks or lumps over approximately 3 inches in

diameter, and not more than approximately 30 percent larger than ¾ inch. Oversize materials, if encountered, should be separated from material to be used for compacted fill and removed from the site. Moisture conditioning (including drying) of existing on-site materials may be anticipated if reused as fill.

11 PRELIMINARY FOUNDATION RECOMMENDATIONS

Based on our preliminary findings, it is anticipated that the proposed buildings and improvements may be supported on shallow, spread or continuous footings bearing on native soils or compacted fill. Additional evaluation including subsurface investigation, laboratory testing, and engineering analyses should be performed prior to final design of foundations or other improvements.

12 LIMITATIONS

The purpose of this study was to evaluate geotechnical conditions and potential geologic and seismic hazards at the site by reviewing readily available geotechnical data, and performing a site reconnaissance to provide a preliminary geotechnical report which can be utilized in the preparation of environmental documents for the project.

The geotechnical analyses presented in this report have been conducted in accordance with current engineering practice and the standard of care exercised by reputable geotechnical consultants performing similar tasks in this area. No other warranty, implied or expressed, is made regarding the conclusions, recommendations, and professional opinions expressed in this report. Our preliminary conclusions and recommendations are based on a review of readily available geotechnical literature, geologic and seismic data, and an analysis of the observed conditions. Variations may exist and conditions not observed or described in this report may be encountered.

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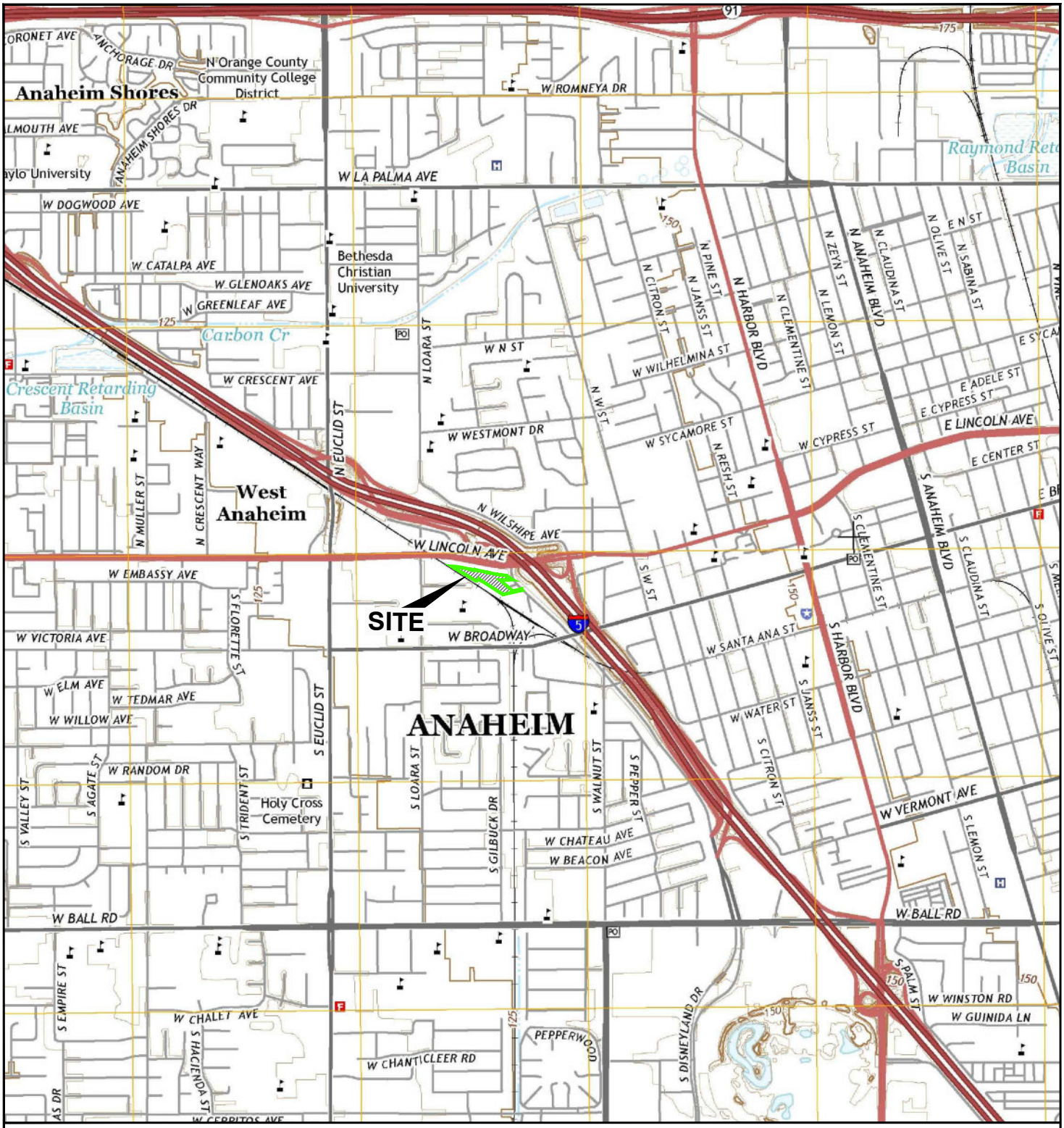
AERIAL PHOTOGRAPHS				
Source	**Date**	**Flight**	**Numbers**	**Scale**
USDA	June 2, 1953	AXK-6K	81 and 82	1:24,000

FIGURES



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NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: USGS, 2015.

