APPENDICES

VOLARA TOWNHOMES
STATE CLEARINGHOUSE NO. 2019060214
LA HABRA, CALIFORNIA

LEAD AGENCY:

CITY OF LA HABRA
DEPARTMENT OF COMMUNITY DEVELOPMENT
201 EAST LA HABRA BOULEVARD
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REPORT PREPARED BY:

BLODGETT BAYLOSIS ENVIRONMENTAL PLANNING
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JANUARY 7, 2020

LHAB 031

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TABLE OF CONTENTS

Section **Page**

Appendices **5**
Appendix A – Notice of Preparation 7
Appendix B – Air Quality Worksheets 69
Appendix C – Phase I/Phase II 283
Appendix D – Water Quality Management Plan 329
Appendix E – Noise Worksheets 469
Appendix F – Traffic Impact Analysis and Parking Study 483
Appendix G – Will Serve Letters 553

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APPENDICES

APPENDIX A – NOTICE OF PREPARATION
APPENDIX B – AIR QUALITY WORKSHEETS
APPENDIX C – PHASE I/PHASE II
APPENDIX D – WATER QUALITY MANAGEMENT PLAN
APPENDIX E – NOISE WORKSHEETS
APPENDIX F – TRAFFIC IMPACT ANALYSIS AND PARKING STUDY
APPENDIX G – WILL SERVE LETTERS

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NOTICE OF PREPARATION AND INITIAL STUDY

VOLARA TOWNHOMES
LA HABRA, CALIFORNIA

LEAD AGENCY:

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110 EAST LA HABRA BOULEVARD
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JUNE 20, 2019

LHAB 031

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NOTICE OF PREPARATION (NOP)

The purpose of this Notice of Preparation (NOP) is to notify responsible agencies, trustee agencies, surrounding cities, and the public that the City of La Habra intends to initiate the preparation of an environmental impact report (EIR) for the proposed project described herein. The City of La Habra, in its capacity as Lead Agency, requests that this NOP and the attached Initial Study be reviewed. A 30-day public review period will be provided to allow these entities and other interested parties to comment on the proposed project and the NOP.

1. **Project Title:** Volara Townhomes.

2. **Lead Agency Name and Address:** City of La Habra, 110 East La Habra Boulevard, La Habra, California 90631.

3. **Contact Person and Phone Number:** Chris Schaefer, Senior Planner. (562) 383-4100.

4. **Project Location:** The project area is located on the east side Euclid Street. The site's Assessor Parcel Number (APNs) include: 022-193-01; 022-193-02; 022-193-03; and 022-193-56. Electric Avenue, located along the northern boundary of the project, will be vacated east of Euclid Street and made a part of the project.

5. **Project Sponsor's Name and Address:** Mr. Chris Segesman, Bonanni Development. 5500 Bolsa Avenue, Suite 120, Huntington Beach, California 92649.

6. **General Plan Designation:** Residential Multi-Family 1 (15-24 units/acre) and Light Industrial.

7. **Zoning:** R-4 Multi-family dwelling and M-1 Light Manufacturing.

8. **Description of Project:** The project Applicant is proposing to construct 58 townhome units on a 2.92-acre site located along the east side of Euclid Street. These units will have a total floor area of 88,522 square feet and a maximum height of 35 feet. A total of 181 parking spaces and 20,672 square feet of open space will be provided. Access will be provided by an existing 35-foot wide driveway located along the east side of Euclid Street.

9. **Surrounding Land Uses and Setting:** The project site is located in a predominantly residential area. A Union Pacific railroad right-of-way extends along the project site's north side. A planned unit development known as the Brio Residential Specific Plan is located further north. A flood control channel extends along the project site's southern property line. Single-family residential is located south of the aforementioned channel. Industrial uses abut the project site to the east. Finally, Euclid Street extends along the site's western side. Multiple-family residential occupies frontage along the west side of Euclid Street, opposite the project site.

10. **City Contact:** A 30-day public review period will be provided to allow these entities and other interested parties to comment on the proposed project and the NOP. The contact at the City of La Habra is the following person:

Mr. Chris Schaefer, Senior Planner
City of La Habra Community Development Department
110 East La Habra Boulevard
La Habra, California 90631

11. **Review Period:** The 30-day review public review period will commence on June 21, 2019 and will conclude on July 22, 2019.

TABLE OF CONTENTS

Section **Page**

1. Introduction **7**

2. Use of this Initial Study **7**

3. Project Location **8**

4. Project Description **12**

5 Overview of Discretionary Actions **21**

6. Environmental Factors Affected and Determination **22**

7. Initial Study Checklist **22**

8. Environmental Analysis **30**
8.1 Aesthetics 31
8.2 Agricultural and Forestry Resources 33
8.3 Air Quality 34
8.4 Biological Resources 35
8.5 Cultural Resources 38
8.6 Energy 39
8.7 Geology and Soils 41
8.8 Greenhouse Gas Emissions 44
8.9 Hazards and Hazardous Materials 45
8.10 Hydrology and Water 48
8.11 Land Use and Planning 51
8.12 Mineral Resources 52
8.13 Noise 53
8.14 Population and Housing 54
8.15 Public Services 54
8.16 Recreation 55
8.17 Transportation and Circulation 55
8.18 Tribal Cultural Resources 57
8.19 Utilities and Service Systems 57
8.20 Wildfire 59
8.21 Mandatory Findings of Significance 60

9. Preparers **61**

LIST OF TABLES

Table Number and Title Page

Table 1 –Project Summary Table 21
Table 2 – Initial Study Checklist 23
Table 3 – Estimated Annual Energy Consumption 40

LIST OF EXHIBITS

Exhibit Number and Title Page

Exhibit 1 – Regional Location 9
Exhibit 2 – Citywide Map 10
Exhibit 3 – Aerial Map 11
Exhibit 4 – Conceptual Site Plan 13
Exhibit 5 – Conceptual Elevations (Building 100) 14
Exhibit 6 – Conceptual Elevations (Building 200) 15
Exhibit 7 – Conceptual Elevations (Building 300) 16
Exhibit 8 – Conceptual Elevations (Building 400) 17
Exhibit 9 – Conceptual Elevations (Building 500) 18
Exhibit 10 – Conceptual Elevations (Building 600) 19
Exhibit 11 – Conceptual Elevations (Building 700) 20

1. INTRODUCTION

The project Applicant is proposing to construct 58 townhome units on a 2.92-acre site located along the east side of Euclid Street. These 58 units will have a total combined floor area of 88,522 square feet and the maximum height of the new housing units will be 35 feet. A total of 181 parking spaces and 20,672 square feet of open space will also be provided. Access will be provided by an existing 35-foot wide driveway located along the east side of Euclid Street. The proposed project is described in greater detail in Section 2, herein.

This Initial Study provides a preliminary evaluation of environmental impacts anticipated to result from the construction and subsequent occupancy of the proposed project. Pursuant to the CEQA Guidelines, additional purposes of this Initial Study include the following:

- To provide the City of La Habra with information needed to decide whether to prepare an Environmental Impact Report (EIR), Mitigated Negative Declaration, or Negative Declaration for the project;
- To facilitate the project's environmental assessment early in the design and development of a project;
- To eliminate unnecessary EIRs; and,
- To determine the nature and extent of any new impacts associated with the proposed project.[1]

For the proposed project, the City of La Habra determined that an Environmental Impact Report (EIR) would be required to analyze the proposed project's environmental impacts.

2. USE OF THIS INITIAL STUDY

Pursuant to Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines, this Initial Study was prepared to provide the City of La Habra, in its capacity as Lead Agency, with information to use as the basis for determining the nature and extent of any required environmental analysis and review. The findings of this Initial Study indicate that the project may have a significant effect on the environment in the absence of mitigation and that an EIR would be required.

This Initial Study and Notice of Preparation has been prepared in conformance with the California Environmental Quality Act of 1970, as amended (Public Resources Code, Section 21000 et. seq.); Section 15082 of the State CEQA Guidelines, as amended (California Code of Regulations, Title 14, Chapter 3, Section 15000, et. seq.); applicable requirements of the City of La Habra; and the regulations, requirements, and procedures of any other responsible public agency or an agency with jurisdiction by law. The City of La Habra is designated as the Lead Agency in accordance with Section 15050 of the CEQA

[1] California, State of, *Title 14. California Code of Regulations. Chapter 3. Guidelines for the Implementation of the California Environmental Quality Act* as Amended 2000. (CEQA Guidelines) §15063.

Guidelines.[2] The environmental analysis indicated a number of issue areas would require further analysis in a Draft Environmental Impact Report (EIR). Although this Initial Study was prepared with consultant support, the analysis, conclusions, and findings made as part of its preparation fully represent the independent judgment and position of the City of La Habra acting in its capacity as Lead Agency.

Copies of this *Initial Study* and the *Notice of Preparation (NOP)* will be forwarded to responsible agencies and will be made available to the public for review and comment. A 30-day public review period will be provided to allow these entities and other interested parties to comment on the proposed project and the NOP. The contact at the City of La Habra is the following person:

Mr. Chris Schaefer, Senior Planner
City of La Habra Community Development Department
110 East La Habra Boulevard, La Habra, California 90631

This Initial Study has been included with the Notice of Preparation that indicates an EIR will be prepared for the proposed project's environmental review. This Initial Study will be circulated for a period of 30 days for public and agency review. Comments received as part of the NOP's circulation will be taken into consideration as part of the preparation of the Draft EIR.

3. PROJECT LOCATION

The project area is located in the central portion of the City of La Habra. The City of La Habra is located in the northern portion of Orange County approximately 18 miles southeast of the Los Angeles and 12 miles northwest of Santa Ana. La Habra is bounded on the north by La Habra Heights; on the west by Whittier, unincorporated Los Angeles County (East Whittier), and La Mirada; on the east by Brea and Fullerton; and on the south by Fullerton. The western corporate boundaries of the City of La Habra also conform to the boundary between Los Angeles County and Orange County.

Major physiographic features in the area include the Puente Hills, located 1.25 miles north of the project site and the West Coyote Hills, located 1.38 mile southwest of the project site. The major freeways that serve the project area include the Orange Freeway (SR-57), located 3.69 miles east of the project site; the Riverside Freeway (SR-91), located five miles south of the project site; the Santa Ana Freeway (I-5), located 5.16 miles southwest of the project site; and the Pomona Freeway (SR-60), located 4.76 miles north of the project site. There are a number of major arterial roads that provide access to the project site including Beach Boulevard (SR-39), located 1.24 miles west of the project site; Whittier Boulevard (SR-72), located 0.78 miles north of the project site; Harbor Boulevard, located 0.65 miles east of the project site; and the adjoining Euclid Street.[3] The location of La Habra in a regional context is shown in Exhibit 1. A citywide map is provided in Exhibit 2 and a vicinity map is provided in Exhibit 3.

[2] California, State of, *Title 14. California Code of Regulations. Chapter 3. Guidelines for the Implementation of the California Environmental Quality Act* as Amended 2000. (CEQA Guidelines) §15050.

[3] Google Earth. Website accessed January 16, 2019.

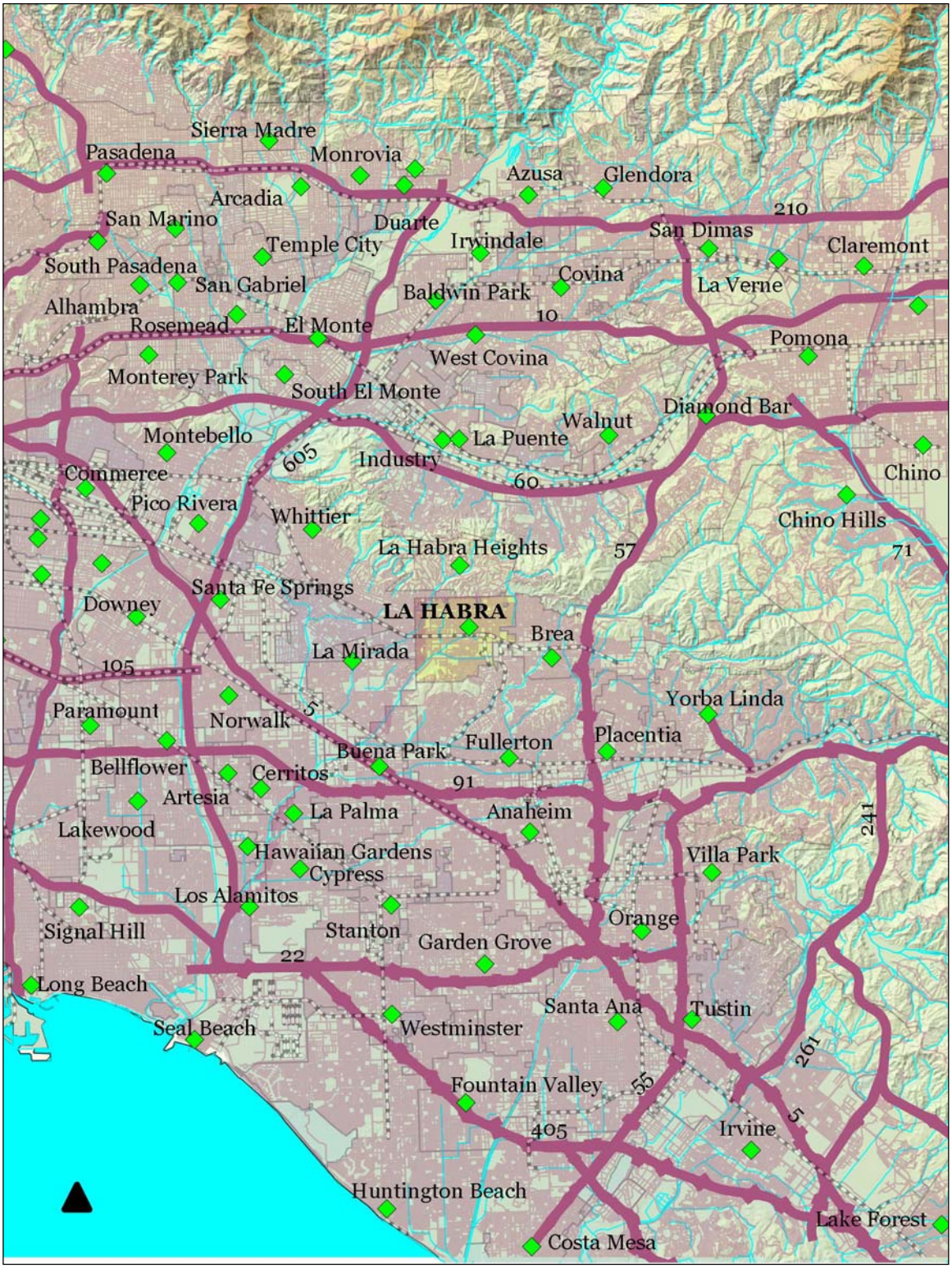

EXHIBIT 1
REGIONAL LOCATION
Source: Quantum GIS

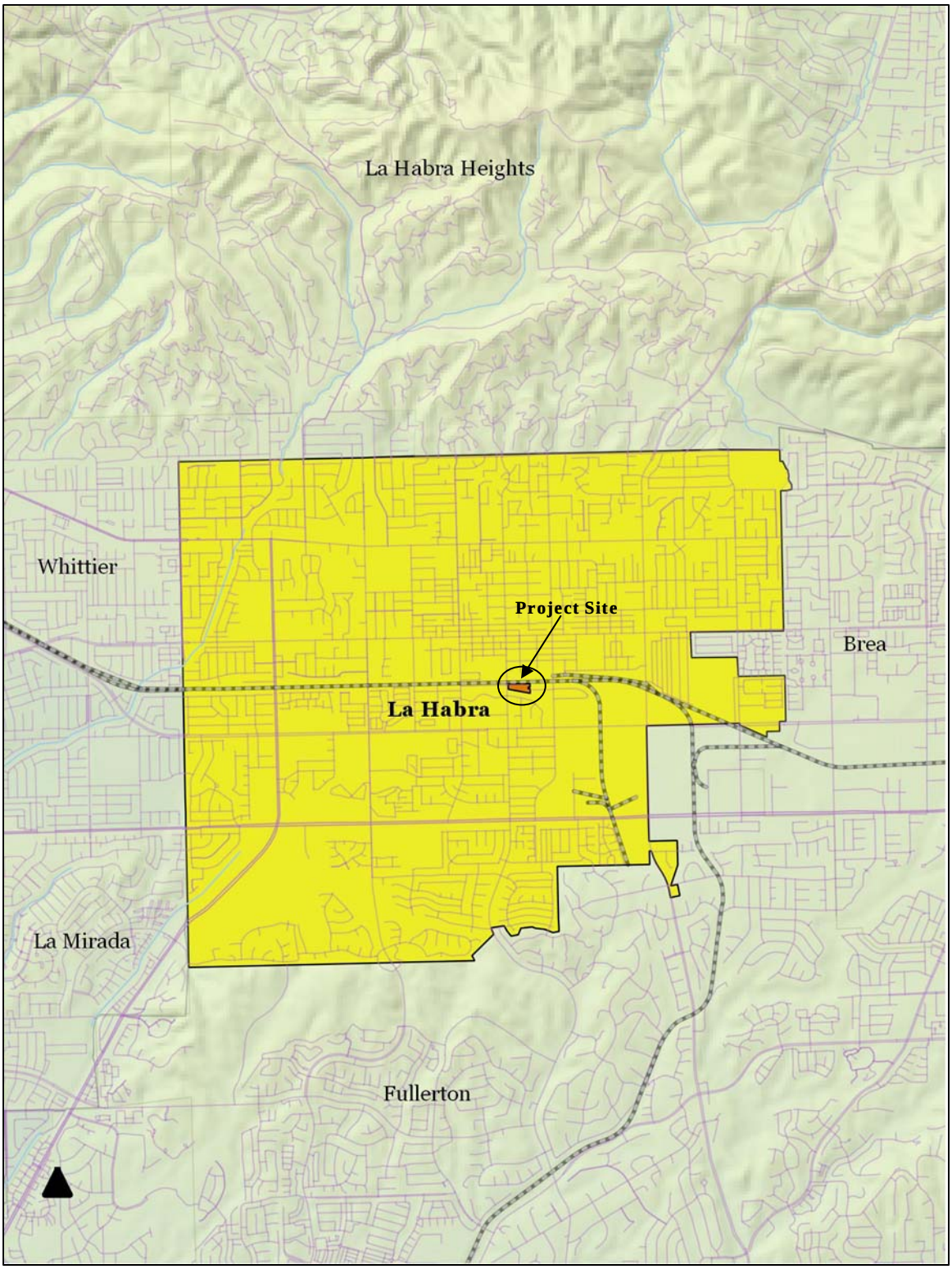

EXHIBIT 2
CITYWIDE MAP
Source: Quantum GIS

EXHIBIT 3
AERIAL MAP
Source: Quantum GIS

4. PROJECT DESCRIPTION

The proposed project involves the construction of 58 new, three-story townhome units within a 2.92-acre (127,043 square-feet) site. The project's implementation will require the demolition of the existing structural improvements that occupy the site. The project elements are described below:

- *Project Site*. The 2.92-acre project site currently consists of four parcels and an unimproved section Electric Avenue (APNs: 022-193-01; 022-193-02; 022-193-03; and 022-193-56). The project site has a maximum lot depth (east to west) of 620 feet and a maximum lot width (north to south) of 271 feet. The proposed project will have a density of 19.9 dwelling units per acre (du/acre) and a lot coverage of 30%. The site's southern, eastern, and northern boundaries will be enclosed by a new six-foot high concrete block wall.[4] Electric Avenue, located along the northern boundary of the project, will be vacated east of Euclid Street and made a part of the project.

- *Townhome Units*. The project will include the construction of 58 three-story townhome units with a total floor area of 88,522 square feet and a maximum height of 35 feet. These 58 townhome units will consist of three different floor plan options (referred to herein as floor plans 1, 2, and 3). Floor Plan 1 will consist of seven units, Floor Plan 2 will consist of 19 units, and Floor Plan 3 will total of 32 units. Floor Plan 1 will be equipped with two bedrooms and will have a floor area of 1,429 square feet. Floor Plan 2 will feature two bedrooms and will encompass 1,453 square feet. Lastly, Floor Plan 3 will include three bedrooms and will total 1,591 square feet. These units will have a total height of 35 feet. In addition, these units will be equipped with double-paned windows, central air conditioning, and solid core doors.[5]

- *Open Space and Landscaping*. A total of 20,672 square feet of common and private open space will be provided. Common open space will encompass 16,190 square feet, while the remaining 4,482 square feet of open space will consist of private open space. Of the total amount of open space that will be provided, 546 square feet will consist of private balcony space while 3,936 square feet will consist of private patio space. In addition, approximately 1,241 square feet of non-qualified deck area space will be included.[6]

- *Parking and Access*. A total of 181 parking spaces will be provided. Of the total number of spaces that will be provided, 116 spaces will be garage spaces (one 2-car garage per unit), 63 spaces will consist of guest spaces, and two spaces will comply with the Americans with Disabilities Act (ADA). Access to the project site will be provided by a 35-foot wide driveway located on the east side of Euclid Street. An internal drive aisle with a curb-to-curb width of 26 feet will facilitate internal circulation.[7]

The proposed site plan is provided in Exhibit 4. Conceptual elevations are provided in Exhibits 5 through 11.

[4] KTGY Architecture + Planning. *Site Plan*. Plan dated November 29, 2018.

[5] Ibid.

[6] Ibid.

[7] Ibid.

EXHIBIT 4
CONCEPTUAL SITE PLAN
Source: KTGY

EXHIBIT 5
CONCEPTUAL ELEVATIONS (BUILDING 100)
Source: KTGY

EXHIBIT 6
CONCEPTUAL ELEVATIONS (BUILDING 200)
Source: KTGY

EXHIBIT 7
CONCEPTUAL ELEVATIONS (BUILDING 300)
Source: KTGY

EXHIBIT 8
CONCEPTUAL ELEVATIONS (BUILDING 400)
Source: KTGY

EXHIBIT 9
CONCEPTUAL ELEVATIONS (BUILDING 500)
Source: KTGY

EXHIBIT 10
CONCEPTUAL ELEVATIONS (BUILDING 600)
Source: KTGY

EXHIBIT 11
CONCEPTUAL ELEVATIONS (BUILDING 700)
Source: KTGY

Table 1
Project Summary Table

Project Element	Description
Site Area	127,043 sq. ft. (2.92 acres)
Total Number of Units	58
Total Building Floor Area	88,522 sq. ft.
Maximum Building Height	35 ft.; 2 stories and 35-foot maximum height
Project Density	19.9 du/acre
Lot Coverage	30%
Floor Plan 1 (No. of Units)	7 units
Floor Plan 2 (No. of Units)	19 units
Floor Plan 3 (No. of Units)	32 units
Floor Plan 1 Units Floor Area	1,429 sq. ft.
Floor Plan 2 Units Floor Area	1,453 sq. ft.
Floor Plan 3 Units Floor Area	1,591 sq. ft.
Common Open Space	20,672 sq. ft.
Parking	181 parking spaces including 116 enclose spaces; 63 guest spaces, & 2 ADA spaces

Source: KTGY Architecture + Planning. *Site Plan*. Plan dated November 29, 2018

5. OVERVIEW OF DISCRETIONARY ACTIONS

As currently envisioned, the project will require the approval of the following discretionary actions:

- The approval of a Tentative Tract Map (the units will be owner-occupied);
- The approval of a General Plan Amendment for Parcel (APN# 022-193-56) from Light Manufacturing to Residential Multi-Family 1;
- The approval of a Zone Change for Parcel (APN# 022-193-56) from M-1 to R-4 (PUD);
- The approval of a Development Agreement, which will be completed prior to the circulation of the EIR;
- The approval of a Planned Unit Development Overlay;
- Completion of Design Review; and,
- Certification of the Final EIR.

Electric Avenue, located along the northern boundary of the project, will be vacated east of Euclid Street and made a part of the project. Other permits will be required as part of the proposed project's approval including a Solid Waste Facility Permit, Construction Stormwater Permit (State of California Water Resources Control Board), General Stormwater Permit (State of California Water Resources Control

Board), Grading Permit (City of La Habra), Building Permit (City of La Habra), and Occupancy Permit (City of La Habra).

6. ENVIRONMENTAL FACTORS AFFECTED AND DETERMINATION

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact," requiring mitigation as indicated in Table 2 provided in Section 7.

✖	Aesthetics	❑	Agriculture & Forests	✖	Air Quality
✖	Biological Resources	✖	Cultural Resources	❑	Energy
✖	Geology & Soils	✖	Greenhouse Gas Emissions	✖	Hazards & Haz.-Materials
❑	Hydrology & Water Quality	❑	Land Use & Planning	❑	Mineral Resources
✖	Noise	✖	Population & Housing	✖	Public Services
❑	Recreation	✖	Transportation	✖	Tribal Cultural Resources
✖	Utilities	❑	Wildfire	✖	Mandatory Findings

On the basis of the environmental analysis and review completed as part of this Initial Study's preparation:

❑	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.

7. INITIAL STUDY CHECKLIST

The environmental analysis in Section 8 of this Initial Study indicates that the proposed project may result in potentially significant impacts. For this reason, the City of La Habra has determined that an Environmental Impact Report will be required pursuant to CEQA. The Initial Study Checklist, provided on the following pages, summarizes the findings of the environmental analysis.

Table 2
Initial Study Checklist

Description of Issue	Requires Evaluation in EIR		Less than Significant Impact	No Impact
	Potentially Significant Impact	Less than Significant Impact with Mitigation		
SECTION 3.1 AESTHETICS *Except as provided in Public Resources Code Section 21099, would the project:*				
3.1.A. *Have a substantial adverse effect on a scenic vista?*				X
3.1.B. *Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?*				X
3.1.C. *In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publically accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?*				X
3.1.D. *Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*		X		
SECTION 3.2 AGRICULTURE AND FORESTRY RESOURCES *Would the project:*				
3.2.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?*				X
3.2.B. *Conflict with existing zoning for agricultural use, or a Williamson Act Contract?*				X
3.2.C. *Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined in Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?*				X
3.2.D. *Result in the loss of forest land or conversion of forest land to a non-forest use?*				X
3.2.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?*				X
SECTION 3.3 AIR QUALITY *Would the project:*				
3.3.A. *Conflict with or obstruct implementation of the applicable air quality plan?*	X			
3.3.B. *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?*		X		

Table 2
Initial Study Checklist

Description of Issue	Requires Evaluation in EIR		Less than Significant Impact	No Impact
	Potentially Significant Impact	Less than Significant Impact with Mitigation		
3.3.C. *Expose sensitive receptors to substantial pollutant concentrations?*		X		
3.3.D. *Result in other emissions (such as those leading to odors adversely affecting a substantial number of people*				X
SECTION 3.4 BIOLOGICAL RESOURCES *Would the project:*				
3.4.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 Wildlife or U.S. Fish and Wildlife Service?*				X
3.4.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 U.S. Fish and Wildlife Service?*				X
3.4.C. *Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*				X
3.4.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?*		X		
3.4.E. *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*				X
3.4.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?*				X
SECTION 3.5 CULTURAL RESOURCES *Would the project:*				
3.5.A. *Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?*				X
3.5.B. *Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?*		X		
3.5.C. *Disturb any human remains, including those interred outside of dedicated cemeteries?*			X	

Table 2
Initial Study Checklist

Description of Issue	Requires Evaluation in EIR		Less than Significant Impact	No Impact
	Potentially Significant Impact	Less than Significant Impact with Mitigation		
SECTION 3.6 ENERGY *Would the project:*				
3.6.A. *Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?*		X		
3.6.B. *Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?*		X		
SECTION 3.7 GEOLOGY AND SOILS *Would the project:*				
3.7.A. *Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: 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. Strong seismic ground–shaking? Seismic-related ground failure, including liquefaction? Landslides?*			X	
3.7.B. *Result in substantial soil erosion or the loss of topsoil?*		X		
3.7.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?*			X	
3.7.D. *Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?*		X		
3.7.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?*				X
3.7.F. *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*		X		
SECTION 3.8 GREENHOUSE GAS EMISSIONS *Would the project:*				
3.8.A. *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*			X	
3.8.B. *Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of greenhouse gases?*		X		

Table 2
Initial Study Checklist

Description of Issue	Requires Evaluation in EIR		Less than Significant Impact	No Impact
	Potentially Significant Impact	Less than Significant Impact with Mitigation		
SECTION 3.9 HAZARDS AND HAZARDOUS MATERIALS *Would the project:*				
3.9.A. *Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*		X		
3.9.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?*			X	
3.9.C. *Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*		X		
3.9.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?*				X
3.9.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 or excessive noise for people residing or working in the project area?*				X
3.9.F. *Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*				X
3.9.G. *Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wild land fire?*				X
SECTION 3.10 HYDROLOGY AND WATER QUALITY *Would the project:*				
3.10.A. *Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?*			X	
3.10.B. *Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?*			X	

Table 2
Initial Study Checklist

Description of Issue	Requires Evaluation in EIR		Less than Significant Impact	No Impact
	Potentially Significant Impact	Less than Significant Impact with Mitigation		
3.10.C. *Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner, which would: result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or, impede or redirect flood flows?*			X	
3.10.D. *In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?*				X
3.10.E. *Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?*				X
SECTION 3.11 LAND USE AND PLANNING *Would the project:*				
3.11.A. *Physically divide an established community?*				X
3.11.B. *Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?*		X		
SECTION 3.12 MINERAL RESOURCES *Would the project:*				
3.12.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?*				X
3.12.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?*				X
SECTION 3.13 NOISE *Would the project:*				
3.13.A. *Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*		X		
3.13.B. *Generation of excessive ground-borne vibration or ground-borne noise levels ?*		X		
3.13.C. *For a project located within the vicinity of a private airstrip or- 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?*				X

Table 2
Initial Study Checklist

Description of Issue	Requires Evaluation in EIR		Less than Significant Impact	No Impact
	Potentially Significant Impact	Less than Significant Impact with Mitigation		
SECTION 3.14 POPULATION AND HOUSING *Would the project:*				
3.14.A. *Induce substantial unplanned 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)?*	X			
3.14.B. *Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?*				X
SECTION 3.15 PUBLIC SERVICES				
3.15.A. *Would the project 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:* Fire protection services; Police protection; Schools; Parks; other Governmental facilities*?*	X			
SECTION 3.16 RECREATION				
3.16.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?*			X	
3.16.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?*			X	
SECTION 3.17 TRANSPORTATION				
3.17.A. *Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?*		X		
3.17.B. *Would the project conflict or be inconsistent with CEQA Guidelines §15064.3 subdivision (b)?*			X	
3.17.C. *Substantially increases hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment))?*		X		
3.17.D. *Result in inadequate emergency access?*			X	

Table 2
Initial Study Checklist

Description of Issue	Requires Evaluation in EIR		Less than Significant Impact	No Impact
	Potentially Significant Impact	Less than Significant Impact with Mitigation		
SECTION 3.18 TRIBAL CULTURAL RESOURCES				
3.18.A. *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: 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 a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resource Code Section 5024.1 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*5020.1(k)?		**X**		
SECTION 3.19 UTILITIES AND SERVICE SYSTEMS *Would the project:*				
3.19.A. *Require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities or relocation of which could cause significant environmental impacts?*			**X**	
3.19.B. *Have sufficient water supplies available to serve the project and the reasonably foreseeable future development during normal, dry, and multiple dry years?*		**X**		
3.19.C. *Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments*		**X**		
3.19.D. *Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?*		**X**		
3.19.E. *Comply with Federal, State, and local management and reduction statutes and regulations related to solid waste?*			**X**	
SECTION 3.20 WILDFIRE *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:*				
3.20.A. *Substantially impair an adopted emergency response plan or emergency evacuation plan?*			**X**	

Table 2
Initial Study Checklist

Description of Issue	Requires Evaluation in EIR		Less than Significant Impact	No Impact
	Potentially Significant Impact	Less than Significant Impact with Mitigation		
3.20.B. *Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?*			X	
3.20.C. *Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?*			X	
3.20.D. *Expose people or structures to significant risks, including down slope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?*			X	
SECTION 3.21 MANDATORY FINDINGS OF SIGNIFICANCE				
3.21.A. *Does the project have the potential to substantially 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?*		X		
3.21.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)?*		X		
3.21.C. *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*		X		

8. ENVIRONMENTAL ANALYSIS

This section of the Initial Study analyzes the potential environmental impacts that may result from the proposed project's implementation. The issue areas evaluated in this Initial Study include:

- Aesthetics (Section 8.1);
- Agriculture and Forestry Resources (Section 8.2);
- Air Quality (Section 8.3);
- Biological Resources (Section 8.4);
- Mineral Resources (Section 8.12);
- Noise (Section 8.13);
- Population and Housing (Section 8.14);
- Public Services (Section 8.15);

- Cultural Resources (Section 8.5);
- Energy (Section 8.6);
- Geology and Soils (Section 8.7);
- Greenhouse Gas Emissions (Section 8.8);
- Hazards and Hazardous Materials (Section 8.9);
- Hydrology and Water Quality (Section 8.10);
- Land Use and Planning (Section 8.11);
- Recreation (Section 8.16);
- Transportation (Section 8.17);
- Tribal Cultural Resources (Section 8.18);
- Utilities and Service Systems (Section 8.19);
- Wildfire (Section 8.20); and,
- Mandatory Findings of Significance (Section 8.21).

The environmental analysis contained in this section reflects the Initial Study Checklist format used by the City of La Habra in its environmental review process pursuant to the CEQA Guidelines. Under each issue area, an assessment of impacts is provided in the form of questions and answers. The analysis contained herein serves as a response to the individual questions. For the evaluation of potential impacts, questions are stated and an answer is provided according to the analysis undertaken as part of this Initial Study's preparation. To each question, there are four possible responses:

- *No Impact*. The approval and subsequent implementation of the proposed project will not have any measurable environmental impact on the environment.

- *Less Than Significant Impact*. The approval and subsequent implementation of the proposed project may have the potential for affecting the environment, although these impacts will be below levels or thresholds that the City of La Habra or other responsible agencies consider to be significant.

- *Less Than Significant Impact with Mitigation*. The approval and subsequent implementation of the proposed project may have the potential to generate impacts that will have a significant impact on the environment. However, the level of impact may be reduced to levels that are less than significant with the implementation of mitigation measures.

- *Potentially Significant Impact*. The approval and subsequent implementation of the proposed project may result in environmental impacts that are significant.

8.1 AESTHETICS

8.1.A. Have a substantial adverse effect on a scenic vista? ● No Impact.

Views of the Puente Hills are available facing north from the Euclid Street right-of-way. There are no scenic views available in the vicinity facing east, south, or west. Views of the Puente Hills are only partially obstructed and are a dominant feature in the vicinity. The buildings that will be constructed will extend 14 feet over the multiple-family buildings located along the west side of Euclid Street. The size and massing of these structures will not be great enough to obstruct any scenic views. The project will be constructed within the project site and will not obstruct views facing north from the Euclid Street public right-of-way. In addition, many of the aforementioned mountains extend more than 2,000 feet above sea level. Therefore, views of these mountains will continue to be available since the project cannot physically obstruct views of these mountains. As a result, no impacts will occur. *No impact is anticipated and this issue will not require analysis in the EIR.*

8.1.B. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? ● No Impact.

According to the California Department of Transportation (Caltrans), there is no State or County designated scenic highways located in the vicinity of the project area.[8] The proposed project will not impact rock-outcroppings or scenic vegetation along a designated scenic highway since there are no rock-outcroppings or scenic vegetation present on-site. In addition, none of the existing buildings within the affected area are considered to be historic resources. As a result, no impacts will occur. *No impact is anticipated and this issue will not require analysis in the EIR.*

8.1.C. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publically accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? ● No Impact.

The proposed project is in conformance with the following goals outlined in the General Plan related to aesthetics and the preservation of scenic resources:

- *SM 1.1 Protect Scenic Views. Protect the viewsheds of the La Habra Basin, West Coyote Hills, Puente Hills, and the San Gabriel Mountains from public parks, major transportation corridors, and public open spaces.* Views of the Puente Hills are the only available viewsheds from the Euclid Street public right-of-way. The project will not obstruct views of the Puente Hills from the Euclid Street public right-of-way because the project site is not located within the line-of-sight of Euclid Street and the Puente Hills.

- *SM 1.8 Glare. Support practices in new developments that avoid the creation of incompatible glare or reflection through development design features.* The exterior façade surfaces will consist of non-reflective materials, such as stucco. Additionally, the individual units will be equipped with energy efficient windows. The energy-efficient window and glazing systems that will be used for the project will dramatically reduce energy consumption because of lower heat loss, less air leakage, and warmer window surfaces. These windows feature double or triple glazing and specialized transparent coatings that will reduce or eliminate reflective glare.

Furthermore, the site is blighted and the approval of the project will introduce modern development characterized by newer architecture, articulated facades, neutral exterior colors, and drought tolerant landscaping. The project's density of 19.9 du/acre is within the maximum permitted density allowed within the RM-4 zone. In addition, the project will have a lot coverage of 30%, which is less than the 40% allowed under the underlying zone. Thus, the project's size and density will be consistent with the requirements established for the RM-4 zone. Furthermore, the proposed project will be consistent with the size and massing of the surrounding land uses. The project site is located within a multiple-family residential neighborhood. The surrounding multiple-family units generally consist of two stories and have various heights ranging from 17 feet to 31 feet. Since the project's implementation will improve the visual character and quality of the area, no impacts will result and no mitigation is required. *No impact is*

[8] California Department of Transportation. *Official Designated Scenic Highways.* www.dot.ca.gov.

anticipated and this issue will not require analysis in the EIR.

8.*1.D. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? ● Impact will be Analyzed in EIR.*

The project would generate new sources of light in this area that will include vehicle headlights, parking area lighting, security lighting, signage, and building lighting. This land use would not significantly illuminate the project's surroundings beyond the existing ambient lighting associated with the existing development located to the north, west, and east of the project sites. Mitigation may be required to ensure that light trespass does not affect the aforementioned light sensitive land uses. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

8.2 AGRICULTURAL AND FORESTRY RESOURCES

8.2.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? ● No Impact.

According to the California Department of Conservation, the City of La Habra does not contain any areas of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Since the implementation of the proposed project will not involve the conversion of prime farmland, unique farmland, or farmland of statewide importance to urban uses, no impacts will occur. *No impact is anticipated and this issue will not require analysis in the EIR.*

8.2.B. Conflict with existing zoning for agricultural use, or a Williamson Act Contract? ● No Impact.

No active agricultural activities are located within the project site nor are any such uses found in the adjacent parcels. The City of La Habra does not contain a zoning classification for agricultural uses. In addition, according to the California Department of Conservation Division of Land Resource Protection, the project sites are not subject to a Williamson Act Contract.[9] Therefore, no impacts will occur since the proposed development will not be erected on a site that is subject to a Williamson Act Contract. *No impact is anticipated and this issue will not require analysis in the EIR.*

8.2.C. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined in Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))? ● No Impact.

The City of La Habra and the project site are located in the midst of a larger urban area and no forest lands are located within the City. The City of La Habra General Plan and the La Habra Zoning Ordinance do not provide for any forest land preservation. As a result, no impacts on forest land or timber resources will result upon the proposed project's implementation. *No impact is anticipated and this issue will not require analysis in the EIR.*

[9] California Department of Conservation. *State of California Williamson Act Contract Land.* ftp://ftp.consrv.ca.gov/pub/dlrp/WA/2012%20Statewide%20Map/WA_2012_8x11.pdf.

8.2.D. Result in the loss of forest land or conversion of forest land to a non-forest use? ● No Impact.

No forest lands are located within the vicinity of either project site. As a result, no loss or conversion of forest lands will result from the proposed project's implementation and no impacts will occur. *No impact is anticipated and this issue will not require analysis in the EIR.*

8.2.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? ● No Impact.

The project would not involve the disruption or damage of the existing environment that would result in a loss of farmland to nonagricultural use or conversion of forest land to non-forest use because the project sites are not located in close proximity to forest land or farmland. As a result, no impacts will result from the implementation of the proposed project. *No impact is anticipated and this issue will not require analysis in the EIR.*

8.3 AIR QUALITY

8.3.A. Conflict with or obstruct implementation of the applicable air quality plan? ● Impact will be Analyzed in EIR.

The project site consists of four parcels with two separate zones and two separate general plan designations. The western portion of the site consisting of three parcels, totaling 1.22 acres, is zoned R-4. The eastern portion of the site consists of one parcel totaling 1.20 acres and is zoned M-1. The western portion of the site is designated as Residential Multi-Family 1 (15-24 units/acre) in the City's general plan. Meanwhile, the eastern portion of the site is designated as Light Industrial. The development of the western portion of the site with residential units was contemplated in the City's General Plan. On the other hand, the parcel located within the eastern portion of the site was analyzed for industrial uses in the aforementioned EIR. The addition of new multiple family units on that M-1 zoned property will exceed the residential growth projections considered in the EIR since this area is currently designated in the General Plan for non residential land uses. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

8.3.B. 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? ● Impact will be Analyzed in EIR.

The project's implementation will involve the generation of short-term construction emissions associated with site grading, the use of construction equipment, worker vehicle exhaust, and fugitive dust during excavation, grading, and other site preparation activities. Long-term impacts would occur from emissions generated from vehicle trips by residents, and guests as well as stationary emissions associated with natural gas and electrical energy consumption. The project will result in an increase in vehicular traffic along the Euclid Street corridor beyond levels currently generated. The project's cumulative emissions will be analyzed by taking into consideration the development of the Westridge Golf Course. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

8.3.C. Expose sensitive receptors to substantial pollutant concentrations? ● Impact will be Analyzed in EIR.

Sensitive receptors refer to land uses and/or activities that are especially sensitive to poor air quality and typically include homes, schools, playgrounds, hospitals, convalescent homes, and other facilities where children or the elderly may congregate.[10] These population groups are generally more sensitive to poor air quality. The nearest sensitive receptors are the single-family units that abut the site to the south. This neighborhood is separated from the site by a flood control channel. The project's potential construction may result in an exposure of the aforementioned sensitive receptors to high concentrations of particulate matter and other criteria pollutants. Therefore, the project's potential impact with respect to the local significance thresholds (LSTs) will require analysis. The LST impacts generated by the ongoing use of the industrial portion of the site will also be analyzed. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

8.3.D. Result in other emissions (such as those leading to odors adversely affecting a substantial number of people? ● No Impact.

The SCAQMD has identified those land uses that are typically associated with odor complaints. These uses include activities involving livestock, rendering facilities, food processing plants, chemical plants, composting activities, refineries, landfills, and businesses involved in fiberglass molding.[11] The project is a proposal to construct 58 townhome units. As designed, the proposed project will not be involved in any of the aforementioned odor-generating activities. Given the nature of the intended use (58 residential townhome units), no operational impacts related to odors are anticipated with the proposed project. Potential truck drivers visiting the site (construction and deliveries) must adhere to Title 13 - §2485 of the California Code of Regulations, which limits the idling of diesel powered vehicles to less than five minutes. Adherence to the aforementioned standard condition will minimize odor impacts from diesel trucks. In addition, the project's construction contractors must adhere to SCAQMD Rule 403 regulations, which significantly reduce the generation of fugitive dust. Adherence to Rule 403 Regulations and Title 13 - §2485 of the California Code of Regulations will reduce potential impacts to levels that are less than significant and no mitigation is required. *No impact is anticipated and this issue will not require analysis in the EIR.*

8.4 BIOLOGICAL RESOURCES

8.4.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 Wildlife or U.S. Fish and Wildlife Service? ● No Impact.

The project site is currently used for outdoor storage and is occupied by various items including non-operational vehicles. The five threatened and/or endangered species within the La Habra quadrangle include the following:

[10] South Coast Air Quality Management District. *CEQA Air Quality Handbook, Appendix 9.* As amended 2017.

- The *Southwestern Willow Flycatcher*, is not likely to be found on-site due to the lack of dense riparian habitat.

- The *Least Bell's Vireo* lives in a riparian habitat, with a majority of the species living in San Diego County. The project site does not contain any riparian habitat. A review of the U.S. Fish and Wildlife Service National Wetlands Inventory, Wetlands Mapper confirmed that there are no wetlands or riparian habitat present on-site. Therefore, the likelihood of encountering this species on-site is considered to be remote.

- The *Coastal California Gnatcatcher's* habitat within La Habra is identified in Chapter 6 (Conservation/Natural Resources) of the City's General Plan. The coastal sage scrub found within the protected areas of the Westridge Golf Course was identified by the City's General Plan as suitable habitat capable of supporting Coastal California Gnatcatchers. The Coastal California Gnatcatcher will be highly unlikely to be found on-site due to the amount of urbanization in the area and the lack of suitable habitat.

- The *Belding's Savannah Sparrow* will not be encountered during construction activities because they are found within riparian habitat such as the Los Cerritos Marsh and the Ballona Wetland. As indicated previously, the project site does not contain any riparian habitat. Therefore, it is highly unlikely that this species will be encountered on-site.

- Finally, the *Bank Swallow* populations located in Southern California are extinct.[12]

The proposed project will not have an impact on the aforementioned species due to the lack of suitable riparian habitat within the project site. As a result, no impacts on any candidate, sensitive, or special status species will result from proposed project's implementation. *No impact is anticipated and this issue will not require analysis in the EIR.*

8.4.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 U.S. Fish and Wildlife Service? ● No Impact.

The field survey that was conducted for this project indicated that there are no wetlands or riparian habitat present on-site or in the surrounding areas. This conclusion is also supported by a review of the U.S. Fish and Wildlife Service National Wetlands Inventory, Wetlands Mapper.[13] In addition, there are no designated "blue line streams" located within the project site. As a result, no impacts on natural or riparian habitats will result from the proposed project's implementation. *No impact is anticipated and this issue will not require analysis in the EIR.*

[12] California Partners in Flight Riparian Bird Conservation Plan. *BANK SWALLOW (Riparia riparia).* http://www.prbo.org/calpif/htmldocs/species/riparian/bank_swallow_acct2.html

[13] United States Fish and Wildlife Service. *National Wetlands Inventory*. https://www.fws.gov/Wetlands/data/Mapper.html

8.4.C. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? ● No Impact.

As indicated in the previous subsection, the project site and adjacent developed properties do not contain any natural wetland and/or riparian habitat.[14] As a result, the proposed project would not impact any protected wetland area or designated blue-line stream and no impacts would occur. *No impact is anticipated and this issue will not require analysis in the EIR.*

8.4.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? ● Impact will be Analyzed in EIR.

The project sites are located in the midst of an urban area. In addition, the sites have been disturbed to accommodate the existing development. Thus, no native vegetation or natural open space areas remain. Furthermore, the site contains no natural hydrological features. Constant disturbance (noise and vibration) from vehicular traffic travelling along Euclid Street also limits the site's utility as a migration corridor. Nevertheless, several mature trees occupy the site and an existing flood control channel extends along the site's southern boundary. Therefore, there may be a chance of encountering nesting or migratory avian species during the project's construction. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

8.4.E. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? ● No Impact.

Chapter 6 (Conservation/Natural Resources) of the City's General Plan identifies the need to "encourage the preservation of trees in existing and new development projects that are suitable nesting and roosting habitat for resident and migratory bird species."[15] The site is presently occupied by several mature trees. Other than the Chapter 6 policy described above, the City does not contain any other policy or ordinance implemented to protect trees or other biological resources. Nevertheless, the previous issue area will address impacts to nesting and migratory birds. *Therefore, no impact is anticipated and this issue will not require analysis in the EIR.*

8.4.F. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan? ● No Impact.

The project site is not located within an area governed by a habitat conservation or community conservation plan. The nearest Significant Ecological Area (SEA) to the project site is the Powder Canyon-Puente Hills Significant Ecological Area (SEA #17), located approximately five miles to the northeast of the project site.[16] In addition, Chapter 6 (Conservation/Natural Resources) of the City's General Plan

[14] United States Fish and Wildlife Service. *National Wetlands Inventory*. https://www.fws.gov/Wetlands/data/Mapper.html

[15] City of La Habra General Plan 2035. *Chapter 6 Conservation and Natural Resources. BR. 1.8, Tree Preservation.* Page 6-3.

[16] Google Earth. Website Accessed January 16, 2019.

identifies protected habitat located within the Westridge Golf Course. The Westridge Golf Course contains coastal sage scrub, which has been identified by the City as suitable habitat capable of supporting Coastal California Gnatcatchers. The proposed project will not be located within the designated area of these improvements and will not encroach or disturb the protected habitat located in the Westridge Golf Course. The Westridge Golf Course is located 1.34 miles southwest of the project site. Since the proposed project site is located outside of the designated SEA and abovementioned Golf Course, no impacts on local, regional, or State habitat conservation plans will result from the implementation of the proposed project. *No impact is anticipated and this issue will not require analysis in the EIR.*

8.5 CULTURAL RESOURCES

8.5.A. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5? ● No Impact.

Ordinarily, properties that have achieved significance within the past 50 years are not considered eligible for the National Register. However, such properties *will qualify* if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

- A religious property deriving primary significance from architectural or artistic distinction or historical importance;
- Districts, sites, buildings, structures, and objects that are associated with events that have made a significant contribution to the broad patterns of our history;
- A building or structure removed from its original location that is significant for architectural value, or which is the surviving structure is associated with a historic person or event;
- A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building associated with his or her productive life;
- A cemetery that derives its primary importance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events;
- A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived;
- A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or,
- A property achieving significance within the past 50 years if it is of exceptional importance.

A search through the California Office of Historic Preservation, California Historical Resources database indicated that the project site does not contain any historic structures listed in the National or California Registrar.[17] Upon review of the specific criteria listed above, it was determined that the project site does not qualify for listing in either the National or California registrar. In addition, the Historic Context & Survey Report that was prepared for the City by Galvin Preservation Associates, Inc. was consulted to determine whether the project site meets the criteria set forth by the California Register of Historical Resources. There were a total of 28 listings within the City. The property was not included on the aforementioned list.[18] *No impact is anticipated and this issue will not require analysis in the EIR.*

8.5.B. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? ● Impact will be Analyzed in EIR.

AB-52 consultation was undertaken by the Lead Agency. The results of the AB-52 consultation will be discussed in the EIR. *This issue will be analyzed in the EIR. Mitigation was provided by the Gabrielino Kizh that will be included in the EIR.*

8.5.C. Disturb any human remains, including those interred outside of dedicated cemeteries? ● Less than Significant Impact.

There are no cemeteries located in the immediate area that would be affected by the proposed project. In addition, the project sites do not contain any religious or sacred structure. Thus, no impacts on existing religious facilities in the City will occur with the proposed project. AB-52 consultation was undertaken by the Lead Agency. Native American monitors will be required based on the results of the AB-52 consultation. In the unlikely event that remains are uncovered by construction crews, all excavation and grading activities shall be halted and the La Habra Police Department would be contacted (the Department would then contact the County Coroner). *Since the impact is less than significant, this issue will not require analysis in the EIR.*

8.6 ENERGY

A. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? ● Impact will be Analyzed in EIR.

Table 3, shown on the following page, provides an estimate of electrical and natural gas consumption for the proposed project. As indicated in the table, the project is estimated to consume approximately 378,044 kilowatt (kWh) per year of electricity and 18,734 therms of natural gas.

[17] California Office of Historic Preservation. *California Historical Resources*. http://ohp.parks.ca.gov/ ListedResources/ ?view=county&criteria=30

[18] City of La Habra. *Final Environmental Impact Report For: General Plan 2035*. Pages 5.3-5 through 5.3-7.

Table 3
Estimated Annual Energy Consumption

Project	Consumption Rate	Total Project Consumption
Proposed Project (assumes 58-units)		
Electrical Consumption	6,518 kWh/unit/year	378,044 kWh/year total
Natural Gas Consumption	323 therms/unit/year	18,734 therms/year total

Source: Southern California Edison and Southern California Gas Company.

It is important to note that the project will include energy efficient fixtures. In addition, the energy consumption rates do not reflect the more stringent 2016 California Building and Green Building Code requirements. The proposed project will be in accordance with the City's Building Code and with Part 6 and Part 11 of Title 24 of the California Code of Regulations. Nevertheless, the City's adopted Climate Action Plan requires that new development exceed energy savings standards by 20 percent over Title 24 standards. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

B. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? ● Impact will be Analyzed in EIR.

On January 12, 2010, the State Building Standards Commission adopted updates to the California Green Building Standards Code (Code) which became effective on January 1, 2011. The California Code of Regulations (CCR) Title 24, Part 11: California Green Building Standards (Title 24) became effective to aid efforts to reduce GHG emissions associated with energy consumption. Title 24 now requires that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials.

The 2016 version of the standards became effective as of January 1, 2017. The 2016 version addresses additional items such as clean air vehicles, increased requirements for electric vehicles charging infrastructure, organic waste, and water efficiency and conservation. The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as State law provides methods for local enhancements. As indicated previously, the proposed project will be in accordance with the City's Building Code requirements and with Part 6 and Part 11 of Title 24 of the California Code of Regulations. The project will include new light standards and fixtures that will be used as operational and security lighting. Nevertheless, the City's adopted Climate Action Plan requires that new development exceed energy savings standards by 20 percent over Title 24 standards. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

8.7 GEOLOGY & SOILS

8.7.A. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: 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. Strong seismic ground–shaking? Seismic-related ground failure, including liquefaction? Landslides? ● Less than Significant Impact.

The City of La Habra is located in a seismically active region. Many major and minor local faults traverse the entire Southern California region, posing a threat to millions of residents including those who reside in the region. Earthquakes from several active and potentially active faults in the Southern California region could affect the proposed project site. According to the City of La Habra Hazard Mitigation Plan, earthquakes pose the greatest threat to the safety of the City's citizens and thousands of employees. Earthquakes are ranked the highest in a chart showing hazard ranks with a score of 50.[19]

In 1972, the Alquist-Priolo Earthquake Zoning Act was passed in response to the damage sustained in the 1971 San Fernando Earthquake. The Alquist-Priolo Earthquake Fault Zoning Act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults.[20] The Act established Alquist-Priolo Special Studies Zones (APSSZ) which designated those active faults that could result in surface rupture in the event of an earthquake along the fault trace. The APSSZ map prepared for La Habra and the surrounding area identifies two APSSZs: the Whittier-Elsinore fault and the Coyote Hills Fault. Neither fault trace extends into the project site.[21] The potential impacts from fault rupture are considered no greater for the project site than for the surrounding areas. Surface ruptures are visible instances of horizontal or vertical displacement, or a combination of the two. The proposed project will be constructed in compliance with the 2016 Building Code, which contains standards for building design to minimize the impacts from fault rupture. Therefore, the potential impacts resulting from fault rupture are anticipated to be less than significant. The potential impacts in regards to ground shaking would also be considered to be less than significant. The intensity of ground shaking depends on the intensity of the earthquake, the duration of shaking, soil conditions, type of building, and distance from epicenter or fault. The proposed project will be constructed in compliance with the 2016 Building Code, which contains standards for building design to minimize the impacts from ground shaking.

Other potential seismic issues include ground failure, liquefaction, and lateral spreading. Ground failure is the loss in stability of the ground and includes landslides, liquefaction, and lateral spreading. The project site is not located within an area that is subject to liquefaction.[22] According to the United States Geological Survey, liquefaction is the process by which water-saturated sediment temporarily loses strength and acts

[19] City of La Habra Hazard Mitigation Plan. *ES.4 Hazard Risk Assessment*. Plan dated October 2007.

[20] California Department of Conservation. *What is the Alquist-Priolo Act* http://www.conservation.ca.gov /cgs/rghm/ap/ Pages/main.aspx

[21] Ibid.

[22] California State Department of Conservation. *Earthquake Zones of Required Investigation – La Habra Quadrangle*. Site accessed April 2, 2019.

as a fluid. Essentially, liquefaction is the process by which the ground soil loses strength due to an increase in water pressure following seismic activity. Lastly, the project site is not subject to the risk of landslides.

Lateral spreading is a phenomenon that is characterized by the horizontal, or lateral, movement of the ground. Lateral spreading could be liquefaction induced or can be the result of excess moisture within the underlying soils. Liquefaction induced lateral spreading would not affect the proposed development because the site is not located in an area that is subject to liquefaction. Therefore, lateral spreading caused by liquefaction would not affect the project. The underlying soils are prone to shrinking and swelling.[23] All projects proposed within the City are required to prepare a soils impact report and the project would be subject to the recommendations of the soils engineer. As a result, the potential impacts are less than significant. *Since the impact is less than significant, this issue will not require analysis in the EIR.*

8.7.B. Result in substantial soil erosion or the loss of topsoil? ● Impact will be Analyzed in EIR.

The site slopes southward towards the adjacent flood control channel. Once operational, the project site would be paved over and landscaped, which would minimize soil erosion. In addition, the Applicant will be required to adhere to the construction of Best Management Practices (BMPs) outlined in the Construction Runoff Guidance Manual. The construction BMPs identified in the Construction Runoff Guidance Manual are applicable for all projects located within Orange County.[24] These construction BMPs are grouped into the following categories: erosion control, which focuses on preventing soil from being eroded by stormwater and potentially discharged from the construction site; sediment control, which focuses on preventing eroded soil from being discharged from the construction site; wind erosion control, which protects the soil surface and prevents the soil particles from being detached by wind; tracking control, which prevents or reduces the amount of sediment that is tracked to paved areas from unpaved areas by vehicles or construction equipment; non-stormwater management, which limits or reduces potential pollutants at their source before they are exposed to stormwater; and waste management and materials pollution control, which practices that limit or reduce or prevent the contamination of stormwater by construction wastes and materials.[25] The City's NPDES program coordinator and inspector is responsible for ensuring compliance with the County requirements. In addition, the project Applicant will be required to prepare a Water Quality Management Plan (WQMP) due to the site's location adjacent to a flood control channel. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

8.7.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? ● Less than Significant Impact.

The project's construction may have the potential to destabilize the existing soils; thus, the Applicant will be required to comply with Best Management Practices (BMPs) outlined in the Construction Runoff

[23] California State Department of Conservation. *Earthquake Zones of Required Investigation – La Habra Quadrangle*. Site accessed April 2, 2019.

[24] Orange County Public Works. *Construction Runoff Guidance Manual*. Report dated December 2012.

[25] Ibid.

Guidance Manual. Once complete, the project would not destabilize the new soils since the site would be graded, leveled, and covered over with pavement and landscaping.

The site currently slopes to the south towards the adjacent flood control channel. The project site would be paved over and landscaped, which would minimize soil erosion. Lateral spreading is a phenomenon that is characterized by the horizontal, or lateral, movement of the ground. Lateral spreading could be liquefaction induced or can be the result of excess moisture within the underlying soils. Liquefaction induced lateral spreading would not affect the proposed improvements because the site is not located in an area that is subject to liquefaction.[26] Therefore, lateral spreading caused by liquefaction would not affect the project. The soils that underlie the project site possess a low to high potential for shrinking and swelling.[27] Soils that exhibit certain shrink swell characteristics become sticky when wet and expand according to the moisture content present at the time. Soils that are not capable of supporting the proposed development will be removed and replaced with competent fill. All projects proposed within the City are required to prepare a soils impact report and the project would be subject to the recommendations of the soils engineer. In addition, the project will not result in the direct extraction of groundwater located below ground surface (BGS) since the project will continue to be connected to the City's water system.

The soils that underlie the project site are prone to subsidence. Subsidence occurs via soil shrinkage and is triggered by a significant reduction in an underlying groundwater table, thus causing the earth on top to sink.[28] No groundwater would be drained to accommodate the construction of the proposed project. In addition, the project would not result in the direct extraction of groundwater located below ground surface (BGS). As stated previously, underlying soils that are not suitable for development will be removed and replaced. Therefore, the likelihood of on-site subsidence is considered to be remote. As a result, the potential impacts are anticipated to be less than significant. *Since the impact is less than significant, this issue will not require analysis in the EIR.*

8.7.D. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? ● Impact will be Analyzed in EIR.

The soils that underlie the project sites belong to the Myford sandy loam, which possess a low to high risk of shrinking and swelling. The site is also underlain by Sorrento clay loam, which possesses a low to moderate shrink-swell potential.[29] The underlying soils may be prone to shrinking and swelling if they are saturated with water. As a result, the project Applicant will be required to adhere to the recommendations provided in the mandatory soils impact report. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

[26] California State Department of Conservation. *Earthquake Zones of Required Investigation – La Habra Quadrangle*. Site accessed April 2, 2019.

[27] United States Department of Agriculture Soil Conservation Service. *Report and General Soil Map Orange County, California.* Revised 1969.

[28] Subsidence Support. *What Causes House Subsidence?* http://www.subsidencesupport.co.uk/what-causes-subsidence.html and United States Department of Agriculture Soil Conservation Service. *Report and General Soil Map Orange County, California.* Revised 1969.

[29] United States Department of Agriculture Soil Conservation Service. *Report and General Soil Map Orange County, California.* Revised 1969.

8.7.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? ● No Impact.

The proposed development will be connected to a sanitary sewer system. The proposed use will not utilize a septic tank system. As a result, no impacts on septic tanks will result. *No impact is anticipated and this issue will not require analysis in the EIR.*

8.7.F. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? ● Impact will be Analyzed in EIR.

The project site is underlain by the La Habra formation, which dates back to the Pleistocene age.[30] The Pleistocene age spanned from 2.6 million to 11,700 years ago and contains an abundance of well-preserved fossils.[31] The Geology and Oil Resources of the Western Puente Hills Area prepared by the USGS indicated the discovery of tusk fragments belonging to the Elephas Imperator along Imperial Highway in La Habra.[32] A Paleontological Resource Assessment was conducted for the City and the project area was found to contain soils containing Artificial Fill, Young Alluvial Fan Deposits, Pleistocene Alluvial Fan Deposits, and the La Habra Formation. The La Habra Formation has a high paleontological sensitivity, and paleontological resources have been encountered at two nearby localities within these sediments. These sediments have the potential to be encountered during project-related excavations. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

8.8 GREENHOUSE GAS EMISSIONS

8.8.A. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? ● Less than Significant Impact.

The State of California requires CEQA documents to include an evaluation of greenhouse gas (GHG) emissions or gases that trap heat in the atmosphere. GHG are emitted by both natural processes and human activities. Examples of GHG that are produced both by natural and industrial processes include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). The SCAQMD has established multiple draft thresholds of significance. These thresholds include 1,400 metric tons of CO_2E ($MTCO_2E$) per year for commercial projects, 3,500 $MTCO_2E$ per year for residential projects, 3,000 $MTCO_2E$ per year for mixed-use projects, and 7,000 $MTCO_2E$ per year for industrial projects.

The project's operational CO_2E emissions are estimated to be 653 $MTCO_2E$, which is below the aforementioned thresholds. The project's construction would result in a generation of 262 $MTCO_2E$ per year. When amortized over a 30 year period, these emissions decrease to nine $MTCO_2E$ per year. These amortized construction emissions were added to the project's operational emissions to calculate the project's true GHG emissions. Therefore, the project's total operational emissions would be 662 $MTCO_2E$ per year, which is still below the threshold of 3,500 $MTCO_2E$ per year for residential projects. It is

[30] USGS. *Geology and Oil Resources of the Western Puente Hills Area, Southern California.* Page C-25.

[31] University of California Museum of Paleontology. *The Pleistocene Epoch.* http://www.ucmp.berkeley.edu/quaternary/pleistocene.php. Website accessed January 16, 2019.

[32] USGS. *Geology and Oil Resources of the Western Puente Hills Area, Southern California.* Page C-25.

important to note that the project is an "infill" development, which is seen as an important strategy in combating the release of GHG emissions. Infill development provides a regional benefit in terms of a reduction in Vehicle Miles Traveled (VMT) since the project is consistent with the regional and State sustainable growth objectives identified in the State's Strategic Growth Council (SGC).[33] Infill development reduces VMT by recycling existing undeveloped or underutilized properties located in established urban areas. When development is located in a more rural setting, such as further east in the desert areas, employees, patrons, visitors, and residents may have to travel farther since rural development is often located a significant distance from employment, entertainment, and population centers. Consequently, this distance is reduced when development is located in urban areas since employment, entertainment, and population centers tend to be set in more established communities. As a result, the potential impacts are considered to be less than significant and no mitigation is required. *No significant impact is anticipated and this issue will not require analysis in the EIR.*

8.8.B. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases? ● Impact will be Analyzed in EIR.

The proposed project will be in compliance with the City's Building Code requirements and with Part 6 and Part 11 of Title 24 of the California Code of Regulations. On January 12, 2010, the State Building Standards Commission adopted updates to the California Green Building Standards Code (Code) which became effective on January 1, 2011. The California Code of Regulations (CCR) Title 24, Part 11: California Green Building Standards (Title 24) became effective to aid efforts to reduce GHG emissions associated with energy consumption. Title 24 now require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials. The 2016 version of the standards became effective as of January 1, 2017. The 2016 version address additional items such as clean air vehicles, increased requirements for electric vehicles charging infrastructure, organic waste, and water efficiency and conservation. The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as State law provides methods for local enhancements. The proposed project will be required to be in compliance with the City's Climate Action Plan. In order to ensure compliance with that Plan, mitigation measures may be proposed. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

8.9 HAZARDS & HAZARDOUS MATERIALS

8.9.A. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? ● Impact will be Analyzed in EIR.

The project site is not located on the California Department of Toxic Substances Control's Hazardous Waste and Substances Site List Site Cleanup (Cortese List).[34] However, the eastern portion of the site is identified on the Leaking Underground Storage Tank database (LUST) for the parcel located at 240 4th

[33] California Strategic Growth Council. http://www.sgc.ca.gov/Initiatives/infill-development.html. Promoting and enabling sustainable infill development is a principal objective of the SGC because of its consistency with the State Planning Priorities and because infill furthers many of the goals of all of the Council's member agencies. Site accessed on January 16, 2019.

[34] CalEPA. *DTSC's Hazardous Waste and Substances Site List - Site Cleanup (Cortese List)*. *http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm*. Site accessed on January 16, 2019.

Avenue.[35] That portion of the site was identified on the aforementioned database for soil contamination. The contaminants of concern included gasoline. The site has since undergone remediation and that case has been closed since 1990.[36] A search through the California Department of Toxic Substances Control's Envirostor database indicated that the project site was not included on any Federal or State clean up or Superfund lists.[37] The United States Environmental Protection Agency's multi-system search was consulted to determine whether the project site is identified on any Federal Brownfield list; Federal Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) List; Federal Resource Conservation and Recovery Act (RCRA) Treatment, Storage, and Disposal (TSD) Facilities List; and/or Federal RCRA Generators List. The project site was not identified on any of the aforementioned lists.[38]

The project's construction will require the use of diesel fuel to power the construction equipment. The diesel fuel would be properly sealed in tanks and would be transported to the site by truck. No other hazardous materials would be used during the project's construction phase. Due to the nature of the proposed project (a 58-unit townhome development), no hazardous materials beyond what is typically used in a household setting for routine cleaning and maintenance would be used once the project is occupied. The site's presence on the LUST database will require further investigation. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

8.9.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? ● Less than Significant Impact.

The project's construction would require the use of diesel fuel to power the construction equipment. The diesel fuel would be properly sealed in tanks and would be transported to the site by truck. Other hazardous materials that would be used on-site during the project's construction phase include, but are not limited to, gasoline, solvents, architectural coatings, and equipment lubricants. The project site contains numerous small buildings. Due to the age of these buildings, lead based paint (LBP) or asbestos containing materials (ACMs) may be present and could be released during the site's demolition. As a result, lead based paint and/or asbestos containing materials would be removed by a certified abatement contractor. The removal of lead based paint and/or asbestos containing materials would be done in accordance with SCAQMD Rule 1403-Asbestos Emissions from Demolition/Renovation Activities. As a result, the potential impacts are considered to be less than significant. *No significant impact is anticipated and this issue will not require analysis in the EIR.*

[35] California State Water Resources Control Board. *GeoTracker*. *https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=lahabra,ca*. Site accessed on January 16, 2019.

[36] Ibid.

[37] CalEPA. *Envirostor*. http://www.envirostor.dtsc.ca.gov/public/mapfull.asp?global_id=&x=-119&y=37&zl=18&ms=640,480&mt=m&findaddress=True&city=lahabra. Site accessed on January 16, 2019.

[38] United States Environmental Protection Agency. *Multisystem Search*. Site accessed January 16, 2019.

8.9.C. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? ● Impact will be Analyzed in EIR.

There are no schools located within one-quarter of a mile from the project site; however, there is a daycare center located within Portola Park, which is located 500 feet northwest of the project site. The Applicant will remove all of the buildings located within the project site. During these activities, lead and/or asbestos containing materials may be encountered. The handling, removal, and disposal of the aforementioned items are governed by State and Federal regulations. In addition, the project's contractors must be familiar with SCAQMD Rule 1403. Furthermore, residual contamination may be present on-site due to the site's current use as an outdoor storage yard. Due to the nature of the proposed project (a 58-unit townhome development), no hazardous materials beyond what is typically used in a household setting for cleaning and maintenance would be used once the project is occupied. The project will not require the use of chemicals or materials that require oversight of Department of Toxic Substances Control, Environmental Protection Agency, Fire Department, SCAQMD, or Regional Water Quality Control Board. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

8.9.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? ● No Impact.

The "Cortese List," also referred to as the Hazardous Waste and Substances Sites List or the California Superfund List, is a planning document used by the State and other local agencies to comply with CEQA requirements that require the provision of information regarding the location of hazardous materials release sites. California Government Code section 65962.5 requires the California Environmental Protection Agency to develop and update the Cortese List on annually basis. The list is maintained as part of the DTSC's Brownfields and Environmental Restoration Program referred to as EnviroStor. A search of the Envirostor Hazardous Waste and Substances Site List website was completed to identify whether the project site is listed in the database as a Cortese site. The site was not identified on the list.[39] Therefore, no impacts will result with the implementation of the proposed project. *Since no impacts will occur, this issue will not require analysis in the EIR.*

8.9.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 or excessive noise for people residing or working in the project area? ● No Impact.

The project area is not located within two miles of an operational *public* airport. The nearest airport is Fullerton Municipal Airport, located approximately four miles to the southwest. The project site is not located within the Fullerton Airport's Runway Protection Zone (RPZ), nor is the site located within the airport's 60 Community Noise Equivalent Level (CNEL) boundary. The Airport Environs Land Use Plan (AELUP) prepared for the Fullerton Municipal Airport places height restrictions for an area located within a 10,000-foot radius of the airport at a 50:1 slope. In addition, according to Section 77.17 of the Federal

[39] CalEPA. *DTSC's Hazardous Waste and Substances Site List - Site Cleanup (Cortese List)*. http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm. Site accessed on April 20, 2018

Aviation Administration (FAA), an existing object will be an obstruction to air navigation if it exceeds heights between 200 to 499 feet above ground level.[40] The project site is not located within the designated 10,000-foot radius.[41] The buildings will have a maximum height of 35 feet; therefore, the proposed project will not interfere with the approach and take off of airplanes utilizing the aforementioned airport. As a result, no impacts will occur. *No impact is anticipated and this issue will not require analysis in the EIR.*

8.9.F. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? • No Impact.

At no time would Euclid Street be completely closed to traffic. All construction staging must occur on-site. As a result, no impacts are associated with the proposed project's implementation. *No impact is anticipated and this issue will not require analysis in the EIR.*

8.9.G. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wild land fire? ● No Impact.

The project site and surrounding properties are urbanized and the majority of the parcels are developed. There are no areas of native vegetation found within the project sites or in the surrounding properties that could provide a fuel source for a wildfire. The project site is not located within a fire hazard severity zone.[42] Therefore, development of the project will not expose people or structures to a significant risk of loss, injury, or death involving wild land fires. *No impact is anticipated and this issue will not require analysis in the EIR.*

8.10 HYDROLOGY & WATER QUALITY

8.10.A. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality? ● Less than Significant Impact.

Construction activities such as site preparation and grading may have the potential to result in the discharge of sediment, oils, residual diesel fuel, rubbish, or other contaminants of concern into the local streets and/or stormwater infrastructure. The discharge of contaminated runoff from construction will be minimized since the Applicant will be required to adhere to the construction Best Management Practices (BMPs) outlined in the Construction Runoff Guidance Manual. The construction BMPs identified in the Construction Runoff Guidance Manual are applicable for all projects located within Orange County.[43] These construction BMPs are grouped into the following categories:

- *Erosion control*, which focuses on preventing soil from being eroded by stormwater and potentially discharged from the construction site;

[40] U.S. Government Printing Office. *Electronic Code of Federal Regulations*. Title 14, Chapter 1, Subchapter E Part 77 Subpart C.

[41] Airport Land Use Commission/ Airport Environs Land Use Plan for Fullerton Municipal Airport. *AELUP Height Restriction Zone for FMA map*. Document amended November 18, 2004.

[42] CalFire. *Orange County Fire Hazard Severity Zones Map*. http://frap.fire.ca.gov/webdata/maps/orange/fhszs_map.30.pdf.

[43] Orange County Public Works. *Construction Runoff Guidance Manual*. Report dated December 2012.

- *Sediment control*, which focuses on preventing eroded soil from being discharged from the construction site;

- *Wind erosion control*, which protects the soil surface and prevents the soil particles from being detached by wind;

- *Tracking control*, which prevents or reduces the amount of sediment that is tracked to paved areas from unpaved areas by vehicles or construction equipment;

- *Non-stormwater management*, which limits or reduces potential pollutants at their source before they are exposed to stormwater; and,

- *Waste management and materials pollution control*, which practices that limit or reduce or prevent the contamination of stormwater by construction wastes and materials.

The City's NPDES program coordinator and inspector is responsible for ensuring compliance with the County requirements. As a result, the potential construction impacts are considered to be less than significant and no separate construction mitigation is required.

Title 13, Chapter 13.24, Section 13.24.030 – Control of Urban Runoff regulates runoff discharge in the City. DMS Consultants, Inc prepared a Water Quality Management Plan (WQMP) for the project pursuant to the aforementioned section of the Municipal Code. The WQMP recommended the use of a Modular Wetlands Biofiltration System, which would both reduce the volume of water discharged into the local storm drains and filter out any contaminants present in the stormwater runoff. Installation to the aforementioned biofiltration BMP identified above in the mandatory WQMP will filter out contaminants of concern (oil, grease, debris, leaves, etc.) and will minimize the discharge of contaminated runoff into the adjacent streets, local storm drains, and the underlying groundwater table. The post-construction BMPs will either allow water to percolate into the ground, or be conveyed in a controlled manner to the local stormwater infrastructure. As a result, the potential impacts are considered to be less than significant. *No significant impact is anticipated and this issue will not require analysis in the EIR.*

8.10.B. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? ● Less than Significant Impact.

The grading and trenching that would be undertaken to accommodate the building footings, utility lines, and other underground infrastructure such as stormwater appurtenances and double check detector assemblies would not extend to depths required to encounter groundwater. Therefore no direct construction related impacts to groundwater supplies, or groundwater recharge activities would occur. The project would continue to be connected to the City's water lines and would not result in a direct decrease in underlying groundwater supplies.

Furthermore, the project's contractors would be required to adhere to the applicable Best Management Practices (BMPs) for the construction site. Adherence to the required BMPs would restrict the discharge of contaminated runoff into the local storm drain system. As a result, the impacts are anticipated to be less than significant. *No significant impact is anticipated and this issue will not require analysis in the EIR.*

8.10.C. Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner, which would: Result in substantial erosion or siltation on- or off-site; Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or, Impede or redirect flood flows? ● Less than Significant Impact.

Once implemented, the proposed project would change the site's drainage characteristics. A majority of the project site is covered over in pervious surfaces. Currently, stormwater runoff is allowed to percolate into the ground. In the absence of mitigation, the increase in the amount of impervious surfaces may facilitate an increased risk of off-site erosion or siltation. Nevertheless, the increase in the amount of impervious surfaces will not lead to the aforementioned scenario because the project Applicant will be required to implement the post-construction BMPs identified in the mandatory WQMP. Furthermore, the portion of Euclid Street that extends along the site's western property line is paved and any runoff discharged off-site would not result in erosion or siltation.

Additionally, the project's construction would be restricted to the designated project site and the project would not alter the course of any stream or river that would lead to on- or off-site siltation or erosion. The abutting flood control channel is the closest body of water to the project site. This channel extends along the site's southern boundary.[44]

As indicated previously, the Applicant will be required to prepare a WQMP pursuant to Title 13, Chapter 13.24, Section 13.24.030 of the City's Municipal Code. DMS Consultants, Inc prepared a Water Quality Management Plan (WQMP) for the project pursuant to the aforementioned section of the Municipal Code. The WQMP recommended the use of a Modular Wetlands Biofiltration System, which would both reduce the volume of water discharged into the local storm drains and filter out any contaminants present in the stormwater runoff. Installation to the aforementioned biofiltration BMP identified above in the mandatory WQMP will filter out contaminants of concern (oil, grease, debris, leaves, etc.) and will minimize the discharge of contaminated runoff into the adjacent streets, local storm drains, and the underlying groundwater table. Therefore, the risk of off-site erosion and/or siltation will be minimal given the reduced water runoff and the lack of pervious surfaces outside of the project site. Thus, the project's implementation will not substantially increase the rate or amount of surface runoff; create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems; or provide additional sources of polluted runoff. As a result, the potential impacts are considered to be less than significant. *No significant impact is anticipated and this issue will not require analysis in the EIR.*

[44] Google Earth. Website accessed January 17, 2019.

8.10.D. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation? ● No Impact.

Due to the nature of the proposed project (a 58-unit townhome development), no hazardous materials beyond what is typically used in a household setting for routine cleaning and maintenance would be used once the project is occupied. According to the Federal Emergency Management Agency (FEMA) flood insurance maps obtained for the City of La Habra, the proposed project site is located in Zone X.[45] This flood zone has an annual probability of flooding of less than 0.2% and represents areas outside the 500-year flood plain. Thus, properties located in Zone X are not located within a 100-year flood plain.[46] However, the flood control channel that extends along the site's southern boundary is located within Zone A. The likelihood of flood waters exceeding the capacity of the aforementioned channel and affecting the project is slim due to the depth of the channel, and the slope present along the north side of the channel.

The proposed project site is not located in an area that is subject to inundation by tsunami or seiche. The project site is located inland approximately 16 miles from the Pacific Ocean and the project site would not be exposed to the effects of a tsunami.[47] Furthermore, a seiche in the adjacent channel is not likely to happen due to the current level of channelization and volume of water present. Finally, the threat of flooding from dam or levee failure is minimal since there are no dams or levees located in the City. As a result, no pollutants are expected to be released in the event of site inundation and no impacts with regards to flooding, tsunamis, seiches, or dam inundation will occur. *No impact is anticipated and this issue will not require analysis in the EIR.*

8.10.E. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? ● No Impact.

The proposed project is in compliance with Title 13, Chapter 13.24 of the City of La Habra Municipal Code. Title 13, Chapter 13.24 of the City of La Habra Municipal Code is responsible for implementing the NPDES and MS4 stormwater runoff requirements. DMS Consultants, Inc prepared a Water Quality Management Plan (WQMP) for the project pursuant to the aforementioned section of the Municipal Code. The WQMP recommended the use of a Modular Wetlands Biofiltration System, which would both reduce the volume of water discharged into the local storm drains and filter out any contaminants present in the stormwater runoff. As a result, no impacts are anticipated. *No significant impact is anticipated and this issue will not require analysis in the EIR.*

8.11 LAND USE AND PLANNING

8.11.A. Physically divide an established community? ● No Impact.

The granting of the requested entitlements and subsequent construction of the proposed project will not result in any expansion of the use beyond the current boundaries. As a result, the project will not lead to

[45] Federal Emergency Management Agency (FEMA). *FEMA Flood Map.* https://msc.fema.gov/portal/search?AddressQuery=riverside#searchresultsanchor

[46] FEMA. *Flood Zones, Definition/Description.* http://www.fema.gov/floodplain-management/flood-zones

[47] Google Earth. Website accessed January 17, 2019.

any division of an existing established neighborhood and no impacts will occur and no mitigation is required. *No impact is anticipated and this issue will not require analysis in the EIR.*

8.11.B. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? ● Impact will be Analyzed in EIR.

A portion of the project site is currently zoned R-4 Multi-family dwelling. In addition, a portion of the site's General Plan designation is Residential Multi-Family 1 (15-24 units/ac). Parcel Number 022-193-56 is currently zoned M-1 Light Manufacturing. In addition, Parcel Number 022-193-56) general plan land use designation is Light Manufacturing.

The project will have a density of 19.9 dwelling units per acre, which is consistent with both the site's zoning and General Plan land use development standards. The project will have a total lot coverage of 30%, which is below the maximum permitted lot coverage of 40%. The project also complies with the maximum height requirements (the units will be 35 feet which is the maximum permitted height for the R-4 zone) as well as the open space requirements. The project will provide a total of 20,672 square feet of open space, which exceeds the required amount of 14,750 square feet. The project currently falls short of the required number of parking spaces. However, the project Applicant is applying for a Planned Unit Development (PUD), which would allow for the City to tailor the development standards for the project. *Nevertheless, this issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

8.12 MINERAL RESOURCES

8.12.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? ● No Impact.

The project site is not located in a Significant Mineral Aggregate Resource Area (SMARA) nor is it located in an area with active mineral extraction activities. A review of California Division of Oil, Gas, and Geothermal Resources Well Finder indicates that there are no wells located on-site or in the vicinity of the project site.[48]

In addition, according to the Generalized Mineral Land Classification of Orange County, the project site is located in Mineral Resource Zone (MRZ) boundary number one (MRZ-1). Areas located in MRZ-1 are classified as areas with no significant resources present.[49] In addition, the City's General Plan describes La Habra's mineral resource extraction and oil production areas as *inactive*. Therefore, the project's implementation will not lead to a loss in resource materials. As a result, no impacts will occur. *No impact is anticipated and this issue will not require analysis in the EIR.*

[48] California, State of. Department of Conservation. California *Oil, Gas, and Geothermal Resources Well Finder*. https://maps.conservation.ca.gov/doggr/wellfinder/#openModal/-117.94257/33.92880/17

[49] California, State of. Department of Conservation. *Generalized Mineral Land Classification of Orange County, California*. ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ofr/OFR_94-15/OFR_94-15_Plate_1.pdf

8.12.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? ● No Impact.

As previously mentioned, no mineral, oil, or energy extraction and/or generation activities are located within the project site. Moreover, the proposed project will not interfere with any resource extraction activity. Therefore, no impacts will result from the implementation of the proposed project. *No impact is anticipated and this issue will not require analysis in the EIR.*

8.13 NOISE

8.13.A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? ● Impact will be Analyzed in EIR.

Construction noise emanating from the project site may affect the residential units located to the south and west of the site. In addition, the project's operational noise will be further analyzed. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

8.13.B. Generation of excessive ground-borne vibration or ground-borne noise levels? ● Impact will be Analyzed in EIR.

Vibration and noise generated during the project's construction will be quantified. In addition, the project's traffic noise will be calculated and presented in the EIR. Operation of the project will not involve any activities that have the potential to cause excessive ground-borne vibration or noise. *Nevertheless, this issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

8.13.C. For a project located within the vicinity of a private airstrip or- 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? ● No Impact.

There are no private airports located within two miles of the project site.[50] In addition, the project site is located approximately four miles northeast of the Fullerton Municipal Airport.[51] The project site is not located within the Fullerton Airport's Runway Protection Zone (RPZ), nor is the site located within the airport's Community Noise Equivalent Level (CNEL) boundary.[52] Thus, the project will not expose future employees, residents, and/or visitors to excessive noise levels and no impacts will occur. *No impact is anticipated and this issue will not require analysis in the EIR.*

[50] Google Earth. Website accessed January 17, 2019.

[51] Ibid.

[52] Airport Land Use Commission/ Airport Environs Land Use Plan for Fullerton Municipal Airport. *AELUP Height Restriction Zone for FMA map*. Document amended November 18, 2004.

8.14 POPULATION & HOUSING

8.14.A. Induce substantial unplanned 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)? ● Impact will be Analyzed in EIR.

The project site consists of four parcels with two separate zones and two separate general plan designations. The western portion of the site consisting of three parcels, totaling 1.22 acres, is zoned R-4. The eastern portion of the site consists of one parcel totaling 1.20 acres and is zoned M-1. The western portion of the site is designated as Residential Multi-Family 1 (15-24 units/acre) in the City's general plan. Meanwhile, the eastern portion of the site is designated as Light Industrial. The development of the western portion of the site with residential units was contemplated in the City's General Plan. On the other hand, the parcel located within the eastern portion of the site was analyzed for industrial uses in the aforementioned EIR. The addition of new multiple family units on that M-1 zoned property will exceed the residential growth projections considered in the EIR since this area is currently designated in the General Plan for non residential land uses. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

8.14.B. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? ● No Impact.

There are no dwelling units located on, or persons residing within, the project sites. Since no housing units will be demolished as part of the proposed project's implementation, no replacement housing will be needed and no impacts will occur. *No impact is anticipated and this issue will not require analysis in the EIR.*

8.15 PUBLIC SERVICES

8.15.A. Would the project 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: Fire protection services; Police protection; Schools; Parks; other Governmental facilities? ● *Impact will be Analyzed in EIR.*

The project site consists of four parcels with two separate zones and two separate general plan designations. The western portion of the site consisting of three parcels, totaling 1.22 acres, is zoned R-4. The eastern portion of the site consists of one parcel totaling 1.20 acres and is zoned M-1. The western portion of the site is designated as Residential Multi-Family 1 (15-24 units/acre) in the City's general plan. Meanwhile, the eastern portion of the site is designated as Light Industrial. The development of the western portion of the site with residential units was contemplated in the City's General Plan. These residential zoned parcels have a maximum potential build out of 29 dwelling units. The City determined that adequate services were available to accommodate up to 29 dwelling units within these three parcels. In addition, the construction and operational air quality, greenhouse gas, noise, traffic, and public services impacts related the site's development with 29 residential units was analyzed in the City's 2014 General

Plan Environmental Impact Report. On the other hand, the parcel located within the eastern portion of the site was analyzed for industrial uses. Therefore, the project's potential impacts to fire, police, school, park, and other governmental services will need to be further evaluated. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

8.16 RECREATION

8.16.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? ● Less than Significant Impact.

The City of La Habra contains a total of 24 parks encompassing approximately 135.6 acres. These parks are divided into three categories—Mini Parks, Neighborhood Parks, and Community Parks—based on usage and not on size. La Habra's five Mini Parks are defined as special use facilities. These parks are designed to provide passive open space with emphasis on aesthetics rather than formal recreational facilities. The City also has 14 Neighborhood Parks located within or near the City's residential neighborhoods. La Habra's five Community Parks serve several residential neighborhoods and offer a wide range of indoor and outdoor recreational opportunities.[53] The closest parks to the project site are Portola Park and Brio Park, which are both located approximately 500 feet north of the project site on both sides of Euclid Street. In addition, the project's impacts to parks will be analyzed under the public services section. *Since the impact is less than significant, this issue will not require analysis in the EIR.*

8.16.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? ● Less than Significant Impact.

The open space and recreational facilities that will be provided will be constructed within the project site and will be analyzed in the context of the whole project. Therefore, the anticipated impacts are considered to be less than significant impact. *Since the impact is less than significant, this issue will not require analysis in the EIR.*

8.17 TRANSPORTATION & CIRCULATION

8.17.A Conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? ● Impact will be Analyzed in EIR.

A traffic study is being prepared that will assess the project's traffic generation and the attendant level of service impacts. In addition, a parking study needs to be provided since overflow parking onto the public right-of-way will impact the roadway and bike facilities. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

[53] City of La Habra. *City of La Habra General Plan Update. Technical Background Report. Chapter 4, Community Services. Section 4.1.* March 2012.

8.17.B Would the project conflict or be inconsistent with CEQA Guidelines §15064.3 subdivision (b)? ● Less than Significant Impact.

According to CEQA Guidelines *§15064.3 subdivision (b)(1),* vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be considered to have a less than significant transportation impact. The La Habra Union Pacific bikeway trail will be constructed along the tracks across from the site which will connect this area to Brea in the east and Whittier in the west. The presence of this planned bikeway will facilitate the use of alternative forms of transportation.

The proposed project is a request to construct 58 townhome units. It is important to note that the project is an "infill" development. Infill development provides a regional benefit in terms of a reduction in Vehicle Miles Traveled (VMT) since the project is consistent with the regional and State sustainable growth objectives identified in the State's Strategic Growth Council (SGC).[54] Infill development reduces VMT by recycling existing undeveloped or underutilized properties located in established urban areas. When development is located in a more rural setting, such as further east in the desert areas, employees, patrons, visitors, and residents may have to travel farther since rural development is often located a significant distance from employment, entertainment, and population centers. Consequently, this distance is reduced when development is located in urban areas since employment, entertainment, and population centers tend to be set in more established communities. Analyzing a project's impacts in terms of reducing or increasing VMTs will become mandatory coming in the year 2020. The VMT method of analysis emphasizes projects that reduce VMTs. If a project is located in a more rural setting, the project would increase regional VMTs and would therefore contribute to a significant transportation and air quality impact. Under the previous requirements, projects that contribute to a decrease in roadway performance or intersection Level of Service (LOS) were considered to represent a significant impact. For example, an infill development that reduces VMTs may have significant traffic impacts if it negatively impacts a local intersection's LOS, despite facilitating a region-wide reduction in VMTs. The VMT method of analysis disregards impacts to local intersections in favor of analyzing a project's impacts in a regional context. As a result, the potential impacts are considered to be less than significant. *Since the impact is less than significant, this issue will not require analysis in the EIR.*

8.17.C Substantially increases hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? ● Impact will be Analyzed in EIR.

A traffic study is being prepared that will assess access and dangerous intersections. In addition, a parking study needs to be provided since overflow parking onto the public right of way will impact roadways and bicycle facilities. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

[54] California Strategic Growth Council. http://www.sgc.ca.gov/Initiatives/infill-development.html.

8.17.D Result in inadequate emergency access? ● Less than Significant Impact.

The proposed project will not affect emergency access to any adjacent parcels. At no time will any local streets or parcels be closed to traffic. As a result, the proposed project's implementation will not result in any impacts. *Since the impact is less than significant, this issue will not require analysis in the EIR.*

8.18 TRIBAL CULTURAL RESOURCES

8.18.A. 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:

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

A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resource Code Section 5024.1 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? ● Impact will be Analyzed in EIR.

AB-52 consultation was undertaken by the Lead Agency. The results of the AB-52 consultation will be discussed in the EIR. *This issue will be analyzed in the EIR. Mitigation was provided by the Gabrielino Kizh that will be included in the EIR.*

8.19 UTILITIES AND SERVICE SYSTEMS

8.19.A. Require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities or relocation of which could cause significant environmental impacts? ● Less than Significant Impact.

There are no existing water or wastewater treatment plants, electric power plants, telecommunications facilities, natural gas facilities, or stormwater drainage infrastructure located on-site. Therefore, the project's implementation will not require the relocation of any of the aforementioned facilities. As a result, the potential impacts are considered to be less than significant. *Since the impact is less than significant, this issue will not require analysis in the EIR.*

8.19.B. Have sufficient water supplies available to serve the project and the reasonably foreseeable future development during normal, dry, and multiple dry years? ● Impact will be Analyzed in EIR.

The project site consists of four parcels with two separate zones and two separate general plan designations. The western portion of the site consisting of three parcels, totaling 1.22 acres, is zoned R-4.

The eastern portion of the site consists of one parcel totaling 1.20 acres and is zoned M-1. The western portion of the site is designated as Residential Multi-Family 1 (15-24 units/acre) in the City's general plan. Meanwhile, the eastern portion of the site is designated as Light Industrial. The development of the western portion of the site with residential units was contemplated in the City's General Plan. On the other hand, the parcel located within the eastern portion of the site was analyzed for industrial uses in the aforementioned EIR. The addition of new multiple family units on that M-1 zoned property will exceed the residential growth projections considered in the EIR since this area is currently designated in the General Plan for non residential land uses. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

8.19.C. Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments? ● Impact will be Analyzed in EIR.

The project site consists of four parcels with two separate zones and two separate general plan designations. The western portion of the site consisting of three parcels, totaling 1.22 acres, is zoned R-4. The eastern portion of the site consists of one parcel totaling 1.20 acres and is zoned M-1. The western portion of the site is designated as Residential Multi-Family 1 (15-24 units/acre) in the City's general plan. Meanwhile, the eastern portion of the site is designated as Light Industrial. The development of the western portion of the site with residential units was contemplated in the City's General Plan. On the other hand, the parcel located within the eastern portion of the site was analyzed for industrial uses in the aforementioned EIR. The addition of new multiple family units on that M-1 zoned property will exceed the residential growth projections considered in the EIR since this area is currently designated in the General Plan for non residential land uses. Thus, the proposed project's future wastewater generation will need to be re-analyzed. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

8.19.D. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? ● Impact will be Analyzed in EIR.

The project site consists of four parcels with two separate zones and two separate general plan designations. The western portion of the site consisting of three parcels, totaling 1.22 acres, is zoned R-4. The eastern portion of the site consists of one parcel totaling 1.20 acres and is zoned M-1. The western portion of the site is designated as Residential Multi-Family 1 (15-24 units/acre) in the City's general plan. Meanwhile, the eastern portion of the site is designated as Light Industrial. The development of the western portion of the site with residential units was contemplated in the City's General Plan. On the other hand, the parcel located within the eastern portion of the site was analyzed for industrial uses in the aforementioned EIR. The addition of new multiple family units on that M-1 zoned property will exceed the residential growth projections considered in the EIR since this area is currently designated in the General Plan for non residential land uses. Thus, the proposed project's future solid waste generation will need to be re-analyzed. *This issue will be analyzed in the EIR to identify the potential impacts along with any requisite mitigation.*

8.19.E. Comply with Federal, State, and local management and reduction statutes and regulations related to solid waste? ● Less than Significant Impact.

The proposed project, like all other development in La Habra, will be required to adhere to City and County ordinances with respect to waste reduction and recycling. As a result, less than significant related impacts to State and local statutes governing solid waste are anticipated. *Since the impact is less than significant, this issue will not require analysis in the EIR.*

8.20 WILDFIRE

ENVIRONMENTAL ANALYSIS

8.20.A If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan? ● Less than Significant Impact.

The project site is not located within a fire hazard severity zone.[55] The proposed project site is located within an urbanized area and no areas containing natural vegetation is located near the project site. Furthermore, the proposed project would not involve the closure or alteration of any existing evacuation routes that would be important in the event of a wildfire. All construction staging and queuing must occur on-site. As a result, less than significant impacts will occur. *Since the impact is less than significant, this issue will not require analysis in the EIR.*

8.20.B. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? ● Less than Significant Impact.

The project site and the adjacent properties are urbanized and there are no areas of native or natural vegetation found within the vicinity of the project area. Major physiographic features in the area include the Puente Hills, located 1.25 miles north of the project site and the West Coyote Hills, located 1.38 mile southwest of the project site. The proposed project may be exposed to criteria pollutant emissions and embers generated by wildland fires due to the project site's proximity to fire hazard severity zones. However, the potential impacts would not be exclusive to the project site since criteria pollutant emissions from wildland fires may affect the entire City as well as the surrounding cities and unincorporated county areas. In addition, potential embers from wildland fires may ignite if they come into contact with the townhome units or the landscaping. However, the potential impacts would not be exclusive to the project site since embers from wildland fires may affect the entire City as well as the surrounding cities and unincorporated county areas. As a result, the potential impacts are considered to be less than significant. *Since the impact is less than significant, this issue will not require analysis in the EIR.*

[55] CalFire. *Orange County Fire Hazard Severity Zones Map*. http://frap.fire.ca.gov/webdata/maps/orange/fhszs_map.30.pdf.

8.20.C. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? ● Less than Significant Impact.

The project site is not located within a fire hazard severity zone.[56] The project will be constructed in compliance with the 2016 Building Code and the City Fire Department's recommendations and will not exacerbate wildfire risks. In addition, the use of hazardous materials will be limited to those that are commercially available and are used in a household setting. The proposed project, like most development in the City, may be subject to pollutant concentrations from industrial, gas line, or chemical fires due to the project site's proximity to active industrial users. As a result, the potential impacts are considered to be less than significant. *Since the impact is less than significant, this issue will not require analysis in the EIR.*

8.20.D. Expose people or structures to significant risks, including down slope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? ● Less than Significant Impact.

The project site is not located within a fire hazard severity zone.[57] The project site and surrounding areas are developed. Therefore, the project will not expose future residents to flooding or landslides facilitated by runoff flowing down barren and charred slopes and no will occur. As a result, the potential impacts are considered to be less than significant. *Since the impact is less than significant, this issue will not require analysis in the EIR.*

8.21 MANDATORY FINDINGS OF SIGNIFICANCE

The following findings can be made regarding the Mandatory Findings of Significance set forth in Section 15065 of the CEQA Guidelines based on the results of this environmental assessment:

- *Does the project have the potential to substantially 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? ● Impact will be Analyzed in EIR.*

These findings will be made in the Environmental Impact Report.

- *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)? ● Impact will be Analyzed in EIR.*

These findings will be made in the Environmental Impact Report.

[56] CalFire. *Orange County Fire Hazard Severity Zones Map*. http://frap.fire.ca.gov/webdata/maps/orange/fhszs_map.30.pdf.

[57] Ibid

- *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? ● Impact will be Analyzed in EIR.*

These findings will be made in the Environmental Impact Report.

9. PREPARERS

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(626) 336-0033

Bryan Hamilton, Project Planner
Marc Blodgett, Project Manager
Liesl Sullano, Project Planner

The references consulted as part of this Initial Study's preparation are shown using footnotes. Those references that are available on web pages are identified by their corresponding URL.

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Volara Townhomes

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	58.00	Dwelling Unit	3.63	58,000.00	166
Parking Lot	63.00	Space	0.57	25,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	9			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Volara Townhomes - Orange County, Summer

Project Characteristics -

Land Use - The parking only represents the guest spaces.

Construction Phase - Construction times are estimated in the EIR.

Demolition -

Woodstoves - There will be no wood burning stoves or wood burning fireplaces.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Volara Townhomes - Orange County, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	18.00	44.00
tblConstructionPhase	NumDays	230.00	174.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	8.00	22.00
tblConstructionPhase	NumDays	18.00	23.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	PhaseEndDate	2/22/2021	1/31/2021
tblConstructionPhase	PhaseEndDate	1/1/2021	11/30/2020
tblConstructionPhase	PhaseEndDate	1/28/2020	1/31/2020
tblConstructionPhase	PhaseEndDate	2/14/2020	3/31/2020
tblConstructionPhase	PhaseEndDate	1/27/2021	12/31/2020
tblConstructionPhase	PhaseEndDate	2/4/2020	2/29/2020
tblConstructionPhase	PhaseStartDate	1/28/2021	12/1/2020
tblConstructionPhase	PhaseStartDate	2/15/2020	4/1/2020
tblConstructionPhase	PhaseStartDate	2/5/2020	3/1/2020
tblConstructionPhase	PhaseStartDate	1/2/2021	12/1/2020
tblConstructionPhase	PhaseStartDate	1/29/2020	2/1/2020
tblFireplaces	NumberGas	49.30	58.00
tblFireplaces	NumberNoFireplace	5.80	0.00
tblFireplaces	NumberWood	2.90	0.00
tblGrading	AcresOfGrading	11.00	4.00
tblWoodstoves	NumberCatalytic	2.90	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Volara Townhomes - Orange County, Summer

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					
2020	10.0136	42.4609	22.2744	0.0408	18.2675	2.1987	20.4662	9.9840	2.0228	12.0069	0.0000	3,948.3009	3,948.3009	1.1963	0.0000	3,974.9389
2021	8.6625	1.5487	2.1213	4.0300e-003	0.1118	0.0948	0.2066	0.0296	0.0948	0.1244	0.0000	386.6675	386.6675	0.0216	0.0000	387.2067
Maximum	**10.0136**	**42.4609**	**22.2744**	**0.0408**	**18.2675**	**2.1987**	**20.4662**	**9.9840**	**2.0228**	**12.0069**	**0.0000**	**3,948.3009**	**3,948.3009**	**1.1963**	**0.0000**	**3,974.9389**

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					
2020	10.0136	42.4609	22.2744	0.0408	7.2470	2.1987	9.4458	3.9263	2.0228	5.9492	0.0000	3,948.3009	3,948.3009	1.1963	0.0000	3,974.9389
2021	8.6625	1.5487	2.1213	4.0300e-003	0.1118	0.0948	0.2066	0.0296	0.0948	0.1244	0.0000	386.6675	386.6675	0.0216	0.0000	387.2067
Maximum	**10.0136**	**42.4609**	**22.2744**	**0.0408**	**7.2470**	**2.1987**	**9.4458**	**3.9263**	**2.0228**	**5.9492**	**0.0000**	**3,948.3009**	**3,948.3009**	**1.1963**	**0.0000**	**3,974.9389**

	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**	**59.96**	**0.00**	**53.31**	**60.49**	**0.00**	**49.93**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Volara Townhomes - Orange County, Summer

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	1.5166	1.0174	5.2061	6.3900e-003		0.1043	0.1043		0.1043	0.1043	0.0000	1,236.8651	1,236.8651	0.0319	0.0225	1,244.3726
Energy	0.0294	0.2515	0.1070	1.6100e-003		0.0203	0.0203		0.0203	0.0203		321.1089	321.1089	6.1500e-003	5.8900e-003	323.0171
Mobile	0.4984	2.0017	6.8307	0.0268	2.4427	0.0190	2.4617	0.6532	0.0177	0.6709		2,717.6032	2,717.6032	0.1076		2,720.2933
Total	**2.0444**	**3.2706**	**12.1438**	**0.0348**	**2.4427**	**0.1436**	**2.5863**	**0.6532**	**0.1423**	**0.7955**	**0.0000**	**4,275.5773**	**4,275.5773**	**0.1456**	**0.0284**	**4,287.6830**

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	1.5166	1.0174	5.2061	6.3900e-003		0.1043	0.1043		0.1043	0.1043	0.0000	1,236.8651	1,236.8651	0.0319	0.0225	1,244.3726
Energy	0.0294	0.2515	0.1070	1.6100e-003		0.0203	0.0203		0.0203	0.0203		321.1089	321.1089	6.1500e-003	5.8900e-003	323.0171
Mobile	0.4984	2.0017	6.8307	0.0268	2.4427	0.0190	2.4617	0.6532	0.0177	0.6709		2,717.6032	2,717.6032	0.1076		2,720.2933
Total	**2.0444**	**3.2706**	**12.1438**	**0.0348**	**2.4427**	**0.1436**	**2.5863**	**0.6532**	**0.1423**	**0.7955**	**0.0000**	**4,275.5773**	**4,275.5773**	**0.1456**	**0.0284**	**4,287.6830**

Volara Townhomes - Orange County, Summer

	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	1/1/2020	1/31/2020	5	23	
2	Site Preparation	Site Preparation	2/1/2020	2/29/2020	5	20	
3	Grading	Grading	3/1/2020	3/31/2020	5	22	
4	Building Construction	Building Construction	4/1/2020	11/30/2020	5	174	
5	Paving	Paving	12/1/2020	12/31/2020	5	23	
6	Architectural Coating	Architectural Coating	12/1/2020	1/31/2021	5	44	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0.57

Residential Indoor: 117,450; Residential Outdoor: 39,150; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 1,512 (Architectural Coating – sqft)

OffRoad Equipment

Volara Townhomes - Orange County, Summer

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

Trips and VMT

Volara Townhomes - Orange County, Summer

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	10.00	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	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	52.00	10.00	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	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 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					
Fugitive Dust					0.0963	0.0000	0.0963	0.0146	0.0000	0.0146			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**0.0963**	**1.6587**	**1.7550**	**0.0146**	**1.5419**	**1.5564**		**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Volara Townhomes - Orange County, Summer

3.2 Demolition - 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	3.2800e-003	0.1196	0.0302	3.3000e-004	7.5700e-003	3.9000e-004	7.9600e-003	2.0700e-003	3.7000e-004	2.4400e-003		37.0895	37.0895	3.8400e-003		37.1856
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	0.0576	0.0363	0.4910	1.6400e-003	0.1677	1.1100e-003	0.1688	0.0445	1.0200e-003	0.0455		163.5065	163.5065	3.7300e-003		163.5997
Total	**0.0609**	**0.1559**	**0.5212**	**1.9700e-003**	**0.1752**	**1.5000e-003**	**0.1767**	**0.0465**	**1.3900e-003**	**0.0479**		**200.5960**	**200.5960**	**7.5700e-003**		**200.7853**

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					0.0376	0.0000	0.0376	5.6900e-003	0.0000	5.6900e-003			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**0.0376**	**1.6587**	**1.6963**	**5.6900e-003**	**1.5419**	**1.5475**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Volara Townhomes - Orange County, Summer

3.2 Demolition - 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	3.2800e-003	0.1196	0.0302	3.3000e-004	7.5700e-003	3.9000e-004	7.9600e-003	2.0700e-003	3.7000e-004	2.4400e-003		37.0895	37.0895	3.8400e-003		37.1856
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	0.0576	0.0363	0.4910	1.6400e-003	0.1677	1.1100e-003	0.1688	0.0445	1.0200e-003	0.0455		163.5065	163.5065	3.7300e-003		163.5997
Total	**0.0609**	**0.1559**	**0.5212**	**1.9700e-003**	**0.1752**	**1.5000e-003**	**0.1767**	**0.0465**	**1.3900e-003**	**0.0479**		**200.5960**	**200.5960**	**7.5700e-003**		**200.7853**

3.3 Site Preparation - 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					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Volara Townhomes - Orange County, Summer

3.3 Site Preparation - 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	0.0692	0.0436	0.5892	1.9700e-003	0.2012	1.3300e-003	0.2025	0.0534	1.2300e-003	0.0546		196.2079	196.2079	4.4700e-003		196.3197
Total	**0.0692**	**0.0436**	**0.5892**	**1.9700e-003**	**0.2012**	**1.3300e-003**	**0.2025**	**0.0534**	**1.2300e-003**	**0.0546**		**196.2079**	**196.2079**	**4.4700e-003**		**196.3197**

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					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.0458**	**2.1974**	**9.2433**	**3.8730**	**2.0216**	**5.8946**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Volara Townhomes - Orange County, Summer

3.3 Site Preparation - 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	0.0692	0.0436	0.5892	1.9700e-003	0.2012	1.3300e-003	0.2025	0.0534	1.2300e-003	0.0546		196.2079	196.2079	4.4700e-003		196.3197
Total	**0.0692**	**0.0436**	**0.5892**	**1.9700e-003**	**0.2012**	**1.3300e-003**	**0.2025**	**0.0534**	**1.2300e-003**	**0.0546**		**196.2079**	**196.2079**	**4.4700e-003**		**196.3197**

3.4 Grading - 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					
Fugitive Dust					6.2149	0.0000	6.2149	3.3311	0.0000	3.3311			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.2149**	**1.2734**	**7.4883**	**3.3311**	**1.1716**	**4.5026**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Volara Townhomes - Orange County, Summer

3.4 Grading - 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	0.0576	0.0363	0.4910	1.6400e-003	0.1677	1.1100e-003	0.1688	0.0445	1.0200e-003	0.0455		163.5065	163.5065	3.7300e-003		163.5997
Total	**0.0576**	**0.0363**	**0.4910**	**1.6400e-003**	**0.1677**	**1.1100e-003**	**0.1688**	**0.0445**	**1.0200e-003**	**0.0455**		**163.5065**	**163.5065**	**3.7300e-003**		**163.5997**

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					2.4238	0.0000	2.4238	1.2991	0.0000	1.2991			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**2.4238**	**1.2734**	**3.6972**	**1.2991**	**1.1716**	**2.4707**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Volara Townhomes - Orange County, Summer

3.4 Grading - 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	0.0576	0.0363	0.4910	1.6400e-003	0.1677	1.1100e-003	0.1688	0.0445	1.0200e-003	0.0455		163.5065	163.5065	3.7300e-003		163.5997
Total	**0.0576**	**0.0363**	**0.4910**	**1.6400e-003**	**0.1677**	**1.1100e-003**	**0.1688**	**0.0445**	**1.0200e-003**	**0.0455**		**163.5065**	**163.5065**	**3.7300e-003**		**163.5997**

3.5 Building Construction - 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					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Volara Townhomes - Orange County, Summer

3.5 Building Construction - 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	0.0320	1.0418	0.2750	2.4900e-003	0.0639	5.4400e-003	0.0693	0.0184	5.2000e-003	0.0236		271.1289	271.1289	0.0219		271.6771
Worker	0.1998	0.1259	1.7021	5.6900e-003	0.5812	3.8400e-003	0.5851	0.1542	3.5400e-003	0.1577		566.8227	566.8227	0.0129		567.1457
Total	**0.2318**	**1.1677**	**1.9771**	**8.1800e-003**	**0.6451**	**9.2800e-003**	**0.6544**	**0.1725**	**8.7400e-003**	**0.1813**		**837.9516**	**837.9516**	**0.0349**		**838.8229**

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Volara Townhomes - Orange County, Summer

3.5 Building Construction - 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	0.0320	1.0418	0.2750	2.4900e-003	0.0639	5.4400e-003	0.0693	0.0184	5.2000e-003	0.0236		271.1289	271.1289	0.0219		271.6771
Worker	0.1998	0.1259	1.7021	5.6900e-003	0.5812	3.8400e-003	0.5851	0.1542	3.5400e-003	0.1577		566.8227	566.8227	0.0129		567.1457
Total	**0.2318**	**1.1677**	**1.9771**	**8.1800e-003**	**0.6451**	**9.2800e-003**	**0.6544**	**0.1725**	**8.7400e-003**	**0.1813**		**837.9516**	**837.9516**	**0.0349**		**838.8229**

3.6 Paving - 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					
Off-Road	1.1837	11.8015	12.2823	0.0189		0.6509	0.6509		0.6005	0.6005		1,804.7070	1,804.7070	0.5670		1,818.8830
Paving	0.0649					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2486**	**11.8015**	**12.2823**	**0.0189**		**0.6509**	**0.6509**		**0.6005**	**0.6005**		**1,804.7070**	**1,804.7070**	**0.5670**		**1,818.8830**

Volara Townhomes - Orange County, Summer

3.6 Paving - 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	0.0769	0.0484	0.6547	2.1900e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		218.0087	218.0087	4.9700e-003		218.1330
Total	**0.0769**	**0.0484**	**0.6547**	**2.1900e-003**	**0.2236**	**1.4800e-003**	**0.2250**	**0.0593**	**1.3600e-003**	**0.0607**		**218.0087**	**218.0087**	**4.9700e-003**		**218.1330**

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	1.1837	11.8015	12.2823	0.0189		0.6509	0.6509		0.6005	0.6005	0.0000	1,804.7070	1,804.7070	0.5670		1,818.8830
Paving	0.0649					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2486**	**11.8015**	**12.2823**	**0.0189**		**0.6509**	**0.6509**		**0.6005**	**0.6005**	**0.0000**	**1,804.7070**	**1,804.7070**	**0.5670**		**1,818.8830**

Volara Townhomes - Orange County, Summer

3.6 Paving - 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	0.0769	0.0484	0.6547	2.1900e-003	0.2236	1.4800e-003	0.2250	0.0593	1.3600e-003	0.0607		218.0087	218.0087	4.9700e-003		218.1330
Total	**0.0769**	**0.0484**	**0.6547**	**2.1900e-003**	**0.2236**	**1.4800e-003**	**0.2250**	**0.0593**	**1.3600e-003**	**0.0607**		**218.0087**	**218.0087**	**4.9700e-003**		**218.1330**

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	8.4075					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	**8.6497**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

Volara Townhomes - Orange County, Summer

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	0.0384	0.0242	0.3273	1.0900e-003	0.1118	7.4000e-004	0.1125	0.0296	6.8000e-004	0.0303		109.0044	109.0044	2.4800e-003		109.0665
Total	**0.0384**	**0.0242**	**0.3273**	**1.0900e-003**	**0.1118**	**7.4000e-004**	**0.1125**	**0.0296**	**6.8000e-004**	**0.0303**		**109.0044**	**109.0044**	**2.4800e-003**		**109.0665**

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	8.4075					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	**8.6497**	**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**

Volara Townhomes - Orange County, Summer

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	0.0384	0.0242	0.3273	1.0900e-003	0.1118	7.4000e-004	0.1125	0.0296	6.8000e-004	0.0303		109.0044	109.0044	2.4800e-003		109.0665
Total	**0.0384**	**0.0242**	**0.3273**	**1.0900e-003**	**0.1118**	**7.4000e-004**	**0.1125**	**0.0296**	**6.8000e-004**	**0.0303**		**109.0044**	**109.0044**	**2.4800e-003**		**109.0665**

3.7 Architectural Coating - 2021

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	8.4075					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**8.6264**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Volara Townhomes - Orange County, Summer

3.7 Architectural Coating - 2021

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	0.0361	0.0218	0.3037	1.0600e-003	0.1118	7.2000e-004	0.1125	0.0296	6.7000e-004	0.0303		105.2194	105.2194	2.2500e-003		105.2758
Total	**0.0361**	**0.0218**	**0.3037**	**1.0600e-003**	**0.1118**	**7.2000e-004**	**0.1125**	**0.0296**	**6.7000e-004**	**0.0303**		**105.2194**	**105.2194**	**2.2500e-003**		**105.2758**

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	8.4075					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**8.6264**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Volara Townhomes - Orange County, Summer

3.7 Architectural Coating - 2021

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	0.0361	0.0218	0.3037	1.0600e-003	0.1118	7.2000e-004	0.1125	0.0296	6.7000e-004	0.0303		105.2194	105.2194	2.2500e-003		105.2758
Total	**0.0361**	**0.0218**	**0.3037**	**1.0600e-003**	**0.1118**	**7.2000e-004**	**0.1125**	**0.0296**	**6.7000e-004**	**0.0303**		**105.2194**	**105.2194**	**2.2500e-003**		**105.2758**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Implement Trip Reduction Program

Volara Townhomes - Orange County, Summer

	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	0.4984	2.0017	6.8307	0.0268	2.4427	0.0190	2.4617	0.6532	0.0177	0.6709		2,717.6032	2,717.6032	0.1076		2,720.2933
Unmitigated	0.4984	2.0017	6.8307	0.0268	2.4427	0.0190	2.4617	0.6532	0.0177	0.6709		2,717.6032	2,717.6032	0.1076		2,720.2933

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	336.98	328.86	280.72	1,120,084	1,120,084
Parking Lot	0.00	0.00	0.00		
Total	336.98	328.86	280.72	1,120,084	1,120,084

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
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
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
Condo/Townhouse	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934
Parking Lot	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

Install Energy Efficient Appliances

	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	0.0294	0.2515	0.1070	1.6100e-003		0.0203	0.0203		0.0203	0.0203		321.1089	321.1089	6.1500e-003	5.8900e-003	323.0171
NaturalGas Unmitigated	0.0294	0.2515	0.1070	1.6100e-003		0.0203	0.0203		0.0203	0.0203		321.1089	321.1089	6.1500e-003	5.8900e-003	323.0171

Volara Townhomes - Orange County, Summer

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					
Condo/Townhouse	2729.43	0.0294	0.2515	0.1070	1.6100e-003		0.0203	0.0203		0.0203	0.0203		321.1089	321.1089	6.1500e-003	5.8900e-003	323.0171
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		**0.0294**	**0.2515**	**0.1070**	**1.6100e-003**		**0.0203**	**0.0203**		**0.0203**	**0.0203**		**321.1089**	**321.1089**	**6.1500e-003**	**5.8900e-003**	**323.0171**

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					
Condo/Townhouse	2.72943	0.0294	0.2515	0.1070	1.6100e-003		0.0203	0.0203		0.0203	0.0203		321.1089	321.1089	6.1500e-003	5.8900e-003	323.0171
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		**0.0294**	**0.2515**	**0.1070**	**1.6100e-003**		**0.0203**	**0.0203**		**0.0203**	**0.0203**		**321.1089**	**321.1089**	**6.1500e-003**	**5.8900e-003**	**323.0171**

6.0 Area Detail

6.1 Mitigation Measures Area

Volara Townhomes - Orange County, Summer

Use only Natural Gas Hearths

	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	1.5166	1.0174	5.2061	6.3900e-003		0.1043	0.1043		0.1043	0.1043	0.0000	1,236.8651	1,236.8651	0.0319	0.0225	1,244.3726
Unmitigated	1.5166	1.0174	5.2061	6.3900e-003		0.1043	0.1043		0.1043	0.1043	0.0000	1,236.8651	1,236.8651	0.0319	0.0225	1,244.3726

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	0.1014					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1573					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1126	0.9621	0.4094	6.1400e-003		0.0778	0.0778		0.0778	0.0778	0.0000	1,228.2353	1,228.2353	0.0235	0.0225	1,235.5341
Landscaping	0.1453	0.0553	4.7967	2.5000e-004		0.0265	0.0265		0.0265	0.0265		8.6298	8.6298	8.3500e-003		8.8385
Total	**1.5166**	**1.0174**	**5.2061**	**6.3900e-003**		**0.1043**	**0.1043**		**0.1043**	**0.1043**	**0.0000**	**1,236.8651**	**1,236.8651**	**0.0319**	**0.0225**	**1,244.3726**

Volara Townhomes - Orange County, Summer

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	0.1014					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1573					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1126	0.9621	0.4094	6.1400e-003		0.0778	0.0778		0.0778	0.0778	0.0000	1,228.2353	1,228.2353	0.0235	0.0225	1,235.5341
Landscaping	0.1453	0.0553	4.7967	2.5000e-004		0.0265	0.0265		0.0265	0.0265		8.6298	8.6298	8.3500e-003		8.8385
Total	**1.5166**	**1.0174**	**5.2061**	**6.3900e-003**		**0.1043**	**0.1043**		**0.1043**	**0.1043**	**0.0000**	**1,236.8651**	**1,236.8651**	**0.0319**	**0.0225**	**1,244.3726**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

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

Volara Townhomes

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	58.00	Dwelling Unit	3.63	58,000.00	166
Parking Lot	63.00	Space	0.57	25,200.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	9			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Volara Townhomes - Orange County, Annual

Project Characteristics -

Land Use - The parking only represents the guest spaces.

Construction Phase - Construction times are estimated in the EIR.

Demolition -

Woodstoves - There will be no wood burning stoves or wood burning fireplaces.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Volara Townhomes - Orange County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	18.00	44.00
tblConstructionPhase	NumDays	230.00	174.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	8.00	22.00
tblConstructionPhase	NumDays	18.00	23.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	PhaseEndDate	2/22/2021	1/31/2021
tblConstructionPhase	PhaseEndDate	1/1/2021	11/30/2020
tblConstructionPhase	PhaseEndDate	1/28/2020	1/31/2020
tblConstructionPhase	PhaseEndDate	2/14/2020	3/31/2020
tblConstructionPhase	PhaseEndDate	1/27/2021	12/31/2020
tblConstructionPhase	PhaseEndDate	2/4/2020	2/29/2020
tblConstructionPhase	PhaseStartDate	1/28/2021	12/1/2020
tblConstructionPhase	PhaseStartDate	2/15/2020	4/1/2020
tblConstructionPhase	PhaseStartDate	2/5/2020	3/1/2020
tblConstructionPhase	PhaseStartDate	1/2/2021	12/1/2020
tblConstructionPhase	PhaseStartDate	1/29/2020	2/1/2020
tblFireplaces	NumberGas	49.30	58.00
tblFireplaces	NumberNoFireplace	5.80	0.00
tblFireplaces	NumberWood	2.90	0.00
tblGrading	AcresOfGrading	11.00	4.00
tblWoodstoves	NumberCatalytic	2.90	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

Volara Townhomes - Orange County, Annual

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					
2020	0.4277	3.0289	2.4624	4.5300e-003	0.3148	0.1619	0.4767	0.1534	0.1512	0.3046	0.0000	397.2013	397.2013	0.0894	0.0000	399.4363
2021	0.0910	0.0163	0.0221	4.0000e-005	1.1500e-003	1.0000e-003	2.1500e-003	3.1000e-004	1.0000e-003	1.3000e-003	0.0000	3.6440	3.6440	2.0000e-004	0.0000	3.6491
Maximum	**0.4277**	**3.0289**	**2.4624**	**4.5300e-003**	**0.3148**	**0.1619**	**0.4767**	**0.1534**	**0.1512**	**0.3046**	**0.0000**	**397.2013**	**397.2013**	**0.0894**	**0.0000**	**399.4363**

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					
2020	0.4277	3.0289	2.4624	4.5300e-003	0.1623	0.1619	0.3241	0.0704	0.1512	0.2216	0.0000	397.2010	397.2010	0.0894	0.0000	399.4360
2021	0.0910	0.0163	0.0221	4.0000e-005	1.1500e-003	1.0000e-003	2.1500e-003	3.1000e-004	1.0000e-003	1.3000e-003	0.0000	3.6440	3.6440	2.0000e-004	0.0000	3.6491
Maximum	**0.4277**	**3.0289**	**2.4624**	**4.5300e-003**	**0.1623**	**0.1619**	**0.3241**	**0.0704**	**0.1512**	**0.2216**	**0.0000**	**397.2010**	**397.2010**	**0.0894**	**0.0000**	**399.4360**

	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**	**48.29**	**0.00**	**31.86**	**54.01**	**0.00**	**27.14**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Volara Townhomes - Orange County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2020	3-31-2020	1.2098	1.2098
2	4-1-2020	6-30-2020	0.7379	0.7379
3	7-1-2020	9-30-2020	0.7460	0.7460
4	10-1-2020	12-31-2020	0.7567	0.7567
5	1-1-2021	3-31-2021	0.1131	0.1131
		Highest	1.2098	1.2098

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	0.2493	0.0189	0.6047	1.1000e-004		4.2800e-003	4.2800e-003		4.2800e-003	4.2800e-003	0.0000	14.9066	14.9066	1.2100e-003	2.6000e-004	15.0130
Energy	5.3700e-003	0.0459	0.0195	2.9000e-004		3.7100e-003	3.7100e-003		3.7100e-003	3.7100e-003	0.0000	149.1117	149.1117	4.9800e-003	1.7900e-003	149.7709
Mobile	0.0843	0.3708	1.1694	4.5800e-003	0.4248	3.3700e-003	0.4282	0.1138	3.1300e-003	0.1169	0.0000	422.2816	422.2816	0.0172	0.0000	422.7108
Waste						0.0000	0.0000		0.0000	0.0000	5.4158	0.0000	5.4158	0.3201	0.0000	13.4174
Water						0.0000	0.0000		0.0000	0.0000	1.1989	24.1112	25.3101	0.1241	3.1100e-003	29.3412
Total	**0.3389**	**0.4356**	**1.7936**	**4.9800e-003**	**0.4248**	**0.0114**	**0.4362**	**0.1138**	**0.0111**	**0.1249**	**6.6147**	**610.4111**	**617.0258**	**0.4676**	**5.1600e-003**	**630.2533**

Volara Townhomes - Orange County, Annual

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	0.2493	0.0189	0.6047	1.1000e-004		4.2800e-003	4.2800e-003		4.2800e-003	4.2800e-003	0.0000	14.9066	14.9066	1.2100e-003	2.6000e-004	15.0130
Energy	5.3700e-003	0.0459	0.0195	2.9000e-004		3.7100e-003	3.7100e-003		3.7100e-003	3.7100e-003	0.0000	146.6795	146.6795	4.8800e-003	1.7700e-003	147.3299
Mobile	0.0843	0.3708	1.1694	4.5800e-003	0.4248	3.3700e-003	0.4282	0.1138	3.1300e-003	0.1169	0.0000	422.2816	422.2816	0.0172	0.0000	422.7108
Waste						0.0000	0.0000		0.0000	0.0000	5.4158	0.0000	5.4158	0.3201	0.0000	13.4174
Water						0.0000	0.0000		0.0000	0.0000	0.9591	20.9757	21.9348	0.0994	2.5100e-003	25.1657
Total	**0.3389**	**0.4356**	**1.7936**	**4.9800e-003**	**0.4248**	**0.0114**	**0.4362**	**0.1138**	**0.0111**	**0.1249**	**6.3749**	**604.8433**	**611.2182**	**0.4427**	**4.5400e-003**	**623.6368**

	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**	**3.62**	**0.91**	**0.94**	**5.31**	**12.02**	**1.05**

3.0 Construction Detail

Construction Phase

Volara Townhomes - Orange County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2020	1/31/2020	5	23	
2	Site Preparation	Site Preparation	2/1/2020	2/29/2020	5	20	
3	Grading	Grading	3/1/2020	3/31/2020	5	22	
4	Building Construction	Building Construction	4/1/2020	11/30/2020	5	174	
5	Paving	Paving	12/1/2020	12/31/2020	5	23	
6	Architectural Coating	Architectural Coating	12/1/2020	1/31/2021	5	44	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0.57

Residential Indoor: 117,450; Residential Outdoor: 39,150; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 1,512 (Architectural Coating – sqft)

OffRoad Equipment

Volara Townhomes - Orange County, Annual

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

Trips and VMT

Volara Townhomes - Orange County, Annual

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	10.00	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	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	52.00	10.00	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	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 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					
Fugitive Dust					1.1100e-003	0.0000	1.1100e-003	1.7000e-004	0.0000	1.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0381	0.3818	0.2502	4.5000e-004		0.0191	0.0191		0.0177	0.0177	0.0000	39.0984	39.0984	0.0110	0.0000	39.3743
Total	**0.0381**	**0.3818**	**0.2502**	**4.5000e-004**	**1.1100e-003**	**0.0191**	**0.0202**	**1.7000e-004**	**0.0177**	**0.0179**	**0.0000**	**39.0984**	**39.0984**	**0.0110**	**0.0000**	**39.3743**

Volara Townhomes - Orange County, Annual

3.2 Demolition - 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	4.0000e-005	1.4200e-003	3.6000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.3845	0.3845	4.0000e-005	0.0000	0.3855
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	6.7000e-004	4.7000e-004	5.3500e-003	2.0000e-005	1.8900e-003	1.0000e-005	1.9100e-003	5.0000e-004	1.0000e-005	5.1000e-004	0.0000	1.6390	1.6390	4.0000e-005	0.0000	1.6400
Total	**7.1000e-004**	**1.8900e-003**	**5.7100e-003**	**2.0000e-005**	**1.9800e-003**	**1.0000e-005**	**2.0000e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**2.0235**	**2.0235**	**8.0000e-005**	**0.0000**	**2.0255**

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					4.3000e-004	0.0000	4.3000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0381	0.3818	0.2502	4.5000e-004		0.0191	0.0191		0.0177	0.0177	0.0000	39.0984	39.0984	0.0110	0.0000	39.3743
Total	**0.0381**	**0.3818**	**0.2502**	**4.5000e-004**	**4.3000e-004**	**0.0191**	**0.0195**	**7.0000e-005**	**0.0177**	**0.0178**	**0.0000**	**39.0984**	**39.0984**	**0.0110**	**0.0000**	**39.3743**

Volara Townhomes - Orange County, Annual

3.2 Demolition - 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	4.0000e-005	1.4200e-003	3.6000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.3845	0.3845	4.0000e-005	0.0000	0.3855
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	6.7000e-004	4.7000e-004	5.3500e-003	2.0000e-005	1.8900e-003	1.0000e-005	1.9100e-003	5.0000e-004	1.0000e-005	5.1000e-004	0.0000	1.6390	1.6390	4.0000e-005	0.0000	1.6400
Total	**7.1000e-004**	**1.8900e-003**	**5.7100e-003**	**2.0000e-005**	**1.9800e-003**	**1.0000e-005**	**2.0000e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**2.0235**	**2.0235**	**8.0000e-005**	**0.0000**	**2.0255**

3.3 Site Preparation - 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					
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0408	0.4242	0.2151	3.8000e-004		0.0220	0.0220		0.0202	0.0202	0.0000	33.4307	33.4307	0.0108	0.0000	33.7010
Total	**0.0408**	**0.4242**	**0.2151**	**3.8000e-004**	**0.1807**	**0.0220**	**0.2026**	**0.0993**	**0.0202**	**0.1195**	**0.0000**	**33.4307**	**33.4307**	**0.0108**	**0.0000**	**33.7010**

Volara Townhomes - Orange County, Annual

3.3 Site Preparation - 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	7.0000e-004	4.9000e-004	5.5800e-003	2.0000e-005	1.9800e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.7103	1.7103	4.0000e-005	0.0000	1.7113
Total	**7.0000e-004**	**4.9000e-004**	**5.5800e-003**	**2.0000e-005**	**1.9800e-003**	**1.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.7103**	**1.7103**	**4.0000e-005**	**0.0000**	**1.7113**

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					0.0705	0.0000	0.0705	0.0387	0.0000	0.0387	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0408	0.4242	0.2151	3.8000e-004		0.0220	0.0220		0.0202	0.0202	0.0000	33.4306	33.4306	0.0108	0.0000	33.7009
Total	**0.0408**	**0.4242**	**0.2151**	**3.8000e-004**	**0.0705**	**0.0220**	**0.0924**	**0.0387**	**0.0202**	**0.0590**	**0.0000**	**33.4306**	**33.4306**	**0.0108**	**0.0000**	**33.7009**

Volara Townhomes - Orange County, Annual

3.3 Site Preparation - 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	7.0000e-004	4.9000e-004	5.5800e-003	2.0000e-005	1.9800e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.7103	1.7103	4.0000e-005	0.0000	1.7113
Total	**7.0000e-004**	**4.9000e-004**	**5.5800e-003**	**2.0000e-005**	**1.9800e-003**	**1.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.7103**	**1.7103**	**4.0000e-005**	**0.0000**	**1.7113**

3.4 Grading - 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					
Fugitive Dust					0.0684	0.0000	0.0684	0.0366	0.0000	0.0366	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0267	0.2902	0.1766	3.3000e-004		0.0140	0.0140		0.0129	0.0129	0.0000	28.6646	28.6646	9.2700e-003	0.0000	28.8964
Total	**0.0267**	**0.2902**	**0.1766**	**3.3000e-004**	**0.0684**	**0.0140**	**0.0824**	**0.0366**	**0.0129**	**0.0495**	**0.0000**	**28.6646**	**28.6646**	**9.2700e-003**	**0.0000**	**28.8964**

Volara Townhomes - Orange County, Annual

3.4 Grading - 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	6.4000e-004	4.5000e-004	5.1100e-003	2.0000e-005	1.8100e-003	1.0000e-005	1.8200e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.5678	1.5678	4.0000e-005	0.0000	1.5687
Total	**6.4000e-004**	**4.5000e-004**	**5.1100e-003**	**2.0000e-005**	**1.8100e-003**	**1.0000e-005**	**1.8200e-003**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**1.5678**	**1.5678**	**4.0000e-005**	**0.0000**	**1.5687**

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					0.0267	0.0000	0.0267	0.0143	0.0000	0.0143	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0267	0.2902	0.1766	3.3000e-004		0.0140	0.0140		0.0129	0.0129	0.0000	28.6646	28.6646	9.2700e-003	0.0000	28.8964
Total	**0.0267**	**0.2902**	**0.1766**	**3.3000e-004**	**0.0267**	**0.0140**	**0.0407**	**0.0143**	**0.0129**	**0.0272**	**0.0000**	**28.6646**	**28.6646**	**9.2700e-003**	**0.0000**	**28.8964**

3.4 Grading - 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	6.4000e-004	4.5000e-004	5.1100e-003	2.0000e-005	1.8100e-003	1.0000e-005	1.8200e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.5678	1.5678	4.0000e-005	0.0000	1.5687
Total	**6.4000e-004**	**4.5000e-004**	**5.1100e-003**	**2.0000e-005**	**1.8100e-003**	**1.0000e-005**	**1.8200e-003**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**1.5678**	**1.5678**	**4.0000e-005**	**0.0000**	**1.5687**

3.5 Building Construction - 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					
Off-Road	0.1844	1.6692	1.4658	2.3400e-003		0.0972	0.0972		0.0914	0.0914	0.0000	201.5007	201.5007	0.0492	0.0000	202.7297
Total	**0.1844**	**1.6692**	**1.4658**	**2.3400e-003**		**0.0972**	**0.0972**		**0.0914**	**0.0914**	**0.0000**	**201.5007**	**201.5007**	**0.0492**	**0.0000**	**202.7297**

Volara Townhomes - Orange County, Annual

3.5 Building Construction - 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	2.8300e-003	0.0923	0.0251	2.1000e-004	5.4800e-003	4.8000e-004	5.9500e-003	1.5800e-003	4.6000e-004	2.0400e-003	0.0000	21.1780	21.1780	1.7700e-003	0.0000	21.2223
Worker	0.0176	0.0124	0.1402	4.8000e-004	0.0497	3.3000e-004	0.0500	0.0132	3.1000e-004	0.0135	0.0000	42.9853	42.9853	9.8000e-004	0.0000	43.0098
Total	**0.0205**	**0.1046**	**0.1653**	**6.9000e-004**	**0.0551**	**8.1000e-004**	**0.0560**	**0.0148**	**7.7000e-004**	**0.0155**	**0.0000**	**64.1633**	**64.1633**	**2.7500e-003**	**0.0000**	**64.2320**

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	0.1844	1.6692	1.4658	2.3400e-003		0.0972	0.0972		0.0914	0.0914	0.0000	201.5005	201.5005	0.0492	0.0000	202.7294
Total	**0.1844**	**1.6692**	**1.4658**	**2.3400e-003**		**0.0972**	**0.0972**		**0.0914**	**0.0914**	**0.0000**	**201.5005**	**201.5005**	**0.0492**	**0.0000**	**202.7294**

Volara Townhomes - Orange County, Annual

3.5 Building Construction - 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	2.8300e-003	0.0923	0.0251	2.1000e-004	5.4800e-003	4.8000e-004	5.9500e-003	1.5800e-003	4.6000e-004	2.0400e-003	0.0000	21.1780	21.1780	1.7700e-003	0.0000	21.2223
Worker	0.0176	0.0124	0.1402	4.8000e-004	0.0497	3.3000e-004	0.0500	0.0132	3.1000e-004	0.0135	0.0000	42.9853	42.9853	9.8000e-004	0.0000	43.0098
Total	**0.0205**	**0.1046**	**0.1653**	**6.9000e-004**	**0.0551**	**8.1000e-004**	**0.0560**	**0.0148**	**7.7000e-004**	**0.0155**	**0.0000**	**64.1633**	**64.1633**	**2.7500e-003**	**0.0000**	**64.2320**

3.6 Paving - 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					
Off-Road	0.0136	0.1357	0.1413	2.2000e-004		7.4900e-003	7.4900e-003		6.9100e-003	6.9100e-003	0.0000	18.8278	18.8278	5.9200e-003	0.0000	18.9757
Paving	7.5000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0144**	**0.1357**	**0.1413**	**2.2000e-004**		**7.4900e-003**	**7.4900e-003**		**6.9100e-003**	**6.9100e-003**	**0.0000**	**18.8278**	**18.8278**	**5.9200e-003**	**0.0000**	**18.9757**

Volara Townhomes - Orange County, Annual

3.6 Paving - 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	9.0000e-004	6.3000e-004	7.1300e-003	2.0000e-005	2.5200e-003	2.0000e-005	2.5400e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.1854	2.1854	5.0000e-005	0.0000	2.1866
Total	**9.0000e-004**	**6.3000e-004**	**7.1300e-003**	**2.0000e-005**	**2.5200e-003**	**2.0000e-005**	**2.5400e-003**	**6.7000e-004**	**2.0000e-005**	**6.9000e-004**	**0.0000**	**2.1854**	**2.1854**	**5.0000e-005**	**0.0000**	**2.1866**

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	0.0136	0.1357	0.1413	2.2000e-004		7.4900e-003	7.4900e-003		6.9100e-003	6.9100e-003	0.0000	18.8278	18.8278	5.9200e-003	0.0000	18.9757
Paving	7.5000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0144**	**0.1357**	**0.1413**	**2.2000e-004**		**7.4900e-003**	**7.4900e-003**		**6.9100e-003**	**6.9100e-003**	**0.0000**	**18.8278**	**18.8278**	**5.9200e-003**	**0.0000**	**18.9757**

3.6 Paving - 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	9.0000e-004	6.3000e-004	7.1300e-003	2.0000e-005	2.5200e-003	2.0000e-005	2.5400e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.1854	2.1854	5.0000e-005	0.0000	2.1866
Total	**9.0000e-004**	**6.3000e-004**	**7.1300e-003**	**2.0000e-005**	**2.5200e-003**	**2.0000e-005**	**2.5400e-003**	**6.7000e-004**	**2.0000e-005**	**6.9000e-004**	**0.0000**	**2.1854**	**2.1854**	**5.0000e-005**	**0.0000**	**2.1866**

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	0.0967					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7900e-003	0.0194	0.0211	3.0000e-005		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003	0.0000	2.9362	2.9362	2.3000e-004	0.0000	2.9419
Total	**0.0995**	**0.0194**	**0.0211**	**3.0000e-005**		**1.2800e-003**	**1.2800e-003**		**1.2800e-003**	**1.2800e-003**	**0.0000**	**2.9362**	**2.9362**	**2.3000e-004**	**0.0000**	**2.9419**

Volara Townhomes - Orange County, Annual

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	4.5000e-004	3.1000e-004	3.5600e-003	1.0000e-005	1.2600e-003	1.0000e-005	1.2700e-003	3.4000e-004	1.0000e-005	3.4000e-004	0.0000	1.0927	1.0927	2.0000e-005	0.0000	1.0933
Total	**4.5000e-004**	**3.1000e-004**	**3.5600e-003**	**1.0000e-005**	**1.2600e-003**	**1.0000e-005**	**1.2700e-003**	**3.4000e-004**	**1.0000e-005**	**3.4000e-004**	**0.0000**	**1.0927**	**1.0927**	**2.0000e-005**	**0.0000**	**1.0933**

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	0.0967					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7900e-003	0.0194	0.0211	3.0000e-005		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003	0.0000	2.9362	2.9362	2.3000e-004	0.0000	2.9419
Total	**0.0995**	**0.0194**	**0.0211**	**3.0000e-005**		**1.2800e-003**	**1.2800e-003**		**1.2800e-003**	**1.2800e-003**	**0.0000**	**2.9362**	**2.9362**	**2.3000e-004**	**0.0000**	**2.9419**

Volara Townhomes - Orange County, Annual

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	4.5000e-004	3.1000e-004	3.5600e-003	1.0000e-005	1.2600e-003	1.0000e-005	1.2700e-003	3.4000e-004	1.0000e-005	3.4000e-004	0.0000	1.0927	1.0927	2.0000e-005	0.0000	1.0933
Total	**4.5000e-004**	**3.1000e-004**	**3.5600e-003**	**1.0000e-005**	**1.2600e-003**	**1.0000e-005**	**1.2700e-003**	**3.4000e-004**	**1.0000e-005**	**3.4000e-004**	**0.0000**	**1.0927**	**1.0927**	**2.0000e-005**	**0.0000**	**1.0933**

3.7 Architectural Coating - 2021

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	0.0883					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3000e-003	0.0160	0.0191	3.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	2.6809	2.6809	1.8000e-004	0.0000	2.6855
Total	**0.0906**	**0.0160**	**0.0191**	**3.0000e-005**		**9.9000e-004**	**9.9000e-004**		**9.9000e-004**	**9.9000e-004**	**0.0000**	**2.6809**	**2.6809**	**1.8000e-004**	**0.0000**	**2.6855**

Volara Townhomes - Orange County, Annual

3.7 Architectural Coating - 2021

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	3.8000e-004	2.6000e-004	3.0200e-003	1.0000e-005	1.1500e-003	1.0000e-005	1.1600e-003	3.1000e-004	1.0000e-005	3.1000e-004	0.0000	0.9631	0.9631	2.0000e-005	0.0000	0.9636
Total	**3.8000e-004**	**2.6000e-004**	**3.0200e-003**	**1.0000e-005**	**1.1500e-003**	**1.0000e-005**	**1.1600e-003**	**3.1000e-004**	**1.0000e-005**	**3.1000e-004**	**0.0000**	**0.9631**	**0.9631**	**2.0000e-005**	**0.0000**	**0.9636**

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	0.0883					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3000e-003	0.0160	0.0191	3.0000e-005		9.9000e-004	9.9000e-004		9.9000e-004	9.9000e-004	0.0000	2.6809	2.6809	1.8000e-004	0.0000	2.6855
Total	**0.0906**	**0.0160**	**0.0191**	**3.0000e-005**		**9.9000e-004**	**9.9000e-004**		**9.9000e-004**	**9.9000e-004**	**0.0000**	**2.6809**	**2.6809**	**1.8000e-004**	**0.0000**	**2.6855**

Volara Townhomes - Orange County, Annual

3.7 Architectural Coating - 2021

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	3.8000e-004	2.6000e-004	3.0200e-003	1.0000e-005	1.1500e-003	1.0000e-005	1.1600e-003	3.1000e-004	1.0000e-005	3.1000e-004	0.0000	0.9631	0.9631	2.0000e-005	0.0000	0.9636
Total	**3.8000e-004**	**2.6000e-004**	**3.0200e-003**	**1.0000e-005**	**1.1500e-003**	**1.0000e-005**	**1.1600e-003**	**3.1000e-004**	**1.0000e-005**	**3.1000e-004**	**0.0000**	**0.9631**	**0.9631**	**2.0000e-005**	**0.0000**	**0.9636**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Implement Trip Reduction Program