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FIGURE 1

SITE LOCATION

OCTA TRANSIT SECURITY AND OPERATIONS CENTER

ANAHEIM, CALIFORNIA

210248002 I 9/17

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LEGEND

SITE BOUNDARY

C-3 PAVEMENT CORE

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: GOOGLE EARTH, 2017.

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FIGURE 2

SITE PLAN

OCTA TRANSIT SECURITY AND OPERATIONS CENTER

ANAHEIM, CALIFORNIA

210248002 I 9/17

Ninyo & Moore

Geotechnical & Environmental Sciences Consultants

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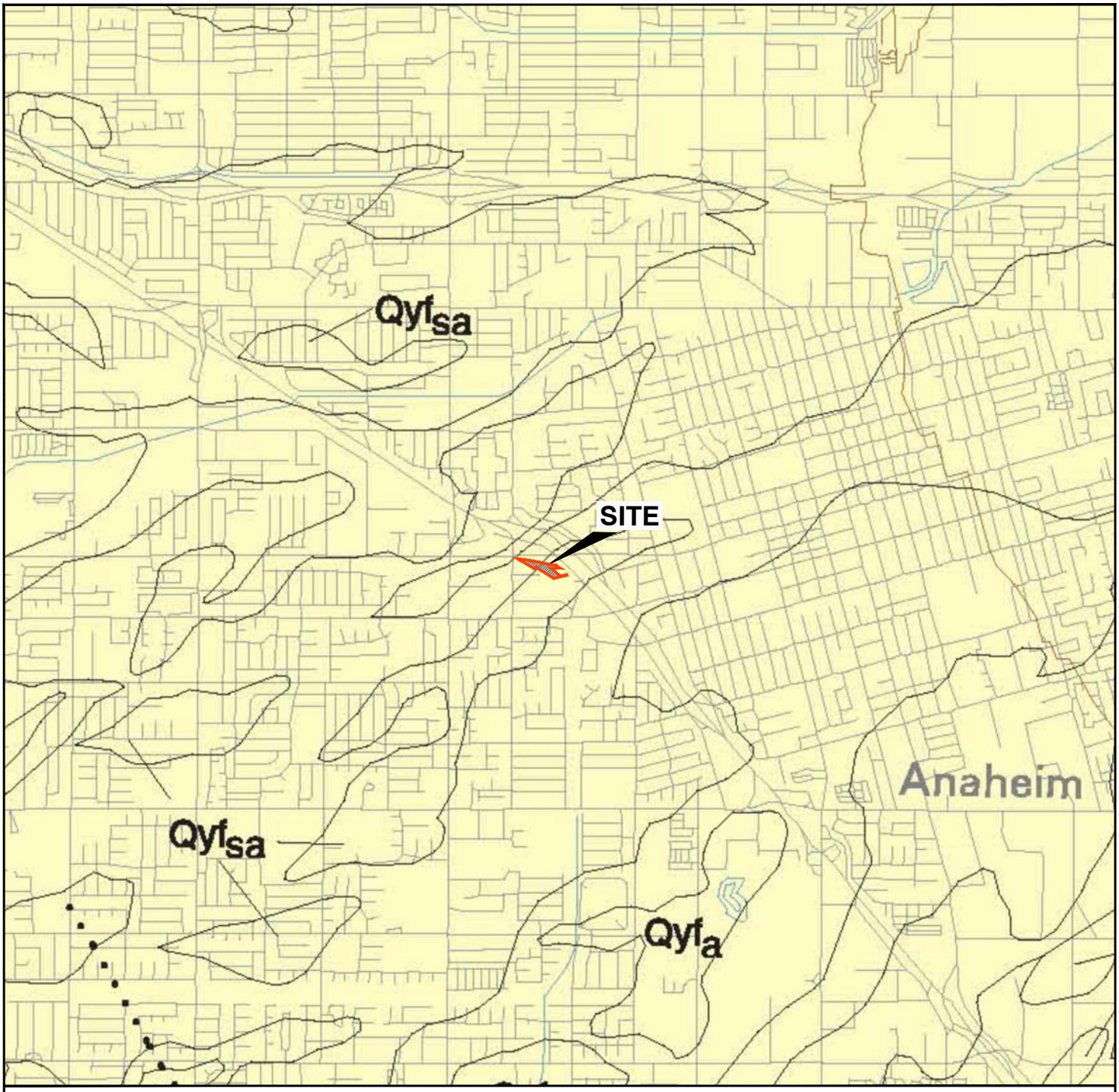