Volara Townhomes - Orange County, Annual

	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	0.0843	0.3708	1.1694	4.5800e-003	0.4248	3.3700e-003	0.4282	0.1138	3.1300e-003	0.1169	0.0000	422.2816	422.2816	0.0172	0.0000	422.7108
Unmitigated	0.0843	0.3708	1.1694	4.5800e-003	0.4248	3.3700e-003	0.4282	0.1138	3.1300e-003	0.1169	0.0000	422.2816	422.2816	0.0172	0.0000	422.7108

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	336.98	328.86	280.72	1,120,084	1,120,084
Parking Lot	0.00	0.00	0.00		
Total	336.98	328.86	280.72	1,120,084	1,120,084

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
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
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
Condo/Townhouse	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934
Parking Lot	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

Install Energy Efficient Appliances

	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	93.5163	93.5163	3.8600e-003	8.0000e-004	93.8508
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	95.9486	95.9486	3.9600e-003	8.2000e-004	96.2918
NaturalGas Mitigated	5.3700e-003	0.0459	0.0195	2.9000e-004		3.7100e-003	3.7100e-003		3.7100e-003	3.7100e-003	0.0000	53.1632	53.1632	1.0200e-003	9.7000e-004	53.4791
NaturalGas Unmitigated	5.3700e-003	0.0459	0.0195	2.9000e-004		3.7100e-003	3.7100e-003		3.7100e-003	3.7100e-003	0.0000	53.1632	53.1632	1.0200e-003	9.7000e-004	53.4791

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					
Condo/Townhouse	996240	5.3700e-003	0.0459	0.0195	2.9000e-004		3.7100e-003	3.7100e-003		3.7100e-003	3.7100e-003	0.0000	53.1632	53.1632	1.0200e-003	9.7000e-004	53.4791
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		**5.3700e-003**	**0.0459**	**0.0195**	**2.9000e-004**		**3.7100e-003**	**3.7100e-003**		**3.7100e-003**	**3.7100e-003**	**0.0000**	**53.1632**	**53.1632**	**1.0200e-003**	**9.7000e-004**	**53.4791**

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					
Condo/Townhouse	996240	5.3700e-003	0.0459	0.0195	2.9000e-004		3.7100e-003	3.7100e-003		3.7100e-003	3.7100e-003	0.0000	53.1632	53.1632	1.0200e-003	9.7000e-004	53.4791
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		**5.3700e-003**	**0.0459**	**0.0195**	**2.9000e-004**		**3.7100e-003**	**3.7100e-003**		**3.7100e-003**	**3.7100e-003**	**0.0000**	**53.1632**	**53.1632**	**1.0200e-003**	**9.7000e-004**	**53.4791**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	292317	93.1383	3.8500e-003	8.0000e-004	93.4715
Parking Lot	8820	2.8102	1.2000e-004	2.0000e-005	2.8203
Total		**95.9486**	**3.9700e-003**	**8.2000e-004**	**96.2918**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	284683	90.7060	3.7400e-003	7.7000e-004	91.0305
Parking Lot	8820	2.8102	1.2000e-004	2.0000e-005	2.8203
Total		**93.5163**	**3.8600e-003**	**7.9000e-004**	**93.8508**

6.0 Area Detail

6.1 Mitigation Measures Area

Volara Townhomes - Orange County, Annual

Use only Natural Gas Hearths

	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	0.2493	0.0189	0.6047	1.1000e-004		4.2800e-003	4.2800e-003		4.2800e-003	4.2800e-003	0.0000	14.9066	14.9066	1.2100e-003	2.6000e-004	15.0130
Unmitigated	0.2493	0.0189	0.6047	1.1000e-004		4.2800e-003	4.2800e-003		4.2800e-003	4.2800e-003	0.0000	14.9066	14.9066	1.2100e-003	2.6000e-004	15.0130

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	0.0185					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2112					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.4100e-003	0.0120	5.1200e-003	8.0000e-005		9.7000e-004	9.7000e-004		9.7000e-004	9.7000e-004	0.0000	13.9280	13.9280	2.7000e-004	2.6000e-004	14.0107
Landscaping	0.0182	6.9100e-003	0.5996	3.0000e-005		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	0.9786	0.9786	9.5000e-004	0.0000	1.0023
Total	**0.2493**	**0.0189**	**0.6047**	**1.1000e-004**		**4.2800e-003**	**4.2800e-003**		**4.2800e-003**	**4.2800e-003**	**0.0000**	**14.9066**	**14.9066**	**1.2200e-003**	**2.6000e-004**	**15.0130**

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	0.0185					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2112					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.4100e-003	0.0120	5.1200e-003	8.0000e-005		9.7000e-004	9.7000e-004		9.7000e-004	9.7000e-004	0.0000	13.9280	13.9280	2.7000e-004	2.6000e-004	14.0107
Landscaping	0.0182	6.9100e-003	0.5996	3.0000e-005		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	0.9786	0.9786	9.5000e-004	0.0000	1.0023
Total	**0.2493**	**0.0189**	**0.6047**	**1.1000e-004**		**4.2800e-003**	**4.2800e-003**		**4.2800e-003**	**4.2800e-003**	**0.0000**	**14.9066**	**14.9066**	**1.2200e-003**	**2.6000e-004**	**15.0130**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	21.9348	0.0994	2.5100e-003	25.1657
Unmitigated	25.3101	0.1241	3.1100e-003	29.3412

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	3.77893 / 2.38237	25.3101	0.1241	3.1100e-003	29.3412
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**25.3101**	**0.1241**	**3.1100e-003**	**29.3412**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	3.02315 / 2.38237	21.9348	0.0994	2.5100e-003	25.1657
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**21.9348**	**0.0994**	**2.5100e-003**	**25.1657**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	5.4158	0.3201	0.0000	13.4174
Unmitigated	5.4158	0.3201	0.0000	13.4174

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	26.68	5.4158	0.3201	0.0000	13.4174
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**5.4158**	**0.3201**	**0.0000**	**13.4174**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	26.68	5.4158	0.3201	0.0000	13.4174
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**5.4158**	**0.3201**	**0.0000**	**13.4174**

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

Euclid Street Townhomes - Cumulative Operational

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	9.00	Dwelling Unit	2.92	16,200.00	26
Condo/Townhouse	62.00	Dwelling Unit	3.88	62,000.00	177
Condo/Townhouse	32.00	Dwelling Unit	2.00	32,000.00	92
Hotel	91.00	Room	3.03	132,132.00	0
Fast Food Restaurant with Drive Thru	2.25	1000sqft	0.05	2,250.00	0
Fast Food Restaurant with Drive Thru	2.25	1000sqft	0.05	2,250.00	0
General Office Building	10.00	1000sqft	0.23	10,000.00	0
Single Family Housing	7.00	Dwelling Unit	2.27	12,600.00	20
Condo/Townhouse	50.00	Dwelling Unit	3.13	50,000.00	143
Condo/Townhouse	30.00	Dwelling Unit	1.88	30,000.00	86
Condo/Townhouse	58.00	Dwelling Unit	3.63	58,000.00	166

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	9			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

Project Characteristics -

Land Use -

Construction Phase - Construction times are estimated.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	20.00	131.00
tblConstructionPhase	NumDays	370.00	132.00
tblConstructionPhase	NumDays	20.00	130.00
tblConstructionPhase	NumDays	35.00	129.00
tblConstructionPhase	NumDays	20.00	129.00
tblConstructionPhase	NumDays	10.00	132.00
tblConstructionPhase	PhaseEndDate	10/26/2021	12/31/2022
tblConstructionPhase	PhaseEndDate	8/31/2021	12/31/2021
tblConstructionPhase	PhaseEndDate	1/28/2020	6/30/2020
tblConstructionPhase	PhaseEndDate	3/31/2020	6/30/2021
tblConstructionPhase	PhaseEndDate	9/28/2021	6/30/2022
tblConstructionPhase	PhaseEndDate	2/11/2020	12/31/2020
tblConstructionPhase	PhaseStartDate	9/29/2021	7/1/2022
tblConstructionPhase	PhaseStartDate	4/1/2020	7/1/2021
tblConstructionPhase	PhaseStartDate	2/12/2020	1/1/2021
tblConstructionPhase	PhaseStartDate	9/1/2021	1/1/2022
tblConstructionPhase	PhaseStartDate	1/29/2020	7/1/2020
tblGrading	AcresOfGrading	322.50	87.50

2.0 Emissions Summary

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

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					
2020	4.1456	42.4609	22.2442	0.0405	18.2675	2.1987	20.4662	9.9840	2.0228	12.0069	0.0000	3,911.2115	3,911.2115	1.1963	0.0000	3,937.7533
2021	4.2634	46.4435	31.4859	0.0641	6.9650	1.9868	8.9518	3.4472	1.8278	5.2750	0.0000	6,375.8180	6,375.8180	1.9473	0.0000	6,395.2182
2022	23.1982	11.1546	15.0057	0.0243	0.5254	0.5690	0.7366	0.1393	0.5235	0.5679	0.0000	2,359.6405	2,359.6405	0.7171	0.0000	2,377.5673
Maximum	**23.1982**	**46.4435**	**31.4859**	**0.0641**	**18.2675**	**2.1987**	**20.4662**	**9.9840**	**2.0228**	**12.0069**	**0.0000**	**6,375.8180**	**6,375.8180**	**1.9473**	**0.0000**	**6,395.2182**

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					
2020	4.1456	42.4609	22.2442	0.0405	7.2470	2.1987	9.4458	3.9263	2.0228	5.9492	0.0000	3,911.2115	3,911.2115	1.1963	0.0000	3,937.7533
2021	4.2634	46.4435	31.4859	0.0641	2.9302	1.9868	4.8395	1.3806	1.8278	3.2084	0.0000	6,375.8180	6,375.8180	1.9473	0.0000	6,395.2182
2022	23.1982	11.1546	15.0057	0.0243	0.5254	0.5690	0.7366	0.1393	0.5235	0.5679	0.0000	2,359.6405	2,359.6405	0.7171	0.0000	2,377.5673
Maximum	**23.1982**	**46.4435**	**31.4859**	**0.0641**	**7.2470**	**2.1987**	**9.4458**	**3.9263**	**2.0228**	**5.9492**	**0.0000**	**6,375.8180**	**6,375.8180**	**1.9473**	**0.0000**	**6,395.2182**

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

	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**	**58.45**	**0.00**	**50.18**	**59.87**	**0.00**	**45.51**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

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	321.8511	24.9680	626.6694	1.5475		91.1682	91.1682		91.1682	91.1682	11,165.3667	21,492.8641	32,658.2308	33.3328	0.7578	33,717.3821
Energy	0.2581	2.2751	1.4481	0.0141		0.1783	0.1783		0.1783	0.1783		2,815.6650	2,815.6650	0.0540	0.0516	2,832.3971
Mobile	6.3095	20.4277	66.7048	0.2472	22.7011	0.1725	22.8736	6.0706	0.1600	6.2306		25,155.7843	25,155.7843	1.0320		25,181.5845
Total	**328.4187**	**47.6708**	**694.8223**	**1.8088**	**22.7011**	**91.5190**	**114.2201**	**6.0706**	**91.5065**	**97.5771**	**11,165.3667**	**49,464.3134**	**60,629.6801**	**34.4188**	**0.8095**	**61,731.3637**

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	9.5042	0.2360	20.4757	1.0800e-003		0.1133	0.1133		0.1133	0.1133	0.0000	36.8641	36.8641	0.0355	0.0000	37.7513
Energy	0.2581	2.2751	1.4481	0.0141		0.1783	0.1783		0.1783	0.1783		2,815.6650	2,815.6650	0.0540	0.0516	2,832.3971
Mobile	5.8421	18.2877	53.3263	0.1863	16.7058	0.1347	16.8405	4.4674	0.1249	4.5923		18,971.1246	18,971.1246	0.8142		18,991.4797
Total	**15.6043**	**20.7987**	**75.2500**	**0.2015**	**16.7058**	**0.4264**	**17.1321**	**4.4674**	**0.4166**	**4.8839**	**0.0000**	**21,823.6537**	**21,823.6537**	**0.9037**	**0.0516**	**21,861.6281**

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

	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	**95.25**	**56.37**	**89.17**	**88.86**	**26.41**	**99.53**	**85.00**	**26.41**	**99.54**	**94.99**	**100.00**	**55.88**	**64.00**	**97.37**	**93.62**	**64.59**

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	1/1/2020	6/30/2020	5	130	
2	Site Preparation	Site Preparation	7/1/2020	12/31/2020	5	132	
3	Grading	Grading	1/1/2021	6/30/2021	5	129	
4	Building Construction	Building Construction	7/1/2021	12/31/2021	5	132	
5	Paving	Paving	1/1/2022	6/30/2022	5	129	
6	Architectural Coating	Architectural Coating	7/1/2022	12/31/2022	5	131	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 87.5

Acres of Paving: 0

Residential Indoor: 528,120; Residential Outdoor: 176,040; Non-Residential Indoor: 219,948; Non-Residential Outdoor: 73,316; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
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
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

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
Architectural Coating	1	47.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	233.00	51.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	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

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 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					
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**		**1.6587**	**1.6587**		**1.5419**	**1.5419**		**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

3.2 Demolition - 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	0.0576	0.0363	0.4910	1.6400e-003	0.1677	1.1100e-003	0.1688	0.0445	1.0200e-003	0.0455		163.5065	163.5065	3.7300e-003		163.5997
Total	**0.0576**	**0.0363**	**0.4910**	**1.6400e-003**	**0.1677**	**1.1100e-003**	**0.1688**	**0.0445**	**1.0200e-003**	**0.0455**		**163.5065**	**163.5065**	**3.7300e-003**		**163.5997**

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	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**		**1.6587**	**1.6587**		**1.5419**	**1.5419**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

3.2 Demolition - 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	0.0576	0.0363	0.4910	1.6400e-003	0.1677	1.1100e-003	0.1688	0.0445	1.0200e-003	0.0455		163.5065	163.5065	3.7300e-003		163.5997
Total	**0.0576**	**0.0363**	**0.4910**	**1.6400e-003**	**0.1677**	**1.1100e-003**	**0.1688**	**0.0445**	**1.0200e-003**	**0.0455**		**163.5065**	**163.5065**	**3.7300e-003**		**163.5997**

3.3 Site Preparation - 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					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

3.3 Site Preparation - 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	0.0692	0.0436	0.5892	1.9700e-003	0.2012	1.3300e-003	0.2025	0.0534	1.2300e-003	0.0546		196.2079	196.2079	4.4700e-003		196.3197
Total	**0.0692**	**0.0436**	**0.5892**	**1.9700e-003**	**0.2012**	**1.3300e-003**	**0.2025**	**0.0534**	**1.2300e-003**	**0.0546**		**196.2079**	**196.2079**	**4.4700e-003**		**196.3197**

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					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.0458**	**2.1974**	**9.2433**	**3.8730**	**2.0216**	**5.8946**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

3.3 Site Preparation - 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	0.0692	0.0436	0.5892	1.9700e-003	0.2012	1.3300e-003	0.2025	0.0534	1.2300e-003	0.0546		196.2079	196.2079	4.4700e-003		196.3197
Total	**0.0692**	**0.0436**	**0.5892**	**1.9700e-003**	**0.2012**	**1.3300e-003**	**0.2025**	**0.0534**	**1.2300e-003**	**0.0546**		**196.2079**	**196.2079**	**4.4700e-003**		**196.3197**

3.4 Grading - 2021

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					6.7414	0.0000	6.7414	3.3879	0.0000	3.3879			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**6.7414**	**1.9853**	**8.7268**	**3.3879**	**1.8265**	**5.2144**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

3.4 Grading - 2021

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	0.0722	0.0437	0.6075	2.1100e-003	0.2236	1.4500e-003	0.2250	0.0593	1.3300e-003	0.0606		210.4388	210.4388	4.5100e-003		210.5515
Total	**0.0722**	**0.0437**	**0.6075**	**2.1100e-003**	**0.2236**	**1.4500e-003**	**0.2250**	**0.0593**	**1.3300e-003**	**0.0606**		**210.4388**	**210.4388**	**4.5100e-003**		**210.5515**

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					2.6292	0.0000	2.6292	1.3213	0.0000	1.3213			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**2.6292**	**1.9853**	**4.6145**	**1.3213**	**1.8265**	**3.1478**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

3.4 Grading - 2021

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	0.0722	0.0437	0.6075	2.1100e-003	0.2236	1.4500e-003	0.2250	0.0593	1.3300e-003	0.0606		210.4388	210.4388	4.5100e-003		210.5515
Total	**0.0722**	**0.0437**	**0.6075**	**2.1100e-003**	**0.2236**	**1.4500e-003**	**0.2250**	**0.0593**	**1.3300e-003**	**0.0606**		**210.4388**	**210.4388**	**4.5100e-003**		**210.5515**

3.5 Building Construction - 2021

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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

3.5 Building Construction - 2021

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	0.1361	4.7845	1.2976	0.0126	0.3258	9.9400e-003	0.3358	0.0938	9.5000e-003	0.1033		1,370.8418	1,370.8418	0.1075		1,373.5291
Worker	0.8410	0.5089	7.0769	0.0246	2.6044	0.0169	2.6213	0.6907	0.0155	0.7062		2,451.6124	2,451.6124	0.0525		2,452.9249
Total	**0.9771**	**5.2934**	**8.3745**	**0.0372**	**2.9302**	**0.0268**	**2.9570**	**0.7845**	**0.0250**	**0.8095**		**3,822.4541**	**3,822.4541**	**0.1600**		**3,826.4539**

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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

3.5 Building Construction - 2021

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	0.1361	4.7845	1.2976	0.0126	0.3258	9.9400e-003	0.3358	0.0938	9.5000e-003	0.1033		1,370.8418	1,370.8418	0.1075		1,373.5291
Worker	0.8410	0.5089	7.0769	0.0246	2.6044	0.0169	2.6213	0.6907	0.0155	0.7062		2,451.6124	2,451.6124	0.0525		2,452.9249
Total	**0.9771**	**5.2934**	**8.3745**	**0.0372**	**2.9302**	**0.0268**	**2.9570**	**0.7845**	**0.0250**	**0.8095**		**3,822.4541**	**3,822.4541**	**0.1600**		**3,826.4539**

3.6 Paving - 2022

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1028**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

3.6 Paving - 2022

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	0.0512	0.0297	0.4252	1.5200e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		151.9802	151.9802	3.0700e-003		152.0569
Total	**0.0512**	**0.0297**	**0.4252**	**1.5200e-003**	**0.1677**	**1.0600e-003**	**0.1687**	**0.0445**	**9.8000e-004**	**0.0455**		**151.9802**	**151.9802**	**3.0700e-003**		**152.0569**

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1028**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

3.6 Paving - 2022

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	0.0512	0.0297	0.4252	1.5200e-003	0.1677	1.0600e-003	0.1687	0.0445	9.8000e-004	0.0455		151.9802	151.9802	3.0700e-003		152.0569
Total	**0.0512**	**0.0297**	**0.4252**	**1.5200e-003**	**0.1677**	**1.0600e-003**	**0.1687**	**0.0445**	**9.8000e-004**	**0.0455**		**151.9802**	**151.9802**	**3.0700e-003**		**152.0569**

3.7 Architectural Coating - 2022

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	22.8334					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**23.0379**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

3.7 Architectural Coating - 2022

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	0.1603	0.0930	1.3324	4.7700e-003	0.5254	3.3300e-003	0.5287	0.1393	3.0700e-003	0.1424		476.2046	476.2046	9.6200e-003		476.4450
Total	**0.1603**	**0.0930**	**1.3324**	**4.7700e-003**	**0.5254**	**3.3300e-003**	**0.5287**	**0.1393**	**3.0700e-003**	**0.1424**		**476.2046**	**476.2046**	**9.6200e-003**		**476.4450**

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	22.8334					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**23.0379**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

3.7 Architectural Coating - 2022

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	0.1603	0.0930	1.3324	4.7700e-003	0.5254	3.3300e-003	0.5287	0.1393	3.0700e-003	0.1424		476.2046	476.2046	9.6200e-003		476.4450
Total	**0.1603**	**0.0930**	**1.3324**	**4.7700e-003**	**0.5254**	**3.3300e-003**	**0.5287**	**0.1393**	**3.0700e-003**	**0.1424**		**476.2046**	**476.2046**	**9.6200e-003**		**476.4450**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Diversity

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

	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	5.8421	18.2877	53.3263	0.1863	16.7058	0.1347	16.8405	4.4674	0.1249	4.5923		18,971.1246	18,971.1246	0.8142		18,991.4797
Unmitigated	6.3095	20.4277	66.7048	0.2472	22.7011	0.1725	22.8736	6.0706	0.1600	6.2306		25,155.7843	25,155.7843	1.0320		25,181.5845

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	360.22	351.54	300.08	1,197,331	881,116
Condo/Townhouse	185.92	181.44	154.88	617,977	454,769
Condo/Townhouse	290.50	283.50	242.00	965,589	710,577
Condo/Townhouse	174.30	170.10	145.20	579,354	426,346
Condo/Townhouse	336.98	328.86	280.72	1,120,084	824,269
Fast Food Restaurant with Drive Thru	1,116.27	1,624.57	1221.12	1,266,930	932,333
Fast Food Restaurant with Drive Thru	1,116.27	1,624.57	1221.12	1,266,930	932,333
General Office Building	110.30	24.60	10.50	269,958	198,662
Hotel	743.47	745.29	541.45	1,705,802	1,255,299
Single Family Housing	85.68	89.19	77.58	290,541	213,809
Single Family Housing	66.64	69.37	60.34	225,976	166,296
Total	4,586.55	5,493.03	4,254.99	9,506,473	6,995,811

4.3 Trip Type Information

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

	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
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Fast Food Restaurant with Drive	16.60	8.40	6.90	2.20	78.80	19.00	29	21	50
Fast Food Restaurant with Drive	16.60	8.40	6.90	2.20	78.80	19.00	29	21	50
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.563406	0.043070	0.209298	0.109958	0.015015	0.005784	0.026182	0.017546	0.001775	0.001524	0.004941	0.000598	0.000904
Fast Food Restaurant with Drive Thru	0.563406	0.043070	0.209298	0.109958	0.015015	0.005784	0.026182	0.017546	0.001775	0.001524	0.004941	0.000598	0.000904
General Office Building	0.563406	0.043070	0.209298	0.109958	0.015015	0.005784	0.026182	0.017546	0.001775	0.001524	0.004941	0.000598	0.000904
Hotel	0.563406	0.043070	0.209298	0.109958	0.015015	0.005784	0.026182	0.017546	0.001775	0.001524	0.004941	0.000598	0.000904
Single Family Housing	0.563406	0.043070	0.209298	0.109958	0.015015	0.005784	0.026182	0.017546	0.001775	0.001524	0.004941	0.000598	0.000904

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

	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	0.2581	2.2751	1.4481	0.0141		0.1783	0.1783		0.1783	0.1783		2,815.6650	2,815.6650	0.0540	0.0516	2,832.3971
NaturalGas Unmitigated	0.2581	2.2751	1.4481	0.0141		0.1783	0.1783		0.1783	0.1783		2,815.6650	2,815.6650	0.0540	0.0516	2,832.3971

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

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					
Condo/Townhouse	1411.77	0.0152	0.1301	0.0554	8.3000e-004		0.0105	0.0105		0.0105	0.0105		166.0908	166.0908	3.1800e-003	3.0400e-003	167.0778
Condo/Townhouse	1505.89	0.0162	0.1388	0.0591	8.9000e-004		0.0112	0.0112		0.0112	0.0112		177.1636	177.1636	3.4000e-003	3.2500e-003	178.2164
Condo/Townhouse	2352.95	0.0254	0.2168	0.0923	1.3800e-003		0.0175	0.0175		0.0175	0.0175		276.8181	276.8181	5.3100e-003	5.0700e-003	278.4630
Condo/Townhouse	2729.43	0.0294	0.2515	0.1070	1.6100e-003		0.0203	0.0203		0.0203	0.0203		321.1089	321.1089	6.1500e-003	5.8900e-003	323.0171
Condo/Townhouse	2917.66	0.0315	0.2689	0.1144	1.7200e-003		0.0217	0.0217		0.0217	0.0217		343.2544	343.2544	6.5800e-003	6.2900e-003	345.2942
Fast Food Restaurant with Drive Thru	1422.49	0.0307	0.2789	0.2343	1.6700e-003		0.0212	0.0212		0.0212	0.0212		334.7043	334.7043	6.4200e-003	6.1400e-003	336.6933
General Office Building	285.205	3.0800e-003	0.0280	0.0235	1.7000e-004		2.1300e-003	2.1300e-003		2.1300e-003	2.1300e-003		33.5536	33.5536	6.4000e-004	6.2000e-004	33.7530
Hotel	8680.89	0.0936	0.8511	0.7149	5.1100e-003		0.0647	0.0647		0.0647	0.0647		1,021.2813	1,021.2813	0.0196	0.0187	1,027.3503
Single Family Housing	526.91	5.6800e-003	0.0486	0.0207	3.1000e-004		3.9300e-003	3.9300e-003		3.9300e-003	3.9300e-003		61.9894	61.9894	1.1900e-003	1.1400e-003	62.3578
Single Family Housing	677.456	7.3100e-003	0.0624	0.0266	4.0000e-004		5.0500e-003	5.0500e-003		5.0500e-003	5.0500e-003		79.7007	79.7007	1.5300e-003	1.4600e-003	80.1743
Total		**0.2581**	**2.2751**	**1.4481**	**0.0141**		**0.1783**	**0.1783**		**0.1783**	**0.1783**		**2,815.6650**	**2,815.6650**	**0.0540**	**0.0516**	**2,832.3971**

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

5.2 Energy by Land Use - NaturalGas

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					
Condo/Townhouse	2.35295	0.0254	0.2168	0.0923	1.3800e-003		0.0175	0.0175		0.0175	0.0175		276.8181	276.8181	5.3100e-003	5.0700e-003	278.4630
Condo/Townhouse	2.72943	0.0294	0.2515	0.1070	1.6100e-003		0.0203	0.0203		0.0203	0.0203		321.1089	321.1089	6.1500e-003	5.8900e-003	323.0171
Condo/Townhouse	2.91766	0.0315	0.2689	0.1144	1.7200e-003		0.0217	0.0217		0.0217	0.0217		343.2544	343.2544	6.5800e-003	6.2900e-003	345.2942
Condo/Townhouse	1.41177	0.0152	0.1301	0.0554	8.3000e-004		0.0105	0.0105		0.0105	0.0105		166.0908	166.0908	3.1800e-003	3.0400e-003	167.0778
Condo/Townhouse	1.50589	0.0162	0.1388	0.0591	8.9000e-004		0.0112	0.0112		0.0112	0.0112		177.1636	177.1636	3.4000e-003	3.2500e-003	178.2164
Fast Food Restaurant with Drive Thru	1.42249	0.0307	0.2789	0.2343	1.6700e-003		0.0212	0.0212		0.0212	0.0212		334.7043	334.7043	6.4200e-003	6.1400e-003	336.6933
General Office Building	0.285205	3.0800e-003	0.0280	0.0235	1.7000e-004		2.1300e-003	2.1300e-003		2.1300e-003	2.1300e-003		33.5536	33.5536	6.4000e-004	6.2000e-004	33.7530
Hotel	8.68089	0.0936	0.8511	0.7149	5.1100e-003		0.0647	0.0647		0.0647	0.0647		1,021.2813	1,021.2813	0.0196	0.0187	1,027.3503
Single Family Housing	0.52691	5.6800e-003	0.0486	0.0207	3.1000e-004		3.9300e-003	3.9300e-003		3.9300e-003	3.9300e-003		61.9894	61.9894	1.1900e-003	1.1400e-003	62.3578
Single Family Housing	0.677456	7.3100e-003	0.0624	0.0266	4.0000e-004		5.0500e-003	5.0500e-003		5.0500e-003	5.0500e-003		79.7007	79.7007	1.5300e-003	1.4600e-003	80.1743
Total		**0.2581**	**2.2751**	**1.4481**	**0.0141**		**0.1783**	**0.1783**		**0.1783**	**0.1783**		**2,815.6650**	**2,815.6650**	**0.0540**	**0.0516**	**2,832.3971**

6.0 Area Detail

6.1 Mitigation Measures Area

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

No Hearths Installed

	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	9.5042	0.2360	20.4757	1.0800e-003		0.1133	0.1133		0.1133	0.1133	0.0000	36.8641	36.8641	0.0355	0.0000	37.7513
Unmitigated	321.8511	24.9680	626.6694	1.5475		91.1682	91.1682		91.1682	91.1682	11,165.3667	21,492.8641	32,658.2308	33.3328	0.7578	33,717.3821

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

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	0.8195					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.0672					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	312.3469	24.7320	606.1938	1.5465		91.0549	91.0549		91.0549	91.0549	11,165.3667	21,456.0000	32,621.3667	33.2973	0.7578	33,679.6309
Landscaping	0.6175	0.2360	20.4757	1.0800e-003		0.1133	0.1133		0.1133	0.1133		36.8641	36.8641	0.0355		37.7513
Total	**321.8511**	**24.9680**	**626.6694**	**1.5475**		**91.1682**	**91.1682**		**91.1682**	**91.1682**	**11,165.3667**	**21,492.8641**	**32,658.2308**	**33.3328**	**0.7578**	**33,717.3821**

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

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	0.8195					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.0672					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.6175	0.2360	20.4757	1.0800e-003		0.1133	0.1133		0.1133	0.1133		36.8641	36.8641	0.0355		37.7513
Total	**9.5042**	**0.2360**	**20.4757**	**1.0800e-003**		**0.1133**	**0.1133**		**0.1133**	**0.1133**	**0.0000**	**36.8641**	**36.8641**	**0.0355**	**0.0000**	**37.7513**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Euclid Street Townhomes - Cumulative Operational - Orange County, Summer

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

Euclid Street Townhomes - Cumulative Operational

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	9.00	Dwelling Unit	2.92	16,200.00	26
Condo/Townhouse	62.00	Dwelling Unit	3.88	62,000.00	177
Condo/Townhouse	32.00	Dwelling Unit	2.00	32,000.00	92
Hotel	91.00	Room	3.03	132,132.00	0
Fast Food Restaurant with Drive Thru	2.25	1000sqft	0.05	2,250.00	0
Fast Food Restaurant with Drive Thru	2.25	1000sqft	0.05	2,250.00	0
General Office Building	10.00	1000sqft	0.23	10,000.00	0
Single Family Housing	7.00	Dwelling Unit	2.27	12,600.00	20
Condo/Townhouse	50.00	Dwelling Unit	3.13	50,000.00	143
Condo/Townhouse	30.00	Dwelling Unit	1.88	30,000.00	86
Condo/Townhouse	58.00	Dwelling Unit	3.63	58,000.00	166

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	9			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

Project Characteristics -

Land Use -

Construction Phase - Construction times are estimated.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	20.00	131.00
tblConstructionPhase	NumDays	370.00	132.00
tblConstructionPhase	NumDays	20.00	130.00
tblConstructionPhase	NumDays	35.00	129.00
tblConstructionPhase	NumDays	20.00	129.00
tblConstructionPhase	NumDays	10.00	132.00
tblConstructionPhase	PhaseEndDate	10/26/2021	12/31/2022
tblConstructionPhase	PhaseEndDate	8/31/2021	12/31/2021
tblConstructionPhase	PhaseEndDate	1/28/2020	6/30/2020
tblConstructionPhase	PhaseEndDate	3/31/2020	6/30/2021
tblConstructionPhase	PhaseEndDate	9/28/2021	6/30/2022
tblConstructionPhase	PhaseEndDate	2/11/2020	12/31/2020
tblConstructionPhase	PhaseStartDate	9/29/2021	7/1/2022
tblConstructionPhase	PhaseStartDate	4/1/2020	7/1/2021
tblConstructionPhase	PhaseStartDate	2/12/2020	1/1/2021
tblConstructionPhase	PhaseStartDate	9/1/2021	1/1/2022
tblConstructionPhase	PhaseStartDate	1/29/2020	7/1/2020
tblGrading	AcresOfGrading	322.50	87.50

2.0 Emissions Summary

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

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					
2020	0.4928	4.9635	2.9009	5.2600e-003	1.2161	0.2530	1.4691	0.6617	0.2338	0.8955	0.0000	462.1854	462.1854	0.1342	0.0000	465.5407
2021	0.4660	4.5051	3.6544	8.2900e-003	0.6390	0.1932	0.8322	0.2732	0.1790	0.4523	0.0000	738.4815	738.4815	0.1604	0.0000	742.4919
2022	1.5941	0.8188	1.1676	2.0600e-003	0.0444	0.0423	0.0867	0.0118	0.0393	0.0511	0.0000	181.6372	181.6372	0.0436	0.0000	182.7269
Maximum	**1.5941**	**4.9635**	**3.6544**	**8.2900e-003**	**1.2161**	**0.2530**	**1.4691**	**0.6617**	**0.2338**	**0.8955**	**0.0000**	**738.4815**	**738.4815**	**0.1604**	**0.0000**	**742.4919**

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					
2020	0.4928	4.9635	2.9009	5.2600e-003	0.4888	0.2530	0.7418	0.2619	0.2338	0.4957	0.0000	462.1849	462.1849	0.1342	0.0000	465.5402
2021	0.4660	4.5050	3.6544	8.2900e-003	0.3738	0.1932	0.5670	0.1399	0.1790	0.3190	0.0000	738.4809	738.4809	0.1604	0.0000	742.4913
2022	1.5941	0.8188	1.1676	2.0600e-003	0.0444	0.0423	0.0867	0.0118	0.0393	0.0511	0.0000	181.6370	181.6370	0.0436	0.0000	182.7267
Maximum	**1.5941**	**4.9635**	**3.6544**	**8.2900e-003**	**0.4888**	**0.2530**	**0.7418**	**0.2619**	**0.2338**	**0.4957**	**0.0000**	**738.4809**	**738.4809**	**0.1604**	**0.0000**	**742.4913**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

	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**	**52.25**	**0.00**	**41.57**	**56.31**	**0.00**	**38.11**	**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	**1-1-2020**	**3-31-2020**	1.1901	1.1901
2	**4-1-2020**	**6-30-2020**	1.1897	1.1897
3	**7-1-2020**	**9-30-2020**	1.5314	1.5314
4	**10-1-2020**	**12-31-2020**	1.5318	1.5318
5	**1-1-2021**	**3-31-2021**	1.6303	1.6303
6	**4-1-2021**	**6-30-2021**	1.6480	1.6480
7	**7-1-2021**	**9-30-2021**	0.8413	0.8413
8	**10-1-2021**	**12-31-2021**	0.8464	0.8464
9	**1-1-2022**	**3-31-2022**	0.3959	0.3959
10	**4-1-2022**	**6-30-2022**	0.4000	0.4000
11	**7-1-2022**	**9-30-2022**	0.8116	0.8116
		Highest	1.6480	1.6480

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

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	5.6033	0.3387	10.1369	0.0195		1.1524	1.1524		1.1524	1.1524	126.6131	247.4873	374.1004	0.3816	8.5900e-003	386.2015
Energy	0.0471	0.4152	0.2643	2.5700e-003		0.0325	0.0325		0.0325	0.0325	0.0000	1,304.3589	1,304.3589	0.0435	0.0157	1,310.1277
Mobile	0.9221	3.2868	10.4271	0.0385	3.6059	0.0276	3.6335	0.9657	0.0256	0.9913	0.0000	3,555.2205	3,555.2205	0.1494	0.0000	3,558.9541
Waste						0.0000	0.0000		0.0000	0.0000	48.0155	0.0000	48.0155	2.8376	0.0000	118.9563
Water						0.0000	0.0000		0.0000	0.0000	6.8558	130.7865	137.6423	0.7096	0.0177	160.6689
Total	**6.5725**	**4.0407**	**20.8282**	**0.0606**	**3.6059**	**1.2125**	**4.8184**	**0.9657**	**1.2105**	**2.1762**	**181.4844**	**5,237.8532**	**5,419.3376**	**4.1217**	**0.0420**	**5,534.9086**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

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	1.6990	0.0295	2.5595	1.4000e-004		0.0142	0.0142		0.0142	0.0142	0.0000	4.1803	4.1803	4.0200e-003	0.0000	4.2809
Energy	0.0471	0.4152	0.2643	2.5700e-003		0.0325	0.0325		0.0325	0.0325	0.0000	1,304.3589	1,304.3589	0.0435	0.0157	1,310.1277
Mobile	0.8475	2.9107	8.4014	0.0290	2.6536	0.0215	2.6751	0.7106	0.0200	0.7306	0.0000	2,677.3408	2,677.3408	0.1180	0.0000	2,680.2896
Waste						0.0000	0.0000		0.0000	0.0000	48.0155	0.0000	48.0155	2.8376	0.0000	118.9563
Water						0.0000	0.0000		0.0000	0.0000	5.4846	112.8557	118.3403	0.5680	0.0143	136.7910
Total	**2.5936**	**3.3554**	**11.2252**	**0.0317**	**2.6536**	**0.0682**	**2.7218**	**0.7106**	**0.0667**	**0.7773**	**53.5001**	**4,098.7357**	**4,152.2358**	**3.5711**	**0.0300**	**4,250.4456**

	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	**60.54**	**16.96**	**46.11**	**47.66**	**26.41**	**94.37**	**43.51**	**26.41**	**94.49**	**64.28**	**70.52**	**21.75**	**23.38**	**13.36**	**28.69**	**23.21**

3.0 Construction Detail

Construction Phase

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2020	6/30/2020	5	130	
2	Site Preparation	Site Preparation	7/1/2020	12/31/2020	5	132	
3	Grading	Grading	1/1/2021	6/30/2021	5	129	
4	Building Construction	Building Construction	7/1/2021	12/31/2021	5	132	
5	Paving	Paving	1/1/2022	6/30/2022	5	129	
6	Architectural Coating	Architectural Coating	7/1/2022	12/31/2022	5	131	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 87.5

Acres of Paving: 0

Residential Indoor: 528,120; Residential Outdoor: 176,040; Non-Residential Indoor: 219,948; Non-Residential Outdoor: 73,316; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
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
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

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
Architectural Coating	1	47.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	233.00	51.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	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

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 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					
Off-Road	0.2153	2.1581	1.4140	2.5200e-003		0.1078	0.1078		0.1002	0.1002	0.0000	220.9910	220.9910	0.0624	0.0000	222.5506
Total	**0.2153**	**2.1581**	**1.4140**	**2.5200e-003**		**0.1078**	**0.1078**		**0.1002**	**0.1002**	**0.0000**	**220.9910**	**220.9910**	**0.0624**	**0.0000**	**222.5506**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

3.2 Demolition - 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	3.8000e-003	2.6600e-003	0.0302	1.0000e-004	0.0107	7.0000e-005	0.0108	2.8400e-003	7.0000e-005	2.9100e-003	0.0000	9.2641	9.2641	2.1000e-004	0.0000	9.2694
Total	**3.8000e-003**	**2.6600e-003**	**0.0302**	**1.0000e-004**	**0.0107**	**7.0000e-005**	**0.0108**	**2.8400e-003**	**7.0000e-005**	**2.9100e-003**	**0.0000**	**9.2641**	**9.2641**	**2.1000e-004**	**0.0000**	**9.2694**

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	0.2153	2.1581	1.4140	2.5200e-003		0.1078	0.1078		0.1002	0.1002	0.0000	220.9907	220.9907	0.0624	0.0000	222.5503
Total	**0.2153**	**2.1581**	**1.4140**	**2.5200e-003**		**0.1078**	**0.1078**		**0.1002**	**0.1002**	**0.0000**	**220.9907**	**220.9907**	**0.0624**	**0.0000**	**222.5503**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

3.2 Demolition - 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	3.8000e-003	2.6600e-003	0.0302	1.0000e-004	0.0107	7.0000e-005	0.0108	2.8400e-003	7.0000e-005	2.9100e-003	0.0000	9.2641	9.2641	2.1000e-004	0.0000	9.2694
Total	**3.8000e-003**	**2.6600e-003**	**0.0302**	**1.0000e-004**	**0.0107**	**7.0000e-005**	**0.0108**	**2.8400e-003**	**7.0000e-005**	**2.9100e-003**	**0.0000**	**9.2641**	**9.2641**	**2.1000e-004**	**0.0000**	**9.2694**

3.3 Site Preparation - 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					
Fugitive Dust					1.1924	0.0000	1.1924	0.6554	0.0000	0.6554	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2691	2.7995	1.4199	2.5100e-003		0.1450	0.1450		0.1334	0.1334	0.0000	220.6425	220.6425	0.0714	0.0000	222.4265
Total	**0.2691**	**2.7995**	**1.4199**	**2.5100e-003**	**1.1924**	**0.1450**	**1.3374**	**0.6554**	**0.1334**	**0.7889**	**0.0000**	**220.6425**	**220.6425**	**0.0714**	**0.0000**	**222.4265**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

3.3 Site Preparation - 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	4.6300e-003	3.2400e-003	0.0368	1.2000e-004	0.0130	9.0000e-005	0.0131	3.4600e-003	8.0000e-005	3.5400e-003	0.0000	11.2879	11.2879	2.6000e-004	0.0000	11.2943
Total	**4.6300e-003**	**3.2400e-003**	**0.0368**	**1.2000e-004**	**0.0130**	**9.0000e-005**	**0.0131**	**3.4600e-003**	**8.0000e-005**	**3.5400e-003**	**0.0000**	**11.2879**	**11.2879**	**2.6000e-004**	**0.0000**	**11.2943**

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					0.4650	0.0000	0.4650	0.2556	0.0000	0.2556	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2691	2.7995	1.4199	2.5100e-003		0.1450	0.1450		0.1334	0.1334	0.0000	220.6422	220.6422	0.0714	0.0000	222.4262
Total	**0.2691**	**2.7995**	**1.4199**	**2.5100e-003**	**0.4650**	**0.1450**	**0.6101**	**0.2556**	**0.1334**	**0.3891**	**0.0000**	**220.6422**	**220.6422**	**0.0714**	**0.0000**	**222.4262**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

3.3 Site Preparation - 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	4.6300e-003	3.2400e-003	0.0368	1.2000e-004	0.0130	9.0000e-005	0.0131	3.4600e-003	8.0000e-005	3.5400e-003	0.0000	11.2879	11.2879	2.6000e-004	0.0000	11.2943
Total	**4.6300e-003**	**3.2400e-003**	**0.0368**	**1.2000e-004**	**0.0130**	**9.0000e-005**	**0.0131**	**3.4600e-003**	**8.0000e-005**	**3.5400e-003**	**0.0000**	**11.2879**	**11.2879**	**2.6000e-004**	**0.0000**	**11.2943**

3.4 Grading - 2021

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					0.4348	0.0000	0.4348	0.2185	0.0000	0.2185	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2703	2.9928	1.9917	4.0000e-003		0.1281	0.1281		0.1178	0.1178	0.0000	351.4926	351.4926	0.1137	0.0000	354.3346
Total	**0.2703**	**2.9928**	**1.9917**	**4.0000e-003**	**0.4348**	**0.1281**	**0.5629**	**0.2185**	**0.1178**	**0.3363**	**0.0000**	**351.4926**	**351.4926**	**0.1137**	**0.0000**	**354.3346**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

3.4 Grading - 2021

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	4.7300e-003	3.1800e-003	0.0371	1.3000e-004	0.0142	9.0000e-005	0.0143	3.7600e-003	9.0000e-005	3.8500e-003	0.0000	11.8317	11.8317	2.5000e-004	0.0000	11.8381
Total	**4.7300e-003**	**3.1800e-003**	**0.0371**	**1.3000e-004**	**0.0142**	**9.0000e-005**	**0.0143**	**3.7600e-003**	**9.0000e-005**	**3.8500e-003**	**0.0000**	**11.8317**	**11.8317**	**2.5000e-004**	**0.0000**	**11.8381**

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					0.1696	0.0000	0.1696	0.0852	0.0000	0.0852	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2703	2.9928	1.9917	4.0000e-003		0.1281	0.1281		0.1178	0.1178	0.0000	351.4922	351.4922	0.1137	0.0000	354.3342
Total	**0.2703**	**2.9928**	**1.9917**	**4.0000e-003**	**0.1696**	**0.1281**	**0.2976**	**0.0852**	**0.1178**	**0.2030**	**0.0000**	**351.4922**	**351.4922**	**0.1137**	**0.0000**	**354.3342**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

3.4 Grading - 2021

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	4.7300e-003	3.1800e-003	0.0371	1.3000e-004	0.0142	9.0000e-005	0.0143	3.7600e-003	9.0000e-005	3.8500e-003	0.0000	11.8317	11.8317	2.5000e-004	0.0000	11.8381
Total	**4.7300e-003**	**3.1800e-003**	**0.0371**	**1.3000e-004**	**0.0142**	**9.0000e-005**	**0.0143**	**3.7600e-003**	**9.0000e-005**	**3.8500e-003**	**0.0000**	**11.8317**	**11.8317**	**2.5000e-004**	**0.0000**	**11.8381**

3.5 Building Construction - 2021

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	0.1255	1.1505	1.0940	1.7800e-003		0.0633	0.0633		0.0595	0.0595	0.0000	152.8806	152.8806	0.0369	0.0000	153.8027
Total	**0.1255**	**1.1505**	**1.0940**	**1.7800e-003**		**0.0633**	**0.0633**		**0.0595**	**0.0595**	**0.0000**	**152.8806**	**152.8806**	**0.0369**	**0.0000**	**153.8027**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

3.5 Building Construction - 2021

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	9.1800e-003	0.3207	0.0899	8.2000e-004	0.0212	6.7000e-004	0.0219	6.1100e-003	6.4000e-004	6.7500e-003	0.0000	81.2312	81.2312	6.5800e-003	0.0000	81.3955
Worker	0.0563	0.0379	0.4418	1.5600e-003	0.1688	1.1100e-003	0.1699	0.0448	1.0200e-003	0.0459	0.0000	141.0454	141.0454	3.0200e-003	0.0000	141.1209
Total	**0.0655**	**0.3586**	**0.5317**	**2.3800e-003**	**0.1900**	**1.7800e-003**	**0.1918**	**0.0509**	**1.6600e-003**	**0.0526**	**0.0000**	**222.2766**	**222.2766**	**9.6000e-003**	**0.0000**	**222.5165**

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	0.1255	1.1505	1.0940	1.7800e-003		0.0633	0.0633		0.0595	0.0595	0.0000	152.8804	152.8804	0.0369	0.0000	153.8025
Total	**0.1255**	**1.1505**	**1.0940**	**1.7800e-003**		**0.0633**	**0.0633**		**0.0595**	**0.0595**	**0.0000**	**152.8804**	**152.8804**	**0.0369**	**0.0000**	**153.8025**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

3.5 Building Construction - 2021

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	9.1800e-003	0.3207	0.0899	8.2000e-004	0.0212	6.7000e-004	0.0219	6.1100e-003	6.4000e-004	6.7500e-003	0.0000	81.2312	81.2312	6.5800e-003	0.0000	81.3955
Worker	0.0563	0.0379	0.4418	1.5600e-003	0.1688	1.1100e-003	0.1699	0.0448	1.0200e-003	0.0459	0.0000	141.0454	141.0454	3.0200e-003	0.0000	141.1209
Total	**0.0655**	**0.3586**	**0.5317**	**2.3800e-003**	**0.1900**	**1.7800e-003**	**0.1918**	**0.0509**	**1.6600e-003**	**0.0526**	**0.0000**	**222.2766**	**222.2766**	**9.6000e-003**	**0.0000**	**222.5165**

3.6 Paving - 2022

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	0.0711	0.7176	0.9404	1.4700e-003		0.0366	0.0366		0.0337	0.0337	0.0000	129.1777	129.1777	0.0418	0.0000	130.2222
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0711**	**0.7176**	**0.9404**	**1.4700e-003**		**0.0366**	**0.0366**		**0.0337**	**0.0337**	**0.0000**	**129.1777**	**129.1777**	**0.0418**	**0.0000**	**130.2222**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

3.6 Paving - 2022

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	3.3500e-003	2.1600e-003	0.0259	9.0000e-005	0.0106	7.0000e-005	0.0107	2.8200e-003	6.0000e-005	2.8800e-003	0.0000	8.5453	8.5453	1.7000e-004	0.0000	8.5496
Total	**3.3500e-003**	**2.1600e-003**	**0.0259**	**9.0000e-005**	**0.0106**	**7.0000e-005**	**0.0107**	**2.8200e-003**	**6.0000e-005**	**2.8800e-003**	**0.0000**	**8.5453**	**8.5453**	**1.7000e-004**	**0.0000**	**8.5496**

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	0.0711	0.7176	0.9404	1.4700e-003		0.0366	0.0366		0.0337	0.0337	0.0000	129.1776	129.1776	0.0418	0.0000	130.2221
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0711**	**0.7176**	**0.9404**	**1.4700e-003**		**0.0366**	**0.0366**		**0.0337**	**0.0337**	**0.0000**	**129.1776**	**129.1776**	**0.0418**	**0.0000**	**130.2221**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

3.6 Paving - 2022

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	3.3500e-003	2.1600e-003	0.0259	9.0000e-005	0.0106	7.0000e-005	0.0107	2.8200e-003	6.0000e-005	2.8800e-003	0.0000	8.5453	8.5453	1.7000e-004	0.0000	8.5496
Total	**3.3500e-003**	**2.1600e-003**	**0.0259**	**9.0000e-005**	**0.0106**	**7.0000e-005**	**0.0107**	**2.8200e-003**	**6.0000e-005**	**2.8800e-003**	**0.0000**	**8.5453**	**8.5453**	**1.7000e-004**	**0.0000**	**8.5496**

3.7 Architectural Coating - 2022

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	1.4956					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0134	0.0923	0.1188	1.9000e-004		5.3500e-003	5.3500e-003		5.3500e-003	5.3500e-003	0.0000	16.7238	16.7238	1.0900e-003	0.0000	16.7510
Total	**1.5090**	**0.0923**	**0.1188**	**1.9000e-004**		**5.3500e-003**	**5.3500e-003**		**5.3500e-003**	**5.3500e-003**	**0.0000**	**16.7238**	**16.7238**	**1.0900e-003**	**0.0000**	**16.7510**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

3.7 Architectural Coating - 2022

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	0.0107	6.8700e-003	0.0824	3.0000e-004	0.0338	2.2000e-004	0.0340	8.9700e-003	2.0000e-004	9.1800e-003	0.0000	27.1903	27.1903	5.5000e-004	0.0000	27.2041
Total	**0.0107**	**6.8700e-003**	**0.0824**	**3.0000e-004**	**0.0338**	**2.2000e-004**	**0.0340**	**8.9700e-003**	**2.0000e-004**	**9.1800e-003**	**0.0000**	**27.1903**	**27.1903**	**5.5000e-004**	**0.0000**	**27.2041**

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	1.4956					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0134	0.0923	0.1188	1.9000e-004		5.3500e-003	5.3500e-003		5.3500e-003	5.3500e-003	0.0000	16.7238	16.7238	1.0900e-003	0.0000	16.7510
Total	**1.5090**	**0.0923**	**0.1188**	**1.9000e-004**		**5.3500e-003**	**5.3500e-003**		**5.3500e-003**	**5.3500e-003**	**0.0000**	**16.7238**	**16.7238**	**1.0900e-003**	**0.0000**	**16.7510**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

3.7 Architectural Coating - 2022

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	0.0107	6.8700e-003	0.0824	3.0000e-004	0.0338	2.2000e-004	0.0340	8.9700e-003	2.0000e-004	9.1800e-003	0.0000	27.1903	27.1903	5.5000e-004	0.0000	27.2041
Total	**0.0107**	**6.8700e-003**	**0.0824**	**3.0000e-004**	**0.0338**	**2.2000e-004**	**0.0340**	**8.9700e-003**	**2.0000e-004**	**9.1800e-003**	**0.0000**	**27.1903**	**27.1903**	**5.5000e-004**	**0.0000**	**27.2041**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Diversity

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

	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	0.8475	2.9107	8.4014	0.0290	2.6536	0.0215	2.6751	0.7106	0.0200	0.7306	0.0000	2,677.3408	2,677.3408	0.1180	0.0000	2,680.2896
Unmitigated	0.9221	3.2868	10.4271	0.0385	3.6059	0.0276	3.6335	0.9657	0.0256	0.9913	0.0000	3,555.2205	3,555.2205	0.1494	0.0000	3,558.9541

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	360.22	351.54	300.08	1,197,331	881,116
Condo/Townhouse	185.92	181.44	154.88	617,977	454,769
Condo/Townhouse	290.50	283.50	242.00	965,589	710,577
Condo/Townhouse	174.30	170.10	145.20	579,354	426,346
Condo/Townhouse	336.98	328.86	280.72	1,120,084	824,269
Fast Food Restaurant with Drive Thru	1,116.27	1,624.57	1221.12	1,266,930	932,333
Fast Food Restaurant with Drive Thru	1,116.27	1,624.57	1221.12	1,266,930	932,333
General Office Building	110.30	24.60	10.50	269,958	198,662
Hotel	743.47	745.29	541.45	1,705,802	1,255,299
Single Family Housing	85.68	89.19	77.58	290,541	213,809
Single Family Housing	66.64	69.37	60.34	225,976	166,296
Total	4,586.55	5,493.03	4,254.99	9,506,473	6,995,811

4.3 Trip Type Information

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

	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
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Fast Food Restaurant with Drive	16.60	8.40	6.90	2.20	78.80	19.00	29	21	50
Fast Food Restaurant with Drive	16.60	8.40	6.90	2.20	78.80	19.00	29	21	50
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.563406	0.043070	0.209298	0.109958	0.015015	0.005784	0.026182	0.017546	0.001775	0.001524	0.004941	0.000598	0.000904
Fast Food Restaurant with Drive Thru	0.563406	0.043070	0.209298	0.109958	0.015015	0.005784	0.026182	0.017546	0.001775	0.001524	0.004941	0.000598	0.000904
General Office Building	0.563406	0.043070	0.209298	0.109958	0.015015	0.005784	0.026182	0.017546	0.001775	0.001524	0.004941	0.000598	0.000904
Hotel	0.563406	0.043070	0.209298	0.109958	0.015015	0.005784	0.026182	0.017546	0.001775	0.001524	0.004941	0.000598	0.000904
Single Family Housing	0.563406	0.043070	0.209298	0.109958	0.015015	0.005784	0.026182	0.017546	0.001775	0.001524	0.004941	0.000598	0.000904

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

	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	838.1940	838.1940	0.0346	7.1600e-003	841.1926
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	838.1940	838.1940	0.0346	7.1600e-003	841.1926
NaturalGas Mitigated	0.0471	0.4152	0.2643	2.5700e-003		0.0325	0.0325		0.0325	0.0325	0.0000	466.1649	466.1649	8.9300e-003	8.5500e-003	468.9351
NaturalGas Unmitigated	0.0471	0.4152	0.2643	2.5700e-003		0.0325	0.0325		0.0325	0.0325	0.0000	466.1649	466.1649	8.9300e-003	8.5500e-003	468.9351

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

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					
Condo/Townhouse	1.06495e+006	5.7400e-003	0.0491	0.0209	3.1000e-004		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	56.8296	56.8296	1.0900e-003	1.0400e-003	57.1673
Condo/Townhouse	515297	2.7800e-003	0.0237	0.0101	1.5000e-004		1.9200e-003	1.9200e-003		1.9200e-003	1.9200e-003	0.0000	27.4982	27.4982	5.3000e-004	5.0000e-004	27.6616
Condo/Townhouse	549650	2.9600e-003	0.0253	0.0108	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.3314	29.3314	5.6000e-004	5.4000e-004	29.5057
Condo/Townhouse	858828	4.6300e-003	0.0396	0.0168	2.5000e-004		3.2000e-003	3.2000e-003		3.2000e-003	3.2000e-003	0.0000	45.8303	45.8303	8.8000e-004	8.4000e-004	46.1027
Condo/Townhouse	996240	5.3700e-003	0.0459	0.0195	2.9000e-004		3.7100e-003	3.7100e-003		3.7100e-003	3.7100e-003	0.0000	53.1632	53.1632	1.0200e-003	9.7000e-004	53.4791
Fast Food Restaurant with Drive Thru	519210	5.6000e-003	0.0509	0.0428	3.1000e-004		3.8700e-003	3.8700e-003		3.8700e-003	3.8700e-003	0.0000	55.4141	55.4141	1.0600e-003	1.0200e-003	55.7433
General Office Building	104100	5.6000e-004	5.1000e-003	4.2900e-003	3.0000e-005		3.9000e-004	3.9000e-004		3.9000e-004	3.9000e-004	0.0000	5.5552	5.5552	1.1000e-004	1.0000e-004	5.5882
Hotel	3.16853e+006	0.0171	0.1553	0.1305	9.3000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	169.0846	169.0846	3.2400e-003	3.1000e-003	170.0894
Single Family Housing	192322	1.0400e-003	8.8600e-003	3.7700e-003	6.0000e-005		7.2000e-004	7.2000e-004		7.2000e-004	7.2000e-004	0.0000	10.2630	10.2630	2.0000e-004	1.9000e-004	10.3240
Single Family Housing	247271	1.3300e-003	0.0114	4.8500e-003	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004	0.0000	13.1953	13.1953	2.5000e-004	2.4000e-004	13.2738
Total		**0.0471**	**0.4152**	**0.2643**	**2.5600e-003**		**0.0326**	**0.0326**		**0.0326**	**0.0326**	**0.0000**	**466.1649**	**466.1649**	**8.9400e-003**	**8.5400e-003**	**468.9351**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

5.2 Energy by Land Use - NaturalGas

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					
Condo/Townhouse	515297	2.7800e-003	0.0237	0.0101	1.5000e-004		1.9200e-003	1.9200e-003		1.9200e-003	1.9200e-003	0.0000	27.4982	27.4982	5.3000e-004	5.0000e-004	27.6616
Condo/Townhouse	549650	2.9600e-003	0.0253	0.0108	1.6000e-004		2.0500e-003	2.0500e-003		2.0500e-003	2.0500e-003	0.0000	29.3314	29.3314	5.6000e-004	5.4000e-004	29.5057
Condo/Townhouse	858828	4.6300e-003	0.0396	0.0168	2.5000e-004		3.2000e-003	3.2000e-003		3.2000e-003	3.2000e-003	0.0000	45.8303	45.8303	8.8000e-004	8.4000e-004	46.1027
Condo/Townhouse	996240	5.3700e-003	0.0459	0.0195	2.9000e-004		3.7100e-003	3.7100e-003		3.7100e-003	3.7100e-003	0.0000	53.1632	53.1632	1.0200e-003	9.7000e-004	53.4791
Condo/Townhouse	1.06495e+006	5.7400e-003	0.0491	0.0209	3.1000e-004		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	56.8296	56.8296	1.0900e-003	1.0400e-003	57.1673
Fast Food Restaurant with Drive Thru	519210	5.6000e-003	0.0509	0.0428	3.1000e-004		3.8700e-003	3.8700e-003		3.8700e-003	3.8700e-003	0.0000	55.4141	55.4141	1.0600e-003	1.0200e-003	55.7433
General Office Building	104100	5.6000e-004	5.1000e-003	4.2900e-003	3.0000e-005		3.9000e-004	3.9000e-004		3.9000e-004	3.9000e-004	0.0000	5.5552	5.5552	1.1000e-004	1.0000e-004	5.5882
Hotel	3.16853e+006	0.0171	0.1553	0.1305	9.3000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	169.0846	169.0846	3.2400e-003	3.1000e-003	170.0894
Single Family Housing	192322	1.0400e-003	8.8600e-003	3.7700e-003	6.0000e-005		7.2000e-004	7.2000e-004		7.2000e-004	7.2000e-004	0.0000	10.2630	10.2630	2.0000e-004	1.9000e-004	10.3240
Single Family Housing	247271	1.3300e-003	0.0114	4.8500e-003	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004	0.0000	13.1953	13.1953	2.5000e-004	2.4000e-004	13.2738
Total		**0.0471**	**0.4152**	**0.2643**	**2.5600e-003**		**0.0326**	**0.0326**		**0.0326**	**0.0326**	**0.0000**	**466.1649**	**466.1649**	**8.9400e-003**	**8.5400e-003**	**468.9351**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	151198	48.1750	1.9900e-003	4.1000e-004	48.3473
Condo/Townhouse	161278	51.3867	2.1200e-003	4.4000e-004	51.5705
Condo/Townhouse	251997	80.2916	3.3100e-003	6.9000e-004	80.5789
Condo/Townhouse	292317	93.1383	3.8500e-003	8.0000e-004	93.4715
Condo/Townhouse	312476	99.5616	4.1100e-003	8.5000e-004	99.9178
Fast Food Restaurant with Drive Thru	99315	63.2878	2.6100e-003	5.4000e-004	63.5142
General Office Building	129900	41.3889	1.7100e-003	3.5000e-004	41.5370
Hotel	1.00156e+006	319.1187	0.0132	2.7300e-003	320.2603
Single Family Housing	57458	18.3074	7.6000e-004	1.6000e-004	18.3729
Single Family Housing	73874.6	23.5380	9.7000e-004	2.0000e-004	23.6222
Total		**838.1940**	**0.0346**	**7.1700e-003**	**841.1926**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	151198	48.1750	1.9900e-003	4.1000e-004	48.3473
Condo/Townhouse	161278	51.3867	2.1200e-003	4.4000e-004	51.5705
Condo/Townhouse	251997	80.2916	3.3100e-003	6.9000e-004	80.5789
Condo/Townhouse	292317	93.1383	3.8500e-003	8.0000e-004	93.4715
Condo/Townhouse	312476	99.5616	4.1100e-003	8.5000e-004	99.9178
Fast Food Restaurant with Drive Thru	99315	63.2878	2.6100e-003	5.4000e-004	63.5142
General Office Building	129900	41.3889	1.7100e-003	3.5000e-004	41.5370
Hotel	1.00156e+006	319.1187	0.0132	2.7300e-003	320.2603
Single Family Housing	57458	18.3074	7.6000e-004	1.6000e-004	18.3729
Single Family Housing	73874.6	23.5380	9.7000e-004	2.0000e-004	23.6222
Total		**838.1940**	**0.0346**	**7.1700e-003**	**841.1926**

6.0 Area Detail

6.1 Mitigation Measures Area

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

No Hearths Installed

	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	1.6990	0.0295	2.5595	1.4000e-004		0.0142	0.0142		0.0142	0.0142	0.0000	4.1803	4.1803	4.0200e-003	0.0000	4.2809
Unmitigated	5.6033	0.3387	10.1369	0.0195		1.1524	1.1524		1.1524	1.1524	126.6131	247.4873	374.1004	0.3816	8.5900e-003	386.2015

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

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	0.1496					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4723					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	3.9043	0.3092	7.5774	0.0193		1.1382	1.1382		1.1382	1.1382	126.6131	243.3070	369.9201	0.3776	8.5900e-003	381.9206
Landscaping	0.0772	0.0295	2.5595	1.4000e-004		0.0142	0.0142		0.0142	0.0142	0.0000	4.1803	4.1803	4.0200e-003	0.0000	4.2809
Total	**5.6034**	**0.3387**	**10.1369**	**0.0195**		**1.1524**	**1.1524**		**1.1524**	**1.1524**	**126.6131**	**247.4873**	**374.1004**	**0.3816**	**8.5900e-003**	**386.2015**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

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	0.1496					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4723					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	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
Landscaping	0.0772	0.0295	2.5595	1.4000e-004		0.0142	0.0142		0.0142	0.0142	0.0000	4.1803	4.1803	4.0200e-003	0.0000	4.2809
Total	**1.6990**	**0.0295**	**2.5595**	**1.4000e-004**		**0.0142**	**0.0142**		**0.0142**	**0.0142**	**0.0000**	**4.1803**	**4.1803**	**4.0200e-003**	**0.0000**	**4.2809**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	118.3403	0.5680	0.0143	136.7910
Unmitigated	137.6423	0.7096	0.0177	160.6689

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	15.1157 / 9.52948	101.2405	0.4965	0.0125	117.3650
Fast Food Restaurant with Drive Thru	1.3659 / 0.0871852	6.4088	0.0448	1.1000e-003	7.8560
General Office Building	1.77734 / 1.08934	11.7938	0.0584	1.4600e-003	13.6893
Hotel	2.30838 / 0.256486	11.2172	0.0757	1.8700e-003	13.6644
Single Family Housing	1.04246 / 0.657206	6.9821	0.0342	8.6000e-004	8.0941
Total		**137.6423**	**0.7096**	**0.0177**	**160.6688**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	12.0926 / 9.52948	87.7391	0.3975	0.0100	100.6628
Fast Food Restaurant with Drive Thru	1.09272 / 0.0871852	5.1887	0.0358	8.8000e-004	6.3468
General Office Building	1.42187 / 1.08934	10.2062	0.0467	1.1800e-003	11.7254
Hotel	1.8467 / 0.256486	9.1553	0.0605	1.4900e-003	11.1138
Single Family Housing	0.833972 / 0.657206	6.0510	0.0274	6.9000e-004	6.9423
Total		**118.3403**	**0.5680**	**0.0143**	**136.7910**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	48.0155	2.8376	0.0000	118.9563
Unmitigated	48.0155	2.8376	0.0000	118.9563

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	106.72	21.6632	1.2803	0.0000	53.6697
Fast Food Restaurant with Drive Thru	51.84	10.5231	0.6219	0.0000	26.0704
General Office Building	9.3	1.8878	0.1116	0.0000	4.6770
Hotel	49.82	10.1130	0.5977	0.0000	25.0546
Single Family Housing	18.86	3.8284	0.2263	0.0000	9.4847
Total		**48.0155**	**2.8376**	**0.0000**	**118.9563**

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	106.72	21.6632	1.2803	0.0000	53.6697
Fast Food Restaurant with Drive Thru	51.84	10.5231	0.6219	0.0000	26.0704
General Office Building	9.3	1.8878	0.1116	0.0000	4.6770
Hotel	49.82	10.1130	0.5977	0.0000	25.0546
Single Family Housing	18.86	3.8284	0.2263	0.0000	9.4847
Total		**48.0155**	**2.8376**	**0.0000**	**118.9563**

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

Euclid Street Townhomes - Cumulative Operational - Orange County, Annual

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Volara Townhomes

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	43.00	Dwelling Unit	2.69	43,000.00	123

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	9			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Volara Townhomes - Orange County, Summer

Project Characteristics -

Land Use - The parking only represents the guest spaces.

Construction Phase - Construction times are estimated in the EIR.

Demolition -

Woodstoves - There will be no wood burning stoves or wood burning fireplaces.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Volara Townhomes - Orange County, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	41.00
tblConstructionPhase	NumDays	220.00	109.00
tblConstructionPhase	NumDays	20.00	21.00
tblConstructionPhase	NumDays	6.00	22.00
tblConstructionPhase	NumDays	10.00	21.00
tblConstructionPhase	NumDays	3.00	22.00
tblConstructionPhase	PhaseEndDate	5/12/2021	2/28/2021
tblConstructionPhase	PhaseEndDate	4/14/2021	12/31/2020
tblConstructionPhase	PhaseEndDate	5/28/2020	5/31/2020
tblConstructionPhase	PhaseEndDate	6/10/2020	7/31/2020
tblConstructionPhase	PhaseEndDate	4/28/2021	1/31/2021
tblConstructionPhase	PhaseEndDate	6/2/2020	6/30/2020
tblConstructionPhase	PhaseStartDate	4/29/2021	1/1/2021
tblConstructionPhase	PhaseStartDate	6/11/2020	8/1/2020
tblConstructionPhase	PhaseStartDate	6/3/2020	7/2/2020
tblConstructionPhase	PhaseStartDate	4/15/2021	1/1/2021
tblConstructionPhase	PhaseStartDate	5/29/2020	6/1/2020
tblGrading	AcresOfGrading	11.00	3.00
tblGrading	AcresOfGrading	33.00	4.50

2.0 Emissions Summary

Volara Townhomes - Orange County, Summer

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					
2020	2.4230	21.3660	16.0494	0.0297	6.2785	1.1539	7.2694	3.3555	1.0774	4.2671	0.0000	2,762.3657	2,762.3657	0.7694	0.0000	2,774.4461
2021	7.9205	12.2205	14.2310	0.0230	0.2347	0.6782	0.9129	0.0623	0.6326	0.6949	0.0000	2,211.5195	2,211.5195	0.5657	0.0000	2,225.6624
Maximum	**7.9205**	**21.3660**	**16.0494**	**0.0297**	**6.2785**	**1.1539**	**7.2694**	**3.3555**	**1.0774**	**4.2671**	**0.0000**	**2,762.3657**	**2,762.3657**	**0.7694**	**0.0000**	**2,774.4461**

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					
2020	2.4230	21.3660	16.0494	0.0297	2.5168	1.1539	3.5077	1.3267	1.0774	2.2384	0.0000	2,762.3657	2,762.3657	0.7694	0.0000	2,774.4461
2021	7.9205	12.2205	14.2310	0.0230	0.2347	0.6782	0.9129	0.0623	0.6326	0.6949	0.0000	2,211.5195	2,211.5195	0.5657	0.0000	2,225.6624
Maximum	**7.9205**	**21.3660**	**16.0494**	**0.0297**	**2.5168**	**1.1539**	**3.5077**	**1.3267**	**1.0774**	**2.2384**	**0.0000**	**2,762.3657**	**2,762.3657**	**0.7694**	**0.0000**	**2,774.4461**

	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**	**57.75**	**0.00**	**45.97**	**59.36**	**0.00**	**40.89**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Volara Townhomes - Orange County, Summer

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	12.2999	0.9331	25.4191	0.0560		3.3043	3.3043		3.3043	3.3043	402.7775	780.3878	1,183.1652	1.2073	0.0273	1,221.4949
Energy	0.0218	0.1865	0.0794	1.1900e-003		0.0151	0.0151		0.0151	0.0151		238.0635	238.0635	4.5600e-003	4.3600e-003	239.4782
Mobile	0.3695	1.4840	5.0641	0.0198	1.8110	0.0141	1.8251	0.4843	0.0131	0.4974		2,014.7748	2,014.7748	0.0798		2,016.7691
Total	**12.6913**	**2.6036**	**30.5626**	**0.0770**	**1.8110**	**3.3335**	**5.1445**	**0.4843**	**3.3325**	**3.8168**	**402.7775**	**3,033.2261**	**3,436.0036**	**1.2917**	**0.0317**	**3,477.7423**

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	1.1075	0.6829	3.8246	4.2800e-003		0.0715	0.0715		0.0715	0.0715	0.0000	825.9172	825.9172	0.0219	0.0150	830.9413
Energy	0.0218	0.1865	0.0794	1.1900e-003		0.0151	0.0151		0.0151	0.0151		238.0635	238.0635	4.5600e-003	4.3600e-003	239.4782
Mobile	0.3695	1.4840	5.0641	0.0198	1.8110	0.0141	1.8251	0.4843	0.0131	0.4974		2,014.7748	2,014.7748	0.0798		2,016.7691
Total	**1.4989**	**2.3534**	**8.9680**	**0.0253**	**1.8110**	**0.1007**	**1.9117**	**0.4843**	**0.0997**	**0.5840**	**0.0000**	**3,078.7555**	**3,078.7555**	**0.1062**	**0.0194**	**3,087.1886**

Volara Townhomes - Orange County, Summer

	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	**88.19**	**9.61**	**70.66**	**67.14**	**0.00**	**96.98**	**62.84**	**0.00**	**97.01**	**84.70**	**100.00**	**-1.50**	**10.40**	**91.78**	**38.86**	**11.23**

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	5/1/2020	5/31/2020	5	21	
2	Site Preparation	Site Preparation	6/1/2020	6/30/2020	5	22	
3	Grading	Grading	7/2/2020	7/31/2020	5	22	
4	Building Construction	Building Construction	8/1/2020	12/31/2020	5	109	
5	Paving	Paving	1/1/2021	1/31/2021	5	21	
6	Architectural Coating	Architectural Coating	1/1/2021	2/28/2021	5	41	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 3

Acres of Paving: 0

Residential Indoor: 87,075; Residential Outdoor: 29,025; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Volara Townhomes - 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
Site Preparation	Graders	1	8.00	187	0.41
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	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

Volara Townhomes - Orange County, Summer

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	5	13.00	0.00	10.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	31.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 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					
Fugitive Dust					0.1055	0.0000	0.1055	0.0160	0.0000	0.0160			0.0000			0.0000
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761		2,322.3127	2,322.3127	0.5970		2,337.2363
Total	**2.1262**	**20.9463**	**14.6573**	**0.0241**	**0.1055**	**1.1525**	**1.2580**	**0.0160**	**1.0761**	**1.0921**		**2,322.3127**	**2,322.3127**	**0.5970**		**2,337.2363**

Volara Townhomes - Orange County, Summer

3.2 Demolition - 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	3.6000e-003	0.1309	0.0331	3.6000e-004	8.2900e-003	4.2000e-004	8.7200e-003	2.2700e-003	4.1000e-004	2.6800e-003		40.6218	40.6218	4.2100e-003		40.7271
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	0.0500	0.0315	0.4255	1.4200e-003	0.1453	9.6000e-004	0.1463	0.0385	8.8000e-004	0.0394		141.7057	141.7057	3.2300e-003		141.7864
Total	**0.0536**	**0.1624**	**0.4586**	**1.7800e-003**	**0.1536**	**1.3800e-003**	**0.1550**	**0.0408**	**1.2900e-003**	**0.0421**		**182.3275**	**182.3275**	**7.4400e-003**		**182.5135**

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					0.0411	0.0000	0.0411	6.2300e-003	0.0000	6.2300e-003			0.0000			0.0000
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761	0.0000	2,322.3127	2,322.3127	0.5970		2,337.2363
Total	**2.1262**	**20.9463**	**14.6573**	**0.0241**	**0.0411**	**1.1525**	**1.1936**	**6.2300e-003**	**1.0761**	**1.0824**	**0.0000**	**2,322.3127**	**2,322.3127**	**0.5970**		**2,337.2363**

Volara Townhomes - Orange County, Summer

3.2 Demolition - 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	3.6000e-003	0.1309	0.0331	3.6000e-004	8.2900e-003	4.2000e-004	8.7200e-003	2.2700e-003	4.1000e-004	2.6800e-003		40.6218	40.6218	4.2100e-003		40.7271
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	0.0500	0.0315	0.4255	1.4200e-003	0.1453	9.6000e-004	0.1463	0.0385	8.8000e-004	0.0394		141.7057	141.7057	3.2300e-003		141.7864
Total	**0.0536**	**0.1624**	**0.4586**	**1.7800e-003**	**0.1536**	**1.3800e-003**	**0.1550**	**0.0408**	**1.2900e-003**	**0.0421**		**182.3275**	**182.3275**	**7.4400e-003**		**182.5135**

3.3 Site Preparation - 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					
Fugitive Dust					0.2169	0.0000	0.2169	0.0234	0.0000	0.0234			0.0000			0.0000
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149		2,372.9062	2,372.9062	0.7675		2,392.0924
Total	**1.6521**	**19.9196**	**11.2678**	**0.0245**	**0.2169**	**0.7771**	**0.9940**	**0.0234**	**0.7149**	**0.7383**		**2,372.9062**	**2,372.9062**	**0.7675**		**2,392.0924**

Volara Townhomes - Orange County, Summer

3.3 Site Preparation - 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					
Fugitive Dust					0.0846	0.0000	0.0846	9.1300e-003	0.0000	9.1300e-003			0.0000			0.0000
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149	0.0000	2,372.9062	2,372.9062	0.7675		2,392.0924
Total	**1.6521**	**19.9196**	**11.2678**	**0.0245**	**0.0846**	**0.7771**	**0.8617**	**9.1300e-003**	**0.7149**	**0.7240**	**0.0000**	**2,372.9062**	**2,372.9062**	**0.7675**		**2,392.0924**

Volara Townhomes - Orange County, Summer

3.3 Site Preparation - 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**

3.4 Grading - 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					
Fugitive Dust					6.1667	0.0000	6.1667	3.3258	0.0000	3.3258			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110		1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**6.1667**	**0.9902**	**7.1569**	**3.3258**	**0.9110**	**4.2368**		**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

Volara Townhomes - Orange County, Summer

3.4 Grading - 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	0.0384	0.0242	0.3273	1.0900e-003	0.1118	7.4000e-004	0.1125	0.0296	6.8000e-004	0.0303		109.0044	109.0044	2.4800e-003		109.0665
Total	**0.0384**	**0.0242**	**0.3273**	**1.0900e-003**	**0.1118**	**7.4000e-004**	**0.1125**	**0.0296**	**6.8000e-004**	**0.0303**		**109.0044**	**109.0044**	**2.4800e-003**		**109.0665**

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					2.4050	0.0000	2.4050	1.2971	0.0000	1.2971			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110	0.0000	1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**2.4050**	**0.9902**	**3.3952**	**1.2971**	**0.9110**	**2.2080**	**0.0000**	**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

Volara Townhomes - Orange County, Summer

3.4 Grading - 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	0.0384	0.0242	0.3273	1.0900e-003	0.1118	7.4000e-004	0.1125	0.0296	6.8000e-004	0.0303		109.0044	109.0044	2.4800e-003		109.0665
Total	**0.0384**	**0.0242**	**0.3273**	**1.0900e-003**	**0.1118**	**7.4000e-004**	**0.1125**	**0.0296**	**6.8000e-004**	**0.0303**		**109.0044**	**109.0044**	**2.4800e-003**		**109.0665**

3.5 Building Construction - 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					
Off-Road	2.2879	17.4336	14.8972	0.0250		0.9482	0.9482		0.9089	0.9089		2,288.8877	2,288.8877	0.4646		2,300.5014
Total	**2.2879**	**17.4336**	**14.8972**	**0.0250**		**0.9482**	**0.9482**		**0.9089**	**0.9089**		**2,288.8877**	**2,288.8877**	**0.4646**		**2,300.5014**

Volara Townhomes - Orange County, Summer

3.5 Building Construction - 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	0.0160	0.5209	0.1375	1.2500e-003	0.0320	2.7200e-003	0.0347	9.1900e-003	2.6000e-003	0.0118		135.5645	135.5645	0.0110		135.8386
Worker	0.1191	0.0751	1.0147	3.3900e-003	0.3465	2.2900e-003	0.3488	0.0919	2.1100e-003	0.0940		337.9135	337.9135	7.7000e-003		338.1061
Total	**0.1351**	**0.5959**	**1.1522**	**4.6400e-003**	**0.3785**	**5.0100e-003**	**0.3835**	**0.1011**	**4.7100e-003**	**0.1058**		**473.4780**	**473.4780**	**0.0187**		**473.9447**

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	2.2879	17.4336	14.8972	0.0250		0.9482	0.9482		0.9089	0.9089	0.0000	2,288.8877	2,288.8877	0.4646		2,300.5014
Total	**2.2879**	**17.4336**	**14.8972**	**0.0250**		**0.9482**	**0.9482**		**0.9089**	**0.9089**	**0.0000**	**2,288.8877**	**2,288.8877**	**0.4646**		**2,300.5014**

Volara Townhomes - Orange County, Summer

3.5 Building Construction - 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	0.0160	0.5209	0.1375	1.2500e-003	0.0320	2.7200e-003	0.0347	9.1900e-003	2.6000e-003	0.0118		135.5645	135.5645	0.0110		135.8386
Worker	0.1191	0.0751	1.0147	3.3900e-003	0.3465	2.2900e-003	0.3488	0.0919	2.1100e-003	0.0940		337.9135	337.9135	7.7000e-003		338.1061
Total	**0.1351**	**0.5959**	**1.1522**	**4.6400e-003**	**0.3785**	**5.0100e-003**	**0.3835**	**0.1011**	**4.7100e-003**	**0.1058**		**473.4780**	**473.4780**	**0.0187**		**473.9447**

3.6 Paving - 2021

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	1.0633	10.6478	11.7756	0.0178		0.5826	0.5826		0.5371	0.5371		1,709.1107	1,709.1107	0.5417		1,722.6524
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0633**	**10.6478**	**11.7756**	**0.0178**		**0.5826**	**0.5826**		**0.5371**	**0.5371**		**1,709.1107**	**1,709.1107**	**0.5417**		**1,722.6524**

Volara Townhomes - Orange County, Summer

3.6 Paving - 2021

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	0.0541	0.0328	0.4556	1.5800e-003	0.1677	1.0900e-003	0.1688	0.0445	1.0000e-003	0.0455		157.8291	157.8291	3.3800e-003		157.9136
Total	**0.0541**	**0.0328**	**0.4556**	**1.5800e-003**	**0.1677**	**1.0900e-003**	**0.1688**	**0.0445**	**1.0000e-003**	**0.0455**		**157.8291**	**157.8291**	**3.3800e-003**		**157.9136**

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	1.0633	10.6478	11.7756	0.0178		0.5826	0.5826		0.5371	0.5371	0.0000	1,709.1107	1,709.1107	0.5417		1,722.6524
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0633**	**10.6478**	**11.7756**	**0.0178**		**0.5826**	**0.5826**		**0.5371**	**0.5371**	**0.0000**	**1,709.1107**	**1,709.1107**	**0.5417**		**1,722.6524**

Volara Townhomes - Orange County, Summer

3.6 Paving - 2021

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	0.0541	0.0328	0.4556	1.5800e-003	0.1677	1.0900e-003	0.1688	0.0445	1.0000e-003	0.0455		157.8291	157.8291	3.3800e-003		157.9136
Total	**0.0541**	**0.0328**	**0.4556**	**1.5800e-003**	**0.1677**	**1.0900e-003**	**0.1688**	**0.0445**	**1.0000e-003**	**0.0455**		**157.8291**	**157.8291**	**3.3800e-003**		**157.9136**

3.7 Architectural Coating - 2021

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	6.5625					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**6.7814**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Volara Townhomes - Orange County, Summer

3.7 Architectural Coating - 2021

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	0.0217	0.0131	0.1822	6.3000e-004	0.0671	4.3000e-004	0.0675	0.0178	4.0000e-004	0.0182		63.1317	63.1317	1.3500e-003		63.1655
Total	**0.0217**	**0.0131**	**0.1822**	**6.3000e-004**	**0.0671**	**4.3000e-004**	**0.0675**	**0.0178**	**4.0000e-004**	**0.0182**		**63.1317**	**63.1317**	**1.3500e-003**		**63.1655**

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	6.5625					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**6.7814**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Volara Townhomes - Orange County, Summer

3.7 Architectural Coating - 2021

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	0.0217	0.0131	0.1822	6.3000e-004	0.0671	4.3000e-004	0.0675	0.0178	4.0000e-004	0.0182		63.1317	63.1317	1.3500e-003		63.1655
Total	**0.0217**	**0.0131**	**0.1822**	**6.3000e-004**	**0.0671**	**4.3000e-004**	**0.0675**	**0.0178**	**4.0000e-004**	**0.0182**		**63.1317**	**63.1317**	**1.3500e-003**		**63.1655**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Implement Trip Reduction Program

Volara Townhomes - Orange County, Summer

	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	0.3695	1.4840	5.0641	0.0198	1.8110	0.0141	1.8251	0.4843	0.0131	0.4974		2,014.7748	2,014.7748	0.0798		2,016.7691
Unmitigated	0.3695	1.4840	5.0641	0.0198	1.8110	0.0141	1.8251	0.4843	0.0131	0.4974		2,014.7748	2,014.7748	0.0798		2,016.7691

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	249.83	243.81	208.12	830,407	830,407
Total	249.83	243.81	208.12	830,407	830,407

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
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934

5.0 Energy Detail

Historical Energy Use: N

Volara Townhomes - Orange County, Summer

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

Install Energy Efficient Appliances

	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	0.0218	0.1865	0.0794	1.1900e-003		0.0151	0.0151		0.0151	0.0151		238.0635	238.0635	4.5600e-003	4.3600e-003	239.4782
NaturalGas Unmitigated	0.0218	0.1865	0.0794	1.1900e-003		0.0151	0.0151		0.0151	0.0151		238.0635	238.0635	4.5600e-003	4.3600e-003	239.4782

Volara Townhomes - Orange County, Summer

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					
Condo/Townhouse	2023.54	0.0218	0.1865	0.0794	1.1900e-003		0.0151	0.0151		0.0151	0.0151		238.0635	238.0635	4.5600e-003	4.3600e-003	239.4782
Total		**0.0218**	**0.1865**	**0.0794**	**1.1900e-003**		**0.0151**	**0.0151**		**0.0151**	**0.0151**		**238.0635**	**238.0635**	**4.5600e-003**	**4.3600e-003**	**239.4782**

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					
Condo/Townhouse	2.02354	0.0218	0.1865	0.0794	1.1900e-003		0.0151	0.0151		0.0151	0.0151		238.0635	238.0635	4.5600e-003	4.3600e-003	239.4782
Total		**0.0218**	**0.1865**	**0.0794**	**1.1900e-003**		**0.0151**	**0.0151**		**0.0151**	**0.0151**		**238.0635**	**238.0635**	**4.5600e-003**	**4.3600e-003**	**239.4782**

6.0 Area Detail

6.1 Mitigation Measures Area

Volara Townhomes - Orange County, Summer

Use only Natural Gas Hearths

	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	1.1075	0.6829	3.8246	4.2800e-003		0.0715	0.0715		0.0715	0.0715	0.0000	825.9172	825.9172	0.0219	0.0150	830.9413
Unmitigated	12.2999	0.9331	25.4191	0.0560		3.3043	3.3043		3.3043	3.3043	402.7775	780.3878	1,183.1652	1.2073	0.0273	1,221.4949

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	0.0737					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8514					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	11.2676	0.8922	21.8677	0.0558		3.2847	3.2847		3.2847	3.2847	402.7775	774.0000	1,176.7775	1.2012	0.0273	1,214.9531
Landscaping	0.1073	0.0410	3.5514	1.9000e-004		0.0196	0.0196		0.0196	0.0196		6.3878	6.3878	6.1600e-003		6.5418
Total	**12.2999**	**0.9331**	**25.4191**	**0.0560**		**3.3043**	**3.3043**		**3.3043**	**3.3043**	**402.7775**	**780.3878**	**1,183.1652**	**1.2073**	**0.0273**	**1,221.4950**

Volara Townhomes - Orange County, Summer

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	0.0737					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8514					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0751	0.6420	0.2732	4.1000e-003		0.0519	0.0519		0.0519	0.0519	0.0000	819.5294	819.5294	0.0157	0.0150	824.3995
Landscaping	0.1073	0.0410	3.5514	1.9000e-004		0.0196	0.0196		0.0196	0.0196		6.3878	6.3878	6.1600e-003		6.5418
Total	**1.1075**	**0.6829**	**3.8246**	**4.2900e-003**		**0.0715**	**0.0715**		**0.0715**	**0.0715**	**0.0000**	**825.9172**	**825.9172**	**0.0219**	**0.0150**	**830.9413**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

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

Volara Townhomes

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	70.00	Dwelling Unit	4.38	70,000.00	200

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	9			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Volara Townhomes - Orange County, Summer

Project Characteristics -

Land Use - The parking only represents the guest spaces.

Construction Phase - Construction times are estimated in the EIR.

Demolition -

Woodstoves - There will be no wood burning stoves or wood burning fireplaces.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Volara Townhomes - Orange County, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	18.00	45.00
tblConstructionPhase	NumDays	230.00	150.00
tblConstructionPhase	NumDays	20.00	21.00
tblConstructionPhase	NumDays	8.00	23.00
tblConstructionPhase	NumDays	18.00	23.00
tblConstructionPhase	NumDays	5.00	22.00
tblConstructionPhase	PhaseEndDate	6/23/2021	4/30/2021
tblConstructionPhase	PhaseEndDate	5/4/2021	2/28/2021
tblConstructionPhase	PhaseEndDate	5/28/2020	5/31/2020
tblConstructionPhase	PhaseEndDate	6/16/2020	7/31/2020
tblConstructionPhase	PhaseEndDate	5/28/2021	3/31/2021
tblConstructionPhase	PhaseEndDate	6/4/2020	6/30/2020
tblConstructionPhase	PhaseStartDate	5/29/2021	3/1/2021
tblConstructionPhase	PhaseStartDate	6/17/2020	8/1/2020
tblConstructionPhase	PhaseStartDate	6/5/2020	7/1/2020
tblConstructionPhase	PhaseStartDate	5/5/2021	3/1/2021
tblConstructionPhase	PhaseStartDate	5/29/2020	6/1/2020
tblGrading	AcresOfGrading	11.50	4.00

2.0 Emissions Summary

Volara Townhomes - Orange County, Summer

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					
2020	4.1456	42.4609	22.2773	0.0408	18.2675	2.1987	20.4662	9.9840	2.0228	12.0069	0.0000	3,951.8333	3,951.8333	1.1963	0.0000	3,978.4804
2021	11.1546	18.1980	18.2719	0.0339	0.6036	0.9636	1.5672	0.1611	0.9059	1.0670	0.0000	3,267.6157	3,267.6157	0.6420	0.0000	3,283.6666
Maximum	**11.1546**	**42.4609**	**22.2773**	**0.0408**	**18.2675**	**2.1987**	**20.4662**	**9.9840**	**2.0228**	**12.0069**	**0.0000**	**3,951.8333**	**3,951.8333**	**1.1963**	**0.0000**	**3,978.4804**

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					
2020	4.1456	42.4609	22.2773	0.0408	7.2470	2.1987	9.4458	3.9263	2.0228	5.9492	0.0000	3,951.8333	3,951.8333	1.1963	0.0000	3,978.4804
2021	11.1546	18.1980	18.2719	0.0339	0.6036	0.9636	1.5672	0.1611	0.9059	1.0670	0.0000	3,267.6157	3,267.6157	0.6420	0.0000	3,283.6666
Maximum	**11.1546**	**42.4609**	**22.2773**	**0.0408**	**7.2470**	**2.1987**	**9.4458**	**3.9263**	**2.0228**	**5.9492**	**0.0000**	**3,951.8333**	**3,951.8333**	**1.1963**	**0.0000**	**3,978.4804**

	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**	**58.40**	**0.00**	**50.02**	**59.71**	**0.00**	**46.33**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Volara Townhomes - Orange County, Summer

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	20.0231	1.5191	41.3799	0.0911		5.3791	5.3791		5.3791	5.3791	655.6843	1,270.3987	1,926.0830	1.9654	0.0445	1,988.4801
Energy	0.0355	0.3036	0.1292	1.9400e-003		0.0245	0.0245		0.0245	0.0245		387.5453	387.5453	7.4300e-003	7.1000e-003	389.8483
Mobile	0.6016	2.4158	8.2439	0.0323	2.9481	0.0229	2.9710	0.7884	0.0213	0.8097		3,279.8659	3,279.8659	0.1299		3,283.1126
Total	**20.6602**	**4.2384**	**49.7530**	**0.1254**	**2.9481**	**5.4266**	**8.3747**	**0.7884**	**5.4250**	**6.2134**	**655.6843**	**4,937.8099**	**5,593.4942**	**2.1027**	**0.0516**	**5,661.4410**

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	1.8029	1.1117	6.2260	6.9800e-003		0.1164	0.1164		0.1164	0.1164	0.0000	1,344.5163	1,344.5163	0.0356	0.0245	1,352.6951
Energy	0.0355	0.3036	0.1292	1.9400e-003		0.0245	0.0245		0.0245	0.0245		387.5453	387.5453	7.4300e-003	7.1000e-003	389.8483
Mobile	0.6016	2.4158	8.2439	0.0323	2.9481	0.0229	2.9710	0.7884	0.0213	0.8097		3,279.8659	3,279.8659	0.1299		3,283.1126
Total	**2.4400**	**3.8311**	**14.5991**	**0.0412**	**2.9481**	**0.1639**	**3.1120**	**0.7884**	**0.1623**	**0.9507**	**0.0000**	**5,011.9275**	**5,011.9275**	**0.1729**	**0.0316**	**5,025.6559**

Volara Townhomes - Orange County, Summer

	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	**88.19**	**9.61**	**70.66**	**67.12**	**0.00**	**96.98**	**62.84**	**0.00**	**97.01**	**84.70**	**100.00**	**-1.50**	**10.40**	**91.78**	**38.84**	**11.23**

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	5/1/2020	5/31/2020	5	21	
2	Site Preparation	Site Preparation	6/1/2020	6/30/2020	5	22	
3	Grading	Grading	7/1/2020	7/31/2020	5	23	
4	Building Construction	Building Construction	8/1/2020	2/28/2021	5	150	
5	Paving	Paving	3/1/2021	3/31/2021	5	23	
6	Architectural Coating	Architectural Coating	3/1/2021	4/30/2021	5	45	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 141,750; Residential Outdoor: 47,250; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Volara Townhomes - 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
Grading	Excavators	1	8.00	158	0.38
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
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

Volara Townhomes - Orange County, Summer

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	10.00	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	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	50.00	7.00	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	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 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					
Fugitive Dust					0.1055	0.0000	0.1055	0.0160	0.0000	0.0160			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**0.1055**	**1.6587**	**1.7642**	**0.0160**	**1.5419**	**1.5578**		**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Volara Townhomes - Orange County, Summer

3.2 Demolition - 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	3.6000e-003	0.1309	0.0331	3.6000e-004	8.2900e-003	4.2000e-004	8.7200e-003	2.2700e-003	4.1000e-004	2.6800e-003		40.6218	40.6218	4.2100e-003		40.7271
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	0.0576	0.0363	0.4910	1.6400e-003	0.1677	1.1100e-003	0.1688	0.0445	1.0200e-003	0.0455		163.5065	163.5065	3.7300e-003		163.5997
Total	**0.0612**	**0.1673**	**0.5241**	**2.0000e-003**	**0.1760**	**1.5300e-003**	**0.1775**	**0.0467**	**1.4300e-003**	**0.0482**		**204.1283**	**204.1283**	**7.9400e-003**		**204.3268**

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					0.0411	0.0000	0.0411	6.2300e-003	0.0000	6.2300e-003			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**0.0411**	**1.6587**	**1.6998**	**6.2300e-003**	**1.5419**	**1.5481**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Volara Townhomes - Orange County, Summer

3.2 Demolition - 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	3.6000e-003	0.1309	0.0331	3.6000e-004	8.2900e-003	4.2000e-004	8.7200e-003	2.2700e-003	4.1000e-004	2.6800e-003		40.6218	40.6218	4.2100e-003		40.7271
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	0.0576	0.0363	0.4910	1.6400e-003	0.1677	1.1100e-003	0.1688	0.0445	1.0200e-003	0.0455		163.5065	163.5065	3.7300e-003		163.5997
Total	**0.0612**	**0.1673**	**0.5241**	**2.0000e-003**	**0.1760**	**1.5300e-003**	**0.1775**	**0.0467**	**1.4300e-003**	**0.0482**		**204.1283**	**204.1283**	**7.9400e-003**		**204.3268**

3.3 Site Preparation - 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					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Volara Townhomes - Orange County, Summer

3.3 Site Preparation - 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	0.0692	0.0436	0.5892	1.9700e-003	0.2012	1.3300e-003	0.2025	0.0534	1.2300e-003	0.0546		196.2079	196.2079	4.4700e-003		196.3197
Total	**0.0692**	**0.0436**	**0.5892**	**1.9700e-003**	**0.2012**	**1.3300e-003**	**0.2025**	**0.0534**	**1.2300e-003**	**0.0546**		**196.2079**	**196.2079**	**4.4700e-003**		**196.3197**

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					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.0458**	**2.1974**	**9.2433**	**3.8730**	**2.0216**	**5.8946**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Volara Townhomes - Orange County, Summer

3.3 Site Preparation - 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	0.0692	0.0436	0.5892	1.9700e-003	0.2012	1.3300e-003	0.2025	0.0534	1.2300e-003	0.0546		196.2079	196.2079	4.4700e-003		196.3197
Total	**0.0692**	**0.0436**	**0.5892**	**1.9700e-003**	**0.2012**	**1.3300e-003**	**0.2025**	**0.0534**	**1.2300e-003**	**0.0546**		**196.2079**	**196.2079**	**4.4700e-003**		**196.3197**

3.4 Grading - 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					
Fugitive Dust					6.2065	0.0000	6.2065	3.3301	0.0000	3.3301			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.2065**	**1.2734**	**7.4800**	**3.3301**	**1.1716**	**4.5017**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Volara Townhomes - Orange County, Summer

3.4 Grading - 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	0.0576	0.0363	0.4910	1.6400e-003	0.1677	1.1100e-003	0.1688	0.0445	1.0200e-003	0.0455		163.5065	163.5065	3.7300e-003		163.5997
Total	**0.0576**	**0.0363**	**0.4910**	**1.6400e-003**	**0.1677**	**1.1100e-003**	**0.1688**	**0.0445**	**1.0200e-003**	**0.0455**		**163.5065**	**163.5065**	**3.7300e-003**		**163.5997**

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					2.4205	0.0000	2.4205	1.2988	0.0000	1.2988			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**2.4205**	**1.2734**	**3.6940**	**1.2988**	**1.1716**	**2.4703**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Volara Townhomes - Orange County, Summer

3.4 Grading - 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	0.0576	0.0363	0.4910	1.6400e-003	0.1677	1.1100e-003	0.1688	0.0445	1.0200e-003	0.0455		163.5065	163.5065	3.7300e-003		163.5997
Total	**0.0576**	**0.0363**	**0.4910**	**1.6400e-003**	**0.1677**	**1.1100e-003**	**0.1688**	**0.0445**	**1.0200e-003**	**0.0455**		**163.5065**	**163.5065**	**3.7300e-003**		**163.5997**

3.5 Building Construction - 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					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Volara Townhomes - Orange County, Summer

3.5 Building Construction - 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	0.0224	0.7292	0.1925	1.7400e-003	0.0447	3.8100e-003	0.0485	0.0129	3.6400e-003	0.0165		189.7903	189.7903	0.0154		190.1740
Worker	0.1922	0.1211	1.6366	5.4700e-003	0.5589	3.7000e-003	0.5626	0.1482	3.4000e-003	0.1516		545.0218	545.0218	0.0124		545.3324
Total	**0.2145**	**0.8503**	**1.8291**	**7.2100e-003**	**0.6036**	**7.5100e-003**	**0.6111**	**0.1611**	**7.0400e-003**	**0.1681**		**734.8121**	**734.8121**	**0.0278**		**735.5064**

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	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Volara Townhomes - Orange County, Summer

3.5 Building Construction - 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	0.0224	0.7292	0.1925	1.7400e-003	0.0447	3.8100e-003	0.0485	0.0129	3.6400e-003	0.0165		189.7903	189.7903	0.0154		190.1740
Worker	0.1922	0.1211	1.6366	5.4700e-003	0.5589	3.7000e-003	0.5626	0.1482	3.4000e-003	0.1516		545.0218	545.0218	0.0124		545.3324
Total	**0.2145**	**0.8503**	**1.8291**	**7.2100e-003**	**0.6036**	**7.5100e-003**	**0.6111**	**0.1611**	**7.0400e-003**	**0.1681**		**734.8121**	**734.8121**	**0.0278**		**735.5064**

3.5 Building Construction - 2021

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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Volara Townhomes - Orange County, Summer

3.5 Building Construction - 2021

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	0.0187	0.6567	0.1781	1.7300e-003	0.0447	1.3600e-003	0.0461	0.0129	1.3000e-003	0.0142		188.1548	188.1548	0.0148		188.5236
Worker	0.1805	0.1092	1.5186	5.2800e-003	0.5589	3.6200e-003	0.5625	0.1482	3.3300e-003	0.1516		526.0971	526.0971	0.0113		526.3787
Total	**0.1992**	**0.7659**	**1.6967**	**7.0100e-003**	**0.6036**	**4.9800e-003**	**0.6086**	**0.1611**	**4.6300e-003**	**0.1657**		**714.2518**	**714.2518**	**0.0260**		**714.9023**

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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Volara Townhomes - Orange County, Summer

3.5 Building Construction - 2021

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	0.0187	0.6567	0.1781	1.7300e-003	0.0447	1.3600e-003	0.0461	0.0129	1.3000e-003	0.0142		188.1548	188.1548	0.0148		188.5236
Worker	0.1805	0.1092	1.5186	5.2800e-003	0.5589	3.6200e-003	0.5625	0.1482	3.3300e-003	0.1516		526.0971	526.0971	0.0113		526.3787
Total	**0.1992**	**0.7659**	**1.6967**	**7.0100e-003**	**0.6036**	**4.9800e-003**	**0.6086**	**0.1611**	**4.6300e-003**	**0.1657**		**714.2518**	**714.2518**	**0.0260**		**714.9023**

3.6 Paving - 2021

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	1.0940	10.8399	12.2603	0.0189		0.5788	0.5788		0.5342	0.5342		1,804.5523	1,804.5523	0.5670		1,818.7270
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0940**	**10.8399**	**12.2603**	**0.0189**		**0.5788**	**0.5788**		**0.5342**	**0.5342**		**1,804.5523**	**1,804.5523**	**0.5670**		**1,818.7270**

Volara Townhomes - Orange County, Summer

3.6 Paving - 2021

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	0.0722	0.0437	0.6075	2.1100e-003	0.2236	1.4500e-003	0.2250	0.0593	1.3300e-003	0.0606		210.4388	210.4388	4.5100e-003		210.5515
Total	**0.0722**	**0.0437**	**0.6075**	**2.1100e-003**	**0.2236**	**1.4500e-003**	**0.2250**	**0.0593**	**1.3300e-003**	**0.0606**		**210.4388**	**210.4388**	**4.5100e-003**		**210.5515**

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	1.0940	10.8399	12.2603	0.0189		0.5788	0.5788		0.5342	0.5342	0.0000	1,804.5523	1,804.5523	0.5670		1,818.7270
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0940**	**10.8399**	**12.2603**	**0.0189**		**0.5788**	**0.5788**		**0.5342**	**0.5342**	**0.0000**	**1,804.5523**	**1,804.5523**	**0.5670**		**1,818.7270**

Volara Townhomes - Orange County, Summer

3.6 Paving - 2021

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	0.0722	0.0437	0.6075	2.1100e-003	0.2236	1.4500e-003	0.2250	0.0593	1.3300e-003	0.0606		210.4388	210.4388	4.5100e-003		210.5515
Total	**0.0722**	**0.0437**	**0.6075**	**2.1100e-003**	**0.2236**	**1.4500e-003**	**0.2250**	**0.0593**	**1.3300e-003**	**0.0606**		**210.4388**	**210.4388**	**4.5100e-003**		**210.5515**

3.7 Architectural Coating - 2021

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	9.7335					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**9.9524**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Volara Townhomes - Orange County, Summer

3.7 Architectural Coating - 2021

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	0.0361	0.0218	0.3037	1.0600e-003	0.1118	7.2000e-004	0.1125	0.0296	6.7000e-004	0.0303		105.2194	105.2194	2.2500e-003		105.2758
Total	**0.0361**	**0.0218**	**0.3037**	**1.0600e-003**	**0.1118**	**7.2000e-004**	**0.1125**	**0.0296**	**6.7000e-004**	**0.0303**		**105.2194**	**105.2194**	**2.2500e-003**		**105.2758**

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	9.7335					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**9.9524**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Volara Townhomes - Orange County, Summer

3.7 Architectural Coating - 2021

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	0.0361	0.0218	0.3037	1.0600e-003	0.1118	7.2000e-004	0.1125	0.0296	6.7000e-004	0.0303		105.2194	105.2194	2.2500e-003		105.2758
Total	**0.0361**	**0.0218**	**0.3037**	**1.0600e-003**	**0.1118**	**7.2000e-004**	**0.1125**	**0.0296**	**6.7000e-004**	**0.0303**		**105.2194**	**105.2194**	**2.2500e-003**		**105.2758**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Implement Trip Reduction Program

Volara Townhomes - Orange County, Summer

	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	0.6016	2.4158	8.2439	0.0323	2.9481	0.0229	2.9710	0.7884	0.0213	0.8097		3,279.8659	3,279.8659	0.1299		3,283.1126
Unmitigated	0.6016	2.4158	8.2439	0.0323	2.9481	0.0229	2.9710	0.7884	0.0213	0.8097		3,279.8659	3,279.8659	0.1299		3,283.1126

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	406.70	396.90	338.80	1,351,825	1,351,825
Total	406.70	396.90	338.80	1,351,825	1,351,825

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
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.561378	0.043284	0.209473	0.111826	0.015545	0.005795	0.025829	0.017125	0.001747	0.001542	0.004926	0.000594	0.000934

5.0 Energy Detail

Historical Energy Use: N

Volara Townhomes - Orange County, Summer

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

Install Energy Efficient Appliances

	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	0.0355	0.3036	0.1292	1.9400e-003		0.0245	0.0245		0.0245	0.0245		387.5453	387.5453	7.4300e-003	7.1000e-003	389.8483
NaturalGas Unmitigated	0.0355	0.3036	0.1292	1.9400e-003		0.0245	0.0245		0.0245	0.0245		387.5453	387.5453	7.4300e-003	7.1000e-003	389.8483

Volara Townhomes - Orange County, Summer

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					
Condo/Townhouse	3294.13	0.0355	0.3036	0.1292	1.9400e-003		0.0245	0.0245		0.0245	0.0245		387.5453	387.5453	7.4300e-003	7.1000e-003	389.8483
Total		**0.0355**	**0.3036**	**0.1292**	**1.9400e-003**		**0.0245**	**0.0245**		**0.0245**	**0.0245**		**387.5453**	**387.5453**	**7.4300e-003**	**7.1000e-003**	**389.8483**

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					
Condo/Townhouse	3.29413	0.0355	0.3036	0.1292	1.9400e-003		0.0245	0.0245		0.0245	0.0245		387.5453	387.5453	7.4300e-003	7.1000e-003	389.8483
Total		**0.0355**	**0.3036**	**0.1292**	**1.9400e-003**		**0.0245**	**0.0245**		**0.0245**	**0.0245**		**387.5453**	**387.5453**	**7.4300e-003**	**7.1000e-003**	**389.8483**

6.0 Area Detail

6.1 Mitigation Measures Area

Volara Townhomes - Orange County, Summer

Use only Natural Gas Hearths

	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	1.8029	1.1117	6.2260	6.9800e-003		0.1164	0.1164		0.1164	0.1164	0.0000	1,344.5163	1,344.5163	0.0356	0.0245	1,352.6951
Unmitigated	20.0231	1.5191	41.3799	0.0911		5.3791	5.3791		5.3791	5.3791	655.6843	1,270.3987	1,926.0830	1.9654	0.0445	1,988.4801

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	0.1200					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.3860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	18.3425	1.4524	35.5986	0.0908		5.3472	5.3472		5.3472	5.3472	655.6843	1,260.0000	1,915.6843	1.9554	0.0445	1,977.8307
Landscaping	0.1746	0.0667	5.7813	3.0000e-004		0.0319	0.0319		0.0319	0.0319		10.3987	10.3987	0.0100		10.6495
Total	**20.0231**	**1.5191**	**41.3799**	**0.0911**		**5.3791**	**5.3791**		**5.3791**	**5.3791**	**655.6843**	**1,270.3987**	**1,926.0830**	**1.9654**	**0.0445**	**1,988.4801**

Volara Townhomes - Orange County, Summer

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	0.1200					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.3860					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1223	1.0451	0.4447	6.6700e-003		0.0845	0.0845		0.0845	0.0845	0.0000	1,334.1177	1,334.1177	0.0256	0.0245	1,342.0456
Landscaping	0.1746	0.0667	5.7813	3.0000e-004		0.0319	0.0319		0.0319	0.0319		10.3987	10.3987	0.0100		10.6495
Total	**1.8029**	**1.1117**	**6.2260**	**6.9700e-003**		**0.1164**	**0.1164**		**0.1164**	**0.1164**	**0.0000**	**1,344.5163**	**1,344.5163**	**0.0356**	**0.0245**	**1,352.6951**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Volara Townhomes - Orange County, Summer

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

La Habra Euclid Street (Industrial Alternative)

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	101.76	1000sqft	2.34	101,756.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	9			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction times are estimated.

Fleet Mix - Adjusted to reflect the 0.40 truck trips per 1,000 square feet generation rate recommended by the SCAQMD.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Energy Mitigation -

Water Mitigation -

Vehicle Trips - These rates include the new 10th Edition ITE trip generation rates of 2.56 trips per 1,000 square feet for residential and the recommended 0.40 truck trips per 1,000 square feet.

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	44.00
tblConstructionPhase	NumDays	220.00	66.00
tblConstructionPhase	NumDays	20.00	22.00
tblConstructionPhase	NumDays	6.00	22.00
tblConstructionPhase	NumDays	10.00	22.00
tblConstructionPhase	NumDays	3.00	21.00
tblConstructionPhase	PhaseEndDate	4/12/2021	12/31/2020
tblConstructionPhase	PhaseEndDate	3/15/2021	9/30/2020
tblConstructionPhase	PhaseEndDate	4/28/2020	4/30/2020
tblConstructionPhase	PhaseEndDate	5/11/2020	6/30/2020
tblConstructionPhase	PhaseEndDate	3/29/2021	10/31/2020
tblConstructionPhase	PhaseEndDate	5/1/2020	5/31/2020
tblConstructionPhase	PhaseStartDate	3/30/2021	11/1/2020
tblConstructionPhase	PhaseStartDate	5/12/2020	7/1/2020
tblConstructionPhase	PhaseStartDate	5/2/2020	6/1/2020
tblConstructionPhase	PhaseStartDate	3/16/2021	10/1/2020
tblConstructionPhase	PhaseStartDate	4/29/2020	5/1/2020
tblFleetMix	HHD	0.02	0.40
tblFleetMix	LDT2	0.21	0.04
tblFleetMix	MCY	4.8960e-003	0.00
tblFleetMix	MDV	0.11	0.04
tblFleetMix	MH	9.6600e-004	0.00
tblFleetMix	OBUS	1.7130e-003	0.00
tblFleetMix	SBUS	5.9000e-004	0.00
tblFleetMix	UBUS	1.5530e-003	0.00
tblGrading	AcresOfGrading	11.00	3.00

tblGrading	AcresOfGrading	31.50	4.50
tblVehicleTrips	ST_TR	1.68	2.96
tblVehicleTrips	SU_TR	1.68	2.96
tblVehicleTrips	WD_TR	1.68	2.96

2.0 Emissions Summary

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

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					
2020	21.7149	21.3660	16.7721	0.0339	6.2785	1.1534	7.2694	3.3555	1.0770	4.2671	0.0000	3,218.5257	3,218.5257	0.7694	0.0000	3,231.3384
Maximum	**21.7149**	**21.3660**	**16.7721**	**0.0339**	**6.2785**	**1.1534**	**7.2694**	**3.3555**	**1.0770**	**4.2671**	**0.0000**	**3,218.5257**	**3,218.5257**	**0.7694**	**0.0000**	**3,231.3384**

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					
2020	21.7149	21.3660	16.7721	0.0339	2.5168	1.1534	3.5077	1.3267	1.0770	2.2384	0.0000	3,218.5257	3,218.5257	0.7694	0.0000	3,231.3384
Maximum	**21.7149**	**21.3660**	**16.7721**	**0.0339**	**2.5168**	**1.1534**	**3.5077**	**1.3267**	**1.0770**	**2.2384**	**0.0000**	**3,218.5257**	**3,218.5257**	**0.7694**	**0.0000**	**3,231.3384**

	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**	**59.91**	**0.00**	**51.75**	**60.46**	**0.00**	**47.54**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

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	2.2742	1.0000e-004	0.0104	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0223	0.0223	6.0000e-005		0.0238
Energy	2.6200e-003	0.0238	0.0200	1.4000e-004		1.8100e-003	1.8100e-003		1.8100e-003	1.8100e-003		28.5343	28.5343	5.5000e-004	5.2000e-004	28.7039
Mobile	0.8488	23.2613	10.3183	0.0774	2.9249	0.0726	2.9976	0.7964	0.0691	0.8655		8,417.1385	8,417.1385	0.7264		8,435.2983
Total	**3.1256**	**23.2851**	**10.3487**	**0.0775**	**2.9249**	**0.0745**	**2.9994**	**0.7964**	**0.0709**	**0.8674**		**8,445.6951**	**8,445.6951**	**0.7270**	**5.2000e-004**	**8,464.0260**

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	2.2742	1.0000e-004	0.0104	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0223	0.0223	6.0000e-005		0.0238
Energy	2.6200e-003	0.0238	0.0200	1.4000e-004		1.8100e-003	1.8100e-003		1.8100e-003	1.8100e-003		28.5343	28.5343	5.5000e-004	5.2000e-004	28.7039
Mobile	0.8488	23.2613	10.3183	0.0774	2.9249	0.0726	2.9976	0.7964	0.0691	0.8655		8,417.1385	8,417.1385	0.7264		8,435.2983
Total	**3.1256**	**23.2851**	**10.3487**	**0.0775**	**2.9249**	**0.0745**	**2.9994**	**0.7964**	**0.0709**	**0.8674**		**8,445.6951**	**8,445.6951**	**0.7270**	**5.2000e-004**	**8,464.0260**

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

	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	4/1/2020	4/30/2020	5	22	
2	Site Preparation	Site Preparation	5/1/2020	5/31/2020	5	21	
3	Grading	Grading	6/1/2020	6/30/2020	5	22	
4	Building Construction	Building Construction	7/1/2020	9/30/2020	5	66	
5	Paving	Paving	10/1/2020	10/31/2020	5	22	
6	Architectural Coating	Architectural Coating	11/1/2020	12/31/2020	5	44	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 3

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 152,634; Non-Residential Outdoor: 50,878; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Scrapers	1	8.00	367	0.48
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

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	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	43.00	17.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	9.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 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					
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761		2,322.3127	2,322.3127	0.5970		2,337.2363
Total	**2.1262**	**20.9463**	**14.6573**	**0.0241**		**1.1525**	**1.1525**		**1.0761**	**1.0761**		**2,322.3127**	**2,322.3127**	**0.5970**		**2,337.2363**

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

3.2 Demolition - 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	0.0500	0.0315	0.4255	1.4200e-003	0.1453	9.6000e-004	0.1463	0.0385	8.8000e-004	0.0394		141.7057	141.7057	3.2300e-003		141.7864
Total	**0.0500**	**0.0315**	**0.4255**	**1.4200e-003**	**0.1453**	**9.6000e-004**	**0.1463**	**0.0385**	**8.8000e-004**	**0.0394**		**141.7057**	**141.7057**	**3.2300e-003**		**141.7864**

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	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761	0.0000	2,322.3127	2,322.3127	0.5970		2,337.2363
Total	**2.1262**	**20.9463**	**14.6573**	**0.0241**		**1.1525**	**1.1525**		**1.0761**	**1.0761**	**0.0000**	**2,322.3127**	**2,322.3127**	**0.5970**		**2,337.2363**

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

3.2 Demolition - 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	0.0500	0.0315	0.4255	1.4200e-003	0.1453	9.6000e-004	0.1463	0.0385	8.8000e-004	0.0394		141.7057	141.7057	3.2300e-003		141.7864
Total	**0.0500**	**0.0315**	**0.4255**	**1.4200e-003**	**0.1453**	**9.6000e-004**	**0.1463**	**0.0385**	**8.8000e-004**	**0.0394**		**141.7057**	**141.7057**	**3.2300e-003**		**141.7864**

3.3 Site Preparation - 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					
Fugitive Dust					0.2273	0.0000	0.2273	0.0245	0.0000	0.0245			0.0000			0.0000
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149		2,372.9062	2,372.9062	0.7675		2,392.0924
Total	**1.6521**	**19.9196**	**11.2678**	**0.0245**	**0.2273**	**0.7771**	**1.0043**	**0.0245**	**0.7149**	**0.7394**		**2,372.9062**	**2,372.9062**	**0.7675**		**2,392.0924**

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

3.3 Site Preparation - 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					
Fugitive Dust					0.0886	0.0000	0.0886	9.5700e-003	0.0000	9.5700e-003			0.0000			0.0000
Off-Road	1.6521	19.9196	11.2678	0.0245		0.7771	0.7771		0.7149	0.7149	0.0000	2,372.9062	2,372.9062	0.7675		2,392.0924
Total	**1.6521**	**19.9196**	**11.2678**	**0.0245**	**0.0886**	**0.7771**	**0.8657**	**9.5700e-003**	**0.7149**	**0.7245**	**0.0000**	**2,372.9062**	**2,372.9062**	**0.7675**		**2,392.0924**

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

3.3 Site Preparation - 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**

3.4 Grading - 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					
Fugitive Dust					6.1667	0.0000	6.1667	3.3258	0.0000	3.3258			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110		1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**6.1667**	**0.9902**	**7.1569**	**3.3258**	**0.9110**	**4.2368**		**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

3.4 Grading - 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	0.0384	0.0242	0.3273	1.0900e-003	0.1118	7.4000e-004	0.1125	0.0296	6.8000e-004	0.0303		109.0044	109.0044	2.4800e-003		109.0665
Total	**0.0384**	**0.0242**	**0.3273**	**1.0900e-003**	**0.1118**	**7.4000e-004**	**0.1125**	**0.0296**	**6.8000e-004**	**0.0303**		**109.0044**	**109.0044**	**2.4800e-003**		**109.0665**

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					2.4050	0.0000	2.4050	1.2971	0.0000	1.2971			0.0000			0.0000
Off-Road	1.9219	21.3418	9.9355	0.0206		0.9902	0.9902		0.9110	0.9110	0.0000	1,996.4061	1,996.4061	0.6457		2,012.5480
Total	**1.9219**	**21.3418**	**9.9355**	**0.0206**	**2.4050**	**0.9902**	**3.3952**	**1.2971**	**0.9110**	**2.2080**	**0.0000**	**1,996.4061**	**1,996.4061**	**0.6457**		**2,012.5480**

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

3.4 Grading - 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	0.0384	0.0242	0.3273	1.0900e-003	0.1118	7.4000e-004	0.1125	0.0296	6.8000e-004	0.0303		109.0044	109.0044	2.4800e-003		109.0665
Total	**0.0384**	**0.0242**	**0.3273**	**1.0900e-003**	**0.1118**	**7.4000e-004**	**0.1125**	**0.0296**	**6.8000e-004**	**0.0303**		**109.0044**	**109.0044**	**2.4800e-003**		**109.0665**

3.5 Building Construction - 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					
Off-Road	2.2879	17.4336	14.8972	0.0250		0.9482	0.9482		0.9089	0.9089		2,288.8877	2,288.8877	0.4646		2,300.5014
Total	**2.2879**	**17.4336**	**14.8972**	**0.0250**		**0.9482**	**0.9482**		**0.9089**	**0.9089**		**2,288.8877**	**2,288.8877**	**0.4646**		**2,300.5014**

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

3.5 Building Construction - 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	0.0543	1.7710	0.4674	4.2300e-003	0.1086	9.2400e-003	0.1179	0.0313	8.8400e-003	0.0401		460.9192	460.9192	0.0373		461.8511
Worker	0.1653	0.1041	1.4075	4.7000e-003	0.4806	3.1800e-003	0.4838	0.1275	2.9300e-003	0.1304		468.7188	468.7188	0.0107		468.9859
Total	**0.2196**	**1.8751**	**1.8749**	**8.9300e-003**	**0.5893**	**0.0124**	**0.6017**	**0.1587**	**0.0118**	**0.1705**		**929.6379**	**929.6379**	**0.0480**		**930.8370**

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	2.2879	17.4336	14.8972	0.0250		0.9482	0.9482		0.9089	0.9089	0.0000	2,288.8877	2,288.8877	0.4646		2,300.5014
Total	**2.2879**	**17.4336**	**14.8972**	**0.0250**		**0.9482**	**0.9482**		**0.9089**	**0.9089**	**0.0000**	**2,288.8877**	**2,288.8877**	**0.4646**		**2,300.5014**

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

3.5 Building Construction - 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	0.0543	1.7710	0.4674	4.2300e-003	0.1086	9.2400e-003	0.1179	0.0313	8.8400e-003	0.0401		460.9192	460.9192	0.0373		461.8511
Worker	0.1653	0.1041	1.4075	4.7000e-003	0.4806	3.1800e-003	0.4838	0.1275	2.9300e-003	0.1304		468.7188	468.7188	0.0107		468.9859
Total	**0.2196**	**1.8751**	**1.8749**	**8.9300e-003**	**0.5893**	**0.0124**	**0.6017**	**0.1587**	**0.0118**	**0.1705**		**929.6379**	**929.6379**	**0.0480**		**930.8370**

3.6 Paving - 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					
Off-Road	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051		1,709.2180	1,709.2180	0.5417		1,722.7605
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1547**	**11.5873**	**11.8076**	**0.0178**		**0.6565**	**0.6565**		**0.6051**	**0.6051**		**1,709.2180**	**1,709.2180**	**0.5417**		**1,722.7605**

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

3.6 Paving - 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	0.0576	0.0363	0.4910	1.6400e-003	0.1677	1.1100e-003	0.1688	0.0445	1.0200e-003	0.0455		163.5065	163.5065	3.7300e-003		163.5997
Total	**0.0576**	**0.0363**	**0.4910**	**1.6400e-003**	**0.1677**	**1.1100e-003**	**0.1688**	**0.0445**	**1.0200e-003**	**0.0455**		**163.5065**	**163.5065**	**3.7300e-003**		**163.5997**

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	1.1547	11.5873	11.8076	0.0178		0.6565	0.6565		0.6051	0.6051	0.0000	1,709.2180	1,709.2180	0.5417		1,722.7605
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1547**	**11.5873**	**11.8076**	**0.0178**		**0.6565**	**0.6565**		**0.6051**	**0.6051**	**0.0000**	**1,709.2180**	**1,709.2180**	**0.5417**		**1,722.7605**

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

3.6 Paving - 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	0.0576	0.0363	0.4910	1.6400e-003	0.1677	1.1100e-003	0.1688	0.0445	1.0200e-003	0.0455		163.5065	163.5065	3.7300e-003		163.5997
Total	**0.0576**	**0.0363**	**0.4910**	**1.6400e-003**	**0.1677**	**1.1100e-003**	**0.1688**	**0.0445**	**1.0200e-003**	**0.0455**		**163.5065**	**163.5065**	**3.7300e-003**		**163.5997**

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	21.4381					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	**21.6803**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

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	0.0346	0.0218	0.2946	9.8000e-004	0.1006	6.7000e-004	0.1013	0.0267	6.1000e-004	0.0273		98.1039	98.1039	2.2400e-003		98.1598
Total	**0.0346**	**0.0218**	**0.2946**	**9.8000e-004**	**0.1006**	**6.7000e-004**	**0.1013**	**0.0267**	**6.1000e-004**	**0.0273**		**98.1039**	**98.1039**	**2.2400e-003**		**98.1598**

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	21.4381					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	**21.6803**	**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**

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

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	0.0346	0.0218	0.2946	9.8000e-004	0.1006	6.7000e-004	0.1013	0.0267	6.1000e-004	0.0273		98.1039	98.1039	2.2400e-003		98.1598
Total	**0.0346**	**0.0218**	**0.2946**	**9.8000e-004**	**0.1006**	**6.7000e-004**	**0.1013**	**0.0267**	**6.1000e-004**	**0.0273**		**98.1039**	**98.1039**	**2.2400e-003**		**98.1598**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

	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	0.8488	23.2613	10.3183	0.0774	2.9249	0.0726	2.9976	0.7964	0.0691	0.8655		8,417.1385	8,417.1385	0.7264		8,435.2983
Unmitigated	0.8488	23.2613	10.3183	0.0774	2.9249	0.0726	2.9976	0.7964	0.0691	0.8655		8,417.1385	8,417.1385	0.7264		8,435.2983

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Unrefrigerated Warehouse-No Rail	301.20	301.20	301.20	1,290,848	1,290,848
Total	301.20	301.20	301.20	1,290,848	1,290,848

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
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Unrefrigerated Warehouse-No Rail	0.558976	0.043534	0.043534	0.043534	0.016111	0.005791	0.025447	0.400000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

	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	2.6200e-003	0.0238	0.0200	1.4000e-004		1.8100e-003	1.8100e-003		1.8100e-003	1.8100e-003		28.5343	28.5343	5.5000e-004	5.2000e-004	28.7039
NaturalGas Unmitigated	2.6200e-003	0.0238	0.0200	1.4000e-004		1.8100e-003	1.8100e-003		1.8100e-003	1.8100e-003		28.5343	28.5343	5.5000e-004	5.2000e-004	28.7039

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

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					
Unrefrigerated Warehouse-No Rail	242.542	2.6200e-003	0.0238	0.0200	1.4000e-004		1.8100e-003	1.8100e-003		1.8100e-003	1.8100e-003		28.5343	28.5343	5.5000e-004	5.2000e-004	28.7039
Total		**2.6200e-003**	**0.0238**	**0.0200**	**1.4000e-004**		**1.8100e-003**	**1.8100e-003**		**1.8100e-003**	**1.8100e-003**		**28.5343**	**28.5343**	**5.5000e-004**	**5.2000e-004**	**28.7039**

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					
Unrefrigerated Warehouse-No Rail	0.242542	2.6200e-003	0.0238	0.0200	1.4000e-004		1.8100e-003	1.8100e-003		1.8100e-003	1.8100e-003		28.5343	28.5343	5.5000e-004	5.2000e-004	28.7039
Total		**2.6200e-003**	**0.0238**	**0.0200**	**1.4000e-004**		**1.8100e-003**	**1.8100e-003**		**1.8100e-003**	**1.8100e-003**		**28.5343**	**28.5343**	**5.5000e-004**	**5.2000e-004**	**28.7039**

6.0 Area Detail

6.1 Mitigation Measures Area

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

	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	2.2742	1.0000e-004	0.0104	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0223	0.0223	6.0000e-005		0.0238
Unmitigated	2.2742	1.0000e-004	0.0104	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0223	0.0223	6.0000e-005		0.0238

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	0.2584					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.0148					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.7000e-004	1.0000e-004	0.0104	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0223	0.0223	6.0000e-005		0.0238
Total	**2.2742**	**1.0000e-004**	**0.0104**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0223**	**0.0223**	**6.0000e-005**		**0.0238**

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

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	0.2584					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.0148					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	9.7000e-004	1.0000e-004	0.0104	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0223	0.0223	6.0000e-005		0.0238
Total	**2.2742**	**1.0000e-004**	**0.0104**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0223**	**0.0223**	**6.0000e-005**		**0.0238**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

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

La Habra Euclid Street (Industrial Alternative) - Orange County, Summer

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

EMFAC2017 (v1.0.2) Emission Rates
Region Type: Air District
Region: SOUTH COAST AQMD
Calendar Year: 2019
Season: Summer
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HT

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips
SOUTH CO	2019	T7 single c	Aggregatec	Aggregatec	DSL	7365.488	512176.4	33299.08

'SK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN

ROG_RUNE	ROG_IDLEX	ROG_STRE	ROG_HOTS	ROG_RUNL	ROG_RESTI	ROG_DIUR	TOG_RUNE	TOG_IDLEX
0.278745	1.897742	0	0	0	0	0	0.31733	2.160434

TOG_STRE	TOG_HOTS	TOG_RUNL	TOG_RESTI	TOG_DIURI	CO_RUNEX	CO_IDLEX	CO_STREX	NOx_RUNE
0	0	0	0	0	1.061113	14.59288	0	6.292809

NOx_IDLEX	NOx_STREX	CO2_RUNE	CO2_IDLEX	CO2_STREX	CH4_RUNE	CH4_IDLEX	CH4_STREX	PM10_RUN
26.13273	2.127845	1543.254	3273.996	0	0.012947	0.088145	0	0.157637

PM10_IDLE	PM10_STR	PM10_PMT	PM10_PME	PM2_5_RU	PM2_5_IDI	PM2_5_STI	PM2_5_PM	PM2_5_PM
0.131369	0	0.036	0.06174	0.150818	0.125686	0	0.009	0.02646

SOx_RUNE	SOx_IDLEX	SOx_STREX	N2O_RUNE	N2O_IDLEX	N2O_STREX
0.01458	0.030931	0	0.242578	0.514627	0

FEBRUARY 8, 2019 (REVISED JUNE 5, 2019)
PROJECT # P1E 2019-01-09

SUBJECT SITE
104, 110, 116, AND 118 EAST ELECTRIC AVENUE
LA HABRA, CA 90631
APN: 022-193-01, 022-193-02, 022-193-03 and, 022-193-56

LAT: 33.927801, LONG: -117.945575

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT REPORT

PREPARED FOR:
BONANNI DEVELOPMENTS, INC. C/O
STRATA-TECH, INC.
STRATATECH@YAHOO.COM,
(310) 968-2999

FEBRUARY 8, 2019
(REVISED JUNE 5, 2019)
P1E 2018-01-09

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT REPORT
104, 110, 116, AND 118 EAST ELECTRIC AVENUE, LA HABRA, CA 90631

Table of Contents

1.0 EXECUTIVE SUMMARY 3
2.0 INTRODUCTION 6
2.1 Location and Legal Description 6
2.2 Site and Vicinity General Characteristics 6
2.3 Description of Improvements on Property 6
2.4 Current Uses of Adjoining Properties 7
2. 5 Purpose 7
2.6 Detailed Scope-of-Work 7
2.7 Significant Assumptions 8
2.8 Limitations and Exceptions 8
2.9 Special Terms and Conditions 8
2.10 User Reliance 8
3.0 USER PROVIDED INFORMATION 9
3.1 Title Records 9
3.2 Environmental Liens or Activity and Use Limitations 9
3.3 Specialized Knowledge 9
3.4 Commonly Known or Reasonably Ascertainable Information 9
3.5 Valuation Reduction for Environmental Issues 9
3.6 Owner, Property Manager, and Occupant Information 9
3.7 Reason for Performing Phase 1 9
3.8 Other 9
4.0 RECORDS REVIEW 10
4.1 EDR Map Findings 10
4.2 Subject Site 14
4.3 Adjacent Properties 14
4.4 Surrounding Properties 14
4.5 Orphan Properties 17
4.6 Physical Setting Sources 17
4.7 Sanborn Insurance Maps 17
4.8 Historical Aerial Photographs 18
4.9 Historical Topographic Maps 21
4.10 City Directories 22
4.11 Building Records 23
5.0 SUBJECT PROPERTY RECONNAISSANCE 24
5.1 Methodology and Limiting Conditions 24
5.2 Subject Property Reconnaissance 24
5.3 Detailed Observations 25
6.0 INTERVIEWS 27
6.1 Interview with Owner or Site Manager 27
6.2 Interview with Local Government Officials 27
7.0 EVALUATIONS 28
7.1 Findings 28
7.2 Opinions 28
7.3 Conclusions 30
7.4 Recommendations 30
7.5 References 31
7.6 Professional Signature 31
8.0 NON-SCOPE SERVICES 32
9.0 APPENDIX 32

FEBRUARY 8, 2019
(REVISED JUNE 5, 2019)
P1E 2018-01-09

Bonanni Developments, Inc. C/o
Starta-Tech, Inc.
(310) 968-2999
Startatech@yahoo.com

Subject: Phase 1 Environmental Site Assessment for
104, 110, 116, and 118 East Electric Avenue
La Habra, CA 90631
APNs: 022-193-01, 022-193-02, 022-193-03, and 022-193-56
Lat: 33.927801 Long: -117.945575

As requested by Mr. Bonanni, we have prepared an Environmental Site Assessment (Phase 1) for the property located at 104, 110, 116, and 118 East Electric Avenue, La Habra, CA 90631. The property is identified by the Assessor's Parcel Numbers (APNs) 022-193-01, 022-193-02, 022-193-03, and 022-193-56. This report was produced in accordance with the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments: Phase 1 Environmental Site Assessments Process (ASTM 1527-13) and is in general compliance with the All Appropriate Inquiries (AAI) rule.

1.0 EXECUTIVE SUMMARY

A Phase 1 Environmental Site Assessment has been conducted for the subject property, the Opinion, Conclusions and Recommendations are provided below.

Findings

1) **Site Legal Description:** The subject property consists of four parcels, located at 104, 110, 116, and 118 East Electric Avenue, La Habra, CA 90631. The property is identified by the Assessor's Parcel Numbers (APNs) 022-193-01, 022-193-02, 022-193-03, and 022-193-56.

2) **104 East Electric Avenue:** Based on the aerial photos the existing structure was constructed sometime between 1938 and 1947 with additions between 1977 and 1981. In 1966, The site is listed under the name Phyllis Barraza. From 1981 to 1983, the south portion of the property is lined with parked autos and trucks. In 1992 the property is listed under the name Ches Equipment Rental. As Hutcherson Electric from 1992 to 1995. Under the name June Cheshire and Fodor's Diesel Service in 2000. Production Plumbing in 2005, Fodor's Diesel Service in 2010 and Anthony R. Sarmiento from 2010 to 2014. Currently the property appears to be two residential units (104 and 106 E Electric Ave) and two fenced areas used truck and equipment storage.

   Building Permit records located with the City of La Habra show a permit for a 4,000-gallon Underground storage tank was issued in 1980. Bureau of Fire Prevention documents provided by the client; a 4,000-gallon UST was removed without permit in 1990. On April 4, 1990, Sandie Hastings of the La Habra Fire

Department visited the site and found that Mr. Jim Cheshire had rinsed the tank with a steam cleaner and soap and allowed the rinsate/bubbles to drain the storm drain. A permit was issued on April 5, 1990 for removal of the UST. One soil sample was collected from the tank pit and spoil pile. The samples were collected by Mr. Jim Cheshire and were reported as Non-Detect for Total Hydrocarbons, Benzene, Toluene, Ethyl Benzene, and Total Xylenes.

3) **110 East Electric Avenue:** Prior to 1938 the subject property is vacant land. By 1947 a structure is located along the north side of 110 East Electric Avenue. In 1966, the site is listed under the name C. Bush, in 1972 Edward Duarte. From 1977 to 2000 under the name Elmer w. Olson & Sons, Inc. A building permit was issued in 1987 to demolish the structure on the north side of the property. In 1992, the site is also listed under the name Earth Excavation Inc. and from 1995 to 2000 under the name Jesus Lozano. In 2014, the site is listed under the name Manuel Ruelas.

4) **116 East Electric Avenue:** In 1928, a structure is existing on 116 East Electric Avenue. By 1966, a second structure is existing on the property. In 1966, the property is listed under the name Jimmy E. Ramirez. In 1970, a pair of smaller structures have replaced the structure southeast corner of the property. In 1972 the site is listed under the name Ismael Hurtado. A building permit was issued in 1986 to demolish the structure on the north side of the property. In 2005, under the name Star Flooring. By 2009, the structure on the north side of the property has been removed. From 2012 to 2016, a shipping container is located in the mid portion of the property. The property is currently vacant land.

5) **118 East Electric Avenue:** From 1928 to 1953 the property appears to be primarily used as residential. By 1963, the site appears to be used for industrial and/or storage. From the 1970s to 2016, the site is used as storage. The parcel is currently used to store metal shipping containers, large metal trash containers and miscellaneous metal construction material.

6) **Site Observation:** The subject site is currently used as two residential units 104 and 106 East Electric Avenue, two fenced areas used as storage for tenants and two vacant lots. 118 East Electric Avenue is currently used to store metal shipping containers, large metal trash containers and miscellaneous metal construction material. No significant staining was observed from the north and west boundaries of the subject property. No significant staining was observed from East 4th Avenue of the vacant lot used for metal storage.

7) **Local Records Review:** Orange County Department of Environmental Health was contacted as part of the records review of the subject property. No records were found for the subject property. Building permits were provided by the City of La Habra Clerk's offices and indicate that the buildings located on 110 and 116 East Electric Street were demolished in 1986 and 1987. No City of La Habra Fire Department records were located for the subject property.

8) **EDR Findings for Subject Site:** The subject property was listed in Environmental Records Sources searched under the UST and HAZMAT databases.

9) **EDR Radius Report Findings:**

EDR reports two (2) SEM-ARCHIVE sites within the searched parameters of the subject property.
EDR reports one (1) CORRACTS site within the searched parameters of the subject property.
EDR reports two (2) RCRA-LQG sites within the searched parameters of the subject property.
EDR reports four (4) RCRA-SQG sites within the searched parameters of the subject property.
EDR reports one (1) RESPONSE site within the searched parameters of the subject property.
EDR reports nine (9) ENVIROSTOR sites within the searched parameters of the subject property.

EDR reports one (1) SWF/LF site within the searched parameters of the subject property.
EDR reports thirty (30) LUST sites within the searched parameters of the subject property.
EDR reports one (1) CPS-SLIC site within the searched parameters of the subject property.
EDR reports eleven (11) UST sites within the searched parameters of the subject property.
EDR reports one (1) VCP site within the searched parameters of the subject property.
EDR reports one (1) SWRCY site within the searched parameters of the subject property.
EDR reports twelve (12) CERS HAZ WASTE sites within the searched parameters of the subject property.
EDR reports three (3) CA FID UST sites within the searched parameters of the subject property.
EDR reports seven (7) HIST UST sites within the searched parameters of the subject property.
EDR reports three (3) SWEEPS UST sites within the searched parameters of the subject property.
EDR reports seven (7) RCRA-NonGen site within the searched parameters of the subject property.
EDR reports ten (10) HIST CORTESE sites within the searched parameters of the subject property.
EDR reports one (1) HWP sites within the searched parameters of the subject property.
The Orphan Site List was Review. Five Orphan Sites were reviewed. Of the five sites listed; two sites were located within the searched radius of the subject property.

Opinions

10) **Recognized Environmental Conditions:** Limited sampling of the tank pit and spoils pile, removal of the tank without permit, allowing of the rinsate from the tank to flow into a drain, and the fact the samples were collected by the owner of the property, Jim Cheshire, which creates a potential conflict of interest and calls into question the creditability of the work conducted. In addition, no closure letter was located with the City of La Habra or Orange County's Environmental Health Division, the lack of records found in regard to proper tank removal procedures and sampling results following a UST removal creates a significant data gap and is considered a REC.

11) **Recognized Environmental Condition:** The likely presence of contaminated groundwater at the Property based on indicated groundwater directional flow running from upgradient site 311 East 4th Street toward the Property constitutes a REC.

12) **Environmental Business Risks:** Based on the age of the structure, the potential for asbestos containing material (ACM) and lead-based paint to be present on the subject property is high.

Conclusions

13) We have performed a Phase 1 Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 for the subject property, which consists of four parcels, located at 104, 110, 116, and 118 East Electric Avenue, La Habra, CA 90631. The property is identified by the Assessor's Parcel Numbers (APNs) 022-193-01, 022-193-02, 022-193-03, and 022-193-56. The subject property was listed in the Environmental Records Sources searched under the UST and HAZMAT databases. Any exceptions to, or deletions from, this practice are described in the Limitations Section of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the subject property; except for the following:
    - Limited sampling of the tank pit and spoils pile, illegal removal of the tank, allowing of the rinsate from the tank to flow into a drain, and the fact the samples were collected by the owner of the property, Jim Cheshire; creates a potential conflict of interest and calls into question the creditability of the work conducted. The lack of records found in regard to proper tank removal procedures and sampling results following a UST removal creates a significant data gap and is considered a REC.
    - The likely presence of contaminated groundwater at the Property based on indicated groundwater directional flow running from upgradient site 311 East 4th Street toward the Property constitutes a REC.

Recommendations

Additional Environmental Investigations are recommended in the area of the former UST located near the center area of 104 East Electric Avenue, upgradient groundwater samples should be collected to determine if the upgradient property has impacted the subject property.

2.0 INTRODUCTION

2.1 Location and Legal Description

The subject property consists of three parcels, located at 104, 110, and 116 East Electric Avenue, La Habra, CA 90631. The property is identified by the Assessor's Parcel Numbers (APNs) 022-193-01, 022-193-02, 022-193-03, and 022-193-56. A site vicinity map and a generalized location map are located on in Appendix 9.2.

2.2 Site and Vicinity General Characteristics

The subject property is located in the city of La Habra, in Orange County, California. Located at the southeast corner of the intersections of Euclid Street and East Electric Avenue, approximately a quarter mile north of the intersections of Lambert Road and Euclid Street. Surrounding properties consists of industrial and residential with railroad tracks to the north and a stormwater channel to the south.

2.3 Description of Improvements on Property

The subject property consists of an approximately 1.4-acres with a roughly 1,200 square foot single-story duplex residential structure located on the northeast portion of 104 East Electric Avenue. The west portions of 104 East Electric Avenue are divided into two areas by chain-link fencing and are used by contractors as storage. 110 and 116 East Electric Avenue are currently vacant lots. 118 East Electric Avenue is currently a 1.2-acre vacant lot.

2.4 Current Uses of Adjoining Properties

Direction	Type of Use
North	East Electric Avenue – Railroad Tracks.
East	Industrial – Used to store shipping containers.
South	Stormwater channel – Tract of Single-Family Homes.
West	100 West Electric Avenue – Multi-family Dwelling.

2. 5 Purpose

The purpose of this Phase 1 Environmental Site Assessment is to identify to the extent feasible recognized environmental conditions (REC) in connection with the property. Following the processes prescribed by the AAI rule and in ASTM Standard E1527-13, Standard Practice for Environmental Site Assessments: Phase 1 Environmental Site Assessment process.