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LEGEND

Qyf	YOUNG ALLUVIAL FAN DEPOSITS
	GEOLOGIC CONTACT
	FAULT

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NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

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FIGURE 3

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REGIONAL GEOLOGY

OCTA TRANSIT SECURITY AND OPERATIONS CENTER
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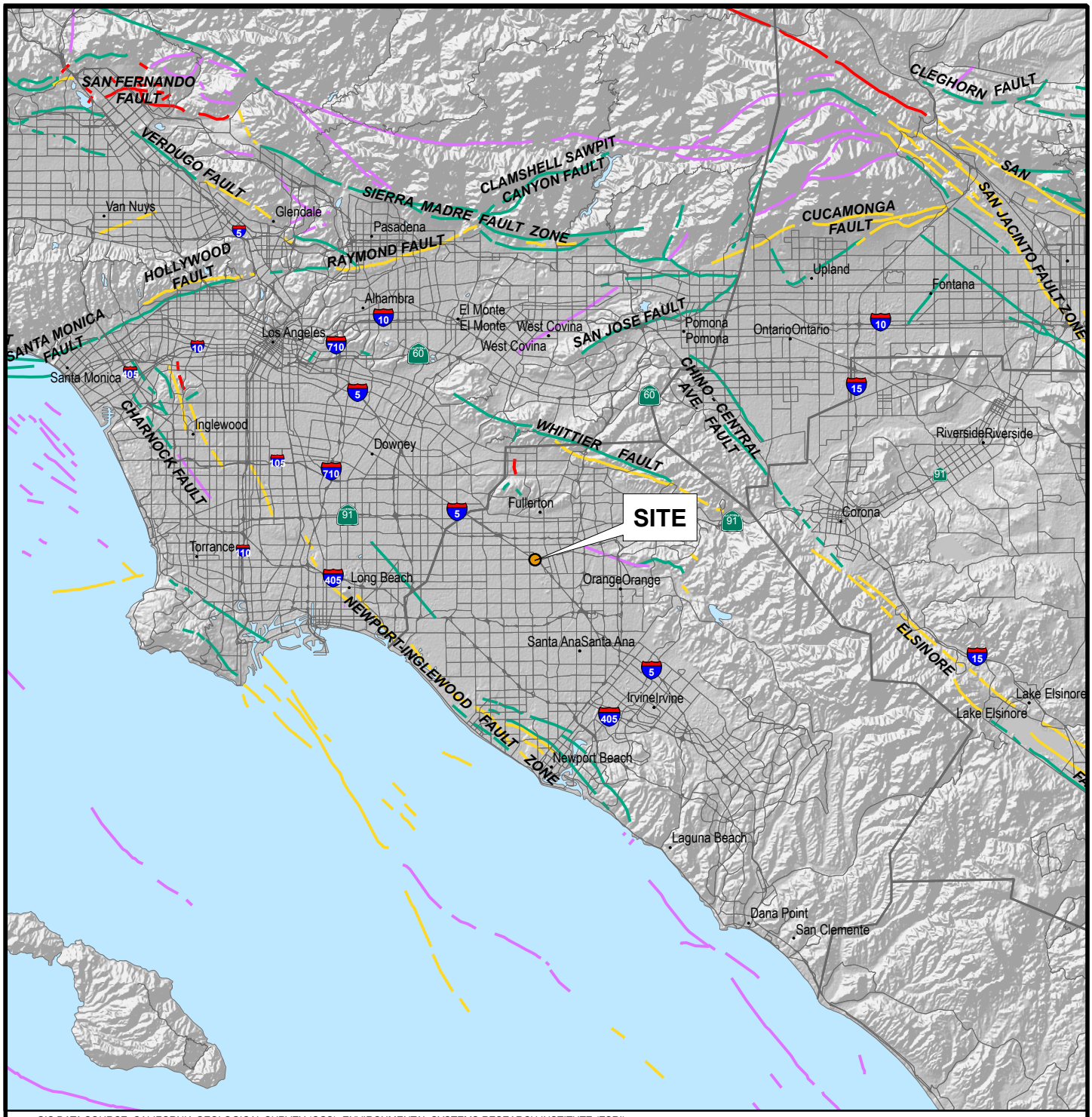

GIS DATA SOURCE: CALIFORNIA GEOLOGICAL SURVEY (CGS); ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE (ESRI)

LEGEND

FAULT ACTIVITY:

- HISTORICALLY ACTIVE
- HOLOCENE ACTIVE
- COUNTY BOUNDARIES
- LATE QUATERNARY
- QUATERNARY

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FIGURE 4

FAULT LOCATIONS

OCTA TRANSIT SECURITY AND OPERATIONS CENTER
ANAHEIM, CALIFORNIA

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LEGEND

LIQUEFACTION:
Areas where historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: CDMG, 1999.

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FIGURE 5

SEISMIC HAZARD ZONES

OCTA TRANSIT SECURITY AND OPERATIONS CENTER
ANAHEIM, CALIFORNIA

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