- As defined by ASTM E1527-13, §1.1.1, the term "recognized environmental conditions" is defined as follows: *"The presence or likely presence of any hazardous substance or petroleum products in, on or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions."*

- As defined by ASTM E1527-13, §3.2.18, the term "controlled recognized environmental condition" is defined as follows: *"A recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls)."*

- As defined by ASTM E1527-13, §3.2.42, the term "*historical recognized environmental condition"* is defined as follows: *"A past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls)."*

2.6 Detailed Scope-of-Work

The scope of work performed for this Phase 1 Environmental report includes:

- Collecting and reviewing available environmental related information concerning the property and other data pertinent to the specific site per the ASTM standard 1527;

- Conducting a site visit to observe current site uses, observe adjacent land use, and gather data on possible spills, or misuse of chemicals that could be considered a REC;

- Contracting appropriate regulatory personnel and reviewing regulatory files regarding the property in question.

No additional non-scope considerations per Section 13 of ASTM 1527-13 were included in this Phase 1 Report including sections 13.1.5.1 to 13.1.5.14.

2.7 Significant Assumptions

No Significant assumptions were made in this assessment.

2.8 Limitations and Exceptions

Limitations

This report is applicable only for the project and site studied. Report findings and statements of professional opinion do not constitute a guarantee or warranty, expressed or implied. This report contains information and data provided by others and Priority One Environmental, Inc. in no way warrants the accuracy or completeness of the information provided by those sources. Our services are performed in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. This report is prepared using the ASTM Standard E1527-13 and includes several inherent limitations, including but not limited to: Section 4.5.1 - Uncertainty Not Eliminated, Section 4.5.2 - Not Exhaustive, Section 7.4 - No Sampling, and Section 7.5.2.1 - Reliance.

Exceptions

No exceptions to or deviations from the ASTM standard 1527-13 were made during the course of our work except for the following:

- *No Interviews were conducted with local agencies as part of this assessment. Relevant local agencies for the area have policies of referring requests for interviews to their file review departments.*

These limitations are not anticipated to represent a significant data gap for the investigation.

2.9 Special Terms and Conditions

We have been authorized by **Mr. Ed Bonanni** to perform a Phase 1 environmental site assessment of the subject property. It is our understanding that **Mr. Ed Bonanni** will use the information contained in the report for due diligence and innocent landowner's protection under CERCLA. Without prior written consent of the client, Priority One Environmental, Inc. will keep confidential and not disclose to any person or entity, and data or information provided by the client or generated in conjunction with the performance of this study, except when required by law. Provisions of confidentiality shall not apply to data or information obtained from the public domain or acquired from third parties not under obligation to the client to maintain confidentiality.

2.10 User Reliance

This report was prepared for the exclusive use of **Mr. Ed Bonanni and Bonanni Developments, Inc.** No other person or entity is entitled to rely upon this report without the specific written authorization of Priority One Environmental, Inc. Such reliance is a subject to the same limitations, terms, and conditions as the original contract with the client.

Priority One Environmental, Inc. specifically disclaims any responsibility for any unauthorized use of this report. Based on the ASTM standard this Phase 1 report is reliable for 180 days from the date the work was conducted.

3.0 USER PROVIDED INFORMATION

3.1 Title Records

No Preliminary Title Report was provided for review.

3.2 Environmental Liens or Activity and Use Limitations

No Additional information was provided identifying actual knowledge of environmental liens or activity and use limitations recorded against the subject property. The California State Department of Toxic Substances website EnviroStor was searched and no environmental liens placed by the State environmental agency for the subject site was found.

3.3 Specialized Knowledge

No information was provided identifying specialized knowledge or experience that is material to recognized environmental conditions in connection with the subject property.

3.4 Commonly Known or Reasonably Ascertainable Information

No information was provided identifying knowledge of commonly known or reasonably ascertainable information related to the subject property.

3.5 Valuation Reduction for Environmental Issues

No Information was provided identifying knowledge of valuation reduction of the subject property.

3.6 Owner, Property Manager, and Occupant Information

Information provided by the owner of the subject property is discussed in Section 6.0 of this report.

3.7 Reason for Performing Phase 1

The Phase 1 has been requested by the client for the use in the redevelopment of the subject property.

3.8 Other

No other information was provided for review related to the subject property.

FEBRUARY 8, 2019
(REVISED JUNE 5, 2019)
P1E 2018-01-09

4.0 RECORDS REVIEW

4.1 EDR Map Findings

The subject property is located at 104, 110, 116, and 118 East Electric Avenue, La Habra, CA 90631. The property is identified by the Assessor's Parcel Numbers (APNs) 022-193-01, 022-193-02, 022-193-03, and 022-193-56. The subject property was listed in the Environmental Records searched under the UST and HAZNET databases.

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		2	0	0	NR	NR	2
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	1	NR	1
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		2	0	NR	NR	NR	2
RCRA-SQG	0.250		2	2	NR	NR	NR	4
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	1	NR	1
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		5	0	0	4	NR	9
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	1	NR	NR	1
State and tribal leaking storage tank lists								
LUST	0.500		5	4	21	NR	NR	30

FEBRUARY 8, 2019
(REVISED JUNE 5, 2019)
P1E 2018-01-09

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	1	NR	NR	1
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250	1	5	5	NR	NR	NR	11
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		1	0	0	NR	NR	1
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		1	0	0	NR	NR	1
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
CERS HAZ WASTE	0.250		3	9	NR	NR	NR	12
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
PFAS	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		2	1	NR	NR	NR	3
HIST UST	0.250		3	4	NR	NR	NR	7
CA FID UST	0.250		2	1	NR	NR	NR	3
CERS TANKS	0.250		0	1	NR	NR	NR	1
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
Orange Co. Industrial Site	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		2	5	NR	NR	NR	7
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	0.001		0	NR	NR	NR	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.001		0	NR	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0

FEBRUARY 8, 2019
(REVISED JUNE 5, 2019)
P1E 2018-01-09

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		3	1	6	NR	NR	10
HWP	1.000		0	0	0	1	NR	1
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.001		0	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001		0	NR	NR	NR	NR	0
CERS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		1	38	33	29	7	0	108

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

For the full name, description, and the date each of the databases were last updated, please refer to the Government Record section of the EDR® Report.

4.2 Subject Site

EDR Reports the site was listed in two databases: UST and HAZNET.

104 East Electric Avenue was listed under the UST database. The facility ID number is 5883.

HAZNET.			
110 East Electric Avenue.			
Year	**Waste Categories**	**Disposal**	**Tons**
2012	Not Reported.	Other Recovery of Reclamation for reuse including regeneration, organics recovery, etc.	0.133

Record requests to the Orange Counter Department of Environmental Health and the City of La Habra's clerks' offices were submitted and are discussed in section 6.2

4.3 Adjacent Properties

The adjacent property to the east was listed under the UST, LUST, and HIST CORTESE database.

Site Name(s)	Address	Distance	Databases
Charles Wolfarth	240 E 4th Ave Adjacent property	13' ESE	UST, LUST, HIST CORTESE, CERS
Comments: The status of the LUST case is completed case closed as of June 20, 1990. The potential media affected was soil and the potential contaminants of concern was gasoline. Leak was discovered during Tank Closure. The lead agency was Orange County LOP. Based on the regulatory oversight and media impacted, this site is not anticipated to impact the subject property.			

4.4 Surrounding Properties

Several nearby cases are discussed below:

Site Name(s)	Address	Distance	Databases
Arnold Electronics **Arnold Circuits, Inc.**	310 E 4th Ave	94' ESE	SEMS-ARCHIVE, RCRA-SQG, HIST UST, EMI, ENVIROSTOR, UST, HIST UST, WDS, SWEEPS UST, CA FID UST, CIWQS
Comments: Two ENVIROSTOR cases are listed for this site, the newer of the ENVIROSTOR cases is Refer Local Agency as of May 7, 2015. The site type is a tier permit. The older is Refer: other Agency, site type is historical. The potential contaminant of concern is an unspecified acid solution. Preliminary Assessment Report, dated September 11, 1989 concluded, no further action for DHS and EPA Seven USTs are listed under the HIST UST database. Tank sizes range from 200-2,200-gallons and used to store waste.			

A violation was listed under the RCRA-SQG database for Generators – General dated February 21, 1992. Compliance was achieved on February 21, 1997. A Stormwater Industrial permit was terminated on August 10, 2000.

Additional information for this site was located on ENVIROSTOR. No Further Investigation is required per Phase I Environmental Assessment Checklist on file. Manifest lists 711 Liquids with Cyanides >= 1000 MG/L 1.36730 T.

Based on regulatory oversight's no further investigation is required, this site is not anticipated to impact the subject property.

Site Name(s)	Address	Distance	Databases
Graham's Towing **Grafton Construction**	311 E 4th Ave	128' East	LUST, UST, ENVIROSTOR, SWEEPS UST, CA FID UST, HIST UST.

Comments: The status of the LUST case is closed as of May 28, 1998. The substance release was diesel fuel oil and additive Nos. 1-D, 2-D, 2-4; Gasoline-Automotive, leaded & unleaded. The media impacted was Other Groundwater (uses other than drinking water). The ENVIROSTOR case is listed as refer local agency as of January 11, 2011. The potential contaminants of concern were Sludge – paint, empty containers, less than 30-gallons, other pesticide containers, 30-gallons or more. The SWEEPS UST database lists three 500-gallon USTs containing Diesel.

Additional information for this site was located on ENVIROSTOR. A site history is copied below:

> *The subject property is located on the north side of 4th Avenue, west of Cypress Street, in La Habra, California. The east portion of the property has been paved with concrete and a small, single-story structure occupies a portion of the level pad. Graham Towing operates on this portion of the property. The west portion of the property is vacant and is used by Graham Towing as a parking area. The three monitoring wells installed as part of the investigation on this portion of the property, near where three diesel, 550-gallon USTs had been removed. On April 13, 1992, three diesel, 550-gallon USTs were removed from the site under the observation of OCHCA. On June 11, 1992, four additional soil samples were collected from the UST excavation under the direction of OCHCA. On August 21, 1992, GeoResearch submitted to OCHCA a work plan to drill three borings in the vicinity of the UST excavation and covert the borings to ground-water monitoring wells (GeoResearch, 1992). According to Envirostor, in 1982 a drive-by inspection was conducted in which 100 paint and finish containers, in rusting and leaking condition, were observed on the site.*

A site screening assessment from 2008 refer the site to the local regulatory agency (Orange County EHD). The screening lists results of a groundwater sampling event from 1996. Groundwater depth is reported at 13'. TPH-G (9,000 ug/l), TPH-D (2,000 ug/l), Benzene (420 ug/l), Toluene (590 ug/l), Ethylbenzene (510 ug/l), and Xylene (1,000 ug/l) were detected in the samples. The likely presence of contaminated groundwater at the Property based on indicated groundwater directional flow running from said upgradient site toward the Property constitutes a REC.

Site Name(s)	Address	Distance	Databases
Packers Cold Storage	310 S Euclid St	416' NNW	LUST, UST, HIST UST.

Comments: The status of the LUST case is completed – case closed as of August 1, 2000. The potential media affected was Aquifer used for drinking water supply and the potential contaminants of concern was diesel. Leak

was discovered and stopped in 1986. Site assessments occurred in 1987 and 1990, and remediation occurred between 1990 and 1994 with verification monitoring in 1998. The case was closed in 2000.

Site Name(s)	Address	Distance	Databases
LA HABRA/BRIO	300 S Euclid St	470' NNW	ENVIROSTOR, VCP, EMI
Comments: The status of the ENVIROSTOR case is No Further Action as of 2012. The confirmed contaminants of concern were Tetrachloroethylene (PCE), Trichloroethylene (TCE), and Dichloroethylene. The potential description was soil and soil vapor.			

Site Name(s)	Address	Distance	Databases
Crosby Fruit Product	300 S Main St	647' NNE	ENVIROSTOR, UST, FINDS, ECHO, SEMS-ARCHIVE, RCRA-SQG.
Comments: The status of the ENVIROSTOR case is No Further Action as of 1990. The site type is historical. Past use is listed as Manufacturing – Other. Potential COC – Household Wastes, other organic solids, contaminated soil. No Confirmed COCs specified. A site screening by the EPA states "No History of hazardous substances handled at this site. Preliminary assessment performed by the EPA's FIT E&E recommended NFA and the Department occurs". No violations were found under the RCRA-SQG database. The site is listed under the UST database; however, no additional information beyond a facility ID was listed in the EDR Radius Report.			

Site Name(s)	Address	Distance	Databases
City Ventures Communities, LLC.	201 E La Habra Blvd.	1,426' North	LUST, NPDES, WDS, CERS
Comments: The status of the LUST case is Open – Assessment & Interim Remedial Action. The potential media affected is Aquifer used for drinking water supply and the potential containments of concern is Gasoline. A Site history was listed and is copied below: *Stantec had, in August of 2015, conducted Phase II Environmental Assessment that focused on potential presence of pesticides, metals, TPHg, and VOCs in soil vapor from past agricultural use, former sheet metals shop, fire station, and a paint company operated in the 1920s and 1930s. The February 26, 2016 Workplan For Additional Soil and Soil Vapor Sampling was to further investigate known and potential soil and soil vapor impacts associated with the past uses at the property.* The case was opened in August 2015, A soil vapor intrusion investigation report was done in May 2016 and a site assessment was done in June 2016. A request for closure was submitted in November 2016. According to GEOTRACER, the case is completed case closed as of February 4, 2019. A Case Closure/No Further Action Letter, Dated February 4, 2019 was located on GEOTRACKER.			

The remaining cases listed in the EDR Radius Report were for regulatory database listings, permitted facilities listings, closed/remediated cases, and historical database listings; including sites which, based on indicated groundwater directional flow and their distances, are not anticipated to impact the Subject Property.

4.5 Orphan Properties

Four Orphan Sites were reviewed. Of the four sites listed; one site was located within the searched radius of the subject property. The site is discussed below:

- Packers Cold Storage is located at 310 Euclid Street (0.079 miles to the north) and is listed under the LUST database. The status of the LUST is completed case closed as of 1993. Based on the closure by the local regulatory agency and the distance to the subject property, this case is not anticipated to impact the subject property.

4.6 Physical Setting Sources

According to the most recent USGS Topographic map covering to subject property and vicinity, the subject property is slopes gently to the stormwater channel to the south side of the subject property and lies at approximately 281 feet above sea-level. The regional topography slopes to the southwest.

According to EDR GEOCHECK the south portion of the subject property is mapped as a Loam soils with a Hydrologic Group Classification of Class B. Class B is defined as soils with moderate infiltration rates with deep and moderately deep, moderately well and well drained soils with moderately coarse textures. The soils have a high corrosion potential versus uncoated steel. The north portion of the subject property is mapped as a Loam soils with a Hydrologic Group Classification of Class D. Class D is defined as soils with very slow infiltration rates. Soils are clayey, have a high-water table, or are shallow to an impervious layer. The soils have a high corrosion potential versus uncoated steel.

The average groundwater well depth within one quarter (0.25) miles of the site is approximately 11-18 feet below the ground surface and 17-21 feet below ground surface at one half (0.50) miles from the site. Groundwater flow is mapped to the southwest.

According to State Database: CA Radon, the subject site is located within zipcode: 90631. Zipcode 90631 had 36 tests with 5 tests above >4 pCi/L. Federal EPA Radon Zone for Orange County is 3. No interior or exterior radon measurements were performed as part of this report.

4.7 Sanborn Insurance Maps

An attempt was made by EDR to obtain Sanborn Insurance Company maps for the period covering the years 1860 through the present in order to determine what types of activities were conducted on the subject property and on adjoining properties. Three Sanborn Maps were found and are discussed below:

1920 SANBORN MAP	
Subject Property	Not Mapped.
North	Railroad to the north is not mapped. Beyond the location of the railroad is a Citrus Nursery and La Habra Citrus Association.
East	Not Mapped.
West	Not Mapped.
South	Not Mapped.

1926 SANBORN MAP	
Subject Property	Not Mapped.
North	Pacific Electric Railroad Freight and Passenger Station. Beyond the station is a Lemon and Orange Packing Warehouse and La Habra Citrus Association.
East	Not Mapped.
West	Not Mapped.
South	Not Mapped.

1933 SANBORN MAP	
Subject Property	Not Mapped.
North	Pacific Electric Railroad Freight and Passenger Station. Beyond the station is a Lemon and Orange Packing Warehouse and La Habra Citrus Association.
East	Not Mapped.
West	Not Mapped.
South	Not Mapped.

4.8 Historical Aerial Photographs

Aerial photographs of the subject property provided by EDR were reviewed as part of this investigation.

Subject Property	**Year(s)**	**Description**
	1928	The subject street is existing along the north side of the subject property. The stormwater channel is existing along south edge of the subject property. A structure is existing on the northeast portion of the subject property in the area of 116 East Electric Avenue. A structure is existing on the northwest portion of the eastern parcel.
	1938	The subject property appears similar to 1928.
	1947	An additional structure has been developed on northeast portion of parcel 104 East Electric Avenue. Two structures are visible in the area of 110 and 116 East Electric Avenue which share a common driveway with the structure on the northwest portion of the eastern parcel.
	1953	A small garage structure is existing west of the structure on 104 East Electric Avenue. Two structures are visible in the area of 110 and 116 East Electric Avenue. Several structures have been developed 118 East Electric Avenue.

	1963	Four structures are visible on the north side of the property similar to 1953. A rectangle structure is located on the southeast side of 116 East Electric Avenue. A rectangle structure is located on the south side of 118 East Electric Avenue along the stormwater channel.
	1970	A pair of smaller structures have replaced the rectangle structure in the southeast corner of 116 East Electric Avenue. Portions of the west and east sides of the 118 East Electric Avenue are used for storage, possibly equipment and construction supplies.
	1977	The western portion of 104 East Electric Avenue appears to be divided into two fenced areas. The west fenced area along Euclid Street has four trucks or autos parked on it. The inner fenced area appeared to be used for storage with at least one auto parked on the north side of the fenced area. The structures in the southeast corner are no longer present. The structures on the northwest and south sides of 118 East Electric Avenue have been removed. Several storage containers are located on the west side of the east parcel.
	1981/1983	An addition has been added between the residence and garage structures on 104 East Electric Avenue. South of the residence structure is numerous trucks and/or autos and extend below the structure on 110 East Electric Avenue. The two fenced areas on the west side of 104 are still existing and both appear to be used for storage. 118 East Electric Avenue is used for storage.
	1990/1994	Storage containers are visible on the mid portion of 104 East Electric Avenue. Much of the subject property appears to be used as storage for trucks/autos, and equipment. 118 East Electric Avenue is used for storage.
	2005	Similar use as previous years.
	2009	By 2009, the north structures on 110 and 116 East Electric Avenue have been removed. A structure or possibly a tarp is existing on the southwest side of 110 East Electric Avenue. 118 East Electric Avenue is used for storage..
	2012	A shipping container is located in the middle of 116 East Electric Avenue.
	2016	The shipping container is still located in the middle of 116 East Electric Avenue. The structure, or possible tarp in the southwest corner of 110 East Electric Avenue is still existing. The area south of the structure on 104 East Electric Avenue appears to be used less and has been divided into a three fenced area, which is vacant. The mid fenced area has the shipping containers that exist today. The western most fenced area along Euclid Street is vacant. 118 East Electric Avenue is used for storage.

Property to North	Year	Description
	1928-1938	The railroad is existing to the north with a station located along the east side of Euclid. North of the station is a large warehouse.
	1947-1953	The warehouse to the north has expanded to the east.
	1963	A warehouse to the northeast, north of the railroad tracks is under construction.
	1970	The warehouse to the northeast is existing.
	1977	The railroad station has been removed.
	1981-1983	The warehouses to the north and northeast appear similar as in 1970.
	1990-2005	The warehouse to the north has been removed.
	2009	The property north of the railroad tracks is being redeveloped into a residential condo.
	2012	The residential condos to the north appear to have been abandon during development.
	2016	The condos have been finished.

Property to South	Year	Description
	1928-1953	The wash or stormwater channel is existing to the south. South of the wash is a residence along Euclid Street.
	1963	By 1963, the tract of residential homes has been developed to the south of the stormwater channel.
	1970-2016	The tract of residential homes is existing to the south from 1970 to 2016.

Property to East	Year	Description
	1928-1938	The property to the east is vacant land.
	1938	The property to the east appears to be a very young orchard.
	1947	The property to the east is vacant land.
	1953	A structure has been developed to the east-southeast and the area adjacent to the east of the subject property appears to be used as storage.
	1963	East 4th Avenue has been developed into a dirt road. Several structures have been developed on the north and south sides of the street.

	1970	The property to the east on the south side of 4th Avenue has been redeveloped into a long rectangle industrial structure that extends to the east.
	1977-2016	The properties to the east along the north and south sides of 4th Avenue are appearing similar with a mix use of commercial and industrial.

Property to West	Year	Description
	1928-1938	From 1928 to 1938, the property to the west is vacant land.
	1947-1963	From 1947 to 1953 a residence is existing to the west.
	1970	From 1970 to 1977, the property to the west is vacant land.
	1981	By 1981, the apartments to the west have been developed.
	1983-2016	The apartments to the west are existing from 1983 to 2016.

These photos are included in the Appendix.

4.9 Historical Topographic Maps

Topographic maps of the subject property provided by EDR were reviewed as part of this investigation.

YEAR(S)	DESCRIPTION.
1896, 1898, 1901, 1902	The area of the subject property is undeveloped land. By 1901 and 1902, major roads to the west and east are mapped.
1935	By 1935, a structure is mapped on the mid portion and east portions of the subject property. The Pacific Railroad is mapped to the north with a station. A natural creek is mapped along the south boundary of the subject property. The topography slops to the creek to the southwest and the elevation of the subject property is approximately 250'.
1942	Two structures are located in the area of the subject property. An elevation benchmark located along the railroad tracks to the northwest is listed as 280'.
1950, 1952	The subject street has been developed. Three structures are located on the south side of East Electric Avenue.
1964	The structures are still mapped in the area of the subject property. The creek appears to be straight (concrete stormwater channel).
1972, 1981	Appears similar to previous date.
2012	Current Topographic Map.

These maps are included in the Appendix.

4.10 City Directories

A search of local historical city directories was conducted by EDR for the subject property. The review included directories in five-year intervals from 1920 to 2014 (as available).

104 East Electric Avenue	
Year(s)	**Listed Uses.**
1966	Phyllis Barraza.
1992	Ches Equipment Rental, Hutcherson Electric.
1995	Hutcherson Electric.
2000	June Cheshire, Fodors Diesel Service.
2005	Production Plumbing.
2010	Fodors Diesel Service, Sarmiento Anthony R.
2014	Sarmiento Anthony R.

106 East Electric Avenue	
Year(s)	**Listed Uses.**
2014	Jose Martinez.

110 East Electric Avenue	
Year(s)	**Listed Uses.**
1966	C. Bush.
1972	Edward Duarte.
1977, 1982, 1987	Elmer W. Olson & Sons, Inc.
1992	Elmer W. Olson & Sons, Inc., Earth Excavation Inc.
1995	Jesus Lozano, Elmer W. Olson & Sons, Inc.
2000	Jesus Lozano, Elmer W. Olson.
2014	Manuel Ruelas.

116 East Electric Avenue	
Year(s)	**Listed Uses.**
1966	Jimmy E. Ramirez.
1972	Ismael Hurtado.
2005	Star Flooring.
2010	Occupant Unknown.

No additional records were identified for the subject property based on the address provided. The surrounding properties are listed in detail in the attached Directory Search.

4.11 Building Records

104 East Electric Avenue	
Date of permit	**Permit**
1980	Permit for Underground Storage Tank containing gasoline. August 11, 1980. Remarks: Did not see storage tank – covered over with concrete slab.
1980	Concrete slab.

110 East Electric Avenue	
Date of permit	**Permit**
1987	Demo Permit. 1-story residence.

116 East Electric Avenue	
Date of permit	**Permit**
1986	Demo Permit. 1-story residence.

Based on the aerial photos, topographic maps of the site and the assessor records, the subject properties' existing structure was constructed sometime between 1938 and 1947, with additions between 1977 and 1981. The residence located at 110 East Electric Avenue was demolished in 1987 and the residence located at 116 East Electric Avenue was demolished in 1986. 118 East Electric Avenue was developed into a mix of residential, commercial and/or industrial from 1928 to 1970s when it was then used as a storage yard.

5.0 SUBJECT PROPERTY RECONNAISSANCE

A visual reconnaissance of the subject property was conducted on Monday, January 28, 2019 by Mr. Paul Robinson. Photographs of the subject property are attached to this report in Appendix.

5.1 Methodology and Limiting Conditions

The interior of the subject property was not accessible at the time of the inspection, an inspection from the perimeter fencing was conducted. APN 022-193-56 was only view from East 4th Street, the interior of the property was not inspected.

5.2 Subject Property Reconnaissance

Observations made during the site visit are summarized in the following table:

SITE VISIT OBSERVATIONS			
Current Use of Property	Two residential units, two fenced contractor storage yards, two vacant parcels and a metal storage yard.		
Evidence of Past Uses of Property?	No past use is identifiable.		
Potable Water Source	City Water		
Sewage Disposal Source	City Sewer		
Topography of property and vicinity	Relatively level		
Current use of adjoining properties	NORTH: East Electric Avenue, Pacific Railroad tracks. WEST: Apartments. EAST: Industrial properties. SOUTH: Stormwater channel – Residential properties.		
Past Uses of Surrounding Properties?	No past use is identifiable.		
Observation Check List			
Type	**Observed**	**Not Observed**	**Notes**
Odors		X	
Transformers (Pole/Pad Mounted)	X		North of subject street.
USTs		X	
ASTs		X	
Fuel Island		X	
In-ground Hydraulic Hoist		X	
Hazardous Waste Storage		X	
Hazardous Waste Treatment		X	
Hazardous Waste Disposal		X	
Major Spills		X	
Major Leaks		X	
Significant Staining		X	
Distressed Vegetation		X	

Stocked Piled Soils		X	
Waste treatment Unit/Clarifier		X	
Solid Waste Disposal		X	
Wells		X	
Underground Pipelines		X	
Pits, Ponds, and/or Lagoons		X	
Herbicide and/or Pesticide		X	

5.3 Detailed Observations

Odors - Indoor and Visible Emissions
No unusual smells, obnoxious odors, or visual emissions were observed during the inspection of the subject property.

Asbestos-Containing Material (ACM)
Asbestos-containing building materials were banned in 1978 by the federal government. The building was constructed sometime between 1937 and 1943 with additions between 1953 and 1983; therefore, the potential of Asbestos being present at the subject site is very high. No sampling was performed as this was outside the limits of the current contract.

Lead-Based Paint (LBP)
In 1978, the federal government banned the use of lead-based paint in residential applications. The building was constructed sometime between 1937 and 1943 with additions between 1953 and 1983; therefore, the potential of lead-based paint being present at the subject site is very high. No sampling was performed as this was outside the limits of the current contract.

Polychlorinated Biphenyl (PCB's)
PCB manufacturing in the United States was discontinued in 1978. Pole-mounted transformers were found in the vicinity of the subject site building, appearing in good condition without any sign of leakage. The base of the pole appeared to be burned.

Pools of Liquid of Chemicals
No pools or excessive ponding of liquid or chemicals were observed during the visual site inspection.

Underground Storage Tank (UST)
The interior of the property was not access and numerous shipping containers, autos, trucks and construction equipment and supplies prevented a complete visual of the ground. No evidence of surface or above ground (e.g., fill pipe, vent pipes, fill connections, concrete pads, saw cuts, sumps, spill containment device, leak detection device, etc.) features normally associated with underground storage tanks (UST's) were observed from the north and east perimeters of the subject property.

Aboveground Storage Tank
No evidence for the presence of on-site aboveground storage tank was identified.

Fuel Islands
The visual inspection of the subject site revealed no evidence of fuel islands or dispensers either in operation or abandoned.

Hydraulic Hoist Unit
The visual inspection of the subject site revealed no presence of underground hydraulic hoist units within the subject site premise.

Hazardous Materials/Petroleum Products Storage & Handling
During the visual site inspection, no containers storing automotive or industrial batteries, pesticides, paints or chemicals, seemingly exhibiting toxic hazards were observed.

Other Containers
No other containers indicating any sign of environmental concern were observed during the site inspection.

Hazardous Waste Treatment, Storage, Disposal (TSD)
No storage, treatment, or disposal of hazardous waste was found during the visual site inspection.

Major Spills, Leaks or Staining
No staining or surface staining on the bare soil or unpaved lands were identified during the site inspection.

Distress Vegetation
Planters and vegetation in the vicinity of and within the subject site were found well maintained on bare soil or within separate planers in relatively good appearance with no sign of chemical stress or unnatural appearance.

Stockpiled Soils
The site inspection did not reveal any evidence of stockpiled soils on the ground of subject property.

Wastewater Treatment Unit/Clarifier
No underground industrial wastewater treatment facility, i.e., clarifier was observed on the subject property during the site visit.

Solid Waste Disposal
There were no observations of improper activities of treatment of disposal of hazardous, medical, or toxic wastes being performed at the subject site.

Wells
The site walk-through did not discover any irrigation wells, injection wells, abandoned wells, groundwater monitoring wells, dry wells, septic wells, oil wells, gas wells, domestic water wells, or other monitoring wells on the subject site premise.

Underground Pipelines
The visual site inspection did not reveal any evidence of underground pipelines beneath the ground of the subject property, other than public utility lines such as sewer, power, and electric lines, for which public "dig-alert" service would easily identify upon 48-hour telephone notice in advance.

Pits, Ponds, Lagoons
No visible evidence of wetlands, such as pits, ponds, lagoons, or any other water bodies, was observed within the subject property's boundary lines.

Herbicides/Pesticides
No evidence of herbicide or pesticide use on the subject property was observed during the visual site inspection.

6.0 INTERVIEWS

An attempt has been made to obtain historical as well as current information relative to the subject property from several individuals and local agencies. The objective of the interview process is to obtain any information indicating recognized environmental conditions in connection with the subject site.

6.1 Interview with Owner or Site Manager

An Environmental Questionnaire and Disclosure Statement were sent to Mr. Roland Acuna of Strata-Tech, on Monday, January 28, 2019. As of the date of this report, the questionnaire has not been returned.

19 pages of City of La Habra Bureau of Fire Prevention records were provided by Mr. Roland Acuna.

> In April of 1990, the Owner of Ches Equipment Rental, Jim Cheshire had removed a 4,000-gallon underground tank and it was sitting on the property. During the Fire Departments inspection of the property, the tank was sitting on the south end of the property. It had not been properly rinsed, and no permits had been issued for removal.
>
> On April 4, 1990, the inspector visited the property. Mr. Cheshire stated that he rinsed the tank himself with a stream cleaner and soap – letting the rinsate/bubbles drain out into the drain. It is unknown as to whether this drain is a sewer or flood control drain. Mr. Cheshire also states that some of the rinstate was taken to Lou's service at 101 East Lambert, La Habra and put into the waste oil tank. Two 5-gallon drums of waste oil had been put into their waste oil tanks.
>
> On April 5, 1990, a permit to remove one 4,000-gallon UST containing gasoline was issued. A tank disposal form dated April 10, 1990 shows the contractor was Ches Equipment (same as the tenant of the property at the time). A chain of custody form was located. The date received was April 16, 1990. Sample collector was Jim Cheshire. Two samples were collected, one from the tank bottom and one from the spoil pile. Samples were analyzed for gas and BTEX. Samples collected were ND for Total Hydrocarbons, Benzene, Toluene, Ethyl Benzene, and Total Xylenes.

A map shows the tank was located approximately 48 feet to the south, and 9 feet west of the west office building on 104 East Electric Avenue. No closure letter was attached.

6.2 Interview with Local Government Officials

<u>County Environmental Health Department</u>

The Orange County Environmental Health Division was contacted as part of the records review of the subject property. No records were found for the subject property. Additional record requests were submitted for 118 East Electric Avenue and 240 East 4th Avenue; however, no response has been received as of the date of this report.

City Clerks

The City of La Habra Clerk's offices were contacted as part of the records review of the subject property for building permit records and fire department records including hazardous material and UST records. Building Permits are discussed in Section 4.11. No fire department records were found.

GEOTRACKER/ENVIROSTOR Database Review

The GEOTRACKER database and the ENVIROSTOR database were reviewed for any additional information available in regards to the subject property. No additional information was located for the subject property. Additional information was located for sites listed the EDR Radius Report and are discussed in Section 4.4.

Interview with Others

No additional interviews were conducted in this assessment.

7.0 EVALUATIONS

7.1 Findings

1) **Site Legal Description:** The subject property consists of four parcels, located at 104, 110, 116, and 118 East Electric Avenue, La Habra, CA 90631. The property is identified by the Assessor's Parcel Numbers (APNs) 022-193-01, 022-193-02, 022-193-03, and 022-193-56.

2) **104 East Electric Avenue:** Based on the aerial photos the existing structure was constructed sometime between 1938 and 1947 with additions between 1977 and 1981. In 1966, The site is listed under the name Phyllis Barraza. From 1981 to 1983, the south portion of the property is lined with parked autos and trucks. In 1992 the property is listed under the name Ches Equipment Rental. As Hutcherson Electric from 1992 to 1995. Under the name June Cheshire and Fodor's Diesel Service in 2000. Production Plumbing in 2005, Fodor's Diesel Service in 2010 and Anthony R. Sarmiento from 2010 to 2014. Currently the property appears to be two residential units (104 and 106 E Electric Ave) and two fenced areas used truck and equipment storage.

   Building Permit records located with the City of La Habra show a permit for a 4,000-gallon Underground storage tank was issued in 1980. Bureau of Fire Prevention documents provided by the client; a 4,000-gallon UST was removed without permit in 1990. On April 4, 1990, Sandie Hastings of the La Habra Fire Department visited the site and found that Mr. Jim Cheshire had rinsed the tank with a steam cleaner and soap and allowed the rinsate/bubbles to drain the storm drain. A permit was issued on April 5, 1990 for removal of the UST. One soil sample was collected from the tank pit and spoil pile. The samples were collected by Mr. Jim Cheshire and were reported as Non-Detect for Total Hydrocarbons, Benzene, Toluene, Ethyl Benzene, and Total Xylenes.

3) **110 East Electric Avenue:** Prior to 1938 the subject property is vacant land. By 1947 a structure is located along the north side of 110 East Electric Avenue. In 1966, the site is listed under the name C. Bush, in 1972 Edward Duarte. From 1977 to 2000 under the name Elmer w. Olson & Sons, Inc. A building permit was issued in 1987 to demolish the structure on the north side of the property. In 1992, the site is also listed under

the name Earth Excavation Inc. and from 1995 to 2000 under the name Jesus Lozano. In 2014, the site is listed under the name Manuel Ruelas.

4) **116 East Electric Avenue:** In 1928, a structure is existing on 116 East Electric Avenue. By 1966, a second structure is existing on the property. In 1966, the property is listed under the name Jimmy E. Ramirez. In 1970, a pair of smaller structures have replaced the structure southeast corner of the property. In 1972 the site is listed under the name Ismael Hurtado. A building permit was issued in 1986 to demolish the structure on the north side of the property. In 2005, under the name Star Flooring. By 2009, the structure on the north side of the property has been removed. From 2012 to 2016, a shipping container is located in the mid portion of the property. The property is currently vacant land.

5) **118 East Electric Avenue:** From 1928 to 1953 the property appears to be primarily used as residential. By 1963, the site appears to be used for industrial and/or storage. From the 1970s to 2016, the site is used as storage. The parcel is currently used to store metal shipping containers, large metal trash containers and miscellaneous metal construction material.

6) **Site Observation:** The subject site is currently used as two residential units 104 and 106 East Electric Avenue, two fenced areas used as storage for tenants and two vacant lots. 118 East Electric Avenue is currently used to store metal shipping containers, large metal trash containers and miscellaneous metal construction material. No significant staining was observed from the north and west boundaries of the subject property. No significant staining was observed from East 4th Avenue of the vacant lot used for metal storage.

7) **Local Records Review:** Orange County Department of Environmental Health was contacted as part of the records review of the subject property. No records were found for the subject property. Building permits were provided by the City of La Habra Clerk's offices and indicate that the buildings located on 110 and 116 East Electric Street were demolished in 1986 and 1987. No City of La Habra Fire Department records were located for the subject property.

8) **EDR Findings for Subject Site:** The subject property was listed in Environmental Records Sources searched under the UST and HAZMAT databases.

9) **EDR Radius Report Findings:**

EDR reports two (2) SEM-ARCHIVE sites within the searched parameters of the subject property.
EDR reports one (1) CORRACTS site within the searched parameters of the subject property.
EDR reports two (2) RCRA-LQG sites within the searched parameters of the subject property.
EDR reports four (4) RCRA-SQG sites within the searched parameters of the subject property.
EDR reports one (1) RESPONSE site within the searched parameters of the subject property.
EDR reports nine (9) ENVIROSTOR sites within the searched parameters of the subject property.
EDR reports one (1) SWF/LF site within the searched parameters of the subject property.
EDR reports thirty (30) LUST sites within the searched parameters of the subject property.
EDR reports one (1) CPS-SLIC site within the searched parameters of the subject property.
EDR reports eleven (11) UST sites within the searched parameters of the subject property.
EDR reports one (1) VCP site within the searched parameters of the subject property.
EDR reports one (1) SWRCY site within the searched parameters of the subject property.
EDR reports twelve (12) CERS HAZ WASTE sites within the searched parameters of the subject property.
EDR reports three (3) CA FID UST sites within the searched parameters of the subject property.
EDR reports seven (7) HIST UST sites within the searched parameters of the subject property.
EDR reports three (3) SWEEPS UST sites within the searched parameters of the subject property.

EDR reports seven (7) RCRA-NonGen site within the searched parameters of the subject property.
EDR reports ten (10) HIST CORTESE sites within the searched parameters of the subject property.
EDR reports one (1) HWP sites within the searched parameters of the subject property.
The Orphan Site List was Review. Five Orphan Sites were reviewed. Of the five sites listed; two sites were located within the searched radius of the subject property.

7.2 Opinions

10) **Recognized Environmental Conditions:** Limited sampling of the tank pit and spoils pile, removal of the tank without permit, allowing of the rinsate from the tank to flow into a drain, and the fact the samples were collected by the owner of the property, Jim Cheshire, which creates a potential conflict of interest and calls into question the creditability of the work conducted. In addition, no closure letter was located with the City of La Habra or Orange County's Environmental Health Division, the lack of records found in regard to proper tank removal procedures and sampling results following a UST removal creates a significant data gap and is considered a REC.

11) **Recognized Environmental Condition:** The likely presence of contaminated groundwater at the Property based on indicated groundwater directional flow running from upgradient site 311 East 4th Street toward the Property constitutes a REC.

12) **Environmental Business Risks:** Based on the age of the structure, the potential for asbestos containing material (ACM) and lead-based paint to be present on the subject property is high.

7.3 Conclusions

14) We have performed a Phase 1 Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 for the subject property, which consists of four parcels, located at 104, 110, 116, and 118 East Electric Avenue, La Habra, CA 90631. The property is identified by the Assessor's Parcel Numbers (APNs) 022-193-01, 022-193-02, 022-193-03, and 022-193-56. The subject property was listed in the Environmental Records Sources searched under the UST and HAZMAT databases. Any exceptions to, or deletions from, this practice are described in the Limitations Section of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the subject property; except for the following:
    - Limited sampling of the tank pit and spoils pile, illegal removal of the tank, allowing of the rinsate from the tank to flow into a drain, and the fact the samples were collected by the owner of the property, Jim Cheshire; creates a potential conflict of interest and calls into question the creditability of the work conducted. The lack of records found in regard to proper tank removal procedures and sampling results following a UST removal creates a significant data gap and is considered a REC.
    - The likely presence of contaminated groundwater at the Property based on indicated groundwater directional flow running from upgradient site 311 East 4th Street toward the Property constitutes a REC.

7.4 Recommendations

Additional Environmental Investigations are recommended in the area of the former UST located near the center area of 104 East Electric Avenue, upgradient groundwater samples should be collected to determine if the upgradient property has impacted the subject property.

FEBRUARY 8, 2019
(REVISED JUNE 5, 2019)
P1E 2018-01-09

7.5 References

- Environmental Data resources, Inc (EDR) Report
- ASTM Standard E1527-13 - Phase 1 Standard
- U.S. Geological Survey Topographic Maps
- State Water Resources Control Board, GEOTRACKER (geotracker.waterboards.ca.gov)
- Department of Toxic Substance Control, ENVIROSTOR (www.envirostor.dtsc.ca.gov)

7.6 Professional Signature

According to Code of Federal Regulations CFR - Title 40 §312.10, Environmental Professional is defined as:

> *"(1) a person who possess sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding conditions indicative of releases or threatened releases (see §312.1(c)) on, at, in, or to a property, sufficient to meet the objectives and performance factors in §312.20(e) and (f).*
>
> *(2) Such a person must:*
>
> *(i) hold a current professional engineer's or Professional Geologist's license or registration from a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) and have the equivalent of three (3) years of full-time relevant experience; or*
>
> *(ii) Be licensed or certified by the federal government, a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) to perform environmental inquiries as defined in §312.21 and have the equivalent of three (3) years of full-time relevant experience; or*
>
> *(iii) Have a Baccalaureate or higher degree from an accredited institution of higher education in a discipline of engineering or science and the equivalent of five (5) years of full-time relevant experience; or*
>
> *(iv) Have the equivalent of ten (10) years of full-time relevant experience".*

We declare to the best of our professional knowledge and belief, we have met the definition of Environmental Professional as defined in §312.10 of 40 CFR 312. We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR 312.

It has been a pleasure to be of service. If any questions arise, please contact our office.

Sincerely,

Paul J. Robinson
Environmental Professional
Priority One Environmental, Inc.

FEBRUARY 8, 2019
(REVISED JUNE 5, 2019)
P1E 2018-01-09

8.0 NON-SCOPE SERVICES

No additional services as listed in the ASTM Standard 1527-13 have been requested in writing and placed under contract in regards to this assessment. Including, but not limited to Asbestos testing of material at the site, and drug lab uses of the site.

9.0 APPENDIX

- 9.1 Photographs of subject site.
- 9.2 Site Figures: Site Vicinity Map, Site Topographic Map, Site Parcel Map.
- 9.3 EDR Sanborn Map Search.
- 9.4 EDR Topographic Map Package.
- 9.5 EDR Historical Aerial Photographic Package.
- 9.6 EDR Radius Report.
- 9.7 EDR City Directory Search.
- 9.8 Local Agency Records (If any were found and reviewed).
- 9.9 Professional Qualifications (Resume).

STRATA-TECH, INC.

PHASE II SUBSURFACE INVESTIGATION

Of

104, 110, 116 & 118 Electric Avenue
La Habra, California 90631

APN: 022-193-01, 022-193-02, 022-193-03 & 022-193-56

LAT: 33.927801, LONG: -117.945575

Prepared for

Bonanni Development, Inc.

By

Strata-Tech, Inc.

W.O. 283417-II

Report Date

July 7, 2019

STRATA-TECH, INC.

Statement of Responsibility

By signing this report, to the best of his or her professional knowledge and belief, he or she meets the definition of *Environmental Professional* as defined in
§312.10 of 40 CFR Part 312.

Based on training, education, professional experience, the environmental professional has completed this Phase II Site Investigation to satisfy ASTM guidelines. The environmental professional has developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40CFR Part 312.

Prepared By:

Roland Acuña, PG, CEG

STRATA-TECH, INC.

Table of Contents

1.0 BACKGROUND 1

2.0 SCOPE OF INVESTIGATION 3

3.0 ENVIRONMENTAL SETTING 5

3.1 REGIONAL PHYSIOGRAPHIC SETTING 5
3.2 GEOLOGY/SOIL CONDITIONS 5
3.3 HYDROGEOLOGY 5

4.0 METHODOLOGY 6

4.1 SOIL SAMPLING 6
4.2 GROUNDWATER SAMPLING 7

5.0 FIELD OBSERVATIONS 8

6.0 RESULTS OF SUBSURFACE INVESTIGATION 8

6.1 SOIL 9

6.2 GROUNDWATER 10

7.0 CONCLUSIONS AND RECOMMENDATIONS 10

7.1 SOIL 10

7.2 GROUNDWATER 11

8.0 REFERENCES 11

STRATA-TECH, INC.

FIGURES & APPENDICES

FIGURE 1 SITE LOCATION MAP
FIGURE 2 SAMPLE LOCATION MAP

TABLE 1 SUMMARIES OF SOIL SAMPLES ANALYTICAL RESULTS
TABLE 2 SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS
TABLE 3 SUMMARIES OF METALS IN SOIL

APPENDIX A PHOTOGRAPHS
APPENDIX B LABORATORY ANALYTICAL RESULTS
APPENDIX C PROFESSIONAL QUALIFICATIONS/INSURANCE

STRATA-TECH, INC.

Strata-Tech, Inc. (Strata) has conducted a Phase II Environmental Site Investigation for the property located at 104, 110, 116 & 118 Electric Avenue, La Habra, California 90631(site) per the request of Bonanni Development, Inc., (Client). A Site Location Map illustrating the location of the site is provided as Figure 1.

1.0Backround

The site is located on the south side of W. Electric Avenue, between Euclid Street and the west terminus of E.4th Avenue, north of the trapezoidal storm water channel, within a highly-developed mixed, light industrial and residential area.

The subject property consists of an approximately 2.9 acres of land that is currently improved with one office building (site building) located in the northern portion of the property. The southern portion of the subject property is utilized as vehicle storage. Three steel- framed structures, utilized as car repair areas, are located on the northwest portion of the subject property.

A Phase I Environmental Site Assessment (Ph-I ESA) dated May 29, 2019 for the site guided this invewstigation. A summary of the findings and conclusions are found below.

Site History

1. **104 East Electric Avenue:** Based on the aerial photos the existing structure was constructed sometime between 1938 and 1947 with additions between 1977 and 1981. In 1966, The site is listed under the name Phyllis Barraza. From 1981 to 1983, the south portion of the property is lined with parked autos and trucks. In 1992 the property is listed under the name Ches Equipment Rental. As Hutcherson Electric from 1992 to 1995. Under the name June Cheshire and Fodor's Diesel Service in 2000. Production Plumbing in 2005, Fodor's Diesel Service in 2010 and Anthony R. Sarmiento from 2010 to 2014. Currently the property appears to be two residential units (104 and 106 E Electric Ave) and two fenced areas used truck and equipment storage.

   Building Permit records located with the City of La Habra show a permit for a 4,000-gallon Underground storage tank was issued in 1980. Bureau of Fire Prevention documents provided by the client; a 4,000-gallon UST was removed without permit in 1990. On April 4, 1990, Sandie Hastings of the La Habra Health Department visited the site and found that Mr. Jim Cheshire had rinsed the tank with a steam cleaner and soap and allowed the rinsate/bubbles to drain the storm drain. A permit was issued on April 5, 1990 for removal of the UST. One soil sample was collected from the tank pit and spoil pile. The samples were collected by Mr. Jim Cheshire and were reported as Non-Detect for Total Hydrocarbons, Benzene, Toluene, Ethyl Benzene, and Total Xylene.

2. **110 East Electric Avenue:** Prior to 1938 the subject property is vacant land. By 1947 a structure is located along the north side of 110 East Electric Avenue. In 1966, the site is listed under the name C. Bush, in 1972 Edward Duarte. From 1977 to 2000 under the name Elmer w. Olson & Sons, Inc. A building permit was issued in 1987 to demolish the structure on the north side of the property. In 1992, the site is also listed under the name Earth Excavation Inc. and from 1995 to 2000 under the name Jesus Lozano. In 2014, the site is listed under the name Manuel Ruelas.

3. **116 East Electric Avenue:** In 1928, a structure is existing on 116 East Electric Avenue. By 1966, a second structure is existing on the property. In 1966, the property is listed under the name Jimmy E. Ramirez. In 1970, a pair of smaller structures have replaced the structure southeast corner of the property. In 1972 the site is listed under the name Ismael Hurtado. A building permit was issued in 1986 to demolish the structure on the north side of the property. In 2005, under the name Star Flooring. By 2009, the structure on the north side of the property has been removed. From 2012 to 2016, a shipping container is located in the mid portion of the property. The property is currently vacant land.

4. **APN 022-193-56:** From 1928 to 1953 the property appears to be primarily used as residential. By 1963, the site appears to be used for industrial and/or storage. From the 1970s to 2016, the site is used as storage. The parcel is currently used to store metal shipping containers, large metal trash containers and miscellaneous metal construction material.

5. **Site Observation:** The subject site is currently used as two residential units 104 and 106 East Electric Avenue, two fenced areas used as storage for tenants and two vacant lots. The vacant lot identified as APN 022-193-56 is currently used to store metal shipping containers, large metal trash containers and miscellaneous metal construction material. No significant staining was observed from the north and west boundaries of the subject property. No significant staining was observed from East 4th Avenue of the vacant lot used for metal storage.

6. **Local Records Review:** Orange County Department of Environmental Health was contacted as part of the records review of the subject property. No records were found for the subject property. Building permits were provided by the City of La Habra Clerk's offices and indicate that the buildings located on 110 and 116 East Electric Street were demolished in 1986 and 1987. No City of La Habra Fire Department records were located for the subject property.

Records Review

- **110 East Electric Avenue:** Prior to 1938 the subject property is vacant land. By 1947 a structure is located along the north side of 110 East Electric Avenue. In 1966, the site is listed under the name C. Bush, in 1972 Edward Duarte. From 1977 to 2000 under the name Elmer w. Olson & Sons, Inc. A building

permit was issued in 1987 to demolish the structure on the north side of the property. In 1992, the site is also listed under the name Earth Excavation Inc. and from 1995 to 2000 under the name Jesus Lozano. In 2014, the site is listed under the name Manuel Ruelas.

- **116 East Electric Avenue:** In 1928, a structure is Present on 116 East Electric Avenue. By 1966, a second structure is existing on the property. In 1966, the property is listed under the name Jimmy E. Ramirez. In 1970, a pair of smaller structures have replaced the structure southeast corner of the property. In 1972 the site is listed under the name Ismael Hurtado. A building permit was issued in 1986 to demolish the structure on the north side of the property. In 2005, under the name Star Flooring. By 2009, the structure on the north side of the property has been removed. From 2012 to 2016, a shipping container is located in the mid portion of the property. The property is currently vacant land.

- **118 East Electric Avenue:** From 1928 to 1953 the property appears to be primarily used as residential. By 1963, the site appears to be used for industrial and/or storage. From the 1970s to 2016, the site is used as storage. The parcel is currently used to store metal shipping containers, large metal trash containers and miscellaneous metal construction material.
- **Site Observation:** The subject site is currently used as two residential units 104 and 106 East Electric Avenue, two fenced areas used as storage for tenants and two vacant lots. The vacant lot identified as APN 022-193-56 is currently used to store metal shipping containers, large metal trash containers and miscellaneous metal construction material. No significant staining was observed from the north and west boundaries of the subject property. No significant staining was observed from East 4th Avenue of the vacant lot used for metal storage.

Phase I Conclusions

1) The subject property was listed in the Environmental Records Sources searched under the UST and HAZMAT databases. Any exceptions to, or deletions from, this practice are described in the Limitations Section of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the subject property; except for the following:
    - Limited sampling of the tank pit and spoils pile, illegal removal of the tank, allowing of the rinsate from the tank to flow into a drain, and the fact the samples were collected by the owner of the property, Jim Cheshire;

creates a potential conflict of interest and calls into question the creditability of the work conducted. The lack of records found in regard to proper tank removal procedures and sampling results following a UST removal creates a significant data gap and is considered aREC.

- The likely presence of contaminated groundwater at the Property based on indicated groundwater directional flow running from upgradient site 311 East 4th Street toward the Property constitutes a REC.

Phase I Recommendations

Additional Environmental Investigations are recommended in the area of the former UST located near the center area of 104 East Electric Avenue, up gradient groundwater samples should be collected to determine if the up gradient property has impacted the subject property.

2.0 Scope of Investigation

The purpose of this Phase II Subsurface Investigation (Phase II) is to assess subsurface soil and groundwater conditions at the site in relation to the former UST and to assess the general conditions of the site.

The assessment activities were conducted by Strata-Tech, Inc. California Professional Geologist (PG). This report documents the methods used and presents the findings of the subsurface investigation. The following paragraphs generally describe the Phase II activities.

On February 28, 2019 subsurface investigation of the former UST was conducted by excavating a boring in the approximate center of former UST to a total depth of 16 feet. The backfill and underlying native soil was sampled and tested for EPA 8015B, EPA 8260B. The results were ND (non detect). A water grab sample at 16 feet was also tested for EPA 6010B&7470Athe results of indicate levels consistent with normal background concentrations.

On April 8, 2019 we returned to the site to conduct a general screening Pha-II using a direct push Geoprobe at 8 locations throughout the site (see sample location map, Fig 2) and collected a total of 16 samples at elevations -2.5 and -5.0 feet below ground surface.

Following collection of the soil and groundwater samples, each borehole was backfilled with hydrated granular bentonite and restored to pre-drilling condition by applying patching materials as appropriate.

All of the samples were refrigerated and submitted to Advanced Technology Laboratories, of Signal Hill, California, a State of California certified laboratory, using standard Chain of Custody Protocols. Site photographs are included in Appendix A. Boring locations are illustrated on Figure 2.

3.0 Environmental Setting

3.1 Regional Physiographic Setting

The United States Geological Survey (USGS), [La Habra, California] 7.5 Minute Topographic Quadrangle map of the subject property and surrounding vicinity was reviewed. The elevation of the property is located at approximately 100 feet above mean sea level (MSL). The property's regional drainage is gently and variably inclined moderately to the southwest.

The location of the site is presented in Figure 1.

3.2 Geology/Soil Conditions

The La Habra Quadrangle lies in the northeastern part of the Los Angeles Basin and includes the southern portion of the Puente Hills, the West and East Coyote Hills, Brea Canyon and the Yorba Linda-La Habra Valley lowland. The map includes all or parts of the cities of La Habra, La Habra Heights, Brea, Fullerton, Placentia, Buena Park, Industry, Whittier, and La Mirada, as well as unincorporated areas of Hacienda Heights and Rowland Heights within Los Angeles County. Elevations in the quadrangle range from about 100 feet along the Brea Creek floodplain near the southwest corner to 1,428 feet in the Puente Hills near the east-central portion.

Beneath the unconsolidated and semi-consolidated near surface old fan deposits are consolidated sediments of middle to lower Tertiary age, which overlie crystalline basement rocks of pre-Tertiary age. In the vicinity of the site, there are surficial deposits of fine grained material (silts and clays) estimated to depths of 60 feet below ground surface (bgs). These deposits represent an aquitard or aquiclude of recent age above the underlying water bearing zone (DWR, 1967).

Soil encountered during drilling on site to a depth of 16 fbg the maximum depth of exploration, consists of poorly graded sand with intermittent clayey sands; underlain by clay.

3.3 Hydrogeology

Potable groundwater beneath the site occurs, for the most part, in confined Tertiary deposits and the base of the old fan deposit. Groundwater at the site was encountered at approximately 15 fbg during Phase II drilling activities overseen by Strata-Tech, Inc.

Note that groundwater flow direction can be influenced locally and regionally by the presence of local wetland features, surface topography, recharge and discharge areas, horizontal and vertical inconsistencies in the types and location of subsurface soils, and proximity to water pumping wells. Depth and gradient of the water table can change seasonally in response to variation in precipitation and recharge, and over time, in response to urban development such as storm water controls, impervious surfaces, pumping wells, cleanup activities, dewatering, seawater intrusion barrier projects near the coast, and other factors.

4.0 Methodology

On February 28, 2019, Strata advanced soil borings to assess possible contaminants in soil and ground water at the former UST closure site. Three samples were collected at -8, -15 &-16fbg. The -16' sample was a grab water sample.

Strata returned to the site on soil borings were advanced at the site using Geoprobe® 40M limited access drilling equipment.

4.1 Soil Sampling

Soil samples were collected at 2.5 foot intervals. Soil samples were collected with a Geoprobe Large Bore Sampler that measures 2 feet by 1.5 inches and is capable of recovering discrete samples inside removable liners that measure up to 320 mL in volume. The liner is a thin-walled tube that fits inside the sample tube, facilitates retrieval of the sample, and may be used for storage when applicable. No headspace was present in the tube once the sample was collected. When a soil sample was collected, both ends of a given tube were immediately covered with teflon tape, capped with polyethylene lids, and packed in an ice chest to maintain a minimum 4 degrees centigrade temperature to minimize potential volatilization prior to delivery to the laboratory. The samples were labeled with the sample identification number and the sampling depth.

1.

Following collection of the samples, all of the soil borings were backfilled with hydrated granular bentonite and restored to pre-drilling condition by applying patching materials.

All of the soil and soil vapor samples were submitted to Sunstar Laboratories, Inc. of Lake Forest, California, a State of California certified laboratory, using standard Chain of Custody protocols.

4.2 Groundwater Sampling

Grab groundwater sample Tp-1@16was collected from borings Tp-1 .

5.0 Field Observations

Soil encountered at the site consists of poorly graded sand, clayey sand and silty clay to approximately 12 to 16 fbg with occasional gravelly stringers and underlying stream terrace deposits at 14 to 16 fbg, the maximum exploration depth. Field indicators of potential chemical impact, including discoloration, degradation, or odor, were all considered

Groundwater was encountered at approximately 15 fbg during exploration. Excavation logs are included in Appendix B.

6.0 Results of Subsurface Investigation

In order to ascertain human health risk from potential contaminants beneath the site, analytical results from the soil, groundwater samples collected during the Phase II are compared to the following Regional Water Quality Control Board Environmental Screening Levels (ESL).

- Soil: direct exposure human health risk levels, commercial/industrial shallow soil exposure (Table S-1);
- Groundwater: Tier 2 Site Specific inputs, residential scenario.
- The analytical results and comparisons are found below.

6.1 Soil

Selected soil samples at 2.5and 5 fbg were analyzed for the following:

- VOCs, TPH , title 22 metals, PCB's, SOC ;

No detectable VOCs were found in any of the soil samples submitted for analysis that exceeded

1.

Regional Water Quality Control Board Environmental Screening Levels (ESL).

TPH was found in soil samples analyzed from the soil borings S-4 and S-5 and these were surface spills localized , likely due to oil changes of engines. Table 1 provides a summary of soil sample analytical results. Soil boring locations are presented in Figure 2.

Concentrations of metals in soil are below ESLs and below expected background levels when compared with background metal concentrations in soil in Southern California (Kearney Foundation Special Report, Background Concentrations of Trace and Major Elements in California Soils, 1996). Table 4 provides a comparison of the detected concentrations of metals in soil with ESLs and expected background concentrations of metals in soil.

6.2 Groundwater

Groundwater sample T-p1 was analyzed for Title 22 Metals EPA Method 6010B.

A summary of detections of chemicals of concern are listed below:

Table 3 provides a summary of groundwater sample analytical results. Groundwater sample locations are presented in Figure 2. The laboratory report is included in Appendix C.

No detectable VOCs were found in any of the soil samples submitted for analysis that exceeded Regional Water Quality Control Board Environmental Screening Levels (ESL).

TPH was found in soil samples analyzed from the soil borings S-4 and S-5 and these were surface spills localized , likely due to oil changes of engines. Table 1 provides a summary of soil sample analytical results. Soil boring locations are presented in Figure 2.

7.0 Conclusions and Recommendations

Strata conducted this Phase II Subsurface Investigation at 104, 110, 116 & 118 Electric Avenue, La Habra, California 90631, at the request of Bonanni Developments (client). The purpose of this Phase II Investigation is to assess subsurface soil and groundwater conditions with regard to possible contamination by past use of the site as guided by the Ph-I ESA.

7.1 Soil

Soil concentrations of chemicals of concern are generally below ESLs.

STRATA-TECH, INC.

7.2 Groundwater

Groundwater concentrations on the site are below Tier 2, site specific ESLs. A summary of these detections and comparisons to ESLs is found in Table 3.

Given the current site conditions, it is our opinion that further assessment of ground water is not warranted at this time.
It is recommended that continuous monitoring be provided by this office to identify and analyze any suspect conditions revealed by the demolition.

8.0 References

San Francisco Regional Water Quality Control Board; Environmental Screening Levels, 2016 (Rev. 3). February.

State of California, Department of Water Resources; 1967, Progress Report on Groundwater Geology of the Coastal Plain of Orange County, July.

United States Geological Survey; La Habra 7.5-minute quadrangle map, California.

Limitations

This Phase II Subsurface Investigation report of subsurface conditions at 104, 110, 116 & 118 Electric Avenue, La Habra, California 90631, has been prepared per the request of Bonanni Developments, Inc. Strata, geoconsultants has applied appropriate scientific judgment and used suitable measures consistent with accepted industry standards of practice for site assessments. Strata-Tech, Inc., makes no expressed or implied warranty, in fact or by law, of the fitness of the site, for any particular purpose, with the material or "services" furnished by Fulcrum Resources to the client.

It should be recognized that potential subsurface contamination from unknown sources could vary laterally and with depth below a given site. The analysis and interpretations in this report have been developed based on the review of existing information pertaining to the site, and a limited number of soil sample analysis from discrete locations.

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PRELIMINARY
WATER QUALITY MANAGEMENT PLAN (WQMP)

City Project Number:

_____

Project Name:
EUCLID-LA HABRA
TENTATIVE TRACT NO. 18168
104, 110 & 118 E. Electric Avenue
La Habra, CA
APN 022-193-01, 022-193-02, 022-193-50 & 022-193-56

Prepared for:

BONANNI DEVELOPMENT
5500 Bolsa Avenue, Suite 120
Huntington Beach, CA 92649
(714) 892-0123

Prepared by:

DMS Consultants, Inc.
Engineer: Surender Dewan, P.E. Registration No.: 34559
12371 Lewis Street, Suite 203
Garden Grove, CA 92840
(714) 740-8840

Date Prepared: April 23, 2019

PROJECT OWNER'S CERTIFICATION			
Permit/Application No.	TBD	Grading Permit No.	TBD
Tract No.	18168	Building Permit No.	TBD
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract)			APN 022-193-01 APN 022-193-02 APN 022-193-50 APN 022-193-56

This Preliminary Water Quality Management Plan (WQMP) has been prepared for BONANNI DEVELOPMENT by DMS CONSULTANTS, INC. The WQMP is intended to comply with the requirements of the local NPDES Stormwater Program requiring the preparation of the plan.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with the current Orange County Drainage Area Management Plan (DAMP) and the intent of the non-point source NPDES Permit for Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the incorporated Cities of Orange County within the Santa Ana Region. Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the WQMP. An appropriate number of approved and signed copies of this document shall be available on the subject site in perpetuity.

OWNER:			
Name/Title	Ed Bonanni		
Company	Bonanni Development		
Address	5500 Bolsa Avenue Huntington Beach, CA 92649		
Email			
Telephone #	(714) 892-0123		
I understand my responsibility to implement the provisions of this WQMP including the ongoing operation and maintenance of the best management practices (BMPs) described herein.			
Signature	Ed B	Date	4/23/19

PREPARER (ENGINEER):			
Title	President	PE Registration #	34559 Exp. 9/30/19
Company	DMS Consultants, Inc.		
Address	12371 Lewis Street, Suite 203 Garden Grove, California 92840		
Email	Surender@DMSConsultantsInc.com		
Telephone #	(714) 740-8840		
I hereby certify that this Water Quality Management Plan is in compliance with, and meets the requirements set forth in Order No. R8-2009-0030/NPDES No. CAS618030, of the Santa Ana Regional Water Quality Control Board.			
Preparer Signature		Date	4/23/19
Place Stamp Here	REGISTERED PROFESSIONAL ENGINEER SURENDER M. DEWAN No. 34559 Exp. 9/30/19 CIVIL STATE OF CALIFORNIA		

TABLE OF CONTENTS

Section I **Discretionary Permit(s) and Water Quality Conditions** **2**
Section II **Project Description** **3**
II.1 *Project Description* *3*
II.2 *Potential Stormwater Pollutants* *5*
II.3 *Hydrologic Conditions of Concern* *5*
II.4 *Post Development Drainage Characteristics* *7*
II.5 *Property Ownership/Management* *7*
Section III **Site Description** **8**
III.1 *Physical Setting* *8*
III.2 *Site Characteristics* *8*
III.3 *Watershed Description* *9*
Section IV **Best Management Practices (BMPS)** **10**
IV.1 *Project Performance Criteria* *10*
IV.2 *Site Design and Drainage Plan* *11*
IV.3 *LID BMP Selection and Project Conformance Analysis* *12*
IV.3.1 *Hydrologic Source Controls* *12*
IV.3.2 *Infiltration BMPs* *12*
IV.3.3 *Evapotranspiration, Rainwater Harvesting BMPs* *13*
IV.3.4 *Biotreatment BMPs* *14*
IV.3.5 *Hydromodification Control BMPs* *14*
IV.3.6 *Regional/Sub-Regional LID BMPs* *15*
IV.3.7 *Treatment Control BMPs* *15*
IV.3.8 *Non-structural Source Control BMPs* *15*
IV.3.9 *Structural Source Control BMPs* *17*
IV.4 *Alternative Compliance Plan* *18*
IV.4.1 *Water Quality Credits* *18*
IV.4.2 *Alternative Compliance Plan Informations* *18*
Section V **Inspection/Maintenance Responsibility for BMPs** **19**
Section VI **BMP Exhibit Site Plan** **22**
Section VII **Educational Material** **23**

ATTACHMENTS **24**

Attachment A ..... **TGD Worksheets, BMP Calculations, WinTR-55 Calculations, and Details**
Attachment B ..... **Educational Materials**
Attachment C ..... **Operations & Maintenance Plan and Supplements**
Attachment D ..... **WQMP Notice of Transfer of Responsibility**
Attachment E ..... **Infiltration Report and Soils Report**
Attachment F ..... **Conditions of Approval**

SECTION I DISCRETIONARY PERMITS AND WATER QUALITY CONDITIONS

PROJECT INFORMATION			
Permit/Application No.	TBD	Grading or Building Permit No. (If applicable)	TBD
Address of Project Site (or Tract Map and Lot Number if no address) and APN	Tentative Tract 18168 104, 110 & 118 E. Electric Avenue La Habra, CA APN 022-193-01, 022-193-02, 022-193-50 & 022-193-56		
WATER QUALITY CONDITIONS			
Water Quality Conditions of Approval or Issuance applied to this project	This is a Preliminary WQMP. Conditions of Approval will be incorporated into the Final WQMP.		
WATERSHED-BASED PLAN CONDITIONS			
Provide applicable conditions from watershed - based plans including WIHMPs and TMDLS.	Not applicable		

SECTION II PROJECT DESCRIPTION

II.1 Project Description

The proposed Tentative Tract 18168 project site encompasses 2.97 acres in the City of La Habra. The site is located along the westerly curb of Euclid Street across from Electric Avenue. The site is approximately 3 feet lower then Euclid Street. Overall the site slopes form north to south. The approximate elevations of the site vary from 81.00 to 78.00 feet above mean sea level (msl). The existing site is a commercial yard. The off site flow from Southern Pacific Transportation Company right-of-way presently drains to the site. The site is surrounded by Southern Pacific Transportation Company railroad along the northerly property line, O.C.F.C.D. rectangular channel facility along the southerly property line, apartment complex along the westerly property line, and single family homes across from the O.C.F.C.D. facility along the southerly side.

DESCRIPTION OF PROPOSED PROJECT				
Development Category (Verbatim from WQMP):	Development Category 1 - New development projects that create 10,000 square feet or more of impervious surface. This category includes commercial, industrial, residential housing subdivisions, mixed-use, and public projects on private or public property that falls under the planning and building authority or the Permittees.			
Project Area (ft^2):	129,471 ft^2 / 2.97 acres (gross) 122,839 ft^2 / 2.82 acres (net) excluding O.C.F.C.D. easement			
Number of Dwelling Units:	58			
SIC Code:	Not applicable. Residential development.			
Narrative Project Description:	The project proposes to construct 65 townhomes varying in size from 1,429 SF to 1,591 SF, private streets, and open spaces. The breakdown of the site conditions is as follows: Total building coverage: 38,841 SF Total parking spaces: 181 Garage spaces: 116 Guest spaces: 65 (includes 2 handicap accessible) Total landscape coverage: 16,190 SF The proposed landscaping consists of drought tolerant material, some of which will be native as required by the City of La Habra.			
Project Area:	Pervious Area (acres or sq ft)	Pervious Area Percentage	Impervious Area (acres or sq ft)	Impervious Area Percentage
Pre-Project Conditions:	0.20 acres	7%	2.62 acres	93%
Post-Project Conditions:	0.39 acres	14%	2.43 acres	86%

Drainage Patterns/Connections:	A Geotechnical Report and Infiltration Study conducted by Strata-Tech, Inc., indicates an infiltration rate of 0.25 inches/hour which is less than the minimum permissible of 0.3 inches/hour. A copy of this report is included in Attachment E. **EXISTING CONDITION** The proposed project site encompasses 2.97 acres and is located along the westerly curb of Euclid Street across from Electric Avenue. The site is approximately 3 feet lower then Euclid Street. Overall the site slopes form north to south. The approximate elevations of the site vary from 81.00 to 78.00 feet above mean sea level (msl). The off site flow from Southern Pacific Transportation Company right-of-way presently drains to the site. The site is surrounded by Southern Pacific Transportation Company railroad along the northerly property line, O.C.F.C.D. rectangular channel facility along the southerly property line, apartment complex along the westerly property line, and single family homes across from the O.C.F.C.D. facility along the southerly side. The existing site is a commercial yard and surface drains southerly to O.C.F.C.D. facility number A01 (rectangular channel 25' x 9.5'). The runoff surface flows southeasterly to Coyote Creek Channel and ultimately to the Pacific Ocean. **PROPOSED CONDITION** <u>On-Site Flow (2.82 Acres Net)</u> As indicated above infiltration is not feasible, since an infiltration rate of 0.25 inches/hour is less than 0.3 inches/hour. To comply with NPDES permit requirements, biotreatment BMP modular wetland system (MWS) units (MSW-L-8-20-V) manufactured by BioClean Environmental has been used. Under proposed conditions the entire site will drain to an on-site storm drain system which will outlet to a modular wetland system treatment unit. The flow after treatment will be directed to O.C.F.C.D. facility number A01 then on to Coyote Creek Channel and ultimately to the Pacific Ocean. 0.15 acres of the site which is an easement to O.C.F.C.D. will not be part of the drainage area, this area drains presently to O.C.F.C.D. channel and will be separated by construction of a retaining wall. <u>Off-Site Flow</u> Off-site flow from U.P.R.R. right-of-way drains to an existing storm drain located in U.P.R.R. right-of-way. This storm drain presently drains to O.C.F.C.D. Facility No. A01. Portion of the storm drain in project area will be realigned.

II.2 POTENTIAL STORMWATER POLLUTANTS

The table below, derived from Table 2 of the Countrywide Model WQMP Technical Guidance Document (May 2011), summarizes the categories of land use or project features of concern and the general pollutant categories associated with them.

POLLUTANTS OF CONCERN			
Pollutant	E=Expected to be of concern N=Not Expected to be of concern		Additional Information and Comments
Suspended-Solid/ Sediment	**E**		Existing landscaping areas and disturbed earth surfaces.
Nutrients	**E**		Fertilizers, sediment and trash/debris.
Heavy Metals	**E**		Vehicles and automotive fluids as well as various construction materials.
Pathogens (Bacteria/Virus)	**E**		Pets, food wastes and landscaping/sediment areas.
Pesticides	**E**		Landscaping and household sources.
Oil and Grease	**E**		Parked vehicles.
Toxic Organic Compounds	**E**		Public street.
Trash and Debris	**E**		Common litter and trash.

II.3 HYDROLOGIC CONDITIONS OF CONCERN

The purpose of this section is to identify any hydrologic conditions of concerns (HCOC) with respect to downstream flooding, erosion potential of natural channels downstream, impacts of increased flows on natural habitat, etc.

In the North Orange County permit area, HCOCs are considered to exist if any streams located downstream from the project are determined to be potentially susceptible to hydromodification impacts and either of the following conditions exists:

- Post-development runoff volume for the 2-yr, 24-hr storm exceeds the pre-development runoff volume for the 2-yr, 24-hr storm by more than 5 percent

or

- Time of concentration (Tc) of post-development runoff for the 2-yr, 24-hr storm exceeds the time of concentration of the pre-development conditions for the 2-yr, 24-hr storm by more than 5 percent.

If these conditions do not exist or streams are not potentially susceptible to hydromodification impacts, an HCOC does not exist and hydromodification does not need to be considered further. In the North Orange County permit area, downstream channels are considered not susceptible to hydromodification, and therefore do not have potential for a HCOC, if all downstream conveyance channels that will receive runoff from the project are engineered, hardened, and regularly maintained to ensure design flow capacity, and no sensitive habitat areas will be affected.

Is the proposed project potentially susceptible to hydromodification impacts?

☒ Yes ☐ No (show map)

According to the 2013 Susceptibility Map the project site is located in an area susceptible to hydromodification. See map provided in Attachment A.

HCOC are considered to exist if any streams located downstream from the project are determined to be potentially susceptible to hydromodification impacts and either of the following conditions exists:

- Post-development runoff volume for the 2-yr, 24-hr storm exceeds the pre-development runoff volume for the 2-yr, 24-hr storm by more than 5 percent

  OR

- Time of concentration of post-development runoff for the 2-yr, 24-hr storm event exceeds the time of concentration of the pre-development condition for the 2-yr, 24-hr storm event by more than 5 percent.

The hydrology calculations using WinTR-55 calculator included in Attachment A of this report and summary table below indicate that the post-development runoff volume does not exceed the pre-development volume by more than 5 percent, thus satisfying the hydromodification performance criteria.

Summary (Based on 2-Year Storm Frequency)

Item	Pre Development	Post Development
Volume (cu.ft.)	15,416	9,540
Time of Concentration (min)	9.84	10.98

II.4 POST DEVELOPMENT DRAINAGE CHARACTERISTICS

On-Site Flow (2.82 Acres Net)

As indicated above infiltration is not feasible, since an infiltration rate of 0.25 inches/hour is less than 0.3 inches/hour. To comply with NPDES permit requirements, biotreatment BMP modular wetland system (MWS) units (MSW-L-8-20-V) manufactured by BioClean Environmental has been used.

Under proposed conditions the entire site will drain to an on-site storm drain system which will outlet to a modular wetland system treatment unit. The flow after treatment will be directed to O.C.F.C.D. facility number A01 then on to Coyote Creek Channel and ultimately to the Pacific Ocean. 0.15 acres of the site which is an easement to O.C.F.C.D. will not be part of the drainage area, this area drains presently to O.C.F.C.D. channel and will be separated by construction of a retaining wall.

Off-Site Flow

Off-site flow from U.P.R.R. right-of-way drains to an existing storm drain located in U.P.R.R. right-of-way. This storm drain presently drains to O.C.F.C.D. Facility No. A01. Portion of the storm drain in project area will be realigned.

II.5 PROPERTY OWNERSHIP/MANAGEMENT

A Home Owners Association (HOA) will be formed upon project completion. The HOA will be responsible for inspecting and maintaining all onsite and offsite BMPs prescribed for Euclid-La Habra project, Tentative Tract No. 18168. Until an HOA is formally established, Bonanni Development shall assume all BMP maintenance and inspection responsibilities for the proposed project. Inspection and maintenance activities are outlined in Section V of this WQMP.

SECTION III SITE DESCRIPTION

III.1 PHYSICAL SETTING

Planning Area/ Community Name:	Euclid-La Habra
Location/Address:	104, 110 & 118 E. Electric Avenue, La Habra, CA
Land Use:	Commercial/industrial storage Existing zoning – commercial
Zoning:	R-4
Acreage:	2.97 acres (gross) 2.82 acres (net)
Predominant Soil Type:	Silty sand to sandy silt

III.2 SITE CHARACTERISTICS

Precipitation Zone:	0.95 inches
Topography:	The site is approximately 3 feet lower then Euclid Street. Overall the site slopes form north to south. The approximate elevations of the site vary from 81.00 to 78.00 feet above mean sea level (msl).
Drainage Patterns/Connections:	The runoff surface flows southeasterly to Coyote Creek Channel and ultimately to the Pacific Ocean.
Soil Type, Geology, and Infiltration Properties:	According to the infiltration study constraint maps, Section XVI-2 of the T.G.D., the project is located in hydrological soil Group D. A Geotechnical Study conducted on the project site indicates the soil to be silty sand to sandy silt. An infiltration study conducted for the project indicates an infiltration rate of 0.25 inches/hour.
Hydrogeologic (Groundwater) Conditions:	The project is not located in plume protection boundary nor is identified as natural pollution source area or contaminated site. The Geotechnical report indicates that the property is located within 250 feet of two closed leaky underground storage tanks (LUST) cleanup site. Groundwater was encountered at 12.50 feet below finished surface.
Geotechnical Conditions: (relevant to infiltration)	The project site is located within 250 feet of two (2) closed LUST cleanup sites. Per the TGD, infiltration is prohibited within 250 feet of contaminated site.
Off-Site Drainage:	The project does receive offsite run-on from Southern Pacific Transportation Company right-of-way, located north of the property.
Utility and Infrastructure Information:	There are no existing subsurface utilities that will impact the location of LID BMPs on-site.

III.3 WATERSHED DESCRIPTION

Receiving Waters:	San Gabriel – Coyote Creek Watershed
303(d) Listed Impairments:	Indicator bacteria, copper, lead, nickel, PCBs, chlordane
Applicable TMDLs:	None
Pollutants of Concern for the Project:	Expected pollutants from residential developments include sediment, nutrients, pathogens, pesticides, oil and grease, and trash. Therefore, the project's primary pollutants of concern are pathogens due to impairments to San Gabriel – Coyote Creek Watershed.
Environmentally Sensitive Areas and Areas of Special Biological Significant:	There are no ESAs or ASBS within the project's vicinity.

SECTION IV BEST MANAGEMENT PRACTICES (BMPS)

IV. 1 PROJECT PERFORMANCE CRITERIA

Is there an approved WIHMP or equivalent for the project area that includes more stringent LID feasibility criteria or if there are opportunities identified for implementing LID on regional or sub-regional basis?

☐ Yes ☒ No

PROJECT PERFORMANCE CRITERIA	
Hydromodification Control Performance Criteria: (Model WQMP Section 7.II.4.2.2)	For proposed projects within the North County permit area that may have an HCOC, each Priority Project proponent must determine the impact of the proposed development on the downstream hydrologic characteristics. The evaluation of potential impacts is based on the following for a two-year frequency storm event: ▪ Increases in runoff volume; ▪ Deceases in infiltration; ▪ Changes in time of concentration; ▪ Potential for increase in post development downstream erosion; and ▪ Potential for adverse downstream impacts on physical structure, aquatic and riparian habitat. A project does not have an HCOC if either of the following conditions is met: ▪ The volumes and time of concentration of stormwater runoff for the post-development conditions do not significantly exceed those of the predevelopment condition for a two-year frequency storm event (a difference of five percent or less is considered insignificant). ▪ The site infiltrates at least the runoff from a two-year storm event. If a hydrologic condition of concern (HCOC) exists, priority projects shall implement onsite or regional hydromodification controls such that: ▪ Post-development runoff volume for the two-year frequency storm does not exceed that of the predevelopment condition by more than five percent, and ▪ Time of concentration of post-development runoff for the two-year storm event is not less than that for the predevelopment condition by more than five percent. Where the Project WQMP documents that excess runoff volume from the two-year event cannot feasibly be retained and where in-stream controls cannot be used to otherwise mitigate HCOCs, the project shall implement on-site or regional hydromodification controls

	to: ▪ Retain the excess volume from the two-year runoff event to the MEP, and ▪ Implement on-site or regional hydromodification controls such that the post-development runoff two-year peak flow is no greater than 110 percent of the pre-development runoff two-year peak flow rate.
LID Performance Criteria: (Model WQMP Section 7.II-2.4.3)	Infiltrate, harvest and use, evapotranspire, or biotreat/biofilter, the 85th percentile 24-hour storm event (Design Capture Volume). LID BMPs must be designed to retain, on-site, (infiltrate, harvest and use, or evaportranspire) storm water runoff up to 80 percent average annual capture efficiency.
Treatment Control BMP Performance Criteria:	If it not feasible to meet LID performance criteria through retention and/or biotreatment provided on-site or a sub-regional scale, then treatment control BMPs shall be provided on-site or offsite prior to discharge to waters of the US. Sizing of treatment control BMPs shall be based on either the unmet volume after claiming applicable water quality credits, if appropriate.
LID Design Storm Capture Volume for Project:	See BMP calculations in Attachment A.

IV.2 SITE DESIGN AND DRAINAGE

The following section describes the site design BMPs used in this project and the methods used to incorporate them. Careful consideration of site design is a critical first step in storm water pollution prevention from new developments and redevelopments.

Minimize Impervious Area

Infiltration is infeasible at the site as such, modular wetland system (MWS) has been proposed.

Preserve Existing Drainage Patterns

Existing drainage patterns will be preserved as indicated. The site will drain similarly to existing conditions.

Disconnect Impervious Areas

Buildings will drain to landscaping. Impervious surfaces will ultimately drain to permeable pavers or infiltration trenches.

Landscape Design

Drought tolerant plants have been utilized in the project's landscape design. The landscape plan has been submitted to the City, under separate review and approval.

Drainage Management Areas

The project site drainage will be delineated into two (2) Drainage Management Areas (DMAs), separately for on-site and off-site.

DRAINAGE MANAGEMENT AREAS						
DMA	Drainage Area (acres)	DCV (cfs)	Proposed LID BMP	BMP ID	Volume Provided (cfs)	Latitude and Longitude
Area A	2.82	0.42	Modular Wetland System Model No. MWS-L-8-20-V	BIO-7	0.58	Lat: 33.92748 Long: -117.944

IV.3 LID BMP SELECTION AND PROJECT CONFORMANCE ANALYSIS

Low Impact Development (LID) BMPs are required to reduce pollutants in storm water runoff. LID BMPs are engineered facilities that are designed to retain or biotreat runoff on the project site.

IV.3.1 Hydrologic Source Controls

Hydrologic source controls (HSCs) can be considered to be an integration of site design practices and LID BMPs.

Hydrologic Source Controls (HSCs) were not selected for the project.

HYDROLOGIC SOURCE CONTROLS		
ID	Name	Included?
HSC-1	Localized on-lot infiltration	☐
HSC-2	Impervious area dispersion (e.g. roof top disconnection)	☐
HSC-3	Street trees (canopy interception)	☐
HSC-4	Residential rain barrels (not actively managed)	☐
HSC-5	Green roofs/Brown roofs	☐
HSC-6	Blue roofs	☐
HSC-7	Impervious area reduction (e.g. permeable pavers, site design)	☐

IV.3.2 Infiltration BMPs

Infiltration BMPs are LID BMPs that capture, store and infiltrate storm water runoff. These BMPs are engineered to retain a specified volume of water on-site and have no discharge until the volume is exceeded. Examples of infiltration BMPs include infiltration trenches, bioretention without underdrains, drywells, permeable pavement, and underground infiltration galleries.

All LIDs are located in common areas. Infiltration BMPs were not considered because infiltration is not feasible.

INFILTRATION		
ID	Name	Included?
INF-3	Bioretention wthout underdrains	☐
INF-4	Rain gardens	☐
	Porous landscaping	☐
	Infiltration planters	☐
	Retention swales	☐
INF-2	Infiltration trenches (off-site)	☐
INF-1	Infiltration basins	☐
INF-5	Drywells	☐
INF-7	Subsurface infiltration galleries	☐
	Hydrodynamic separator	☐
--	French drains	☐
INF-6	Permeable asphalt	☐
	Permeable concrete	☐
	Permeable concrete pavers	☐
	Other:	☐

IV.3.3 Evapotranspiration, Rainwater Harvesting BMPs

Evapotranspiration BMPs are a class of retention BMPs that discharges stored volume predominately to ET, though some infiltration may occur. ET includes both evaporation and transpiration, and ET BMPs may incorporate one or more of these processes. BMPs must be designed to achieve the maximum feasible ET, where required to demonstrate that the maximum amount of water has been retained on-site. Since ET is not the sole process in these BMPs, specific design and sizing criteria have not been developed for ET-based BMPs.

Evapotranspiration and Harvest and Re-use BMPs were not selected for the project since infiltration requirements have been met.

EVAPOTRANSPIRATION		
ID	Name	Included?
--	All HSCs; *See Section IV.3.1*	☐
--	Surface-based infiltration BMPs	☐
--	Biotreatment BMPs	☐
--	Other:	☐

HARVEST &REUSE / RAINWATER HARVESTING		
ID	Name	Included?
HU-1	Above ground cisterns and basins	☐
HU-2	Underground detention	☐
	Other:	☐

IV.3.4 Biotreatment BMPs

Biotreatment BMPs are a class of structural LID BMPs that treat suspended solids and dissolved pollutants in storm water using mechanisms characteristic of biologically active systems. These BMPs are considered treat and release facilities and include treatment mechanisms that employ soil microbes and plants. Additional benefits of these BMPs may include aesthetic enjoyment, recreational use, wildlife habitat and reduction in storm water volume.

Biotreatment BMPs have been selected for the project. Vegetated swales, filter strips, and detention basins were considered but were not found feasible because of site constraints.

BIOTREATMENT		
ID	Name	Included?
BIO-1	Bioretention with underdrains	☐
	Stormwater planter boxes with underdrains	☐
	Rain gardens with underdrains	☐
BIO-5	Constructed wetlands	☐
BIO-2	Vegetated swales	☐
BIO-3	Vegetated filter strips	☐
BIO-7	Proprietary vegetated biotreatment systems	☒
BIO-4	Wet extended detention basin	☐
BIO-6	Dry extended detention basins	☐
	Other:	☐

IV.3.5 Hydromodification Control BMPs

There are no HCOCs for the project.

HYDROMODIFICATION CONTROLS	
BMP Name	BMP Description
Not applicable	

IV.3.6 Regional/Sub-Regional LID BMPs

Not applicable to the project.

IV.3.7 Treatment Control BMPs

Treatment control BMPs can only be considered if the project conformance analysis indicates that it is not feasible to retain the full design capture volume with LID BMPs.

TREATMENT CONTROL BMPs		
ID	Name	Included?
TRT-1	Sand filters	☐
TRT-2	Cartridge media filter	☐
PRE-1	Hydrodynamic separation device	☐
PRE-2	Catch basin insert	☐
--	Other:	☐

IV.3.8 Non-Structural Source Control BMPs

The table below indicates all Non-Structural Source Control BMPs to be utilized in the project. For those designated as not applicable, a brief explanation why is provided.

Non-Structural Source Control BMPs				
ID	Name	Included	Not Applicable	If not applicable, state brief reason
N1	Education for Property Owners, Tenants and Occupants	☒	☐	
N2	Activity Restrictions	☒	☐	
N3	Common Area Landscape Management	☒	☐	
N4	BMP Maintenance	☒	☐	
N5	Title 22 CCR Compliance	☐	☒	No hazardous materials
N6	Local Industrial Permit Compliance	☐	☒	Residential development
N7	Spill Contingency Plan	☐	☒	Residential development
N8	Underground Storage Tank Compliance	☐	☒	None proposed on project
N9	Hazardous Materials Disclosure Compliance	☐	☒	No hazardous materials
N10	Uniform Fire Code Implementation	☐	☒	No hazardous materials
N11	Common Area Litter Control	☒	☐	
N12	Employee Training	☒	☐	
N13	Housekeeping of Loading Docks	☐	☒	None proposed on project
N14	Common Area Catch Basin Inspection	☒	☐	No hazardous materials

N15	Street Sweeping Private Streets and Parking Lots	☒	☐	
N16	Retail Gasoline Outlets	☐	☒	None proposed on project

N1 - Education for Property Owners, Tenants, and Occupants

Educational materials related to urban runoff can be provided to homeowners and employees to reduce pollutants from reaching the storm drain system.

N2 - Activity Restrictions

Activity restrictions can be developed to restrict activities that have the potential to create adverse impacts on water quality. Activities include but are not limited to: the handling and disposal of contaminants, trash management and litter control, irrigation and landscaping practices, vehicle and equipment cleaning, and fertilizer applications.

N3 - Common Area Landscape Management

Common area landscape management will include minimizing fertilizer and pesticide application, user of slow-release fertilizers, maintenance activities, and providing education and training for employees on management of landscape materials and storm water management.

N4 - BMP Maintenance

In accordance with City LIP and OC DAMP, the project owners and/or HOA of the site will be responsible for the implementation of all applicable non-structural BMPs, as well as scheduling inspections and maintenance of all applicable structure BMP facilities through its landscape contractor and any other necessary maintenance contractors for the project site. Responsibility shall be consistent with the BMP Inspection and Maintenance Responsibilities Matrix provided in Section V of this WQMP, with documented records of inspections and maintenance activities completed.

N11 - Common Area Litter Control

Regular litter control for the project shall be performed including trash pick-up on a weekly basis, and sweeping of littered common areas, as performed by the maintenance crew. In addition, pet waste receptacles will be provided throughout the project where applicable. The HOA will take note of trash disposal violations by homeowners and enforce CC&Rs appropriately.

N12 - Employee Training

Employees of the owner and/or HOA, as well as any contractors of the aforementioned entities will require training to ensure that employees are aware of activities that may result in pollutants reaching the storm drain. Training shall be conducted on an annual basis to ensure proper maintenance activities and daily activities are occurring.

N14 - Common Area Catch Basin Inspection

Includes routine maintenance of all catch basins, grate inlets, etc. for debris and litter removal. All on-site catch basins inspected and cleaned a minimum of two times annually, prior to and after the rainy season each year.

N15 - Street Sweeping Private Streets and Parking Lots

The project's private street shall be swept, at a minimum, prior to the start of the traditional rainy season and at least once every three months.

V.3.9 Structural Source Control BMPs

The table below indicates all Structural Source Control BMPs to be utilized in the project,

Structural Source Control BMPs				
ID	Name	Included	Not Applicable	If not applicable, state brief reason
S1	Provide storm drain system stenciling and signage	☒	☐	
S2	Design and construct outdoor material storage areas to reduce pollution introduction	☐	☒	No outdoor material storage areas.
S3	Design and construct trash and waste storage areas to reduce pollution introduction	☐	☒	No designated common trash area proposed.
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	☒	☐	
S5	Protect slopes and channels and provide energy dissipation	☐	☒	Not applicable. No large slopes (hillside landscaping) proposed.
S6	Dock areas	☐	☒	None proposed. Residential development
S7	Maintenance bays	☐	☒	None proposed. Residential development
S8	Vehicle wash areas	☐	☒	None proposed. Residential development
S9	Outdoor processing areas	☐	☒	None proposed. Residential development
S10	Equipment wash areas	☐	☒	None proposed. Residential development
S11	Fueling areas	☐	☒	None proposed. Residential development
S12	Hillside landscaping	☐	☒	None proposed. Residential development
S13	Wash water control for food preparation areas	☐	☒	None proposed. Residential development
S14	Community car wash racks	☐	☒	None proposed. Residential development

S1- Storm Drain Stenciling

Storm drain stencils or signage prohibiting dumping and discharge of materials ("No Dumping – Drains to Ocean") shall be provided adjacent to the project's proposed inlets. The stencils shall be inspected and restenciled as needed to maintain legibility.

S4 - Common Area Runoff – Minimizing Landscape Design

Installing and maintaining efficient irrigation systems designed to minimize water by eliminating overspray to hardscape areas, and setting irrigation timing and cycle lengths in accordance with water demands, given time of year, weather, and day and night temperatures. Where feasible, includes incorporation of native tolerant species for landscaping, protection of slopes and efficient irrigation.

IV.4 ALTERNATIVE COMPLIANCE PLAN

IV.4.1 Water Quality Credits

Not applicable. No water quality credits apply.

IV.4.2 Alternative Compliance Plan Information

Not applicable. An alternative compliance plan is not necessary since infiltration requirements have been met.

SECTION V INSPECTION/MAINTENANCE RESPONSIBILITY FOR BMPs

It has been determined that Bonanni Development shall assume all BMP inspection and maintenance responsibilities for the Euclid-La Habra Tentative Tract 18168 project, until an HOA is formally established.

Contact Name:	Ed Bonanni
Title:	President
Company:	Bonanni Development
Address:	5500 Bolsa Avenue Huntington Beach, CA 92649
Telephone #:	(714) 892-0123
Email:	ed@bonannidevelopment.com

The Owner/HOA shall verify BMP implementation and ongoing maintenance through inspection, self-certification, survey, or other equally effective measure. The certification shall verify that, at a minimum, the inspection and maintenance of all structural BMPs including inspection and performance of any required maintenance in the late summer/ early fall, prior to the start of the rainy season. A form that may be used to record implementation, maintenance and inspection of BMPs is included in Attachment C.

The City of La Habra may conduct verifications to assure that implementation and appropriate maintenance of structural and non-structural BMPs described within this WQMP is taking place at the project site. The owner shall retain operations, inspections and maintenance records of the BMPs and they will be made available to the City or County upon request. All records must be maintained for at least five (5) years after the recorded inspection date for the lifetime of the project.

Long term funding for operations and maintenance of BMPs will be generated through HOA fee. CC&Rs specifying BMP maintenance requirements of the HOA and annual HOA BMP Inspection and Maintenance budget will be finalized and submitted to the City for final review.

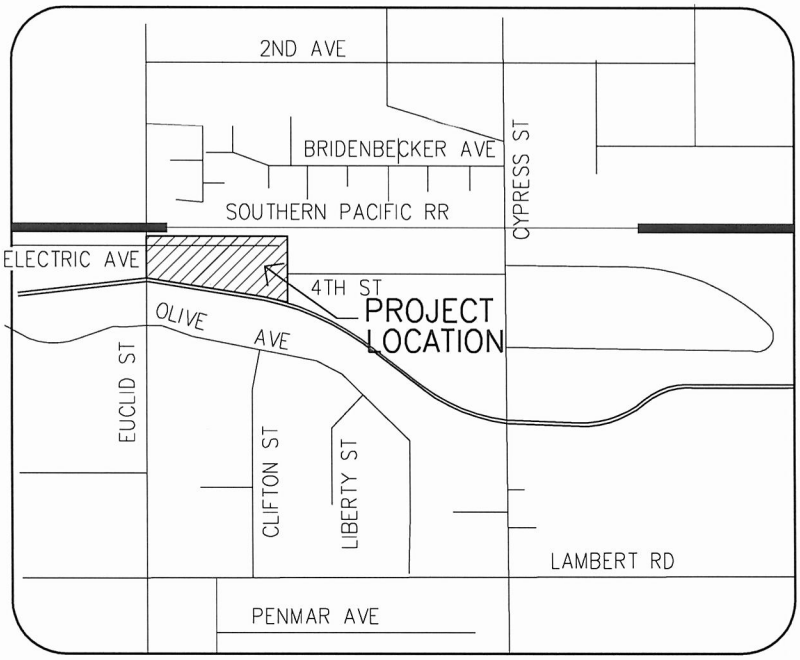
BMP INSPECTION & MAINTENANCE RESPONSIBILITY MATRIX				
BMP		Inspection/ Maintenance Activities Required	Minimum Frequency	Responsible Party
BIOTREATMENT BMPs				
BIO-7	Proprietary Biotreatment (Modular Wetlands System)	In accordance with manufacturer's specifications.	Before every major storm	Owner / HOA
Non-Structural Source Control BMPs				
N1	Education for Property Owners, Tenants and Occupants	Educational materials will be provided to home owners upon occupancy. (See Attachment B)	Annually	Owner / HOA
N2	Activity Restrictions	Activity and use restrictions will be developed and enforced by the Owner/HOA through CC&Rs.	Ongoing	Owner / HOA
N3	Common Area Landscape Management	Maintenance shall be consistent with City requirements, plus fertilizer and/or pesticide usage shall be consistent with the OC DAMP. Maintenance includes mowing, weeding, and debris removal on a weekly basis. Trimming, replanting and replacement of mulch shall be performed on an as-needed basis. Trimmings, clippings, and other waste shall be properly disposed of off-site in accordance with local regulations. Materials temporary stockpiled during maintenance activities shall be placed away from water courses and drain inlets.	Monthly	Owner / HOA
N4	BMP Maintenance	Maintenance of BMPs implemented at the project site shall be performed at the frequency prescribed in this WQMP. Records of inspections and BMP maintenance shall be maintained by the Owner/HOA and documented with the WQMP, and shall be available for review upon request.	Ongoing	Owner / HOA
N11	Common Area Litter Control	Litter patrol. Violations investigation, reporting and other litter control activities shall be performed in conjunction with maintenance activities. Litter collection and removal shall be performed on a weekly basis.	Weekly	Owner / HOA

BMP INSPECTION & MAINTENANCE RESPONSIBILITY MATRIX				
BMP		Inspection/ Maintenance Activities Required	Minimum Frequency	Responsible Party
N12	Employee Training	The HOA shall educate all new employees/managers on storm water pollution prevention, particularly good housekeeping practices, prior to the start of the rainy season (October 1st).	Annually	HOA
N14	Common Area Catch Basin Inspection	Catch basin inlets, area drains, swales, curb-and-gutter systems and other drainage systems shall be inspected after each storm event and, when debris is present, cleaned prior to the storm season by October 1st each year.	Annually	Owner / HOA
N15	Street Sweeping Private Streets and Parking Lots	Streets must be swept at minimum prior to the start of the rainy season (October 1st). Streets shall be swept as-needed.	Quarterly and as-needed	Owner / HOA
STRUCTURAL SOURCE CONTROL BMPs				
S1	Provide Storm Drain System Stenciling and Signage	Storm drain stencils shall be inspected for legibility, at minimum, once prior to the storm season, no later than October 1st each year. Those determined to be illegible will re-stenciled as soon as possible.	Annually	Owner / HOA
S4	Use Efficient Irrigation Systems & Landscape Design	In conjunction with routine maintenance activities, verify that landscape design continues to function properly by adjusting properly to eliminate overspray to hardscape areas, and to verify that irrigation timing and cycle lengths are adjusted in accordance with water demands, day or night time temperatures based on system specifications and local climate patterns.	Monthly	Owner / HOA

SECTION VI BMP EXHIBIT (SITE PLAN)

VI.1 BMP EXHIBIT (SITE PLAN)

- Vicinity Map
- WQMP Exhibit



N

VICINITY MAP
NTS

SECTION VII EDUCATIONAL MATERIALS

The educational materials that may be used for the proposed project are included in Attachment B of this WQMP and are listed below.

EDUCATION MATERIALS			
Residential Material (http://www.ocwatersheds.com)	**Check If Applicable**	**Business Material (http://www.ocwatersheds.com)**	**Check If Applicable**
The Ocean Begins at Your Front Door	☒	Tips for the Automotive Industry	☐
Tips for Car Wash Fund-raisers	☐	Tips for Using Concrete and Mortar	☐
Tips for the Home Mechanic	☐	Tips for the Food Service Industry	☐
Homeowners Guide for Sustainable Water Use	☐	Proper Maintenance Practices for Your Business	☐
Household Tips	☒	**Other Material**	**Check If Attached**
Proper Disposal of Household Hazardous Waste	☒		
Recycle at Your Local Used Oil Collection Center (North County)	☒	BIO-7 Proprietary Biotreatment (See Attachment C)	☒
Recycle at Your Local Used Oil Collection Center (Central County)	☐		☐
Recycle at Your Local Used Oil Collection Center (South County)	☐		☐
Tips for Maintaining a Septic Tank System	☐		☐
Responsible Pest Control	☒		☐
Sewer Spill	☐		☐
Tips for the Home Improvement Projects	☐		☐
Tips for Horse Care	☐		☐
Tips for Landscaping and Gardening	☒		☐
Tips for Pet Care	☒		☐
Tips for Pool Maintenance	☐		☐
Tips for Residential Pool, Landscape and Hardscape Drains	☐		☐
Tips for Projects Using Paint	☐		☐

ATTACHMENTS

Attachment A ..... TGD Worksheets, BMP Calculations, WinTR-55 Calculations, and Details

Attachment B .....Educational Materials

Attachment C ..... Operations & Maintenance Plan and Supplements

Attachment D .....WQMP Notice of Transfer of Responsibility

Attachment E .....Infiltration Report and Soils Report

Attachment F.....Conditions of Approval

Attachment A

TGD Worksheets, BMP Calculations, WinTR-55 Calculations and Details

Table 2.7: Infiltration BMP Feasibility Worksheet

	Infeasibility Criteria	*Yes*	*No*
1	**Would Infiltration BMPs pose significant risk for groundwater related concerns?** Refer to Appendix VII (Worksheet I) for guidance on groundwater-related infiltration feasibility criteria.	X	
Provide basis: Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
2	Would Infiltration BMPs **pose significant risk of increasing risk of geotechnical hazards that cannot be mitigated to an acceptable level**? (Yes if the answer to any of the following questions is yes, as established by a geotechnical expert): • The BMP can only be located less than 50 feet away from slopes steeper than 15 percent • The BMP can only be located less than eight feet from building foundations or an alternative setback. • A study prepared by a geotechnical professional or an available watershed study substantiates that stormwater infiltration would potentially result in significantly increased risks of geotechnical hazards that cannot be mitigated to an acceptable level.	X	
Provide basis: Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
3	Would infiltration of the DCV from drainage area **violate downstream water rights**?	X	
Provide basis: Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			

Worksheets from Orange County Technical Guidance Document (5-19-2011)
See TGD for instructions and/or examples related to these worksheets
www.ocwatersheds.com/WQMP.aspx

Table 2.7: Infiltration BMP Feasibility Worksheet (continued)

	Partial Infeasibility Criteria	*Yes*	*No*
4	Is proposed infiltration facility **located on HSG D soils** or the site geotechnical investigation identifies presence of soil characteristics which support categorization as D soils?	**N/A**	
Provide basis: Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
5	Is **measured infiltration rate below proposed facility less than 0.3 inches per hour**? This calculation shall be based on the methods described in Appendix VII.	**N/A**	
Provide basis: Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
6	Would **reduction of over predeveloped conditions cause impairments to downstream beneficial uses, such as change of seasonality of ephemeral washes or increased discharge of contaminated groundwater to surface waters?**	**N/A**	
Provide citation to applicable study and summarize findings relative to the amount of infiltration that is permissible: Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
7	Would **an increase in infiltration over predeveloped conditions cause impairments to downstream beneficial uses, such as change of seasonality of ephemeral washes or increased discharge of contaminated groundwater to surface waters?**	**N/A**	
Provide citation to applicable study and summarize findings relative to the amount of infiltration that is permissible: Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			

Table 2.7: Infiltration BMP Feasibility Worksheet (continued)

Infiltration Screening Results (check box corresponding to result):		
8	Is there substantial evidence that infiltration from the project would result in a significant increase in I&I to the sanitary sewer that cannot be sufficiently mitigated? (See Appendix XVII) Provide narrative discussion and supporting evidence: Summarize findings of studies provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.	**N/A Infiltration Not Feasible**
9	If any answer from row 1-3 is yes: infiltration of any volume is **not feasible** within the DMA or equivalent. Provide basis: Summarize findings of infeasibility screening	**N/A Infiltration Not Feasible**
10	If any answer from row 4-7 is yes, infiltration is **permissible but is not presumed to be feasible for the entire DCV.** Criteria for designing biotreatment BMPs to achieve the maximum feasible infiltration and ET shall apply. Provide basis: Summarize findings of infeasibility screening	**N/A Infiltration Not Feasible**
11	If all answers to rows 1 through 11 are no, infiltration of the full DCV is potentially feasible, BMPs must be designed to infiltrate the full DCV to the maximum extent practicable.	**N/A Infiltration Not Feasible**

Worksheets from Orange County Technical Guidance Document (5-19-2011)
See TGD for instructions and/or examples related to these worksheets
www.ocwatersheds.com/WQMP.aspx

Worksheet A: Hydrologic Source Control Calculation Form

Drainage area ID				
Total drainage area			acres	
Total drainage area Impervious Area (IA_{total})			acres	
HSC ID	HSC Type/ Description/ Reference BMP Fact Sheet	Effect of individual HSC_i per criteria in BMP Fact Sheets (XIV.1) (d_{HSCi})[1]	Impervious Area Tributary to HSC_i (IA_i)	$d_i \times IA_i$
	Box 1:	$\sum d_i \times IA_i =$		
	Box 2:	$IA_{total} =$		
	[Box 1]/[Box 2]:	$d_{HSC\ total} =$		
		Percent Capture Provided by HSCs (Table III.1)		

1 - For HSCs meeting criteria to be considered self-retaining, enter the DCV for the project.

N/A
To The Project

Worksheets from Orange County Technical Guidance Document (5-19-2011)
See TGD for instructions and/or examples related to these worksheets
www.ocwatersheds.com/WQMP.aspx

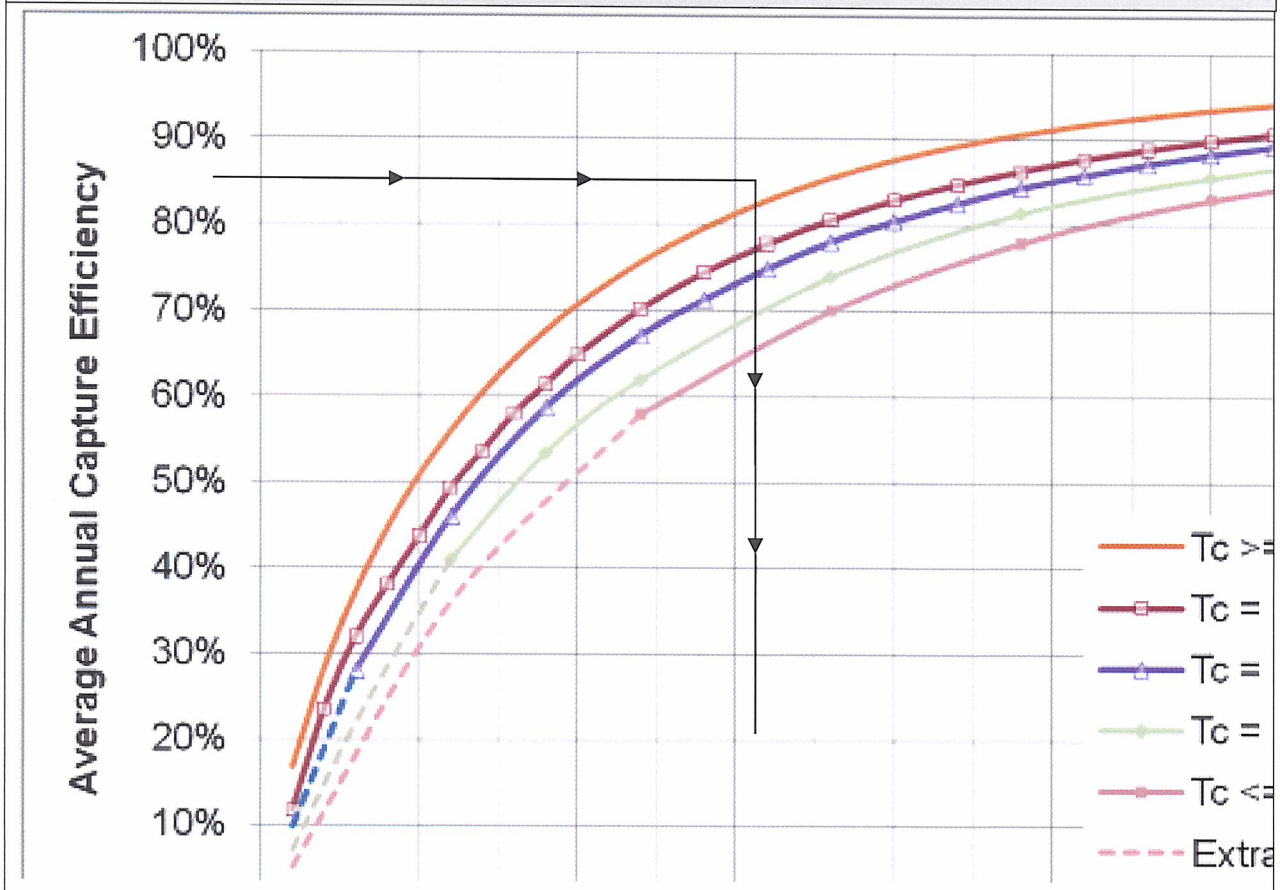
Worksheet D: Capture Efficiency Method for Flow-Based BMPs

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter the time of concentration, T_c (min) (See Appendix IV.2)	T_c=	16	
2	Using Figure III.4, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	I_1=	0.22	in/hr
3	Enter the effect depth of provided HSCs upstream, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
4	Enter capture efficiency corresponding to d_{HSC}, Y_2 (Worksheet A)	Y_2=	0	%
5	Using Figure III.4, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency(Y_2), I_2	I_2=	0	
6	Determine the design intensity that must be provided by BMP, $I_{design}= I_1-I_2$	I_{design}=	0.22	In/hr
Step 2: Calculate the design flowrate				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	2.82	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.89	
3	Calculate runoff coefficient, $C= (0.75 \times imp) + 0.15$	C=	0.67	
4	Calculate design flowrate, $Q_{design}= (C \times i_{design} \times A)$	Q_{design}=	0.49	cfs
Supporting Calculations				
Describe system:				
Provide time of concentration assumptions:				

Worksheets from Orange County Technical Guidance Document (5-19-2011)
See TGD for instructions and/or examples related to these worksheets
www.ocwatersheds.com/WQMP.aspx

Worksheet D: Capture Efficiency Method for Flow-Based BMPs

Graphical Operations



Provide supporting graphical operations. See Example III.7.

Tc = 16 Minutes

Worksheet H: Factor of Safety and Design Infiltration Rate Worksheet

Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v
A	Suitability Assessment	Soil assessment methods	0.25	1	0.25
		Predominant soil texture	0.25	1	0.25
		Site soil variability	0.25	1	0.25
		Depth to groundwater / impervious layer	0.25	1	0.25
		Suitability Assessment Safety Factor, $S_A = \Sigma p$			1.00
B	Design	Tributary area size	0.25	1	0.25
		Level of pretreatment/ expected sediment loads	0.25	3	0.75
		Redundancy	0.25	3	0.75
		Compaction during construction	0.25	3	0.25
		Design Safety Factor, $S_B = \Sigma p$			2.0

Combined Safety Factor, $S_{TOT} = S_A \times S_B$	2.0
Measured Infiltration Rate, inch/hr, K_M (corrected for test-specific bias)	0.25 inches/hour
Design Infiltration Rate, in/hr, $K_{DESIGN} = S_{TOT} / K_M$	0.12 inches/hour

Supporting Data

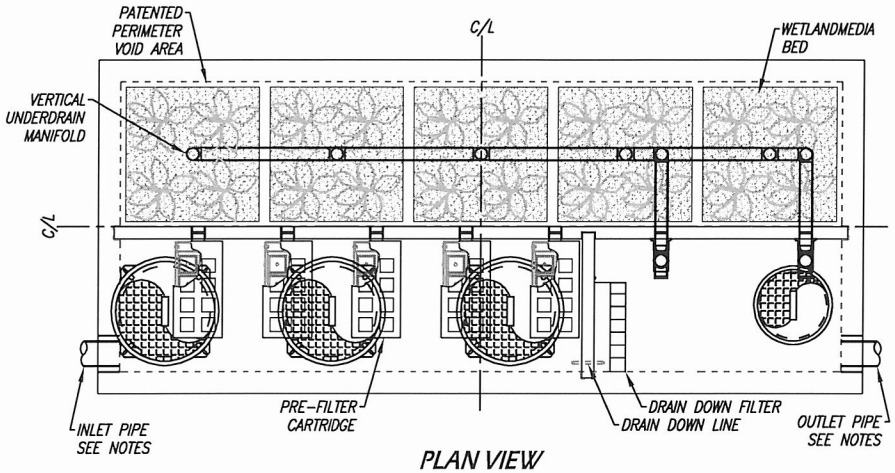
Briefly describe infiltration test and provide reference to test forms:

See Attachment E of WQMP.

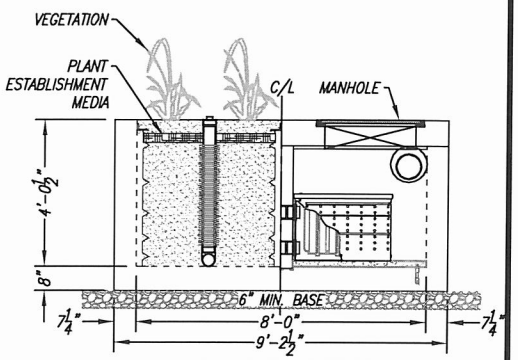
Note: The minimum combined adjustment factor shall not be less than 2.0 and the maximum combined adjustment factor shall not exceed 9.0.

Worksheets from Orange County Technical Guidance Document (5-19-2011)
See TGD for instructions and/or examples related to these worksheets
www.ocwatersheds.com/WQMP.aspx

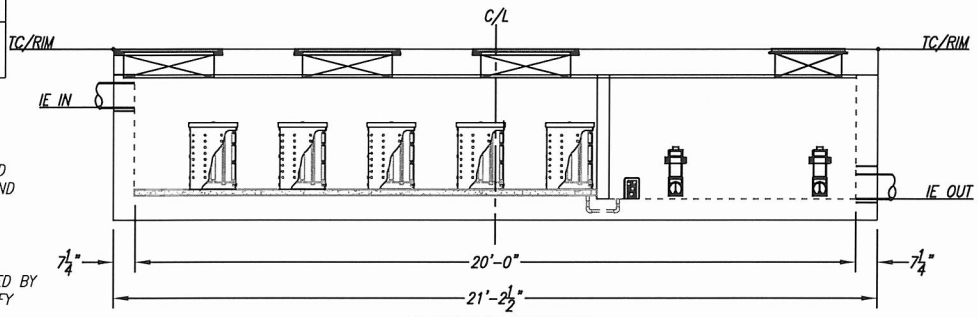
SITE SPECIFIC DATA			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
TREATMENT HGL AVAILABLE (FT)			
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PARKWAY	OPEN PLANTER	PARKWAY
FRAME & COVER	ø30"	N/A	ø24"
WETLANDMEDIA VOLUME (CY)			11.85
WETLANDMEDIA DELIVERY METHOD			TBD
ORIFICE SIZE (DIA. INCHES)			ø2.43"
MAXIMUM PICK WEIGHT (LBS)			TBD
NOTES:			



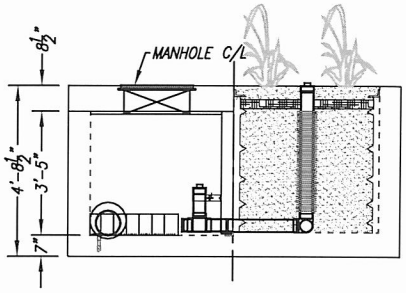
PLAN VIEW



LEFT END VIEW
BIOFILTRATION/PRETREATMENT



ELEVATION VIEW



RIGHT END VIEW
DISCHARGE/BIOFILTRATION

INSTALLATION NOTES

1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
2. UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE TO VERIFY PROJECT ENGINEERS RECOMMENDED BASE SPECIFICATIONS.
3. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL GAPS AROUND PIPES SHALL BE SEALED WATER TIGHT WITH A NON-SHRINK GROUT PER MANUFACTURERS STANDARD CONNECTION DETAIL AND SHALL MEET OR EXCEED REGIONAL PIPE CONNECTION STANDARDS.
4. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES.
5. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLES, AND HATCHES. CONTRACTOR TO GROUT ALL MANHOLES AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
6. DRIP OR SPRAY IRRIGATION REQUIRED ON ALL UNITS WITH VEGETATION.

GENERAL NOTES

1. MANUFACTURER TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS AND ACCESSORIES PLEASE CONTACT MANUFACTURER.

TREATMENT FLOW (CFS)	0.577
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	TBD
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

THE PRODUCT DESCRIBED MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING US PATENTS: 7,425,262; 7,470,362; 7,674,378; 8,303,816; RELATED FOREIGN PATENTS OR OTHER PATENTS PENDING

PROPRIETARY AND CONFIDENTIAL:

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MODULAR WETLANDS SYSTEMS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF MODULAR WETLANDS SYSTEMS IS PROHIBITED.

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MWS-L-8-20-V
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

Section [_____]
Modular Subsurface Flow Wetland System

PART 1 – GENERAL

01.01.00 Purpose
The purpose of this specification is to establish generally acceptable criteria for Modular Subsurface Flow Wetland Systems used for biofiltration of stormwater runoff including dry weather flows and other contaminated water sources. It is intended to serve as a guide to producers, distributors, architects, engineers, contractors, plumbers, installers, inspectors, agencies and users; to promote understanding regarding materials, manufacture and installation; and to provide for identification of devices complying with this specification.

01.02.00 Description
Modular Subsurface Flow Wetland Systems (MSFWS) are used for filtration of stormwater runoff including dry weather flows. The MSFWS is a pre-engineered biofiltration system composed of a pretreatment chamber containing filtration cartridges, a horizontal flow biofiltration chamber with a peripheral void area and a centralized and vertically extending underdrain, the biofiltration chamber containing a sorptive media mix which does not contain any organic material and a layer of plant establishment media, and a discharge chamber containing an orifice control structure . Treated water flows horizontally in series through the pretreatment chamber cartridges, biofiltration chamber and orifice control structure.

01.03.00 Manufacturer
The manufacturer of the MSFWS shall be one that is regularly engaged in the engineering design and production of systems developed for the treatment of stormwater runoff for at least (10) years, and which have a history of successful production, acceptable to the engineer of work. In accordance with the drawings, the MSFWS(s) shall be a filter device Manufactured by Bio Clean Environmental Services, Inc., or Modular Wetland Systems, Inc., or assigned distributors or licensees. Bio Clean Environmental Services Inc., and Modular Wetland Systems, Inc., can be reached at:

Corporate Headquarters:
Bio Clean Environmental Service, Inc.
2972 San Luis Rey Road
Oceanside, CA 92058
Phone: (760) 433-7640
Fax: (760) 433-3176
www.biocleanenvironmental.net

Corporate Headquarters:
Modular Wetland Systems, Inc.
P.O. Box 869
Oceanside, CA 92049
Phone: (760) 433-7650
www.modularwetlands.net

BIO CLEAN ENVIRONMENTAL SERVICES, INC.

01.04.00 Submittals

01.04.01 Shop drawings are to be submitted with each order to the contractor and consulting engineer.

01.04.02 Shop drawings are to detail the MSFWS and all components required and the sequence for installation, including:

- System configuration with primary dimensions
- Interior components
- Any accessory equipment called out on shop drawings

01.04.03 Inspection and maintenance documentation submitted upon request.

01.05.00 Work Included

01.05.01 Specification requirements for installation of MSFWS.

01.05.02 Manufacturer to supply components of the MSFWS(s):

- Pretreatment chamber components (pre-assembled)
- Concrete Structure(s)
- Biofiltration chamber components (pre-assembled)
- Flow control discharge structure (pre-assembled)

01.06.00 Reference Standards

ASTM C 29	Standard Test Method for Unit Weight and Voids in Aggregate
ASTM C 88	C 88 Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C131	C 131 Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregates by Abrasion and Impact in the Los Angeles Machine
ASTM C 136	C 136 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C 330	C 330 Standard Specification for Lightweight Aggregate for Structural Concrete
ASTM D 698	Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft.-lbf/ft3 (600 kN-m/m3)
ASTM D 1621	10 Standard Test Method for Compressive Properties Of Rigid Cellular Plastics
ASTM D 1777	ASTM D1777 - 96(2007) Standard Test Method for Thickness of Textile Materials
ASTM D 4716	Standard Test Method for Determining the (In-plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head
AASHTO T 99-01	Standard Method of Test for Moisture-Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in) Drop
AASHTO T 104	Standard Method of Test for Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate
AASHTO T 260	Standard Method of Test for Sampling and Testing for Chloride Ion in Concrete and Concrete Raw Materials.
AASHTO T 288	Standard Method of Test for Determining Minimum Laboratory Soil Resistivity
AASHTO T 289	Standard Method of Test for Determining ph of Soil for Use in Corrosion Testing
AASHTO T 291	Standard Method of Test for Determining Water Soluble Chloride Ion Content in Soil
AASHTO T 290	T 290 Standard Method of Test for Determining Water Soluble Sulfate Ion Content in Soil

BIO CLEAN ENVIRONMENTAL SERVICES, INC.

PART 2 – COMPONENTS

The Modular Subsurface Flow Wetland Systems (MSFWS) and all of its components shall be self-contained within a concrete structure constructed of concrete with a minimum 28 day compressive strength of 5,000 psi, with reinforcing per ASTM A 615, Grade 60, and supports and H20 loading as indicated by AASHTO. Each Chamber shall have appropriate access hatches for easy maintenance and sized to allow removal of all internal components without disassembly. All water transfer system components shall conform with the following;

- Filter netting shall be 100% Polyester with a number 16 sieve size, and strength tested per ASTM D 3787.
- Drainage cells shall be manufactured of lightweight injection-molded plastic and have a minimum compressive strength test of 6,000 psi and a void area along the surface making contact with the filter media of 75% or greater. The cells shall be at least 2" in thickness and allow water to freely flow in all four directions.

02.01.00 Pretreatment Chamber Components

02.01.01 Filter Cartridges shall operate at a loading rate not to exceed 3 gallons per minute per square foot surface area.

02.01.02 Drain Down System shall include a pervious floor that allows water to drain into the underdrain pipe that is connected to the discharge chamber.

02.02.00 Biofiltration Chamber Components

02.02.01 Media shall consist of ceramic material produced by expanding and vitrifying select material in a rotary kiln. Media must be produced to meet the requirements of ASTM C330, ASTM C331, and AASHTO M195. Aggregates must have a minimum 24-hour water absorption of 10.5% mass. Media shall not contain any organic material. Flow through media shall be horizontal from the outer perimeter of the chamber toward the centralized and vertically extending underdrain. The retention time in the media shall be at least 3 minutes. Downward flow filters are not acceptable alternatives. The thickness of the media shall be at least 19" from influent end to effluent end. The loading rate on the media shall not exceed 1.1 gallons per minute per square foot surface area. Media must be contained within structure that spaces the surface of the media at least 2" from all vertically extending walls of the concrete structure.

02.02.02 Planting shall be native, drought tolerant species recommend by manufacturer and/or landscape architect.

02.02.03 Plant Support Media shall be made of a 3" thick moisture retention cell that is inert and contains no chemicals or fertilizers, is not made of organic material and has an internal void percentage of 80%.

02.03.00 Discharge Chamber

The discharge device shall house a flow control orifice plate that restricts flows greater than designed treatment flow rate. All piping components shall be made of a high-density polyethylene. The discharge chamber shall also contain a drain down filter if specified on the drawing.

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PART 3 – PERFORMANCE

03.01.00 General

03.01.01 Function - The MSFWS has no moving internal components and functions based on gravity flow, unless otherwise specified. The MSFWS is composed of a pretreatment chamber, a biofiltration chamber and a discharge chamber. The pretreatment device houses cartridge media filters, which consist of filter media housed in a perforated enclosure. The untreated runoff flows into the system via subsurface piping and or surface inlet. Water entering the system is forced through the filter cartridge enclosures by gravity flow. Then the flow contacts the filter media. The flow through the media is horizontal toward the center of each individual media filter. In the center of the media shall be a round slotted PVC pipe of no greater than 1.5" in diameter. The slotted PVC pipe shall extend downward into the water transfer cavity of the cartridge. The slotted PVC pipe shall be threaded on the bottom to connect to the water transfer cavity. After pollutants have been removed by the filter media the water discharges the pretreatment chamber and flows into the water transfer system and is conveyed to the biofiltration chamber. Once runoff has been filtered by the biofiltration chamber it is collected by the vertical underdrain and conveyed to a discharge chamber equipped with a flow control orifice plate. Finally the treated flow exits the system.

03.01.02 Pollutants - The MSFWS will remove and retain debris, sediments, TSS, dissolved and particulate metals and nutrients including nitrogen and phosphorus species, bacteria, BOD, oxygen demanding substances, organic compounds and hydrocarbons entering the filter during frequent storm events and continuous dry weather flows.

03.01.03 Treatment Flow Rate and Bypass - The MSFWS operates in-line. The MSFWS will treat 100% of the required water quality treatment flow based on a minimum filtration capacities listed in section 03.02.00. The size of the system must match those provided on the drawing to ensure proper performance and hydraulic residence time.

Minimum Treatment Capabilities
• System must be capable of treating flows to the specified treatment flow rate on the drawings. The flow rate shall be controlled by an orifice plate.

PART 4 - EXECUTION

04.01.00 General

The installation of the MSFWS shall conform to all applicable national, state, state highway, municipal and local specifications.

04.02.00 Installation

The Contractor shall furnish all labor, equipment, materials and incidentals required to install the (MSFWS) device(s) and appurtenances in accordance with the drawings and these specifications.

BIO CLEAN ENVIRONMENTAL SERVICES, INC.

04.02.01 Grading and Excavation site shall be properly surveyed by a registered professional surveyor, and clearly marked with excavation limits and elevations. After site is marked it is the responsibility of the contractor to contact local utility companies and/or DigAlert to check for underground utilities. All grading permits shall be approved by governing agencies before commencement of grading and excavation. Soil conditions shall be tested in accordance with the governing agencies requirements. All earth removed shall be transported, disposed, stored, and handled per governing agencies standards. It is the responsibility of the contractor to install and maintain proper erosion control measures during grading and excavation operations.

04.02.02 Compaction – All soil shall be compacted per registered professional soils engineer's recommendations prior to installation of MSFWS components.

04.02.03 Backfill shall be placed according to a registered professional soils engineer's recommendations, and with a minimum of 6" of gravel under all concrete structures.

04.02.04 Concrete Structures – After backfill has been inspected by the governing agency and approved the concrete structures shall be lifted and placed in proper position per plans.

04.02.05 Subsurface Flow Wetland Media shall be carefully loaded into area so not to damage the Wetland Liner or Water Transfer Systems. The entire wetland area shall be filled to a level 9 inches below finished surface.

04.02.06 Planting layer shall be installed per manufacturer's drawings and consist of a minimum 3" grow enhancement media that ensures greater than 95% plant survival rate, and 6" of wetland media. Planting shall consist of native plants recommended by manufacturer and/or landscape architect. Planting shall be drip irrigated for at least the first 3 months to insure long term plant growth. No chemical herbicides, pesticides, or fertilizers shall be used in the planting or care and maintenance of the planted area.

04.03.00 Shipping, Storage and Handling

04.03.01 Shipping – MSFWS shall be shipped to the contractor's address or job site, and is the responsibility of the contractor to offload the unit(s) and place in the exact site of installation.

04.03.02 Storage and Handling– The contractor shall exercise care in the storage and handling of the MSFWS and all components prior to and during installation. Any repair or replacement costs associated with events occurring after delivery is accepted and unloading has commenced shall be born by the contractor. The MSFWS(s) and all components shall always be stored indoors and transported inside the original shipping container until the unit(s) are ready to be installed. The MSFWS shall always be handled with care and lifted according to OSHA and NIOSA lifting recommendations and/or contractor's workplace safety professional recommendations.

04.04.00 Maintenance and Inspection

04.04.01 Inspection – After installation, the contractor shall demonstrate that the MSFWS has been properly installed at the correct location(s), elevations, and with appropriate components. All components associated with the MSFWS and its installation shall be subject to inspection by the engineer at the place of installation. In addition, the contractor shall demonstrate that the MSFWS has been installed per the manufacturer's specifications and recommendations. All

components shall be inspected by a qualified person once a year and results of inspection shall be kept in an inspection log.

04.04.02 Maintenance – The manufacturer recommends cleaning and debris removal maintenance of once a year and replacement of the Cartridge Filters as needed. The maintenance shall be performed by someone qualified. A Maintenance Manual is available upon request from the manufacturer. The manual has detailed information regarding the maintenance of the MSFWS. A Maintenance/Inspection record shall be kept by the maintenance operator. The record shall include any maintenance activities preformed, amount and description of debris collected, and the condition of the filter.

04.04.03 Material Disposal - All debris, trash, organics, and sediments captured by the MSFWS shall be transported and disposed of at an approved facility for disposal in accordance with local and state requirements. Please refer to state and local regulations for the proper disposal of toxic and non-toxic material.

PART 5 – QUALITY ASSURNACE

05.01.00 Warranty

The Manufacturer shall guarantee the MSFWS against all manufacturing defects in materials and workmanship for a period of (5) years from the date of delivery to the _____. The manufacturer shall be notified of repair or replacement issues in writing within the warranty period. The MSFWS is limited to recommended application for which it was designed.

05.02.00 Performance Certification

The MSFWS manufacturer shall submit to the Engineer of Record a "Manufacturer's Performance Certificate" certifying the MSFWS is capable of achieving the specified removal efficiency for suspended solids, phosphorous and dissolved metals.

HYDROLOGIC CONDITIONS OF CONCERN

According to 2013 Susceptibility Map the project site is located in an area susceptible to hydromodification.

HCOC are considered to exist if any streams located downstream from the project are determined to be potentially susceptible to hydromodification impacts and either of the following conditions exists:

- Post-development runoff volume for the 2-yr, 24-hr storm exceeds the pre-development runoff volume for the 2-yr, 24-hr storm by more than 5 percent

  OR

- Time of concentration of post-development runoff for the 2-yr, 24-hr storm event exceeds the time of concentration of the pre-development condition for the 2-yr, 24-hr storm event by more than 5 percent.

The hydrology calculations using WinTR-55 calculator and summary table below indicate that the post-development runoff volume does not exceed the pre-development volume by more than 5 percent, thus satisfying the hydromodification performance criteria.

Summary: Based on 2-Year Storm Frequency

Item	Pre Development	Post Development
Volume (cu.ft.)	15,416	9,540
Time of Concentration (min)	9.84	10.98

WinTR-55

CALCULATIONS

EXISTING CONDITIONS

Existing 2-Year Runoff Volume =

1.506 inches x 2.82 acres x 43,560 sq ft/ac x 1 ft/12 inches =

15,416 cu ft

WinTR-55 Current Data Description

--- Identification Data ---

User: DMS
Project: LaHabra
SubTitle: Commercial Yard
State: California
County: Orange
Filename: C:\Users\Nishant\AppData\Roaming\WinTR-55\LaHabra-EX-NEW.w55

Date: 12/18/2018
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
A		Outlet	2.82	95	.247

Total area: 2.82 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.05	.0	.0	.0	.0	.0	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type I
Dimensionless Unit Hydrograph: <standard>

DMS

LaHabra
Commercial Yard
Orange County, California

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.05	.0	.0	.0	.0	.0	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type I
Dimensionless Unit Hydrograph: <standard>

DMS

LaHabra
Commercial Yard
Orange County, California

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 2-Yr (cfs)
SUBAREAS	
A	2.77
REACHES	
OUTLET	2.77

DMS LaHabra
Commercial Yard
Orange County, California

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 2-Yr (cfs) (hr)
SUBAREAS	
A	2.77 10.03
REACHES	
OUTLET	2.77

DMS

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Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
A	2.82	0.247	95	Outlet	

Total Area: 2.82 (ac)

DMS

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Orange County, California

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
A							
SHEET	100	0.0600	0.130				0.117
SHALLOW	658	0.0076	0.050				0.130
					Time of Concentration		.247

DMS

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Orange County, California

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
A	CN directly entered by user	-	2.82	95
	Total Area / Weighted Curve Number		2.82	95

```
WinTR-20 Printed Page File        Beginning of Input Data List
TR20.inp

WinTR-20: Version 1.10                    0          0          0.05
LaHabra
Commercial Yard

SUB-AREA:
          A          Outlet               .00441     95.        .247

STREAM REACH:

STORM ANALYSIS:
          2-Yr                            2.05       Type I     2

STRUCTURE RATING:


GLOBAL OUTPUT:
          2          0.05                 YYYYN      YYYYNN


WinTR-20 Printed Page File        End of Input Data List
```

LaHabra
Commercial Yard

Name of printed page file:
TR20.out

STORM 2-Yr

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
A	0.004		1.506		10.03	2.77	627.85

Line Start Time (hr)	Flow Values @ time increment of 0.016 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
5.659	0.05	0.05	0.05	0.05	0.05	0.05	0.05
5.768	0.05	0.05	0.05	0.05	0.05	0.05	0.05
5.878	0.05	0.05	0.05	0.05	0.05	0.06	0.06
5.987	0.06	0.06	0.06	0.06	0.06	0.06	0.06
6.096	0.06	0.06	0.06	0.06	0.06	0.06	0.06
6.205	0.06	0.06	0.06	0.06	0.06	0.06	0.06
6.314	0.06	0.06	0.07	0.07	0.07	0.07	0.07
6.424	0.07	0.07	0.07	0.07	0.07	0.07	0.07
6.533	0.07	0.07	0.07	0.08	0.08	0.08	0.08
6.642	0.08	0.08	0.08	0.08	0.08	0.08	0.08
6.751	0.08	0.08	0.08	0.09	0.09	0.09	0.09
6.860	0.09	0.09	0.09	0.09	0.09	0.09	0.09
6.970	0.09	0.09	0.10	0.10	0.10	0.10	0.10
7.079	0.10	0.10	0.10	0.10	0.10	0.10	0.10
7.188	0.10	0.10	0.11	0.11	0.11	0.11	0.11
7.297	0.11	0.11	0.11	0.11	0.11	0.11	0.11
7.406	0.11	0.11	0.11	0.11	0.11	0.11	0.11
7.516	0.12	0.12	0.12	0.12	0.12	0.12	0.12
7.625	0.12	0.12	0.12	0.12	0.12	0.12	0.12
7.734	0.12	0.12	0.12	0.12	0.12	0.12	0.12
7.843	0.12	0.13	0.13	0.13	0.13	0.13	0.13
7.952	0.13	0.13	0.13	0.13	0.13	0.13	0.13
8.062	0.13	0.13	0.13	0.13	0.14	0.14	0.14
8.171	0.14	0.14	0.14	0.14	0.15	0.15	0.15
8.280	0.15	0.15	0.16	0.16	0.16	0.16	0.17
8.389	0.17	0.17	0.17	0.18	0.18	0.18	0.19
8.498	0.19	0.19	0.19	0.20	0.20	0.20	0.20
8.608	0.21	0.21	0.21	0.22	0.22	0.22	0.22
8.717	0.23	0.23	0.23	0.24	0.24	0.24	0.24
8.826	0.25	0.25	0.25	0.26	0.26	0.26	0.27
8.935	0.27	0.27	0.27	0.28	0.28	0.28	0.29
9.044	0.29	0.29	0.30	0.30	0.30	0.31	0.31
9.154	0.31	0.32	0.32	0.33	0.33	0.34	0.34
9.263	0.35	0.35	0.36	0.36	0.37	0.37	0.38
9.372	0.38	0.39	0.40	0.40	0.41	0.41	0.42
9.481	0.42	0.43	0.44	0.44	0.45	0.46	0.47
9.590	0.49	0.51	0.53	0.55	0.58	0.61	0.65
9.700	0.69	0.74	0.79	0.84	0.90	0.97	1.05
9.809	1.13	1.23	1.33	1.45	1.57	1.72	1.87
9.918	2.04	2.20	2.36	2.49	2.60	2.69	2.74

LaHabra
Commercial Yard

Line Start Time (hr)	Flow Values @ time increment of 0.016 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
10.027	2.77	2.76	2.72	2.66	2.56	2.44	2.30
10.136	2.15	2.01	1.87	1.73	1.60	1.49	1.38
10.246	1.29	1.22	1.15	1.09	1.04	0.99	0.95
10.355	0.91	0.88	0.85	0.82	0.80	0.77	0.75
10.464	0.73	0.71	0.69	0.67	0.65	0.63	0.62
10.573	0.60	0.58	0.57	0.56	0.54	0.53	0.52
10.682	0.51	0.50	0.50	0.49	0.48	0.47	0.47
10.792	0.46	0.46	0.45	0.45	0.44	0.44	0.44
10.901	0.43	0.43	0.42	0.42	0.42	0.41	0.41
11.010	0.41	0.40	0.40	0.40	0.39	0.39	0.39
11.119	0.38	0.38	0.38	0.37	0.37	0.37	0.37
11.228	0.37	0.36	0.36	0.36	0.36	0.36	0.36
11.338	0.35	0.35	0.35	0.35	0.35	0.35	0.35
11.447	0.34	0.34	0.34	0.34	0.34	0.34	0.34
11.556	0.34	0.33	0.33	0.33	0.33	0.33	0.33
11.665	0.33	0.33	0.32	0.32	0.32	0.32	0.32
11.774	0.32	0.32	0.32	0.31	0.31	0.31	0.31
11.884	0.31	0.31	0.31	0.30	0.30	0.30	0.30
11.993	0.30	0.30	0.30	0.30	0.29	0.29	0.29
12.102	0.29	0.29	0.29	0.29	0.29	0.29	0.28
12.211	0.28	0.28	0.28	0.28	0.28	0.28	0.28
12.320	0.28	0.28	0.28	0.27	0.27	0.27	0.27
12.430	0.27	0.27	0.27	0.27	0.27	0.27	0.27
12.539	0.27	0.27	0.26	0.26	0.26	0.26	0.26
12.648	0.26	0.26	0.26	0.26	0.26	0.26	0.26
12.757	0.25	0.25	0.25	0.25	0.25	0.25	0.25
12.866	0.25	0.25	0.25	0.25	0.25	0.24	0.24
12.976	0.24	0.24	0.24	0.24	0.24	0.24	0.24
13.085	0.24	0.24	0.24	0.24	0.23	0.23	0.23
13.194	0.23	0.23	0.23	0.23	0.23	0.23	0.23
13.303	0.23	0.23	0.22	0.22	0.22	0.22	0.22
13.412	0.22	0.22	0.22	0.22	0.22	0.22	0.22
13.522	0.21	0.21	0.21	0.21	0.21	0.21	0.21
13.631	0.21	0.21	0.21	0.21	0.21	0.20	0.20
13.740	0.20	0.20	0.20	0.20	0.20	0.20	0.20
13.849	0.20	0.20	0.20	0.20	0.19	0.19	0.19
13.958	0.19	0.19	0.19	0.19	0.19	0.19	0.19
14.068	0.19	0.19	0.18	0.18	0.18	0.18	0.18
14.177	0.18	0.18	0.18	0.18	0.18	0.18	0.18
14.286	0.18	0.18	0.18	0.18	0.18	0.18	0.18
14.395	0.18	0.18	0.18	0.18	0.18	0.18	0.18
14.504	0.18	0.18	0.18	0.18	0.18	0.18	0.18
14.614	0.17	0.17	0.17	0.17	0.17	0.17	0.17
14.723	0.17	0.17	0.17	0.17	0.17	0.17	0.17
14.832	0.17	0.17	0.17	0.17	0.17	0.17	0.17
14.941	0.17	0.17	0.17	0.17	0.17	0.17	0.17
15.050	0.17	0.17	0.17	0.17	0.17	0.17	0.17
15.160	0.17	0.17	0.17	0.17	0.17	0.17	0.17
15.269	0.17	0.17	0.17	0.17	0.17	0.17	0.17
15.378	0.17	0.17	0.17	0.17	0.17	0.17	0.17
15.487	0.17	0.17	0.17	0.17	0.17	0.17	0.17

LaHabra
Commercial Yard

Line Start Time (hr)	Flow Values @ time increment of 0.016 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
15.596	0.16	0.16	0.16	0.16	0.16	0.16	0.16
15.706	0.16	0.16	0.16	0.16	0.16	0.16	0.16
15.815	0.16	0.16	0.16	0.16	0.16	0.16	0.16
15.924	0.16	0.16	0.16	0.16	0.16	0.16	0.16
16.033	0.16	0.16	0.16	0.16	0.16	0.16	0.16
16.142	0.16	0.16	0.16	0.16	0.16	0.16	0.16
16.252	0.16	0.16	0.16	0.16	0.16	0.16	0.16
16.361	0.16	0.16	0.16	0.16	0.16	0.16	0.16
16.470	0.16	0.16	0.16	0.16	0.16	0.16	0.15
16.579	0.15	0.15	0.15	0.15	0.15	0.15	0.15
16.688	0.15	0.15	0.15	0.15	0.15	0.15	0.15

WinTR-20 Printed Page File Beginning of Input Data List
TR20.inp

WinTR-20: Version 1.10 0 0 0.05
ra
Commercial Yard (continued)

STORM 2-Yr

SUB-AREA:
A Outlet .00441 95. .247

STREAM REACH:

16.798	0.15	0.15	0.15	0.15	0.15	0.15	0.15
16.907	0.15	0.15	0.15	0.15	0.15	0.15	0.15
17.016	0.15	0.15	0.15	0.15	0.15	0.15	0.15
17.125	0.15	0.15	0.15	0.15	0.15	0.15	0.15
17.234	0.15	0.15	0.15	0.15	0.15	0.15	0.15
17.344	0.15	0.15	0.15	0.15	0.15	0.15	0.15
17.453	0.15	0.15	0.15	0.15	0.14	0.14	0.14
17.562	0.14	0.14	0.14	0.14	0.14	0.14	0.14
17.671	0.14	0.14	0.14	0.14	0.14	0.14	0.14
17.780	0.14	0.14	0.14	0.14	0.14	0.14	0.14
17.890	0.14	0.14	0.14	0.14	0.14	0.14	0.14
17.999	0.14	0.14	0.14	0.14	0.14	0.14	0.14
18.108	0.14	0.14	0.14	0.14	0.14	0.14	0.14
18.217	0.14	0.14	0.14	0.14	0.14	0.14	0.14
18.326	0.14	0.14	0.14	0.14	0.14	0.14	0.14
18.436	0.14	0.14	0.13	0.13	0.13	0.13	0.13
18.545	0.13	0.13	0.13	0.13	0.13	0.13	0.13
18.654	0.13	0.13	0.13	0.13	0.13	0.13	0.13
18.763	0.13	0.13	0.13	0.13	0.13	0.13	0.13
18.872	0.13	0.13	0.13	0.13	0.13	0.13	0.13
18.982	0.13	0.13	0.13	0.13	0.13	0.13	0.13
19.091	0.13	0.13	0.13	0.13	0.13	0.13	0.13
19.200	0.13	0.13	0.13	0.13	0.13	0.13	0.13
19.309	0.13	0.13	0.13	0.13	0.13	0.12	0.12
19.418	0.12	0.12	0.12	0.12	0.12	0.12	0.12
19.528	0.12	0.12	0.12	0.12	0.12	0.12	0.12
19.637	0.12	0.12	0.12	0.12	0.12	0.12	0.12
19.746	0.12	0.12	0.12	0.12	0.12	0.12	0.12
19.855	0.12	0.12	0.12	0.12	0.12	0.12	0.12
19.964	0.12	0.12	0.12	0.12	0.12	0.12	0.12
20.074	0.12	0.12	0.12	0.12	0.12	0.12	0.12
20.183	0.12	0.12	0.12	0.12	0.12	0.12	0.12
20.292	0.12	0.12	0.11	0.11	0.11	0.11	0.11
20.401	0.11	0.11	0.11	0.11	0.11	0.11	0.11
20.510	0.11	0.11	0.11	0.11	0.11	0.11	0.11
20.620	0.11	0.11	0.11	0.11	0.11	0.11	0.11
20.729	0.11	0.11	0.11	0.11	0.11	0.11	0.11
20.838	0.11	0.11	0.11	0.11	0.11	0.11	0.11
20.947	0.11	0.11	0.11	0.11	0.11	0.11	0.11
21.056	0.11	0.11	0.11	0.11	0.11	0.11	0.11

WinTR-20 Version 1.10 Page 3 12/18/2018 7:46

LaHabra
Commercial Yard

Line Start Time (hr)	Flow Values @ time increment of 0.016 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
21.166	0.11	0.11	0.11	0.11	0.11	0.10	0.10
21.275	0.10	0.10	0.10	0.10	0.10	0.10	0.10
21.384	0.10	0.10	0.10	0.10	0.10	0.10	0.10
21.493	0.10	0.10	0.10	0.10	0.10	0.10	0.10
21.602	0.10	0.10	0.10	0.10	0.10	0.10	0.10
21.712	0.10	0.10	0.10	0.10	0.10	0.10	0.10
21.821	0.10	0.10	0.10	0.10	0.10	0.10	0.10
21.930	0.10	0.10	0.10	0.10	0.10	0.10	0.10
22.039	0.10	0.10	0.10	0.10	0.10	0.10	0.10
22.148	0.09	0.09	0.09	0.09	0.09	0.09	0.09
22.258	0.09	0.09	0.09	0.09	0.09	0.09	0.09
22.367	0.09	0.09	0.09	0.09	0.09	0.09	0.09
22.476	0.09	0.09	0.09	0.09	0.09	0.09	0.09
22.585	0.09	0.09	0.09	0.09	0.09	0.09	0.09
22.694	0.09	0.09	0.09	0.09	0.09	0.09	0.09
22.804	0.09	0.09	0.09	0.09	0.09	0.09	0.09
22.913	0.09	0.09	0.09	0.09	0.09	0.09	0.09
23.022	0.09	0.09	0.08	0.08	0.08	0.08	0.08
23.131	0.08	0.08	0.08	0.08	0.08	0.08	0.08

WinTR-55, Version 1.00.10 Page 2 12/18/2018 7:54:20 AM

WinTR-20 Printed Page File Beginning of Input Data List
TR20.inp

WinTR-20: Version 1.10 0 0 0.05
ra (continued)
Commercial Yard

STORM 2-Yr

SUB-AREA:
A Outlet .00441 95. .247

STREAM REACH:

23.240	0.08	0.08	0.08	0.08	0.08	0.08	0.08
23.350	0.08	0.08	0.08	0.08	0.08	0.08	0.08
23.459	0.08	0.08	0.08	0.08	0.08	0.08	0.08
23.568	0.08	0.08	0.08	0.08	0.08	0.08	0.08
23.677	0.08	0.08	0.08	0.08	0.08	0.08	0.08
23.786	0.08	0.08	0.08	0.08	0.08	0.08	0.08
23.896	0.08	0.08	0.08	0.08	0.08	0.07	0.07
24.005	0.07	0.07	0.07	0.07	0.07	0.07	0.06
24.114	0.06	0.05					

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.004		1.506		10.03	2.77	627.85

Line Start Time (hr) — Flow Values @ time increment of 0.016 hr

Start Time (hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
5.659	0.05	0.05	0.05	0.05	0.05	0.05	0.05
5.768	0.05	0.05	0.05	0.05	0.05	0.05	0.05
5.878	0.05	0.05	0.05	0.05	0.05	0.06	0.06
5.987	0.06	0.06	0.06	0.06	0.06	0.06	0.06
6.096	0.06	0.06	0.06	0.06	0.06	0.06	0.06
6.205	0.06	0.06	0.06	0.06	0.06	0.06	0.06
6.314	0.06	0.06	0.07	0.07	0.07	0.07	0.07
6.424	0.07	0.07	0.07	0.07	0.07	0.07	0.07
6.533	0.07	0.07	0.07	0.08	0.08	0.08	0.08
6.642	0.08	0.08	0.08	0.08	0.08	0.08	0.08
6.751	0.08	0.08	0.08	0.09	0.09	0.09	0.09
6.860	0.09	0.09	0.09	0.09	0.09	0.09	0.09

WinTR-20 Version 1.10 Page 4 12/18/2018 7:46

LaHabra
Commercial Yard

Line Start Time (hr) — Flow Values @ time increment of 0.016 hr

Start Time (hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
6.970	0.09	0.09	0.10	0.10	0.10	0.10	0.10
7.079	0.10	0.10	0.10	0.10	0.10	0.10	0.10
7.188	0.10	0.10	0.11	0.11	0.11	0.11	0.11
7.297	0.11	0.11	0.11	0.11	0.11	0.11	0.11
7.406	0.11	0.11	0.11	0.11	0.11	0.11	0.11
7.516	0.12	0.12	0.12	0.12	0.12	0.12	0.12
7.625	0.12	0.12	0.12	0.12	0.12	0.12	0.12
7.734	0.12	0.12	0.12	0.12	0.12	0.12	0.12
7.843	0.12	0.13	0.13	0.13	0.13	0.13	0.13
7.952	0.13	0.13	0.13	0.13	0.13	0.13	0.13
8.062	0.13	0.13	0.13	0.13	0.14	0.14	0.14
8.171	0.14	0.14	0.14	0.14	0.15	0.15	0.15
8.280	0.15	0.15	0.16	0.16	0.16	0.16	0.17
8.389	0.17	0.17	0.17	0.18	0.18	0.18	0.19
8.498	0.19	0.19	0.19	0.20	0.20	0.20	0.20
8.608	0.21	0.21	0.21	0.22	0.22	0.22	0.22
8.717	0.23	0.23	0.23	0.24	0.24	0.24	0.24
8.826	0.25	0.25	0.25	0.26	0.26	0.26	0.27
8.935	0.27	0.27	0.27	0.28	0.28	0.28	0.29
9.044	0.29	0.29	0.30	0.30	0.30	0.31	0.31
9.154	0.31	0.32	0.32	0.33	0.33	0.34	0.34
9.263	0.35	0.35	0.36	0.36	0.37	0.37	0.38
9.372	0.38	0.39	0.40	0.40	0.41	0.41	0.42
9.481	0.42	0.43	0.44	0.44	0.45	0.46	0.47
9.590	0.49	0.51	0.53	0.55	0.58	0.61	0.65
9.700	0.69	0.74	0.79	0.84	0.90	0.97	1.05
9.809	1.13	1.23	1.33	1.45	1.57	1.72	1.87

WinTR-20 Printed Page File Beginning of Input Data List
TR20.inp

WinTR-20: Version 1.10 0 0 0.05
ra
Commercial Yard (continued)

STORM 2-Yr

SUB-AREA:
A Outlet .00441 95. .247

STREAM REACH:

9.918	2.04	2.20	2.36	2.49	2.60	2.69	2.74
10.027	2.77	2.76	2.72	2.66	2.56	2.44	2.30
10.136	2.15	2.01	1.87	1.73	1.60	1.49	1.38
10.246	1.29	1.22	1.15	1.09	1.04	0.99	0.95
10.355	0.91	0.88	0.85	0.82	0.80	0.77	0.75
10.464	0.73	0.71	0.69	0.67	0.65	0.63	0.62
10.573	0.60	0.58	0.57	0.56	0.54	0.53	0.52
10.682	0.51	0.50	0.50	0.49	0.48	0.47	0.47
10.792	0.46	0.46	0.45	0.45	0.44	0.44	0.44
10.901	0.43	0.43	0.42	0.42	0.42	0.41	0.41
11.010	0.41	0.40	0.40	0.40	0.39	0.39	0.39
11.119	0.38	0.38	0.38	0.37	0.37	0.37	0.37
11.228	0.37	0.36	0.36	0.36	0.36	0.36	0.36
11.338	0.35	0.35	0.35	0.35	0.35	0.35	0.35
11.447	0.34	0.34	0.34	0.34	0.34	0.34	0.34
11.556	0.34	0.33	0.33	0.33	0.33	0.33	0.33
11.665	0.33	0.33	0.32	0.32	0.32	0.32	0.32
11.774	0.32	0.32	0.32	0.31	0.31	0.31	0.31
11.884	0.31	0.31	0.31	0.30	0.30	0.30	0.30
11.993	0.30	0.30	0.30	0.30	0.29	0.29	0.29
12.102	0.29	0.29	0.29	0.29	0.29	0.29	0.28
12.211	0.28	0.28	0.28	0.28	0.28	0.28	0.28
12.320	0.28	0.28	0.28	0.27	0.27	0.27	0.27
12.430	0.27	0.27	0.27	0.27	0.27	0.27	0.27

WinTR-20 Version 1.10 Page 5 12/18/2018 7:46

LaHabra
Commercial Yard

Line Start Time (hr)	Flow Values @ time increment of 0.016 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
12.539	0.27	0.27	0.26	0.26	0.26	0.26	0.26
12.648	0.26	0.26	0.26	0.26	0.26	0.26	0.26
12.757	0.25	0.25	0.25	0.25	0.25	0.25	0.25
12.866	0.25	0.25	0.25	0.25	0.25	0.24	0.24
12.976	0.24	0.24	0.24	0.24	0.24	0.24	0.24
13.085	0.24	0.24	0.24	0.24	0.23	0.23	0.23
13.194	0.23	0.23	0.23	0.23	0.23	0.23	0.23
13.303	0.23	0.23	0.22	0.22	0.22	0.22	0.22
13.412	0.22	0.22	0.22	0.22	0.22	0.22	0.22
13.522	0.21	0.21	0.21	0.21	0.21	0.21	0.21
13.631	0.21	0.21	0.21	0.21	0.21	0.20	0.20
13.740	0.20	0.20	0.20	0.20	0.20	0.20	0.20
13.849	0.20	0.20	0.20	0.20	0.19	0.19	0.19
13.958	0.19	0.19	0.19	0.19	0.19	0.19	0.19
14.068	0.19	0.19	0.18	0.18	0.18	0.18	0.18
14.177	0.18	0.18	0.18	0.18	0.18	0.18	0.18
14.286	0.18	0.18	0.18	0.18	0.18	0.18	0.18
14.395	0.18	0.18	0.18	0.18	0.18	0.18	0.18
14.504	0.18	0.18	0.18	0.18	0.18	0.18	0.18
14.614	0.17	0.17	0.17	0.17	0.17	0.17	0.17
14.723	0.17	0.17	0.17	0.17	0.17	0.17	0.17
14.832	0.17	0.17	0.17	0.17	0.17	0.17	0.17
14.941	0.17	0.17	0.17	0.17	0.17	0.17	0.17
15.050	0.17	0.17	0.17	0.17	0.17	0.17	0.17
15.160	0.17	0.17	0.17	0.17	0.17	0.17	0.17
15.269	0.17	0.17	0.17	0.17	0.17	0.17	0.17
15.378	0.17	0.17	0.17	0.17	0.17	0.17	0.17
15.487	0.17	0.17	0.17	0.17	0.17	0.17	0.17
15.596	0.16	0.16	0.16	0.16	0.16	0.16	0.16
15.706	0.16	0.16	0.16	0.16	0.16	0.16	0.16
15.815	0.16	0.16	0.16	0.16	0.16	0.16	0.16
15.924	0.16	0.16	0.16	0.16	0.16	0.16	0.16
16.033	0.16	0.16	0.16	0.16	0.16	0.16	0.16
16.142	0.16	0.16	0.16	0.16	0.16	0.16	0.16
16.252	0.16	0.16	0.16	0.16	0.16	0.16	0.16

WinTR-55, Version 1.00.10 Page 4 12/18/2018 7:54:20 AM

WinTR-20 Printed Page File Beginning of Input Data List
TR20.inp

WinTR-20: Version 1.10 0 0 0.05
ra
Commercial Yard (continued)

STORM 2-Yr

SUB-AREA:
A Outlet .00441 95. .247

STREAM REACH:

16.361	0.16	0.16	0.16	0.16	0.16	0.16	0.16
16.470	0.16	0.16	0.16	0.16	0.16	0.16	0.15
16.579	0.15	0.15	0.15	0.15	0.15	0.15	0.15
16.688	0.15	0.15	0.15	0.15	0.15	0.15	0.15
16.798	0.15	0.15	0.15	0.15	0.15	0.15	0.15
16.907	0.15	0.15	0.15	0.15	0.15	0.15	0.15
17.016	0.15	0.15	0.15	0.15	0.15	0.15	0.15
17.125	0.15	0.15	0.15	0.15	0.15	0.15	0.15
17.234	0.15	0.15	0.15	0.15	0.15	0.15	0.15
17.344	0.15	0.15	0.15	0.15	0.15	0.15	0.15
17.453	0.15	0.15	0.15	0.15	0.14	0.14	0.14
17.562	0.14	0.14	0.14	0.14	0.14	0.14	0.14
17.671	0.14	0.14	0.14	0.14	0.14	0.14	0.14
17.780	0.14	0.14	0.14	0.14	0.14	0.14	0.14
17.890	0.14	0.14	0.14	0.14	0.14	0.14	0.14
17.999	0.14	0.14	0.14	0.14	0.14	0.14	0.14

WinTR-20 Version 1.10 Page 6 12/18/2018 7:46

LaHabra
Commercial Yard

Line Start Time (hr)	Flow Values @ time increment of 0.016 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
18.108	0.14	0.14	0.14	0.14	0.14	0.14	0.14
18.217	0.14	0.14	0.14	0.14	0.14	0.14	0.14
18.326	0.14	0.14	0.14	0.14	0.14	0.14	0.14
18.436	0.14	0.14	0.13	0.13	0.13	0.13	0.13
18.545	0.13	0.13	0.13	0.13	0.13	0.13	0.13
18.654	0.13	0.13	0.13	0.13	0.13	0.13	0.13
18.763	0.13	0.13	0.13	0.13	0.13	0.13	0.13
18.872	0.13	0.13	0.13	0.13	0.13	0.13	0.13
18.982	0.13	0.13	0.13	0.13	0.13	0.13	0.13
19.091	0.13	0.13	0.13	0.13	0.13	0.13	0.13
19.200	0.13	0.13	0.13	0.13	0.13	0.13	0.13
19.309	0.13	0.13	0.13	0.13	0.13	0.12	0.12
19.418	0.12	0.12	0.12	0.12	0.12	0.12	0.12
19.528	0.12	0.12	0.12	0.12	0.12	0.12	0.12
19.637	0.12	0.12	0.12	0.12	0.12	0.12	0.12
19.746	0.12	0.12	0.12	0.12	0.12	0.12	0.12
19.855	0.12	0.12	0.12	0.12	0.12	0.12	0.12
19.964	0.12	0.12	0.12	0.12	0.12	0.12	0.12
20.074	0.12	0.12	0.12	0.12	0.12	0.12	0.12
20.183	0.12	0.12	0.12	0.12	0.12	0.12	0.12
20.292	0.12	0.12	0.11	0.11	0.11	0.11	0.11
20.401	0.11	0.11	0.11	0.11	0.11	0.11	0.11
20.510	0.11	0.11	0.11	0.11	0.11	0.11	0.11
20.620	0.11	0.11	0.11	0.11	0.11	0.11	0.11
20.729	0.11	0.11	0.11	0.11	0.11	0.11	0.11
20.838	0.11	0.11	0.11	0.11	0.11	0.11	0.11
20.947	0.11	0.11	0.11	0.11	0.11	0.11	0.11
21.056	0.11	0.11	0.11	0.11	0.11	0.11	0.11
21.166	0.11	0.11	0.11	0.11	0.11	0.10	0.10
21.275	0.10	0.10	0.10	0.10	0.10	0.10	0.10
21.384	0.10	0.10	0.10	0.10	0.10	0.10	0.10
21.493	0.10	0.10	0.10	0.10	0.10	0.10	0.10
21.602	0.10	0.10	0.10	0.10	0.10	0.10	0.10
21.712	0.10	0.10	0.10	0.10	0.10	0.10	0.10
21.821	0.10	0.10	0.10	0.10	0.10	0.10	0.10
21.930	0.10	0.10	0.10	0.10	0.10	0.10	0.10
22.039	0.10	0.10	0.10	0.10	0.10	0.10	0.10
22.148	0.09	0.09	0.09	0.09	0.09	0.09	0.09
22.258	0.09	0.09	0.09	0.09	0.09	0.09	0.09
22.367	0.09	0.09	0.09	0.09	0.09	0.09	0.09
22.476	0.09	0.09	0.09	0.09	0.09	0.09	0.09
22.585	0.09	0.09	0.09	0.09	0.09	0.09	0.09
22.694	0.09	0.09	0.09	0.09	0.09	0.09	0.09

WinTR-55, Version 1.00.10 Page 5 12/18/2018 7:54:20 AM

WinTR-20 Printed Page File Beginning of Input Data List
TR20.inp

WinTR-20: Version 1.10 0 0 0.05
ra (continued)
Commercial Yard

STORM 2-Yr

SUB-AREA:
A Outlet .00441 95. .247

STREAM REACH:

22.804	0.09	0.09	0.09	0.09	0.09	0.09	0.09
22.913	0.09	0.09	0.09	0.09	0.09	0.09	0.09
23.022	0.09	0.09	0.08	0.08	0.08	0.08	0.08
23.131	0.08	0.08	0.08	0.08	0.08	0.08	0.08
23.240	0.08	0.08	0.08	0.08	0.08	0.08	0.08
23.350	0.08	0.08	0.08	0.08	0.08	0.08	0.08
23.459	0.08	0.08	0.08	0.08	0.08	0.08	0.08
23.568	0.08	0.08	0.08	0.08	0.08	0.08	0.08

WinTR-20 Version 1.10 Page 7 12/18/2018 7:46

LaHabra
Commercial Yard

Line Start Time (hr)	Flow Values @ time increment of 0.016 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
23.677	0.08	0.08	0.08	0.08	0.08	0.08	0.08
23.786	0.08	0.08	0.08	0.08	0.08	0.08	0.08
23.896	0.08	0.08	0.08	0.08	0.08	0.07	0.07
24.005	0.07	0.07	0.07	0.07	0.07	0.07	0.06
24.114	0.06	0.05					

WinTR-55, Version 1.00.10 Page 6 12/18/2018 7:54:21 AM

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WinTR-20 Printed Page File        Beginning of Input Data List
TR20.inp

WinTR-20: Version 1.10                  0         0         0.05
ra                                                                          (continued)
Commercial Yard
                                           STORM 2-Yr
SUB-AREA:
          A         Outlet              .00441    95.       .247

STREAM REACH:

WinTR-20 Version 1.10              Page   8                   12/18/2018  7:46

                                    LaHabra
                                 Commercial Yard

 Area or    Drainage              ----------- Peak Flow by Storm -----------
  Reach       Area   Alternate       2-Yr
Identifier   (sq mi)               (cfs)     (cfs)     (cfs)     (cfs)     (cfs)

A            0.004                  2.77
OUTLET       0.004                  2.77
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WinTR-20 Version 1.10              Page   9                   12/18/2018  7:46
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WinTR-55, Version 1.00.10          Page   7                   12/18/2018   7:54:21 AM
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WinTR-55

CALCULATIONS

PROPOSED CONDITIONS

Proposed 2-Year Runoff Volume =
0.932 inches x 2.82 acres x 43,560 sq ft/ac x 1 ft/12 inches =
9,540 cu ft

--- Identification Data ---

User: DMS
Project: LaHabra
SubTitle: Commercial Yard
State: California
County: Orange
Filename: C:\Users\Nishant\AppData\Roaming\WinTR-55\LaHabra-PR-NEW.w55

Date: 12/18/2018
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
A		Outlet	2.82	87	.26

Total area: 2.82 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.05	.0	.0	.0	.0	.0	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type I
Dimensionless Unit Hydrograph: <standard>

DMS

LaHabra
Commercial Yard
Orange County, California

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.05	.0	.0	.0	.0	.0	.0

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type I
Dimensionless Unit Hydrograph: <standard>

DMS

LaHabra
Commercial Yard
Orange County, California

Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 2-Yr (cfs)
SUBAREAS	
A	1.57
REACHES	
OUTLET	1.57

WinTR-55, Version 1.00.10 Page 1 12/18/2018 7:57:40 AM

DMS

LaHabra
Commercial Yard
Orange County, California

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 2-Yr (cfs) (hr)
SUBAREAS	
A	1.57 10.06
REACHES	
OUTLET	1.57

DMS

LaHabra
Commercial Yard
Orange County, California

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
A	2.82	0.260	87	Outlet	

Total Area: 2.82 (ac)

DMS

LaHabra
Commercial Yard
Orange County, California

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
A							
SHEET	100	0.0500	0.130				0.126
SHALLOW	715	0.0053	0.025				0.134
					Time of Concentration		.26

DMS

LaHabra
Commercial Yard
Orange County, California

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
A	CN directly entered by user	-	2.82	87
	Total Area / Weighted Curve Number		2.82	87

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WinTR-20 Printed Page File        Beginning of Input Data List
TR20.inp

WinTR-20: Version 1.10                    0         0         0.05
LaHabra
Commercial Yard

SUB-AREA:
          A         Outlet                .00441    87.       .26

STREAM REACH:

STORM ANALYSIS:
          2-Yr                            2.05      Type I    2

STRUCTURE RATING:


GLOBAL OUTPUT:
          2         0.05                  YYYYN     YYYYNN


WinTR-20 Printed Page File        End of Input Data List
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LaHabra
Commercial Yard

Name of printed page file:
TR20.out

STORM 2-Yr

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
A	0.004		0.932		10.06	1.57	356.60

Line Start Time (hr)	Flow Values @ time increment of 0.016 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
8.562	0.05	0.05	0.05	0.05	0.06	0.06	0.06
8.677	0.06	0.06	0.06	0.06	0.07	0.07	0.07
8.792	0.07	0.07	0.07	0.07	0.08	0.08	0.08
8.907	0.08	0.08	0.08	0.09	0.09	0.09	0.09
9.022	0.09	0.09	0.10	0.10	0.10	0.10	0.10
9.137	0.11	0.11	0.11	0.11	0.11	0.12	0.12
9.252	0.12	0.13	0.13	0.13	0.13	0.14	0.14
9.366	0.14	0.15	0.15	0.15	0.16	0.16	0.16
9.481	0.17	0.17	0.18	0.18	0.18	0.19	0.20
9.596	0.20	0.21	0.23	0.24	0.25	0.27	0.29
9.711	0.31	0.34	0.37	0.40	0.44	0.48	0.52
9.826	0.58	0.64	0.70	0.78	0.87	0.96	1.07
9.941	1.17	1.27	1.36	1.43	1.50	1.54	1.57
10.056	1.57	1.56	1.52	1.47	1.40	1.32	1.24
10.171	1.16	1.08	1.01	0.94	0.88	0.82	0.77
10.286	0.73	0.70	0.67	0.64	0.62	0.59	0.57
10.401	0.55	0.54	0.52	0.50	0.49	0.48	0.46
10.516	0.45	0.44	0.43	0.42	0.41	0.40	0.39
10.631	0.38	0.37	0.36	0.35	0.35	0.34	0.34
10.746	0.33	0.33	0.32	0.32	0.32	0.31	0.31
10.861	0.31	0.30	0.30	0.30	0.30	0.29	0.29
10.976	0.29	0.29	0.28	0.28	0.28	0.28	0.27
11.091	0.27	0.27	0.27	0.27	0.26	0.26	0.26
11.206	0.26	0.26	0.26	0.26	0.25	0.25	0.25
11.321	0.25	0.25	0.25	0.25	0.25	0.25	0.25
11.436	0.25	0.24	0.24	0.24	0.24	0.24	0.24
11.550	0.24	0.24	0.24	0.24	0.24	0.24	0.24
11.665	0.23	0.23	0.23	0.23	0.23	0.23	0.23
11.780	0.23	0.23	0.23	0.23	0.23	0.22	0.22
11.895	0.22	0.22	0.22	0.22	0.22	0.22	0.22
12.010	0.22	0.22	0.22	0.21	0.21	0.21	0.21
12.125	0.21	0.21	0.21	0.21	0.21	0.21	0.21
12.240	0.21	0.21	0.21	0.20	0.20	0.20	0.20
12.355	0.20	0.20	0.20	0.20	0.20	0.20	0.20
12.470	0.20	0.20	0.20	0.20	0.20	0.20	0.20
12.585	0.19	0.19	0.19	0.19	0.19	0.19	0.19
12.700	0.19	0.19	0.19	0.19	0.19	0.19	0.19
12.815	0.19	0.19	0.19	0.19	0.18	0.18	0.18
12.930	0.18	0.18	0.18	0.18	0.18	0.18	0.18
13.045	0.18	0.18	0.18	0.18	0.18	0.18	0.18

LaHabra
Commercial Yard

Line Start Time (hr)	Flow Values @ time increment of 0.016 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
13.160	0.18	0.17	0.17	0.17	0.17	0.17	0.17
13.275	0.17	0.17	0.17	0.17	0.17	0.17	0.17
13.390	0.17	0.17	0.17	0.17	0.16	0.16	0.16
13.505	0.16	0.16	0.16	0.16	0.16	0.16	0.16
13.620	0.16	0.16	0.16	0.16	0.16	0.16	0.16
13.734	0.15	0.15	0.15	0.15	0.15	0.15	0.15
13.849	0.15	0.15	0.15	0.15	0.15	0.15	0.15
13.964	0.15	0.15	0.14	0.14	0.14	0.14	0.14
14.079	0.14	0.14	0.14	0.14	0.14	0.14	0.14
14.194	0.14	0.14	0.14	0.14	0.14	0.14	0.14
14.309	0.14	0.14	0.14	0.14	0.14	0.14	0.14
14.424	0.14	0.14	0.14	0.14	0.14	0.14	0.13
14.539	0.13	0.13	0.13	0.13	0.13	0.13	0.13
14.654	0.13	0.13	0.13	0.13	0.13	0.13	0.13
14.769	0.13	0.13	0.13	0.13	0.13	0.13	0.13
14.884	0.13	0.13	0.13	0.13	0.13	0.13	0.13
14.999	0.13	0.13	0.13	0.13	0.13	0.13	0.13
15.114	0.13	0.13	0.13	0.13	0.13	0.13	0.13
15.229	0.13	0.13	0.13	0.13	0.13	0.13	0.13
15.344	0.13	0.13	0.13	0.13	0.13	0.13	0.13
15.459	0.13	0.13	0.13	0.13	0.13	0.13	0.13
15.574	0.13	0.13	0.13	0.13	0.13	0.13	0.13
15.689	0.13	0.13	0.13	0.13	0.13	0.13	0.13
15.804	0.13	0.13	0.13	0.13	0.13	0.13	0.13
15.918	0.13	0.13	0.13	0.13	0.13	0.13	0.13
16.033	0.13	0.13	0.13	0.13	0.13	0.12	0.12
16.148	0.12	0.12	0.12	0.12	0.12	0.12	0.12
16.263	0.12	0.12	0.12	0.12	0.12	0.12	0.12
16.378	0.12	0.12	0.12	0.12	0.12	0.12	0.12
16.493	0.12	0.12	0.12	0.12	0.12	0.12	0.12
16.608	0.12	0.12	0.12	0.12	0.12	0.12	0.12
16.723	0.12	0.12	0.12	0.12	0.12	0.12	0.12
16.838	0.12	0.12	0.12	0.12	0.12	0.12	0.12
16.953	0.12	0.12	0.12	0.12	0.12	0.12	0.12
17.068	0.12	0.12	0.12	0.12	0.12	0.12	0.12
17.183	0.12	0.12	0.12	0.12	0.12	0.12	0.12
17.298	0.12	0.12	0.12	0.12	0.12	0.12	0.12
17.413	0.12	0.12	0.12	0.12	0.12	0.12	0.12
17.528	0.11	0.11	0.11	0.11	0.11	0.11	0.11
17.643	0.11	0.11	0.11	0.11	0.11	0.11	0.11
17.758	0.11	0.11	0.11	0.11	0.11	0.11	0.11
17.873	0.11	0.11	0.11	0.11	0.11	0.11	0.11
17.988	0.11	0.11	0.11	0.11	0.11	0.11	0.11
18.102	0.11	0.11	0.11	0.11	0.11	0.11	0.11
18.217	0.11	0.11	0.11	0.11	0.11	0.11	0.11
18.332	0.11	0.11	0.11	0.11	0.11	0.11	0.11
18.447	0.11	0.11	0.11	0.11	0.11	0.11	0.11
18.562	0.11	0.11	0.11	0.11	0.11	0.11	0.11
18.677	0.11	0.11	0.11	0.11	0.11	0.11	0.11
18.792	0.11	0.11	0.11	0.11	0.10	0.10	0.10
18.907	0.10	0.10	0.10	0.10	0.10	0.10	0.10

LaHabra
Commercial Yard

Line Start Time (hr)	Flow Values @ time increment of 0.016 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
19.022	0.10	0.10	0.10	0.10	0.10	0.10	0.10
19.137	0.10	0.10	0.10	0.10	0.10	0.10	0.10
19.252	0.10	0.10	0.10	0.10	0.10	0.10	0.10
19.367	0.10	0.10	0.10	0.10	0.10	0.10	0.10
19.482	0.10	0.10	0.10	0.10	0.10	0.10	0.10
19.597	0.10	0.10	0.10	0.10	0.10	0.10	0.10
19.712	0.10	0.10	0.10	0.10	0.10	0.10	0.10
19.827	0.10	0.10	0.10	0.10	0.10	0.10	0.10
19.942	0.10	0.10	0.10	0.10	0.10	0.10	0.10
20.057	0.10	0.10	0.10	0.09	0.09	0.09	0.09
20.172	0.09	0.09	0.09	0.09	0.09	0.09	0.09

WinTR-20 Printed Page File Beginning of Input Data Line
TR20.inp

WinTR-20: Version 1.10 0 0 0.05
ra
Commercial Yard (continued)

STORM 2-Yr

SUB-AREA:
A Outlet .00441 87. .26

STREAM REACH:

20.286	0.09	0.09	0.09	0.09	0.09	0.09	0.09
20.401	0.09	0.09	0.09	0.09	0.09	0.09	0.09
20.516	0.09	0.09	0.09	0.09	0.09	0.09	0.09
20.631	0.09	0.09	0.09	0.09	0.09	0.09	0.09
20.746	0.09	0.09	0.09	0.09	0.09	0.09	0.09
20.861	0.09	0.09	0.09	0.09	0.09	0.09	0.09
20.976	0.09	0.09	0.09	0.09	0.09	0.09	0.09
21.091	0.09	0.09	0.09	0.09	0.09	0.09	0.09
21.206	0.09	0.09	0.09	0.09	0.09	0.09	0.09
21.321	0.08	0.08	0.08	0.08	0.08	0.08	0.08
21.436	0.08	0.08	0.08	0.08	0.08	0.08	0.08
21.551	0.08	0.08	0.08	0.08	0.08	0.08	0.08
21.666	0.08	0.08	0.08	0.08	0.08	0.08	0.08
21.781	0.08	0.08	0.08	0.08	0.08	0.08	0.08
21.896	0.08	0.08	0.08	0.08	0.08	0.08	0.08
22.011	0.08	0.08	0.08	0.08	0.08	0.08	0.08
22.126	0.08	0.08	0.08	0.08	0.08	0.08	0.08
22.241	0.08	0.08	0.08	0.08	0.08	0.08	0.08
22.356	0.08	0.08	0.08	0.08	0.08	0.08	0.08
22.470	0.08	0.07	0.07	0.07	0.07	0.07	0.07
22.585	0.07	0.07	0.07	0.07	0.07	0.07	0.07
22.700	0.07	0.07	0.07	0.07	0.07	0.07	0.07
22.815	0.07	0.07	0.07	0.07	0.07	0.07	0.07
22.930	0.07	0.07	0.07	0.07	0.07	0.07	0.07
23.045	0.07	0.07	0.07	0.07	0.07	0.07	0.07
23.160	0.07	0.07	0.07	0.07	0.07	0.07	0.07
23.275	0.07	0.07	0.07	0.07	0.07	0.07	0.07
23.390	0.07	0.07	0.07	0.07	0.07	0.07	0.07
23.505	0.07	0.07	0.07	0.07	0.07	0.07	0.07
23.620	0.06	0.06	0.06	0.06	0.06	0.06	0.06
23.735	0.06	0.06	0.06	0.06	0.06	0.06	0.06
23.850	0.06	0.06	0.06	0.06	0.06	0.06	0.06
23.965	0.06	0.06	0.06	0.06	0.06	0.06	0.06
24.080	0.06	0.05					

WinTR-20 Version 1.10 Page 3 12/18/2018 7:57

LaHabra
Commercial Yard

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
OUTLET	0.004		0.932		10.06	1.57	356.60

Line Start Time (hr)	Flow Values @ time increment of 0.016 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
8.562	0.05	0.05	0.05	0.05	0.06	0.06	0.06
8.677	0.06	0.06	0.06	0.06	0.07	0.07	0.07
8.792	0.07	0.07	0.07	0.07	0.08	0.08	0.08
8.907	0.08	0.08	0.08	0.09	0.09	0.09	0.09
9.022	0.09	0.09	0.10	0.10	0.10	0.10	0.10
9.137	0.11	0.11	0.11	0.11	0.11	0.12	0.12
9.252	0.12	0.13	0.13	0.13	0.13	0.14	0.14
9.366	0.14	0.15	0.15	0.15	0.16	0.16	0.16
9.481	0.17	0.17	0.18	0.18	0.18	0.19	0.20
9.596	0.20	0.21	0.23	0.24	0.25	0.27	0.29
9.711	0.31	0.34	0.37	0.40	0.44	0.48	0.52
9.826	0.58	0.64	0.70	0.78	0.87	0.96	1.07
9.941	1.17	1.27	1.36	1.43	1.50	1.54	1.57

WinTR-55, Version 1.00.10 Page 2 12/18/2018 8:01:00 AM

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WinTR-20: Version 1.10 0 0 0.05
ra
Commercial Yard (continued)

STORM 2-Yr

SUB-AREA:
A Outlet .00441 87. .26

STREAM REACH:

10.056	1.57	1.56	1.52	1.47	1.40	1.32	1.24
10.171	1.16	1.08	1.01	0.94	0.88	0.82	0.77
10.286	0.73	0.70	0.67	0.64	0.62	0.59	0.57
10.401	0.55	0.54	0.52	0.50	0.49	0.48	0.46
10.516	0.45	0.44	0.43	0.42	0.41	0.40	0.39
10.631	0.38	0.37	0.36	0.35	0.35	0.34	0.34
10.746	0.33	0.33	0.32	0.32	0.32	0.31	0.31
10.861	0.31	0.30	0.30	0.30	0.30	0.29	0.29
10.976	0.29	0.29	0.28	0.28	0.28	0.28	0.27
11.091	0.27	0.27	0.27	0.27	0.26	0.26	0.26
11.206	0.26	0.26	0.26	0.26	0.25	0.25	0.25
11.321	0.25	0.25	0.25	0.25	0.25	0.25	0.25
11.436	0.25	0.24	0.24	0.24	0.24	0.24	0.24
11.550	0.24	0.24	0.24	0.24	0.24	0.24	0.24
11.665	0.23	0.23	0.23	0.23	0.23	0.23	0.23
11.780	0.23	0.23	0.23	0.23	0.23	0.22	0.22
11.895	0.22	0.22	0.22	0.22	0.22	0.22	0.22
12.010	0.22	0.22	0.22	0.21	0.21	0.21	0.21
12.125	0.21	0.21	0.21	0.21	0.21	0.21	0.21
12.240	0.21	0.21	0.21	0.20	0.20	0.20	0.20
12.355	0.20	0.20	0.20	0.20	0.20	0.20	0.20
12.470	0.20	0.20	0.20	0.20	0.20	0.20	0.20
12.585	0.19	0.19	0.19	0.19	0.19	0.19	0.19
12.700	0.19	0.19	0.19	0.19	0.19	0.19	0.19
12.815	0.19	0.19	0.19	0.19	0.18	0.18	0.18
12.930	0.18	0.18	0.18	0.18	0.18	0.18	0.18
13.045	0.18	0.18	0.18	0.18	0.18	0.18	0.18
13.160	0.18	0.17	0.17	0.17	0.17	0.17	0.17
13.275	0.17	0.17	0.17	0.17	0.17	0.17	0.17
13.390	0.17	0.17	0.17	0.17	0.16	0.16	0.16
13.505	0.16	0.16	0.16	0.16	0.16	0.16	0.16
13.620	0.16	0.16	0.16	0.16	0.16	0.16	0.16

WinTR-20 Version 1.10 Page 4 12/18/2018 7:57

LaHabra
Commercial Yard

Line Start Time (hr)	Flow Values @ time increment of 0.016 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
13.734	0.15	0.15	0.15	0.15	0.15	0.15	0.15
13.849	0.15	0.15	0.15	0.15	0.15	0.15	0.15
13.964	0.15	0.15	0.14	0.14	0.14	0.14	0.14
14.079	0.14	0.14	0.14	0.14	0.14	0.14	0.14
14.194	0.14	0.14	0.14	0.14	0.14	0.14	0.14
14.309	0.14	0.14	0.14	0.14	0.14	0.14	0.14
14.424	0.14	0.14	0.14	0.14	0.14	0.14	0.13
14.539	0.13	0.13	0.13	0.13	0.13	0.13	0.13
14.654	0.13	0.13	0.13	0.13	0.13	0.13	0.13
14.769	0.13	0.13	0.13	0.13	0.13	0.13	0.13
14.884	0.13	0.13	0.13	0.13	0.13	0.13	0.13
14.999	0.13	0.13	0.13	0.13	0.13	0.13	0.13
15.114	0.13	0.13	0.13	0.13	0.13	0.13	0.13
15.229	0.13	0.13	0.13	0.13	0.13	0.13	0.13
15.344	0.13	0.13	0.13	0.13	0.13	0.13	0.13
15.459	0.13	0.13	0.13	0.13	0.13	0.13	0.13
15.574	0.13	0.13	0.13	0.13	0.13	0.13	0.13
15.689	0.13	0.13	0.13	0.13	0.13	0.13	0.13
15.804	0.13	0.13	0.13	0.13	0.13	0.13	0.13
15.918	0.13	0.13	0.13	0.13	0.13	0.13	0.13
16.033	0.13	0.13	0.13	0.13	0.13	0.12	0.12
16.148	0.12	0.12	0.12	0.12	0.12	0.12	0.12
16.263	0.12	0.12	0.12	0.12	0.12	0.12	0.12
16.378	0.12	0.12	0.12	0.12	0.12	0.12	0.12
16.493	0.12	0.12	0.12	0.12	0.12	0.12	0.12
16.608	0.12	0.12	0.12	0.12	0.12	0.12	0.12
16.723	0.12	0.12	0.12	0.12	0.12	0.12	0.12

WinTR-55, Version 1.00.10 Page 3 12/18/2018 8:01:00 AM

WinTR-20 Printed Page File Beginning of Input Data List
TR20.inp

WinTR-20: Version 1.10 0 0 0.05
ra
Commercial Yard (continued)

STORM 2-Yr

SUB-AREA:
A Outlet .00441 87. .26

STREAM REACH:

16.838	0.12	0.12	0.12	0.12	0.12	0.12	0.12
16.953	0.12	0.12	0.12	0.12	0.12	0.12	0.12
17.068	0.12	0.12	0.12	0.12	0.12	0.12	0.12
17.183	0.12	0.12	0.12	0.12	0.12	0.12	0.12
17.298	0.12	0.12	0.12	0.12	0.12	0.12	0.12
17.413	0.12	0.12	0.12	0.12	0.12	0.12	0.12
17.528	0.11	0.11	0.11	0.11	0.11	0.11	0.11
17.643	0.11	0.11	0.11	0.11	0.11	0.11	0.11
17.758	0.11	0.11	0.11	0.11	0.11	0.11	0.11
17.873	0.11	0.11	0.11	0.11	0.11	0.11	0.11
17.988	0.11	0.11	0.11	0.11	0.11	0.11	0.11
18.102	0.11	0.11	0.11	0.11	0.11	0.11	0.11
18.217	0.11	0.11	0.11	0.11	0.11	0.11	0.11
18.332	0.11	0.11	0.11	0.11	0.11	0.11	0.11
18.447	0.11	0.11	0.11	0.11	0.11	0.11	0.11
18.562	0.11	0.11	0.11	0.11	0.11	0.11	0.11
18.677	0.11	0.11	0.11	0.11	0.11	0.11	0.11
18.792	0.11	0.11	0.11	0.11	0.10	0.10	0.10
18.907	0.10	0.10	0.10	0.10	0.10	0.10	0.10
19.022	0.10	0.10	0.10	0.10	0.10	0.10	0.10
19.137	0.10	0.10	0.10	0.10	0.10	0.10	0.10
19.252	0.10	0.10	0.10	0.10	0.10	0.10	0.10
19.367	0.10	0.10	0.10	0.10	0.10	0.10	0.10
19.482	0.10	0.10	0.10	0.10	0.10	0.10	0.10

WinTR-20 Version 1.10 Page 5 12/18/2018 7:57

LaHabra
Commercial Yard

Line Start Time (hr)	Flow Values @ time increment of 0.016 hr (cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
19.597	0.10	0.10	0.10	0.10	0.10	0.10	0.10
19.712	0.10	0.10	0.10	0.10	0.10	0.10	0.10
19.827	0.10	0.10	0.10	0.10	0.10	0.10	0.10
19.942	0.10	0.10	0.10	0.10	0.10	0.10	0.10
20.057	0.10	0.10	0.10	0.09	0.09	0.09	0.09
20.172	0.09	0.09	0.09	0.09	0.09	0.09	0.09
20.286	0.09	0.09	0.09	0.09	0.09	0.09	0.09
20.401	0.09	0.09	0.09	0.09	0.09	0.09	0.09
20.516	0.09	0.09	0.09	0.09	0.09	0.09	0.09
20.631	0.09	0.09	0.09	0.09	0.09	0.09	0.09
20.746	0.09	0.09	0.09	0.09	0.09	0.09	0.09
20.861	0.09	0.09	0.09	0.09	0.09	0.09	0.09
20.976	0.09	0.09	0.09	0.09	0.09	0.09	0.09
21.091	0.09	0.09	0.09	0.09	0.09	0.09	0.09
21.206	0.09	0.09	0.09	0.09	0.09	0.09	0.09
21.321	0.08	0.08	0.08	0.08	0.08	0.08	0.08
21.436	0.08	0.08	0.08	0.08	0.08	0.08	0.08
21.551	0.08	0.08	0.08	0.08	0.08	0.08	0.08
21.666	0.08	0.08	0.08	0.08	0.08	0.08	0.08
21.781	0.08	0.08	0.08	0.08	0.08	0.08	0.08
21.896	0.08	0.08	0.08	0.08	0.08	0.08	0.08
22.011	0.08	0.08	0.08	0.08	0.08	0.08	0.08
22.126	0.08	0.08	0.08	0.08	0.08	0.08	0.08
22.241	0.08	0.08	0.08	0.08	0.08	0.08	0.08
22.356	0.08	0.08	0.08	0.08	0.08	0.08	0.08
22.470	0.08	0.07	0.07	0.07	0.07	0.07	0.07
22.585	0.07	0.07	0.07	0.07	0.07	0.07	0.07
22.700	0.07	0.07	0.07	0.07	0.07	0.07	0.07
22.815	0.07	0.07	0.07	0.07	0.07	0.07	0.07
22.930	0.07	0.07	0.07	0.07	0.07	0.07	0.07
23.045	0.07	0.07	0.07	0.07	0.07	0.07	0.07
23.160	0.07	0.07	0.07	0.07	0.07	0.07	0.07
23.275	0.07	0.07	0.07	0.07	0.07	0.07	0.07
23.390	0.07	0.07	0.07	0.07	0.07	0.07	0.07
23.505	0.07	0.07	0.07	0.07	0.07	0.07	0.07

WinTR-55, Version 1.00.10 Page 4 12/18/2018 8:01:00 AM

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WinTR-20 Printed Page File        Beginning of Input Data List
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WinTR-20: Version 1.10                  0         0         0.05
ra                                                                          (continued)
Commercial Yard
                                              STORM 2-Yr
SUB-AREA:
          A         Outlet                .00441    87.       .26

STREAM REACH:
    23.620      0.06      0.06      0.06      0.06      0.06      0.06      0.06
    23.735      0.06      0.06      0.06      0.06      0.06      0.06      0.06
    23.850      0.06      0.06      0.06      0.06      0.06      0.06      0.06
    23.965      0.06      0.06      0.06      0.06      0.06      0.06      0.06
    24.080      0.06      0.05
```

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WinTR-20 Version 1.10              Page   6                  12/18/2018  7:57

                                    LaHabra
                                Commercial Yard

 Area or    Drainage              ----------- Peak Flow by Storm -----------
  Reach       Area   Alternate       2-Yr
Identifier   (sq mi)               (cfs)     (cfs)     (cfs)     (cfs)     (cfs)

A            0.004                  1.57
OUTLET       0.004                  1.57
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WinTR-55, Version 1.00.10          Page   5                  12/18/2018   8:01:00 AM
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TR20.inp

WinTR-20: Version 1.10                  0         0         0.05
ra                                                                          (continued)
Commercial Yard
                                           STORM 2-Yr
SUB-AREA:
          A         Outlet              .00441    87.       .26

STREAM REACH:
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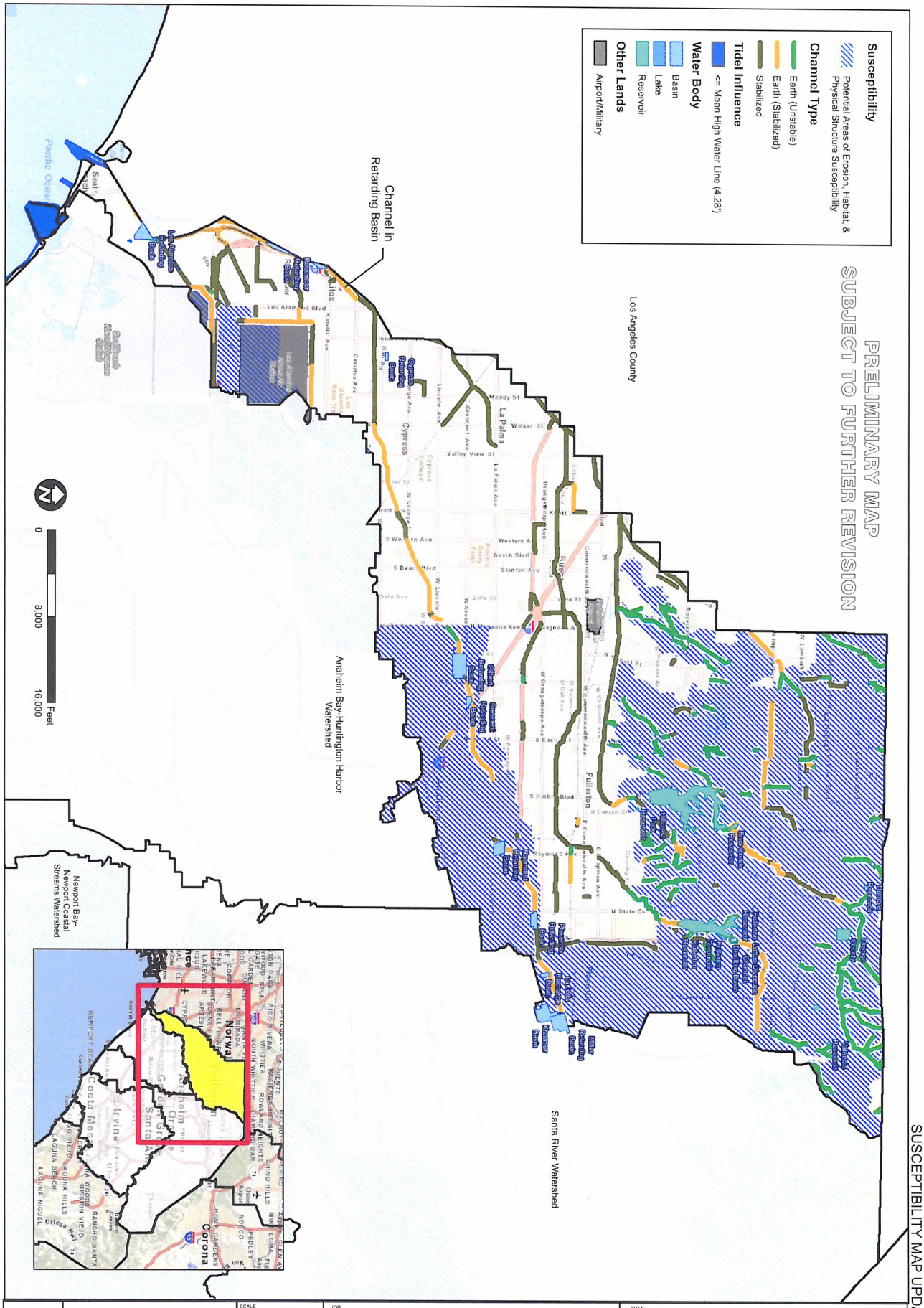

1	PACE Advanced Water Engineering	SCALE 1" = 8000'	JOB ORANGE COUNTY WATERSHED MASTER PLANNING	TITLE SUSCEPTIBILITY ANALYIS SAN GABRIEL-COYOTE CREEK
		DESIGNED TH		
		DRAWING TH		
		CHECKED RMP		
		DATE 04/30/10	ORANGE CO. CA	

SUSCEPTIBILITY MAP UPDATE (DEC 2012)

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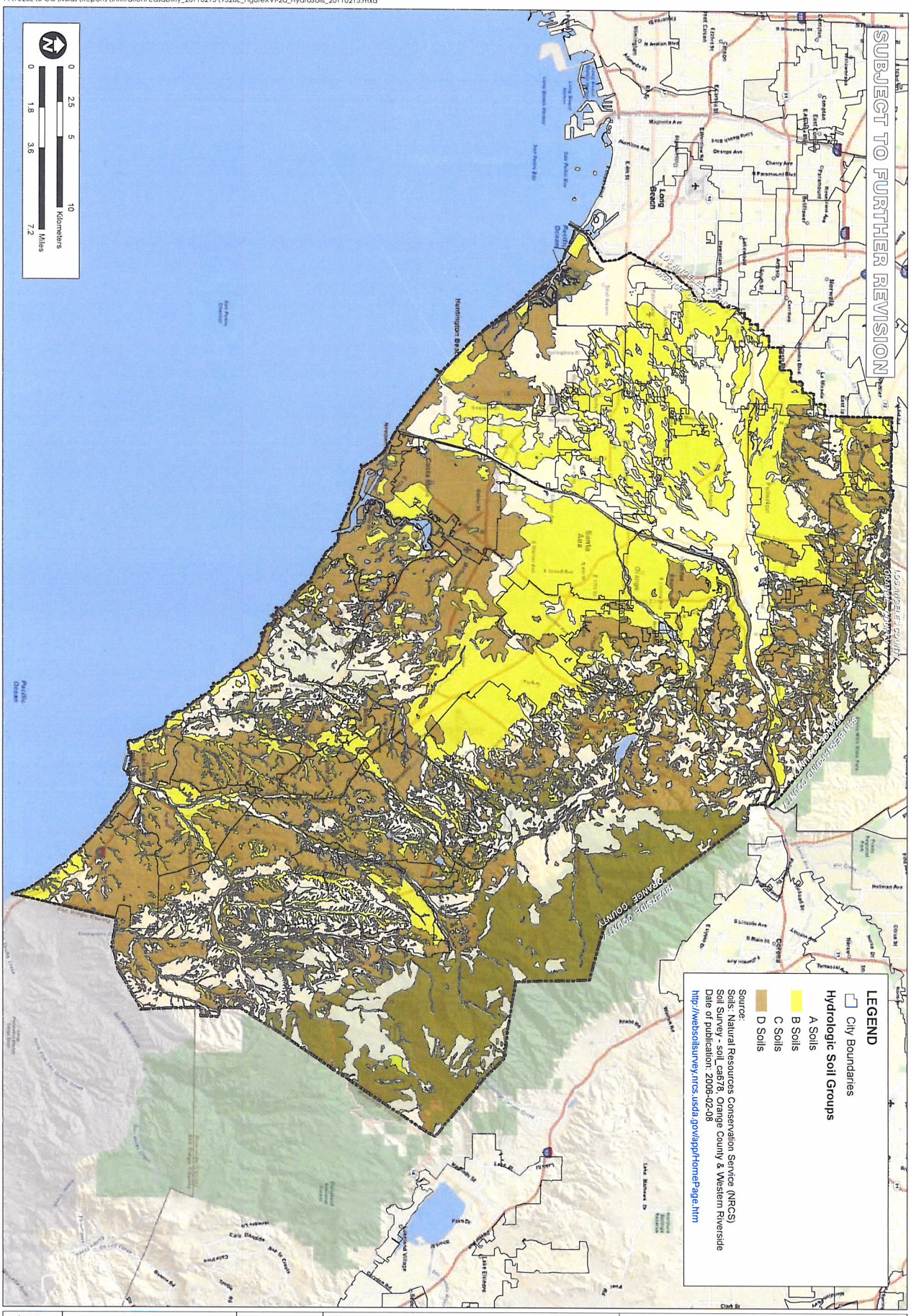

FIGURE XVI-2a	PACE Advanced Water Engineering	SCALE 1" = 1.8 miles DESIGNED TH DRAWING TH CHECKED BMP DATE 02/09/11 DATUM NAD 83	JOB ORANGE COUNTY INFILTRATION STUDY REVISED CA	TITLE NRCS HYDROLOGIC SOILS GROUPS

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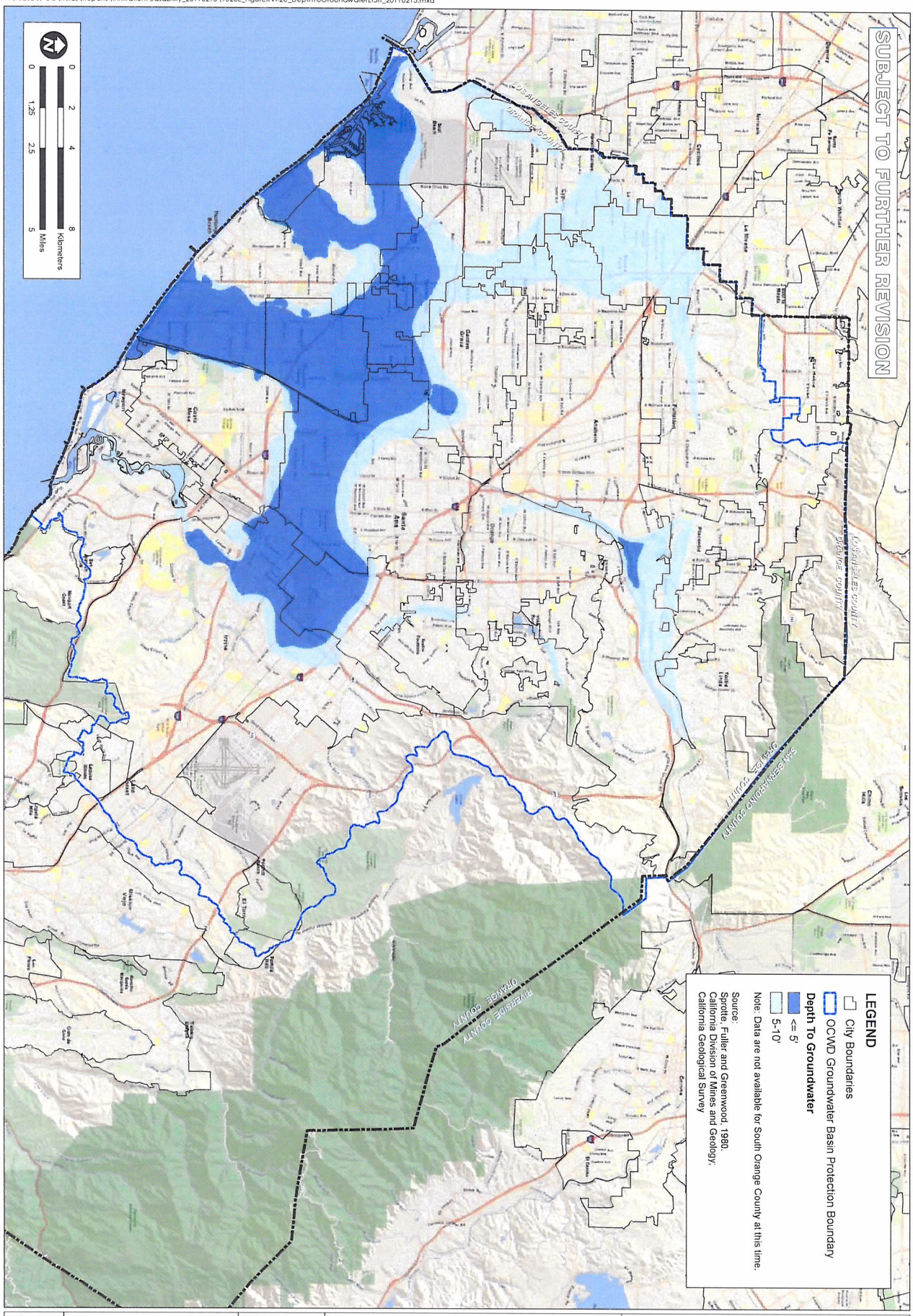

FIGURE				
XVI-2e	PACE Advanced Water Engineering	SCALE 1" = 1.25 miles DESIGNED TH DRAWING TH CHECKED BMP DATE 02/09/11	JOB ORANGE COUNTY INFILTRATION STUDY CA	TITLE NORTH ORANGE COUNTY MAPPED SHALLOW GROUNDWATER

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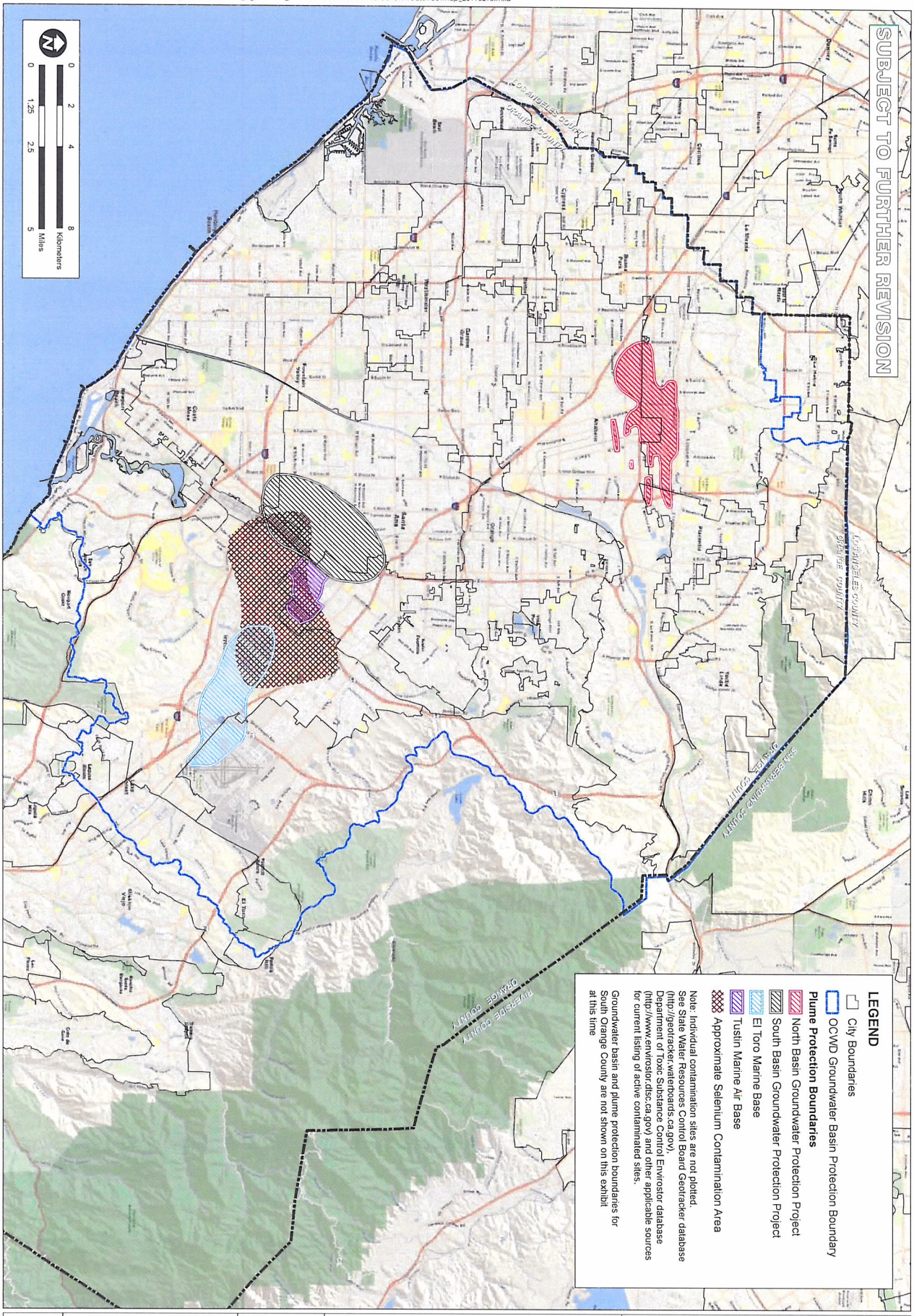

FIGURE		SCALE	JOB	TITLE
XVI-2f	PACE Advanced Water Engineering	1" = 1.25 miles	ORANGE COUNTY INFILTRATION STUDY	NORTH ORANGE COUNTY GROUNDWATER PROTECTION AREAS
		DESIGNED TH		
		DRAWING TH		
		CHECKED BMP		
		DATE 04/22/10		
		DRAWING NO.	CA	

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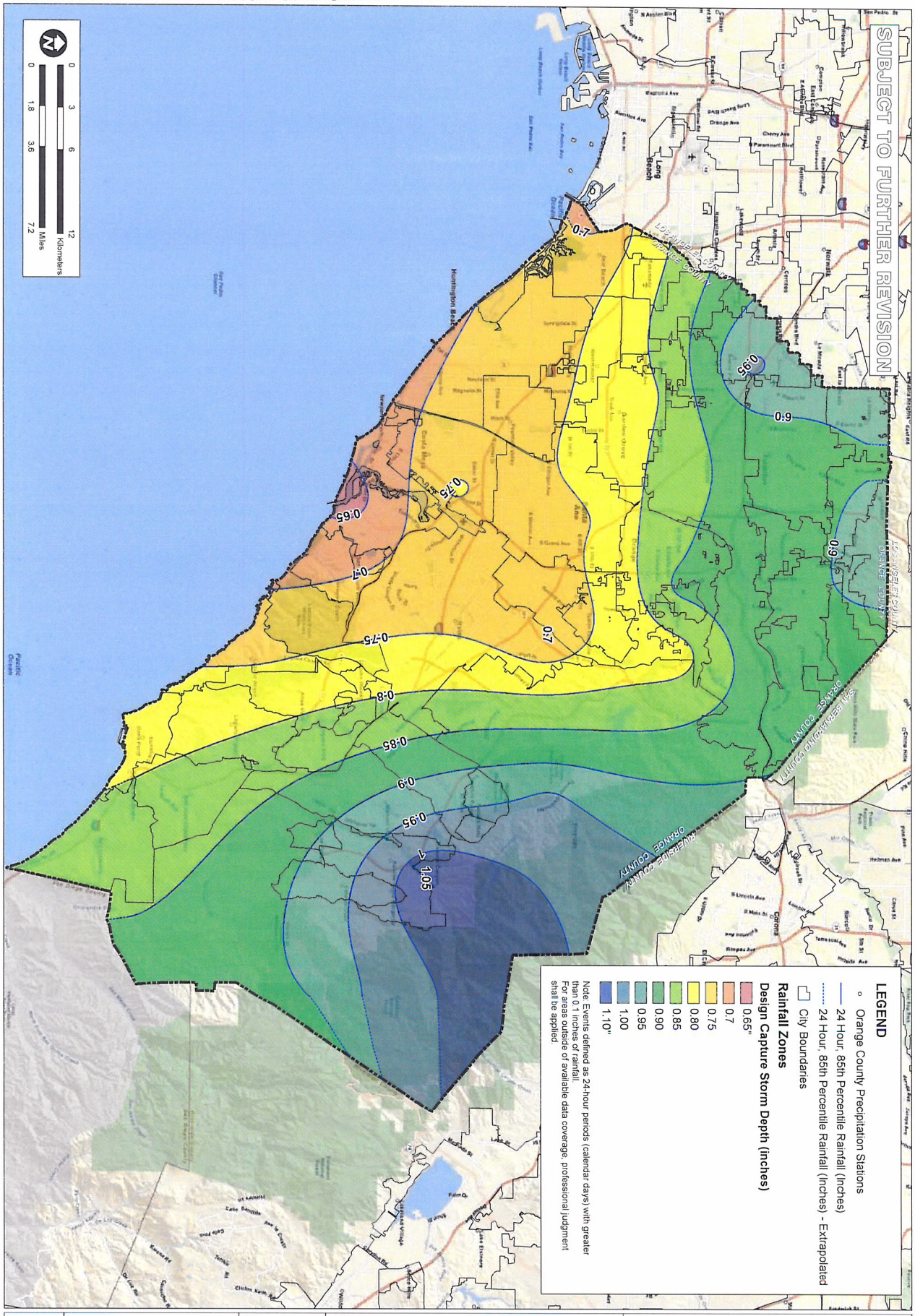


FIGURE				
XVI-1	PACE Advanced Water Engineering	SCALE 1" = 1.8 miles DESIGNED TH DRAWING TH CHECKED BMP DATE 04/22/10	JOB ORANGE COUNTY TECHNICAL GUIDANCE DOCUMENT STATE CA	TITLE RAINFALL ZONES

Attachment B

Educational Materials

The Ocean Begins at Your Front Door

Household Tips

Proper Disposal of Household Hazardous Waste

Recycle at Your Local Used Oil Collection Center

Responsible Pest Control

Tips for Landscaping and Gardening

Tips for Pet Care

TO BE INCLUDED IN FINAL WQMP

Attachment C

Operation and Maintenance Plan and Supplements

Modular Wetlands System (MWS-L-8-20-V)

BIO-7 Proprietary Biotreatment

Operations and Maintenance (O&M) Plan

for

Euclid- La Habra

Tentative Tract No. 18168

104, 110 & 118 E. Electric Avenue

La Habra, CA

APN Number:

022-193-01, 022-193-02, 022-193-50 & 022-193-56

Operations and Maintenance Plan

BMP Applicable? Yes/No	BMP Name and BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
	Non-Structural Source Control BMPs		
Yes	**N1. Education for Property Owners, Tenants and Occupants** Education materials will be provided to homeowners at close of escrow by the developer and thereafter on an annual basis by HOA.	At close of escrow and annually thereafter	Owner/HOA
Yes	**N2. Activity Restrictions** The Owner will prescribe activity restrictions to protect surface waters quality, through a Covenant, Conditions and Restrictions (CC&R) agreement, or other equally effective measure, fir the property. Upon takeover of site responsibilities by the Homeowners Association (HOA), the HOA shall be responsible for ensuring residents compliance.	Ongoing	Owner/HOA
Yes	**N3. Common Area Landscape Management** Maintenance shall be consistent with City requirements, plus fertilizer and/or pesticide usages shall be consistent with County guidelines for use of fertilizers and pesticides. Maintenance includes mowing, weeding, and debris removal on a weekly basis. Trimming, replanting and replacement of mulch shall be performed on an as-needed basis. Trimmings, clippings, and other waste shall be properly disposed of off-site in accordance with local regulations. Materials temporarily stockpiled during maintenance shall be placed away from water courses and drain inlets.	Monthly	Owner/HOA
Yes	**N4. BMP Maintenance** Maintenance of BMPs implemented at the project site shall be performed at the frequency as per manufacturer specifications.	Ongoing	Owner/HOA
No	**N5. Title 22 CCR Compliance** Not applicable to residential projects.		
No	**N7. Spill Contingency Plan** Not applicable to residential projects.		
No	**N8. Underground Storage Tank Compliance** Not applicable. None onsite.		

Operations and Maintenance Plan
Page 2 of 7

BMP Applicable? Yes/No	BMP Name and BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
No	**N9. Hazardous Materials Disclosure Compliance** Not applicable to residential projects.		
No	**N10. Uniform Fire Code Implementation** Not applicable to residential projects.		
Yes	**N11. Common Area Litter Control** Litter patrol, violations investigation, reporting and other litter control activities shall be performed in conjunction with landscape maintenance activities.	Ongoing patrols. Weekly (minimum) pick up and removal.	Owner/HOA
Yes	**N12. Employee Training** Train employees, contractors and subcontractors of HOA on the potential impacts of their actions on water quality. Provide training on proper material use and storage and proper clean up and disposal methods.	Annually and as needed.	Owner/HOA
No	**N13. Housekeeping of Loading Docks** Not applicable. No loading docks onsite.		
Yes	**N14. Common Area Catch Basin Inspection** Catch basin inlets, area drains, swales, curb-and-gutter systems and other drainage systems shall be inspected prior to October 1st of each year and after large storm events. If necessary, drains shall be cleaned prior to any succeeding rain events. 80% of facilities shall be inspected and cleaned annually, with 100% of facilities inspected and maintained.	Annually	Owner/HOA
Yes	**N15. Street Sweeping Private Streets and Parking Lots** Streets must be swept at minimum, prior to the start of the rainy season (October 1st). Streets shall also be swept as needed.	Quarterly and as needed.	Owner/HOA
No	**N.17 Retail Gasoline Outlets** Not applicable to residential projects.		

Operations and Maintenance Plan
Page 3 of 7

Structural Source Control BMPs			
Yes	**S1. Provide Storm Drain System Stenciling and Signage** Storm drain stencils shall be inspected for legibility, at minimum, once prior to the storm season, no later than October 1st each year. Those determined to be illegible will be re-stenciled as soon as possible.	Annually	Owner/HOA
No	**S2. Design and Construct Outdoor Material Storage Areas to Reduce Pollutant Introduction** Not applicable. No outdoor storage of hazardous materials onsite.		
No	**S3. Design and Construct Trash and Waste Storage Areas to Reduce Pollutant Introduction** Not applicable. None proposed.		
Yes	**S4. Use Efficient Irrigation Systems & Landscape Design** In conjunction with routine maintenance activities, verify that landscape design continues to function properly by adjusting properly to eliminate overspray to hardscape area, and to verify that irrigation timing and cycle lengths are adjusted in accordance with water demands, given time of year, weather, day or night time temperatures based on system specifications and local climate pattern.	Monthly	Owner/HOA
No	**S5. Protect Slopes and Channels and Provide Energy Dissipation** Not applicable. Site is flat.		
No	**S6. Loading Docks** Not applicable. No loading docks onsite.		
No	**S7. Maintenance Bays** Not applicable. No maintenance bays onsite.		
No	**S8. Vehicle Wash Areas** Not applicable. No vehicle wash areas onsite.		
No	**S9. Outdoor Processing Areas** Not applicable. No outdoor processing onsite.		
No	**S10. Equipment Wash Areas** Not applicable. No equipment wash areas onsite.		

Operations and Maintenance Plan
Page 4 of 7

No	**S11. Fueling Areas** Not applicable. No fueling areas onsite.		
No	**S12. Site Design and Landscape Planning (Hillside Landscaping)** Not applicable. Project is not a hillside development.		
No	**S13. Wash Water Controls for Food Preparation Areas** Not applicable. No restaurant facilities onsite.		
No	**S14. Community Car Wash Racks** Not applicable. No community car wash areas onsite.		
Treatment Control BMPs			
Yes	**LID BMP # 1** Modular Wetland System	Twice a year inspect In accordance with manufacturer's recommendations.	Owner/HOA

Required Permits

No additional permits are necessary for the operation and maintenance of the proposed BMPs.

Forms to Record BMP Implementation, Maintenance, and Inspection

The form that will be used to record implementation, maintenance, and inspection of BMPs is attached.

Funding

The owner is aware of the maintenance responsibilities of the proposed BMPs. All records must be maintained for at least five (5) years and must be made available for review upon request.

RECORD OF BMP IMPLEMENTATION, MAINTENANCE, AND INSPECTION

Today's Date: _____

Name of Person Performing Activity (Printed): _____

Signature: _____

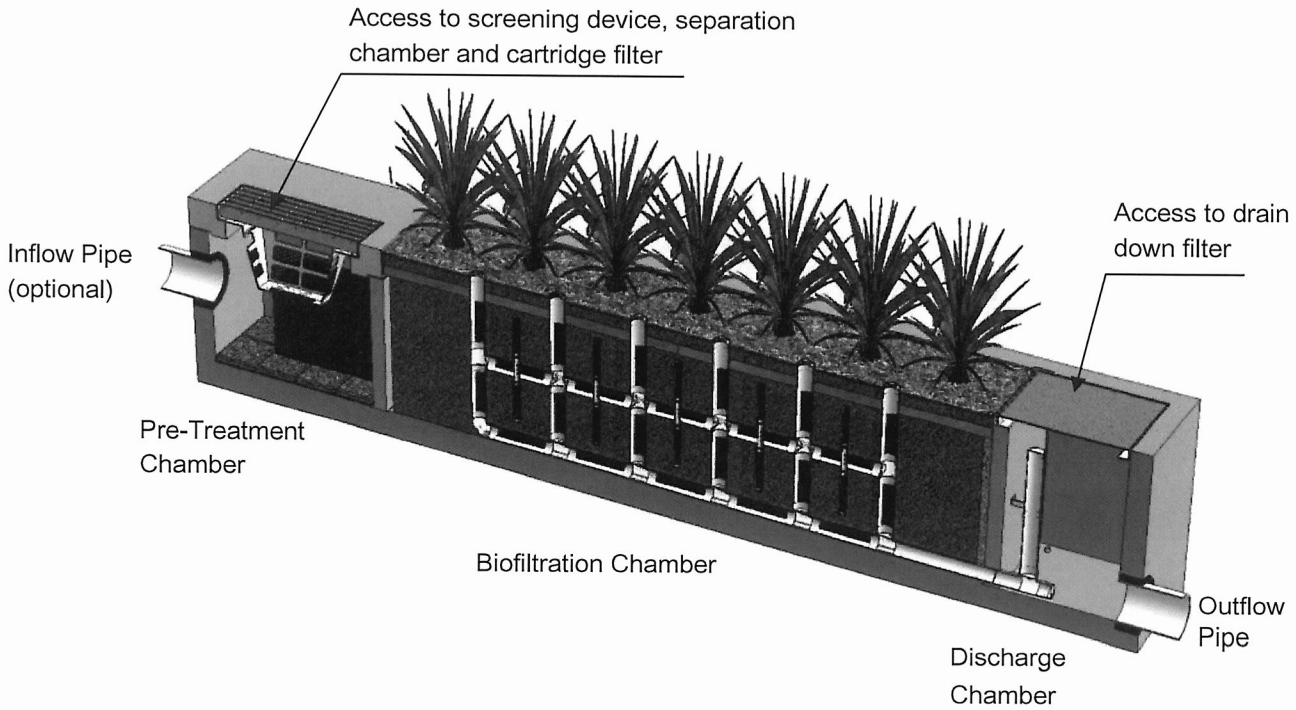
BMP Name (As Shown in O&M Plan)	Brief Description of Implementation, Maintenance, and Inspection Activity Performed

Maintenance Guidelines for Modular Wetland System - Linear

Maintenance Summary

- Remove Trash from Screening Device – average maintenance interval is 6 to 12 months.
  - (*5 minute average service time*).
- Remove Sediment from Separation Chamber – average maintenance interval is 12 to 24 months.
  - (*10 minute average service time*).
- Replace Cartridge Filter Media – average maintenance interval 12 to 24 months.
  - (*10-15 minute per cartridge average service time*).
- Replace Drain Down Filter Media – average maintenance interval is 12 to 24 months.
  - (*5 minute average service time*).
- Trim Vegetation – average maintenance interval is 6 to 12 months.
  - (*Service time varies*).

System Diagram



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MODULAR WETLANDS

Maintenance Procedures

Screening Device

1. Remove grate or manhole cover to gain access to the screening device in the Pre-Treatment Chamber. Vault type units do not have screening device. Maintenance can be performed without entry.
2. Remove all pollutants collected by the screening device. Removal can be done manually or with the use of a vacuum truck. The hose of the vacuum truck will not damage the screening device.
3. Screening device can easily be removed from the Pre-Treatment Chamber to gain access to separation chamber and media filters below. Replace grate or manhole cover when completed.

Separation Chamber

1. Perform maintenance procedures of screening device listed above before maintaining the separation chamber.
2. With a pressure washer spray down pollutants accumulated on walls and cartridge filters.
3. Vacuum out Separation Chamber and remove all accumulated pollutants. Replace screening device, grate or manhole cover when completed.

Cartridge Filters

1. Perform maintenance procedures on screening device and separation chamber before maintaining cartridge filters.
2. Enter separation chamber.
3. Unscrew the two bolts holding the lid on each cartridge filter and remove lid.
4. Remove each of 4 to 8 media cages holding the media in place.
5. Spray down the cartridge filter to remove any accumulated pollutants.
6. Vacuum out old media and accumulated pollutants.
7. Reinstall media cages and fill with new media from manufacturer or outside supplier. Manufacturer will provide specification of media and sources to purchase.
8. Replace the lid and tighten down bolts. Replace screening device, grate or manhole cover when completed.

Drain Down Filter

1. Remove hatch or manhole cover over discharge chamber and enter chamber.
2. Unlock and lift drain down filter housing and remove old media block. Replace with new media block. Lower drain down filter housing and lock into place.
3. Exit chamber and replace hatch or manhole cover.

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Maintenance Notes

1. Following maintenance and/or inspection, it is recommended the maintenance operator prepare a maintenance/inspection record. The record should include any maintenance activities performed, amount and description of debris collected, and condition of the system and its various filter mechanisms.

2. The owner should keep maintenance/inspection record(s) for a minimum of five years from the date of maintenance. These records should be made available to the governing municipality for inspection upon request at any time.

3. Transport all debris, trash, organics and sediments to approved facility for disposal in accordance with local and state requirements.

4. Entry into chambers may require confined space training based on state and local regulations.

5. No fertilizer shall be used in the Biofiltration Chamber.

6. Irrigation should be provided as recommended by manufacturer and/or landscape architect. Amount of irrigation required is dependent on plant species. Some plants may require irrigation.

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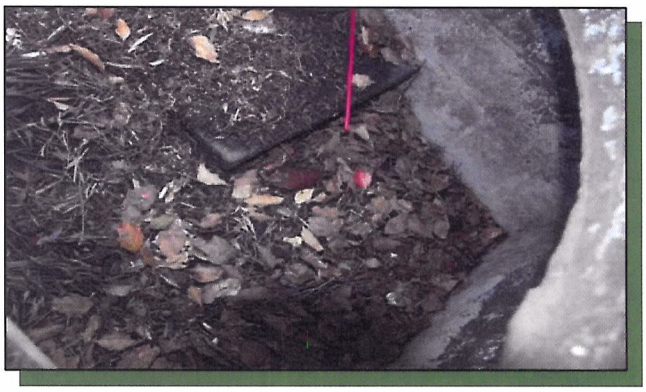
Maintenance Procedure Illustration

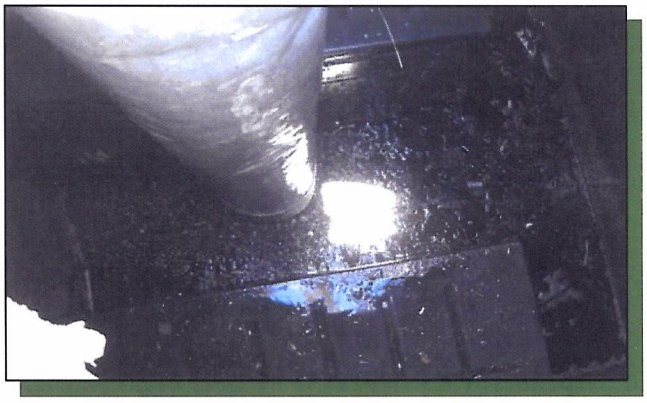
Screening Device

The screening device is located directly under the manhole or grate over the Pre-Treatment Chamber. It's mounted directly underneath for easy access and cleaning. Device can be cleaned by hand or with a vacuum truck.

Separation Chamber

The separation chamber is located directly beneath the screening device. It can be quickly cleaned using a vacuum truck or by hand. A pressure washer is useful to assist in the cleaning process.





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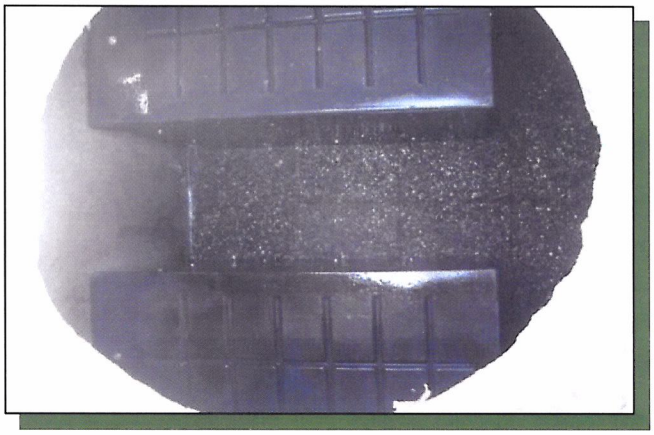
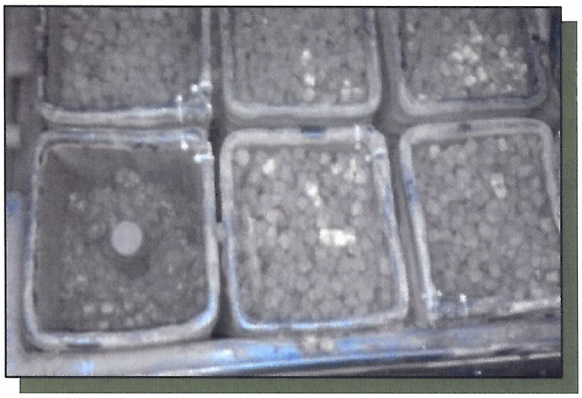
Cartridge Filters

The cartridge filters are located in the Pre-Treatment chamber connected to the wall adjacent to the biofiltration chamber. The cartridges have removable tops to access the individual media filters. Once the cartridge is open media can be easily removed and replaced by hand or a vacuum truck.





Drain Down Filter

The drain down filter is located in the Discharge Chamber. The drain filter unlocks from the wall mount and hinges up. Remove filter block and replace with new block.

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MODULAR WETLANDS

Trim Vegetation

Vegetation should be maintained in the same manner as surrounding vegetation and trimmed as needed. No fertilizer shall be used on the plants. Irrigation per the recommendation of the manufacturer and or landscape architect. Different types of vegetation requires different amounts of irrigation.

www.modularwetlands.com

Inspection Form

Modular Wetland System, Inc.
P. 760.433-7640
F. 760-433-3176
E. Info@modularwetlands.com

www.modularwetlands.com

BIO CLEAN ENVIRONMENTAL SERVICES, INC.

Inspection Report
Modular Wetlands System

MODULAR WETLANDS

Project Name _____

Project Address _____ (city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

Inspector Name _____ Date ____/____/_____ Time _____ AM / PM

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

For Office Use Only
(Reviewed By)
(Date) Office personnel to complete section to the left.

Inspection Checklist

Modular Wetland System Type (Curb, Grate or UG Vault): _____ Size (22', 14' or etc.): _____

Structural Integrity:	Yes	No	Comments
Damage to pre-treatment access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Damage to discharge chamber access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Does the MWS unit show signs of structural deterioration (cracks in the wall, damage to frame)?			
Is the inlet/outlet pipe or drain down pipe damaged or otherwise not functioning properly?			
Working Condition:			
Is there evidence of illicit discharge or excessive oil, grease, or other automobile fluids entering and clogging the unit?			
Is there standing water in inappropriate areas after a dry period?			
Is the filter insert (if applicable) at capacity and/or is there an accumulation of debris/trash on the shelf system?			
Does the depth of sediment/trash/debris suggest a blockage of the inflow pipe, bypass or cartridge filter? If yes, specify which one in the comments section. Note depth of accumulation in in pre-treatment chamber.			Depth:
Does the cartridge filter media need replacement in pre-treatment chamber and/or discharge chamber?			Chamber:
Any signs of improper functioning in the discharge chamber? Note issues in comments section.			
Other Inspection Items:			
Is there an accumulation of sediment/trash/debris in the wetland media (if applicable)?			
Is it evident that the plants are alive and healthy (if applicable)? Please note Plant Information below.			
Is there a septic or foul odor coming from inside the system?			

Waste:	Yes	No
Sediment / Silt / Clay		
Trash / Bags / Bottles		
Green Waste / Leaves / Foliage		

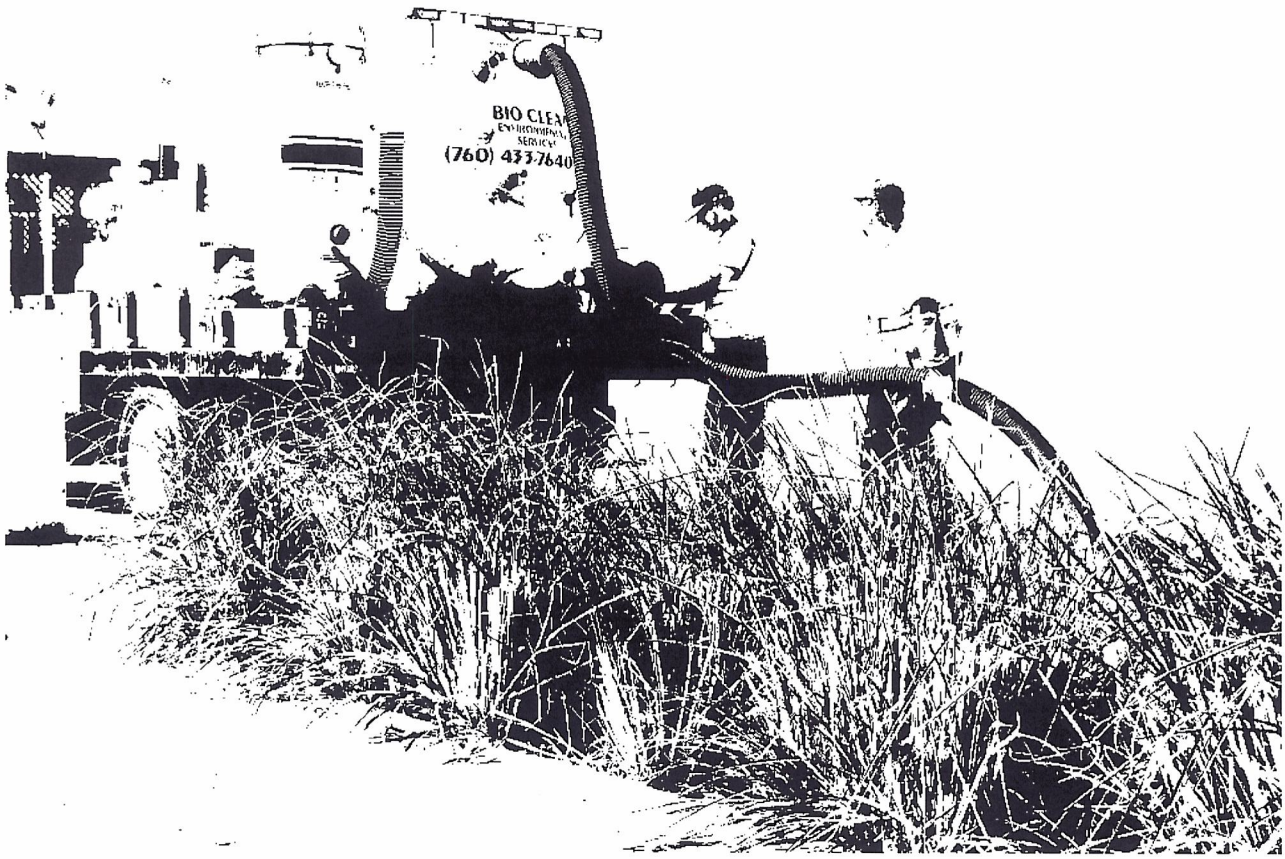
Recommended Maintenance	
No Cleaning Needed	
Schedule Maintenance as Planned	
Needs Immediate Maintenance	

Plant Information	
Damage to Plants	
Plant Replacement	
Plant Trimming	

Additional Notes: _____

2972 San Luis Rey Road, Oceanside, CA 92058 P (760) 433-7640 F (760) 433-3176

Maintenance Report



Modular Wetland System, Inc.
P. 760.433-7640
F. 760-433-3176
E. Info@modularwetlands.com

www.modularwetlands.com

BIO CLEAN ENVIRONMENTAL SERVICES, INC.

Cleaning and Maintenance Report
Modular Wetlands System

MODULAR WETLANDS

Project Name _____

Project Address _____ (city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

Inspector Name _____ Date ____/____/_____ Time _____ AM / PM

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section to the left.

Site Map #	GPS Coordinates of Insert	Manufacturer / Description / Sizing	Trash Accumulation	Foliage Accumulation	Sediment Accumulation	Total Debris Accumulation	Condition of Media 25/50/75/100 (will be changed @ 75%)	Operational Per Manufactures' Specifications (If not, why?)
	Lat: Long:	MWS Catch Basins						
		MWS Sedimentation Basin						
		Media Filter Condition						
		Plant Condition						
		Drain Down Media Condition						
		Discharge Chamber Condition						
		Drain Down Pipe Condition						
		Inlet and Outlet Pipe Condition						

Comments:

2972 San Luis Rey Road, Oceanside, CA 92058 P. 760.433.7640 F. 760.433.3176

BIO-7: Proprietary Biotreatment

Proprietary biotreatment devices are devices that are manufactured to mimic natural systems such as bioretention areas by incorporating plants, soil, and microbes engineered to provide treatment at higher flow rates or volumes and with smaller footprints than their natural counterparts. Incoming flows are typically filtered through a planting media (mulch, compost, soil, plants, microbes, etc.) and either infiltrated or collected by an underdrain and delivered to the storm water conveyance system. Tree box filters are an increasingly common type of proprietary biotreatment device that are installed at curb level and filled with a bioretention type soil. For low to moderate flows they operate similarly to bioretention systems and are bypassed during high flows. Tree box filters are highly adaptable solutions that can be used in all types of development and in all types of soils but are especially applicable to dense urban parking lots, street, and roadways.

Also known as:

- *Catch basin planter box*
- *Bioretention vault*
- *Tree box filter*

Proprietary biotreatment
Source: http://www.americastusa.com /index.php/filterra/

Feasibility Screening Considerations

- Proprietary biotreatment devices that are unlined may cause incidental infiltration. Therefore, an evaluation of site conditions should be conducted to evaluate whether the BMP should include an impermeable liner to avoid infiltration into the subsurface.

Opportunity Criteria

- Drainage areas of 0.25 to 1.0 acres.
- Land use may include commercial, residential, mixed use, institutional, and subdivisions. Proprietary biotreatment facilities may also be applied in parking lot islands, traffic circles, road shoulders, and road medians.
- Must not adversely affect the level of flood protection provided by the drainage system.

OC-Specific Design Criteria and Considerations

- [x] Frequent maintenance and the use of screens and grates to keep trash out may decrease the likelihood of clogging and prevent obstruction and bypass of incoming flows.
- [x] Consult proprietors for specific criteria concerning the design and performance.
- [x] Proprietary biotreatment may include specific media to address pollutants of concern. However, for proprietary device to be considered a biotreatment device the media must be capable of supporting rigorous growth of vegetation.
- [x] Proprietary systems must be acceptable to the reviewing agency. Reviewing agencies shall have the discretion to request performance information. Reviewing agencies shall have the discretion to deny the use of a proprietary BMP on the grounds of performance, maintenance considerations, or other relevant factors.

TECHNICAL GUIDANCE DOCUMENT APPENDICES

In right of way areas, plant selection should not impair traffic lines of site. Local jurisdictions may also limit plant selection in keeping with landscaping themes.

Computing Sizing Criteria for Proprietary Biotreatment Device

- Proprietary biotreatment devices can be volume based or flow-based BMPs.
- Volume-based proprietary devices should be sized using the Simple Design Capture Volume Sizing Method described in **Appendix III.3.1** or the Capture Efficiency Method for Volume-Based, Constant Drawdown BMPs described in **Appendix III.3.2**.
- The required design flowrate for flow-based proprietary devices should be computed using the Capture Efficiency Method for Flow-based BMPs described in **Appendix III.3.3)**.

Additional References for Design Guidance

- Los Angeles Unified School District (LAUSD) Stormwater Technical Manual, Chapter 4: http://www.laschools.org/employee/design/fs-studies-and-reports/download/white_paper_report_material/Storm_Water_Technical_Manual_2009-opt-red.pdf?version_id=76975850
- Los Angeles County Stormwater BMP Design and Maintenance Manual, Chapter 9: http://dpw.lacounty.gov/DES/design_manuals/StormwaterBMPDesignandMaintenance.pdf
- Santa Barbara BMP Guidance Manual, Chapter 6: http://www.santabarbaraca.gov/NR/rdonlyres/91D1FA75-C185-491E-A882-49EE17789DF8/0/Manual_071008_Final.pdf

Attachment D

WQMP Notice of Transfer of Responsibility

Water Quality Management Plan

Notice of Transfer of Responsibility

Submission of this Notice of Transfer of Responsibility constitutes notice to the City of La Habra that responsibility for the Water Quality Management Program (WQMP) for the subject property identified below, and implementation of that plan, is being transferred from the Previous Owner (and his/her agent) of the site (or a portion thereof) to the New Owner, as further described below.

I. Previous Owner/Previous Responsible Party Information

Company/Individual Name		Contact Person	
Street Address		Title	
City	State	Zip	Phone

II. Information about site transferred

Name of Project (if applicable)	
Title of WQMP Applicable to site:	
Street Address of Site (if applicable)	
Planning Area and/or Tract Number(s) for Site	Lot Numbers (if Site is a portion of a tract)
Date WQMP Prepared (and revised if applicable)	

III. New Owner/New Responsible Party Information

Company/Individual Name		Contact Person	
Street Address		Title	
City	State	Zip	Phone

IV. Ownership Transfer Information

General Description of Site Transferred to New Owner	General Description of Portion of Project/Parcel Subject to WQMP Retained by Owner (if any)
Lot/Tract Numbers of Site transferred to New Owner	
Remaining Lot/Tract Numbers Subject to WQMP Still Held by Owner (if any)	
Date of Ownership Transfer	

V. Purpose of Notice of Transfer

The purposes of this Notice of Transfer of Responsibility are: 1) to track transfer of responsibility for implementation and amendment of the WQMP when property to which the WQMP is transferred from the Previous Owner to the New Owner, and 2) to facilitate notification to a transferee of property subject to a WQMP that such New Owner is now the Responsible Party of record for the WQMP for those portions of the site that it owns.

VI. Certifications

A. Previous Owner

I certify under penalty of law that I am no longer the owner of the Transferred Site as described in Section II above. I have provided the New Owner with a copy of the WQMP applicable to the transferred Site that the New Owner is acquiring from the Previous Owner.

Printed Name of Previous Owner Representative	Title
Signature of Previous Owner Representative	Date

B. New Owner

I certify under penalty of law that I am the owner of the Transferred Site, as described in Section II above, that I have been provided a copy of the WQMP, and that I have informed myself and understand the New Owner's responsibilities related to the WQMP, its implementation, and Best Management Practices associated with it. I understand that by signing this notice, the New Owner is accepting all ongoing responsibilities for implementation and amendment of the WQMP for the Transferred Site, which the New Owner has acquired from the Previous Owner.

Printed Name of New Owner Representative	Title
Signature	Date

Attachment E

Infiltration Report and Soils Report

STRATA-TECH, INC.
GEOCONSULTANTS

310. 968. 2999 stratatech@yahoo.com

February 26, 2018 W.O. 283417

Mr. Ed Bonanni
Bonanni Development, Inc.
5500 Bolsa Avenue, Suite 120
Huntington Beach, CA 92649

Subject: Preliminary Infiltration testing, Storm Water Management, 103, 110, 116, & 118, Electric St, La Habra, California

Reference:

STRATA-TECH, INC., "Geotechnical Engineering Investigation, Proposed Townhomes, 103, 110, 116, & 118, Electric St, La Habra, California", Feb 9, 2018, W.O.

Gentlemen:

In accordance with your authorization and terms of our contract STRATA-TECH, Inc. is pleased to submit the results of our storm water infiltration testing.

Falling head percolation testing was performed in two Pits at the locations shown on the attached grading plan.

The soils encountered consist of FILL, Dark Gray, Silt-Clay, traces of sand, damp, to 4-feet. Logs of the Pits are attached. The percolation pit bottoms are substantially separated from seasonal groundwater. Ground water was not encountered in adjacent pit that was dry to 16 feet.

Testing was performed in 4-foot dry wells consisting of 4-inch slotted well screen with .020" openings in an 8" diameter pit having the annular space packed with #3 Monterey filter sand to prevent caving.

The cased pits were filled with water for pre soak on 2/19/18 and the percolation test conducted the following day, 2/20/18 per; OC_TGD_5-19-11AppendixVII. .

The testing consisted of filling each 4-foot pit with water to within 2-feet of the surface and allowing it to seep for 30 min intervals and repeatedly filling the test pit and measuring the stabilized rate at the end of 6th cycle. The drop between successive measurements was recorded for each pit and is the basis for the calculated infiltration rate.

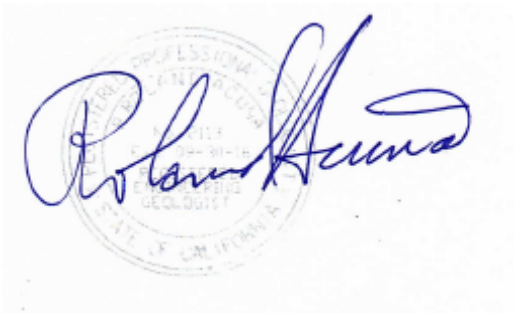
The lowest calculated infiltration rate of 0.20-0.25 inch/Hr. The resulting rate indicates the site soils not suitable for meaningful infiltration.

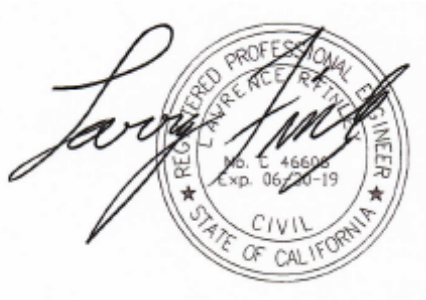
At the completion of testing the well screens were pulled and remaining holes filled with bentonite chips.

The work performed was carried out in accordance with acceptable geotechnical principles common to the local area in which we practice. We make no other warranties, either expressed or implied.

Respectfully submitted:

STRATA-TECH, INC.





Roland Acuña, PG
President

Larry Finley
RCE 46606

Enclosures:

Appendix; A
- Plate 1 – Pit/Perc Location Map
- Plate 2 – Test Pit Logs
- Plate 3 – Test Results

STRATA-TECH, INC.
GEOCONSULTANTS

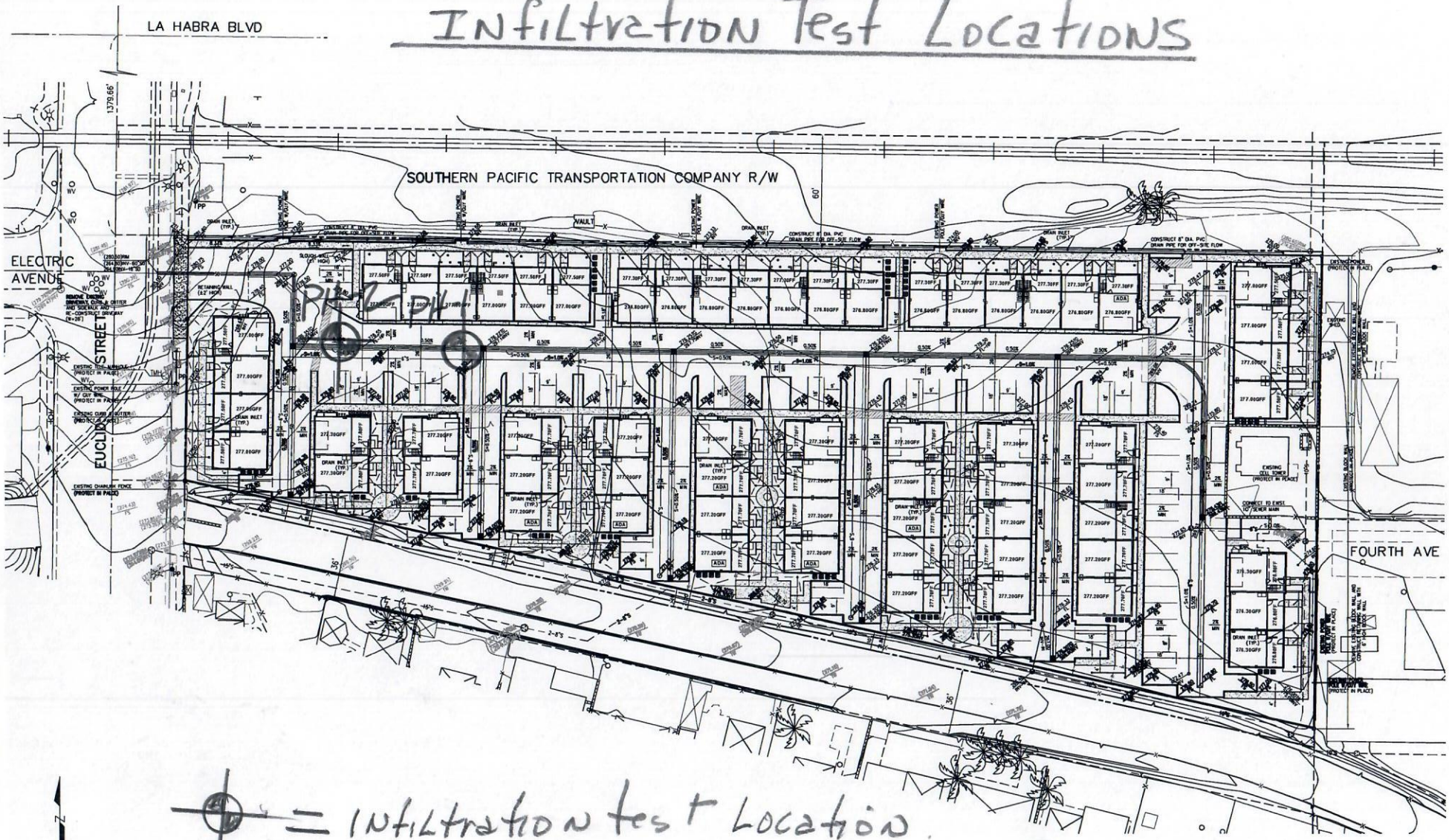
APENDIX A

Plot Plan, Boring Logs and Test Results

TENTATIVE TRACT NO. 18168

FOR CONDOMINIUM PURPOSES
LA HABRA, CALIFORNIA

Infiltration Test Locations



= Infiltration test Location
(see Geotechnical Report for Test Trench Location)

APN: 022-193-01, 022-193-02, 022-193-56 & 022-193-50

TENTATIVE TRACT NO. 18168
CITY OF LA HABRA

PREPARED FOR:
BONANNI DEVELOPMENT, INC.
5500 Bolsa Ave. Suite 120
Huntington Beach, CA 92649
Telephone (714) 892-0123

PREPARED UNDER THE SUPERVISION OF:
DMS CONSULTANTS, INC.
CIVIL ENGINEERS

CONCEPT GRADING PLAN
EUCLID–LA HABRA
104, 110 & 118, E.ELECTRIC AVENUE, LA HABRA, CA 90631

DATE: 04/24/18
Sheet 1 of 1

Percolation Test Data Sheet

Project:	ELECTRIC ST.	Project No:	WO. 285417	Date:	2-19-18
Test Hole No:	PH1	Tested By:	RA		
Depth of Test Hole, D_T:	48"	USCS Soil Classification:	OH, CL		
Test Hole Dimensions (inches)			Length	Width	
Diameter (if round)=	8"	Sides (if rectangular)=			

Sandy Soil Criteria Test*

Trial No.	Start Time	Stop Time	Time Interval, (min.)	Initial Depth to Water (in.)	Final Depth to Water (in.)	Change in Water Level (in.)	Greater than or Equal to 6"? (y/n)
1	8:15	9:15	60	20"	20.75	0.75	N
2	—						

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	Stop Time	Δt Time Interval (min.)	D_o Initial Depth to Water (in.)	D_f Final Depth to Water (in.)	ΔD Change in Water Level (in.)	Percolation Rate (min./in.)
1	8:00	8:30	30	20"	20.50	0.50	60
2	8:35	9:05	30	20"	20.25	0.25	120
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

COMMENTS: FAILed Test

STRATA-TECH, INC.
GEOCONSULTANTS

310. 968. 2999 stratatech@yahoo.com

February 9, 2018 W.O.283417

Mr. Ed Bonanni
Bonanni Development, Inc.
5500 Bolsa Ave, Suite 120
Huntington Beach, CA 92649

Subject: Geotechnical Engineering Investigation, Proposed Multi Family Residential Development, 103, 110, 116, & 118, Electric St, La Habra, California.

Gentlemen:

Pursuant to your request, a geotechnical investigation has been performed at the subject site. The purposes of the investigation were to determine the general engineering characteristics of the soils on and underlying the site and to provide recommendations for the design of foundations, pavements and underground improvements.

PROPOSED DEVELOPMENT

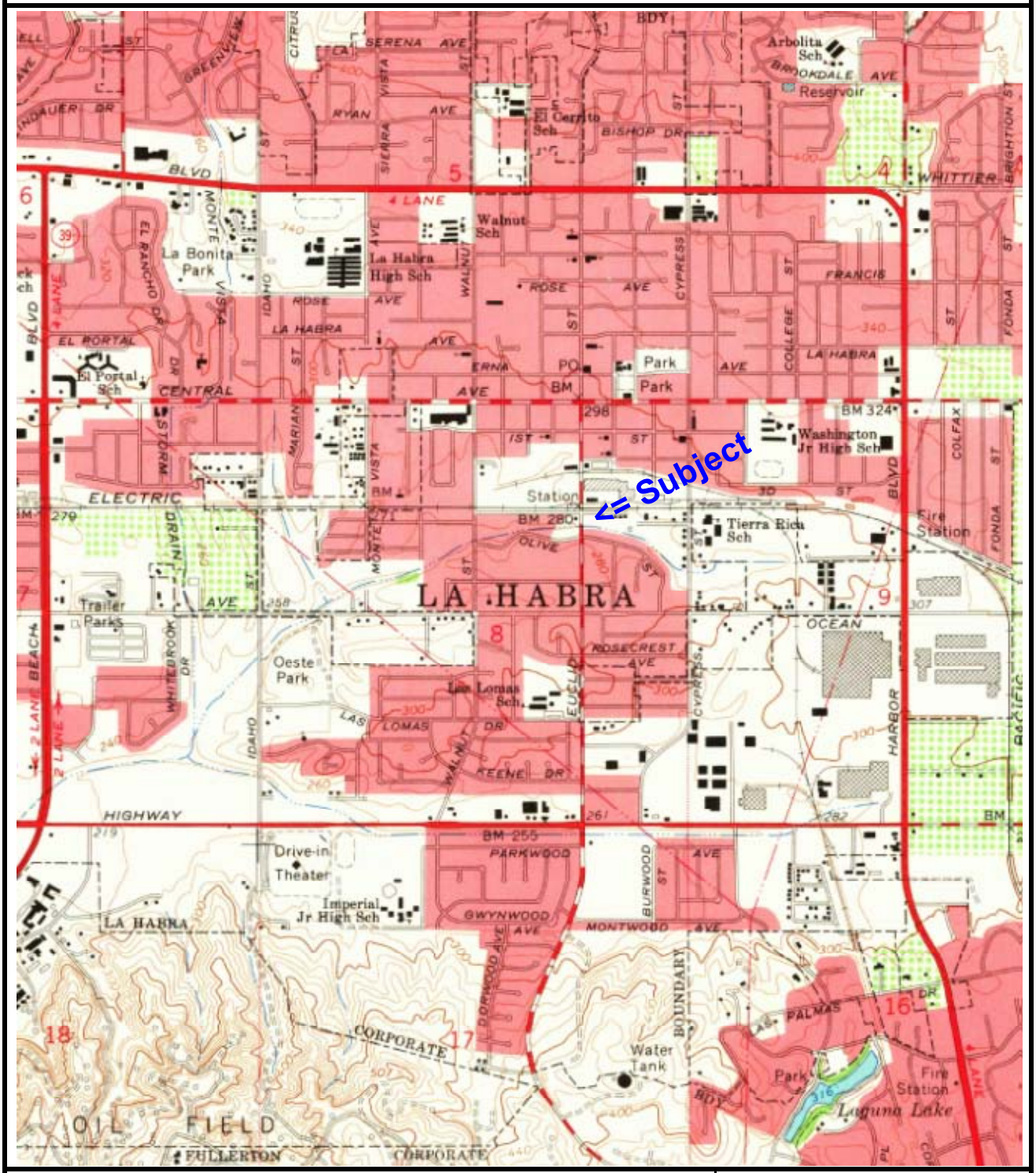
It is our understanding that the proposed development will consist of approximately 7 attached town homes of wood-framed construction with parking and landscaping.

PURPOSE AND SCOPE OF SERVICES

The scope of the study was to obtain subsurface information within the project site area and to provide recommendations pertaining to the proposed development and included the following:

1. A cursory reconnaissance of the site and surrounding areas.

VICINITY AERIAL MAP



Preliminary Geotechnical Investigation 103, 110, 116 & 118 Electric St. La Habra, California	Work Order 283417 Plate No. 1

STRATA - TECH, INC.

2. Excavation of exploratory geotechnical test pits to determine the subsurface soil and groundwater conditions.

3. Collection of representative bulk and/or undisturbed soil samples for laboratory analysis.

4. Laboratory analyses of soil samples including determination of in-situ and maximum density, in-situ and optimum moisture content, shear strength and consolidation characteristics, expansion potential and liquefaction analysis.

5. Preparation of this report presenting results of our investigation and recommendations for the proposed development.

SITE CONDITIONS

The subject site is a rectangular parcel comprised of a series of lots to be combined. The property is fronts on south side of electric street amd the OCFC open culvert. The property is occupied by contractors storage yard , mechanic shop and two small houses . The site is shown on the attached vicinity Map, Plate No. 1. The site is at the boundary of industrial developments to the north and residential mix to the south.

Site configuration is further illustrated on the Site Plan, Plate 2.

FIELD INVESTIGATION

The field investigation was performed on September 20, 2017, consisting of excavating eight (8) backhoe test pits. The locations are shown on the attached Site Plan, Plate 2. As the excavation progressed, personnel from this office visually classified the soils encountered, and secured representative samples for laboratory testing.

Description of the soils encountered are presented on the attached Test Pit Logs. The data presented on these logs is a simplification of actual subsurface conditions encountered and applies only at the specific boring location and the date excavated. It is not warranted to be representative of subsurface conditions at other locations and times.

EARTH MATERIALS

Earth materials encountered within the exploratory test pits were visually logged by a representative from STRATA-TECH, Inc. The materials were classified as artificial fill and native soils.

Abundant fill mantles the site, thickening toward the south where it is retained by the OCFCD concrete box culvert, ranging in depth from 3-10 feet. Fill is primarily a mix of silt, clay some sand and mostly inorganic debris. Native soils re are orange-brown clayey sand Groundwater was not encountered in any of our geotechnical pits.

SEISMICITY

Southern California is located in an active seismic region. Moderate to strong earthquakes can occur on numerous faults. The United States Geological Survey, California Division of Mines and Geology, private consultants, and universities have been studying earthquakes in Southern California for several decades. The purpose of the code seismic design parameters is to prevent collapse during strong ground shaking.

The principal seismic hazard to the subject property and proposed project is strong ground shaking from earthquakes produced by local faults. Secondary effects such as surface rupture, lurching, or flooding are not considered likely.

SEISMIC DESIGN VALUES

NEHRP Seismic Design Provisions Site Class D:

Latitude = 33.928°N, Longitude = 117.945°W

$\mathbf{S_S}$ =1.776 g, $\mathbf{S_{MS}}$ =1.776 g, $\mathbf{S_{DS}}$ =1.184 g, $\mathbf{S_1}$ =0.629 g, $\mathbf{S_{M1}}$ =1.069 g, $\mathbf{S_{D1}}$ =0.712 g

$PGA_M = F_{PGA}PGA = 1.100 \times 0.770 = 0.847$ g

CONCLUSIONS AND RECOMMENDATIONS

Development of the site as proposed is considered feasible from a soils engineering standpoint, provided that the recommendations stated herein and those of the other project consultants are incorporated in the design and are implemented in the field. Recommendations are subject to change based on review of final foundation and grading plans.

Due to the presence of large amounts of undocumented fills on the site; It is recommended that the proposed structures be entirely supported by compacted fill. A minimum 2-foot thick compacted fill blanket below the bottom of the footings is recommended. The over excavation requirement is variable and will range from 6-10 feet from existing grade.

For other minor structures such as property line walls or retaining walls less than 4 feet high, competent native soils or compacted fill may be used for structural support.

PROPOSED GRADING

Grading plans were not available at the time our work was performed. It is assumed that proposed grades will be raised from those existing at the time of our exploration. The following recommendations are subject to change based on review of final grading plans.

GRADING RECOMMENDATIONS

Removal and recompaction of existing fill and loose native soils will be required to provide adequate support for foundations and slabs on grade. The depth of removal is estimated to be 6-10 feet from existing grades.

Earthwork for foundation support shall include the entire building pad and shall extend a minimum of 5 feet outside exterior footing linesor a distance equal tm the depth of fill, where feasible or to property line. Care shall be exercised not to undermine hardscape, walls, or culvert channel that is located on adjacent properties.

The exposed excavation bottom shall be observed and approved by STRATA-TECH, Inc. and the City's grading inspector prior to processing. Dependent on field observations, removals may be adjusted up or down. Subsequent to approval of the excavation bottom, the area shall be scarified 6 inches, moisture conditioned as needed, and compacted to a minimum of 90 percent relative compaction.

Fill soils shall be placed in 6 to 8 inch loose lifts, moisture conditioned as needed, and compacted to a minimum of 90 percent relative compaction. This process shall be utilized to finish grade.

Grading for hardscape areas shall consist of removal and recompaction of soft surficial soils. Removal depths are estimated at 2 feet. Earthwork shall be performed in accordance with previously specified methods.

Grading and/or foundation plans shall be reviewed by the soil engineer. All recommendations are subject to modification upon review of such plans.

FOUNDATIONS ON COMPACTED FILL

The proposed building may be supported by continuous spread and isolated footings placed a minimum depth of 24 inches below lowest adjacent grade utilizing an allowable bearing value of 2,000 pounds per square foot. This value is for dead plus live load and may be increased 1/3 for total including seismic and wind loads where allowed by code.

Type	Minimum Depth (inches)	Minimum Width (inches)	Bearing Value (psf)	Increase		Maximum (psf)
				Width (psf/ft)	Depth (psf/ft)	
Continuous	24	12	2000	180	440	3500
Interior Pad	18	24	2000	180	440	3500

It is recommended that all footings be reinforced with a minimum of four no. 4 bars (2 top and 2 bottom). The structural engineer's reinforcing requirements should be followed if more stringent.

Footing excavations shall be observed by a representative of STRATA-TECH, Inc. prior to placement of steel or concrete to verify competent soil conditions. If unacceptable soil conditions are exposed mitigation will be recommended.

Footing excavations shall be observed by a representative of STRATA-TECH, Inc. prior to placement of steel or concrete to verify competent soil conditions. If unacceptable soil conditions are exposed, mitigation will be recommended.

LATERAL DESIGN

Lateral restraint at the base of footings and on slabs may be assumed to be the product of the dead load and a coefficient of friction of .30. Passive pressure on the face of footings may also be used to resist lateral forces. A passive pressure of zero at the surface of finished grade, increasing at the

rate of 300 pounds per square foot of depth to a maximum value of 2,500 pounds per square foot, may be used for compacted fill or native soils at this site. If passive pressure and friction are combined when evaluating the lateral resistance, the value of the passive pressure should be limited to 2/3 of the values given above.

RETAINING WALLS

Unrestrained walls up to 5-feet in height retaining drained earth may be designed for the following:

Surface Slope of Retained Material Horizontal to Vertical	Equivalent Fluid Pressure Pounds Per Cubic Foot
Level	40
3 to 1	45
2 to 1	55

These values include seismic loading. Backfill should consist of clean sand and gravel. While all backfills should be compacted to the required degree, extra care should be taken working close to walls to prevent excessive pressure. Retaining walls should include subdrains consisting of 4-inch, SCH 40 or SDR 35 perforated pipe surrounded by 1 cubic foot per lineal foot of crushed rock. All wall backfill should be compacted to a minimum of 90 percent relative compaction.

All retaining structures should include appropriate allowances for anticipated surcharge loading, where applicable. In this regard, a uniformly distributed horizontal load equal to one-half the vertical surcharge shall be applied when the surcharge is within a horizontal distance equal to the wall height.

Retaining wall footing excavations shall be founded entirely in competent native soils or compacted fill. Footing bottoms shall be observed by a representative of STRATA-TECH, Inc., to verify competent conditions.

EXPANSIVE SOILS

Results of expansion tests indicate that the near surface soils have a medium - high expansion potential.

SETTLEMENT

The maximum total post-construction settlement is anticipated to be on the order of 1/2 inch. Differential settlements are expected to be less than 1/2 inch, measured between adjacent structural elements.

SUBSIDENCE & SHRINKAGE

Subsidence over the site during grading is anticipated to be on the order of .5 feet. Shrinkage of reworked materials should be in the range of 15 to 20 percent.

FLOOR SLABS

The surface soils are plastic with med-high expansion potential.

Where concrete slabs on grade are utilized, the slab shall be supported on at least 1 foot of engineered fill compacted to a minimum of 90 percent relative compaction. Slabs should be at least 4 inches thick and reinforced with a minimum of no. 4 bars 18 inches on center both ways.

The soil should be kept moist prior to casting the slab. However, if the soils at grade become disturbed during construction, they should be brought to approximately optimum moisture content and rolled to a firm, unyielding condition prior to placing concrete.

In areas where a moisture sensitive floor covering will be used, a vapor barrier consisting of a plastic film (6 ml polyvinyl chloride or equivalent) should be used. The vapor barrier should be properly lapped and sealed. Since the vapor barrier will prevent moisture from draining from fresh concrete, a better concrete finish can usually be obtained if at least 2 inches of wet sand is spread over the vapor barrier prior to placement of concrete.

UTILITY LINE BACKFILLS

All utility line backfills, both interior and exterior, shall be compacted to a minimum of 90 percent relative compaction and shall require testing at a maximum of 2-foot vertical intervals.

HARDSCAPE AND SLABS

Hardscape and slab subgrade areas shall exhibit a minimum of 90 percent relative compaction to a depth of at least 1 foot. Deeper removal and recompaction may be required if unacceptable conditions are encountered. These areas require testing just prior to placing concrete.

DRAINAGE

Positive drainage should be planned for the site. Drainage should be directed away from structures via non-erodible conduits to suitable disposal areas.

Unlined flowerbeds, planters, and lawns should not be constructed against the perimeter of the structure. If such landscaping (against the perimeter of a structure) is planned, it should be properly drained and lined or provided with an underground moisture barrier. Irrigation should be kept to a minimum.

This report is issued with the understanding that it is the responsibility of the owner, or of his representative, to ensure that the information and recommendations contained herein are called to the attention of the engineers for the project and incorporated into the plans and that the necessary steps are taken to see that the Contractors and Subcontractors carry out such recommendations in the field.

ENGINEERING CONSULTATION, TESTING & OBSERVATION

We will be pleased to provide additional input with respect to foundation design once methods of construction and/or nature of imported soil has been determined.

Grading and foundation plans should be reviewed by this office prior to commencement of grading so that appropriate recommendations, if needed, can be made.

Areas to receive fill should be inspected when unsuitable materials have been removed and prior to placement of fill, and fill should be observed and tested for compaction as it is placed.

AGENCY REVIEW

All soil, geologic and structural aspects of the proposed development are subject to the review and approval of the governing agency(s). It should be recognized that the governing agency (s) can dictate the manner in which the project proceeds. They could approve or deny any aspect of the proposed improvements and/or could dictate which foundation and grading options are acceptable. Supplemental geotechnical consulting in response to agency requests for additional information could be required and will be charged on a time and materials basis.

LIMITATIONS

This report presents recommendations pertaining to the subject site based on the assumption that the subsurface conditions do not deviate appreciably from those disclosed by our exploratory excavations. Our recommendations are based on the technical information, our understanding of the proposed construction, and our experience in the geotechnical field. We do not guarantee the performance of the project, only that our engineering work and judgments meet the standard of care of our profession at this time.

In view of the general conditions in the area, the possibility of different local soil conditions may exist. Any deviation or unexpected condition observed during construction should be brought to the attention of the Geotechnical Engineer. In this way, any supplemental recommendations can be made with a minimum of delay necessary to the project.

If the proposed construction will differ from our present understanding of the project, the existing information and possibly new factors may have to be evaluated. Any design changes and the finished plans should be reviewed by the Geotechnical Consultant. Of particular importance would be extending development to new areas, changes in structural loading conditions, postponed development for more than a year, or changes in ownership.

This report is issued with the understanding that it is the responsibility of the owner, or of his representative, to ensure that the information and recommendations contained herein are called to the attention of the Architects and Engineers for the project and incorporated into the plans and that the necessary steps are taken to see that the contractors and subcontractors carry out such recommendations in the field.

This report is subject to review by the controlling authorities for this project.

We appreciate this opportunity to be of service to you.

Respectfully submitted:
STRATA-TECH, INC.

Roland Acuña
Principal

Larry Finley
RCE 46606

Enclosures:

Plate 1: Vicinity Map
Plate 2: Site Plan and Boring Location Map

Test Pit Logs
Appendix A: Laboratory Results and Engineering Calculations
Appendix B: Specifications for Grading

STRATA-TECH, INC.
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APPENDIX A

This appendix contains a description of the field investigation, laboratory testing procedures and results, site plan, and exploratory logs.

FIELD INVESTIGATION

The field investigation was performed on September 20, 2017, consisting of the excavation of eight exploratory trenches at locations shown on the attached Site Plan, Plate 2. As excavation progressed, personnel from this office visually classified the soils encountered, and secured representative samples for laboratory testing.

Sample Retrieval- Backhoe

Undisturbed samples of earth materials were obtained at frequent intervals by driving a thin-walled steel sampler by the hydraulic action of the backhoe bucket. The material was retained in brass rings of 2.41 inches inside diameter and 1.00 inch height. The central portion of the sample was in close-fitting, watertight containers for transportation to the laboratory.

Descriptions of the soils encountered are presented on the attached boring Logs. The data presented on these logs is a simplification of actual subsurface conditions encountered and applies only at the specific boring location and the date excavated. It is not warranted to be representative of subsurface conditions at other locations and times.

Laboratory Testing

Field samples were examined in the laboratory and a testing program was then established to develop data for preliminary evaluation of geotechnical conditions.

Moisture Density

Field moisture content and dry density were determined for each of the undisturbed soil samples. The dry density was determined in pounds per cubic foot. The moisture content was determined as a percentage of the dry soil weight. The results of the tests are shown in the test results section of this appendix.

Compaction Character

Compaction tests were performed on bulk sample of the existing soil in accordance with ASTM D1557. The results of the tests are shown in the test results section of this appendix.

Shear Strength

The ultimate shear strengths of the soil, remolded soil, highly weathered bedrock and bedrock was determined by performing direct shear tests. The tests were performed in a strain-controlled

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machine manufactured by GeoMatic. The rate of deformation was 0.005 inches per minute. Samples were sheared under varying confining pressure, as shown on the "Shear Test Diagrams". The samples indicated as saturated were artificially saturated in the laboratory and were shear under submerged conditions. The results of tests are based on 80 percent peak strength or ultimate strength, whichever is lower, and are attached. In addition, a shear was performed on an upper layer sample remolded to 90-percent of the laboratory standard with low confining pressure.

TEST RESULTS

Maximum Density/Optimum Moisture (ASTM:D-1557-07)

Trench	Depth in Feet	Maximum Density (pcf)	Optimum Moisture (%)
2	1 – 5	122	13.5

In-Situ Dry Density/ Moisture

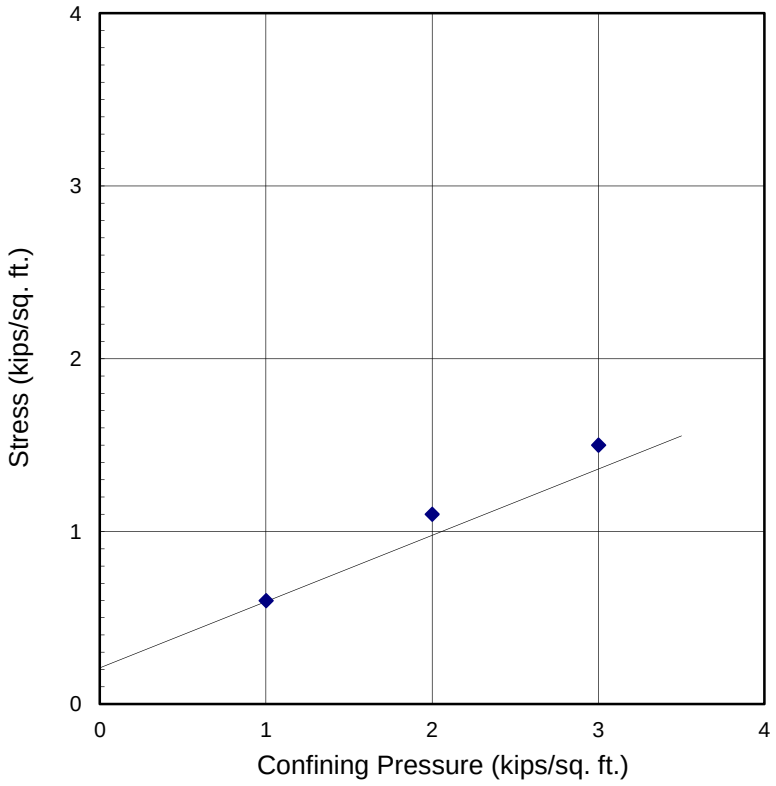
Trench	Depth in Feet	Dry Density (pcf)	Moisture (%)
1	3	99.0	15.01
2	3	97.1	16.0

Direct Shear

Trench	Depth in Feet	Cohesion (psf)	Angle of Internal Friction (degrees)
1	1-6 (Remold)	210	21
2	1-5 (Remold)	275	19

SHEAR TEST RESULT

PIT No.1 @ 1-6 Feet (Remolded to 90%)



Remolded soil samples were tested at saturated conditions.

The sample had a density of 111.3 lbs./cu.ft. and a moisture content of 18.5 %.

Cohesion = 210 psf

Friction Angle = 21 degrees

Based on 80% peak strength or ultimate strength, whichever is lower

Geotechnical Engineering Investigation 103, 110, 116, & 118 ELECTRIC ST. La Habra, California	Work Order 283417 Plate No.

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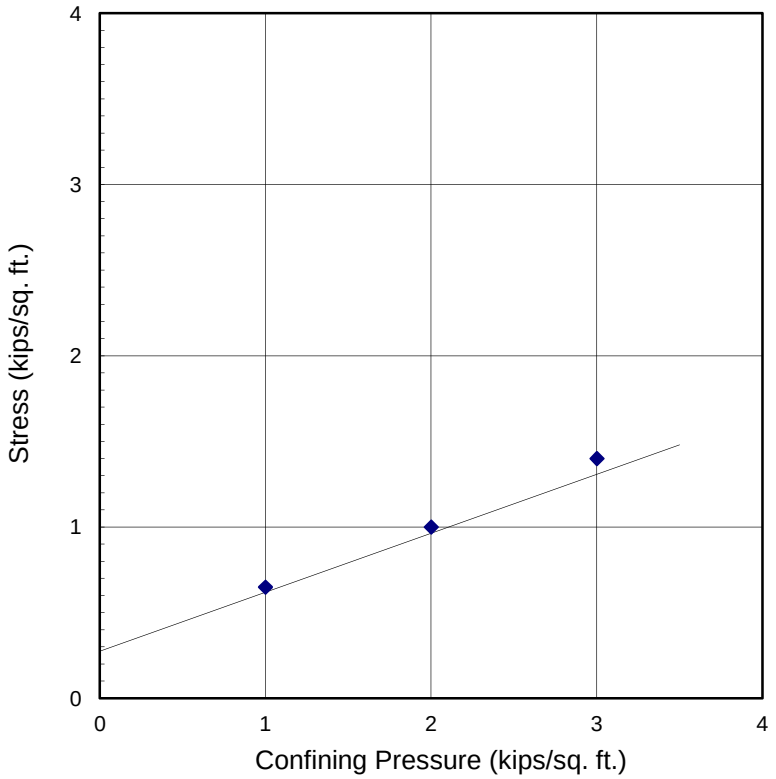
SHEAR TEST RESULT

PIT No.2 @ 1-5 Feet (REMOLD) 90%



FILL samples were tested at saturated conditions.

The sample had a density of 106.6 lbs./cu.ft. and a moisture content of 21 %.

Cohesion = 275 psf

Friction Angle = 19 degrees

Based on 80% peak strength or ultimate strength, whichever is lower

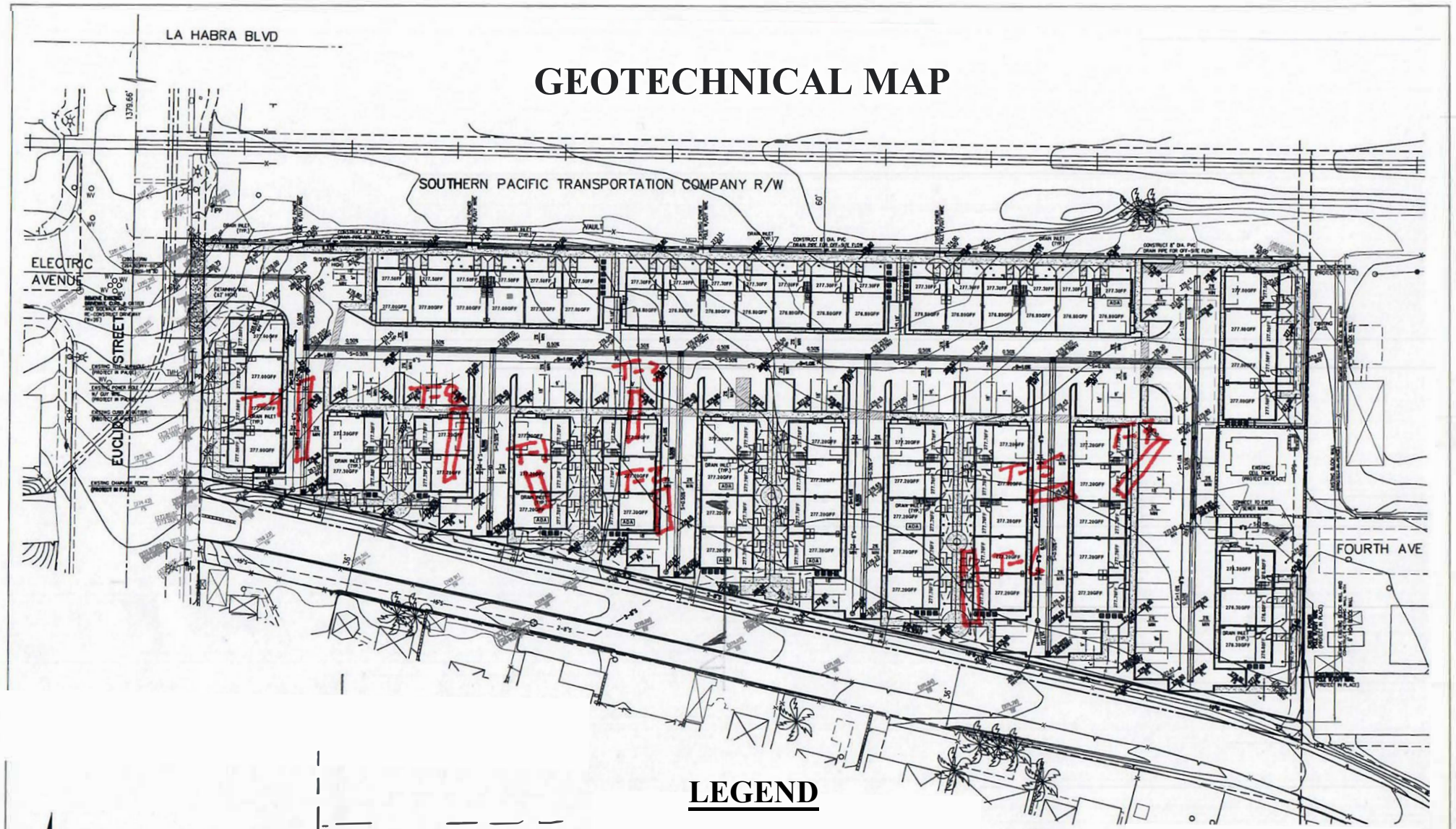
Geotechnical Engineering Investigation 103, 110, 116, & 118 ELECTRIC ST. LA HABRA, CALIFORNIA	Work Order 283417 Plate No.

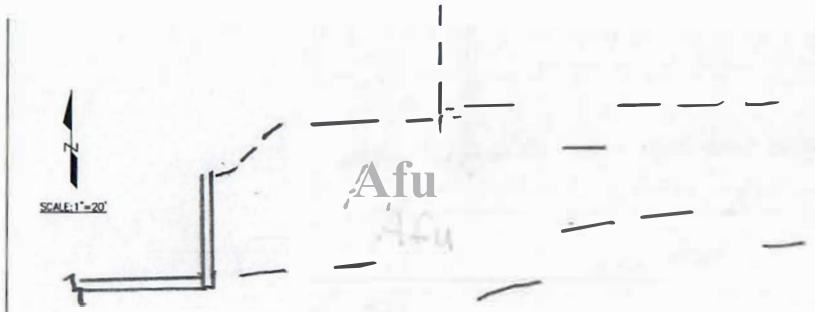
STRATA - TECH, INC.

TENTATIVE TRACT NO. 18168

FOR CONDOMINIUM PURPOSES
LA HABRA, CALIFORNIA

GEOTECHNICAL MAP





LEGEND

Afu = Undocumented fill

T-2 = Test Pits location

APN: 022-193-01, 022-193-02, 022-193-55 & 022-193-50

TENTATIVE TRACT NO. 18168
CITY OF LA HABRA

PREPARED FOR:
BONANNI DEVELOPMENT, INC.
3500 Bolsa Ave. Suite 120
Huntington Beach, CA 92649
Telephone (714) 892-9133

PREPARED UNDER THE SUPERVISION OF:
DMS CONSULTANTS, INC.
CIVIL ENGINEERS

104, 110 & 118, E.ELECTRIC AVENUE, LA HABRA, CA 90631

CONCEPT GRADING PLAN
EUCLID-LA HABRA

DATE: 04/24/18
Sheet 1 of 1

W.O. 283417

SUMMARY OF PIT NO. 1

Date: 9/20/2017

Dry Density (Pcf)	Moisture (% Dry Wt.)	Samples U	Samples B	Depth (Ft.)	Description
					FILL: CLAY --- SANDY,RED BRN
			■		FILL : CLAY- DARK GRAY SILTY, W/AC RUBBLE
				5	
					GRAY, WET CLAY,SILT , SOFT
			■		
					ORANGE-BROWN CLAY, SANDY MOIST, MED STIFF
				10	
					End of boring at 12 feet No water No caving
				15	

Geotechnical Engineering Investigation 103, 110, 116, & 118 Electric St La Habra, California	Work Order 283417 Plate No. 3

STRATA - TECH, INC.

SUMMARY OF PIT NO. 2

Date: 9/20/2017

Dry Density (Pcf)	Moisture (% Dry Wt.)	Samples U	Samples B	Depth (Ft.)	Description
					FILL: GRAY/ORANGE-BROWN, SOFT CLAY MIX
					WOOD PIECES
				5	
					FILL: GRAY, WET CLAY
				10	ORANGE-BROWN CLAY, SANDY, MOD -STIFF
					End of boring at 11.5 feet No water No caving
				15	

Geotechnical Engineering Investigation 103, 110, 116, & 118 Electric St La Habra, California	Work Order 283417 Plate No. 3A

STRATA - TECH, INC.

SUMMARY OF PIT NO. 3

Date: 9/20/2017

Dry Density (Pcf)	Moisture (% Dry Wt.)	Samples U	Samples B	Depth (Ft.)	Description
					FILL: GRAY/ORANGE-BROWN, SOFT ,CLAY MIX
				5	
				10	ORANGE-BROWN CLAY, SANDYDAMP, MOD FIRM
				15	End of boring at 12.5 feet No water No caving

Geotechnical Engineering Investigation 103, 110, 116, & 118 Electric St La Habra, California	Work Order 283417 Plate No. 3B

STRATA - TECH, INC.

SUMMARY OF PIT NO. 4

Date: 9/20/2017

Dry Density (Pcf)	Moisture (% Dry Wt.)	Samples U	Samples B	Depth (Ft.)	Description
					FILL: GRAY SILT AND RUBBLE, SOFT
				5	
					FILL: DARK GRAY, SILTY CLAY, MOIST , SOFT
					ORANGE-BROWN, SANDY CLAY, DAMP MOD FIRM
				10	
					End of boring at 11 feet No water No caving
				15	

Geotechnical Engineering Investigation
103, 110, 116, & 118 Electric St
La Habra, California

Work Order 283417

Plate No. 3C

STRATA - TECH, INC.

SUMMARY OF PIT NO. 5

Date: 9/20/2017

Dry Density (Pcf)	Moisture (% Dry Wt.)	Samples U	Samples B	Depth (Ft.)	Description
					FILL: DA,RK GRA,Y SILTY-CLAY, SPARCE DEBRIS, MOIST, SOFT
				5	
					FILL: GRAY, WET,CLAY-SILT, SOFT
				10	ORANGE -BROWN SANDY CALAY, DAMP, MOD FIRM
					End of boring at 10.5 feet No water No caving
				15	

Geotechnical Engineering Investigation 103, 110, 116, & 118 Electric St La Habra, California	Work Order 283417 Plate No. 3D

STRATA - TECH, INC.

SUMMARY OF PIT NO. 6

Date: 9/20/2017

Dry Density (Pcf)	Moisture (% Dry Wt.)	Samples U	Samples B	Depth (Ft.)	Description
					FILL: DARK-GRAY, SILT-CLAY WITH RUBBLE
				5	
					DARK BROWN, CLAYEY SAND, DAMP,MOD SOFT
				10	
					End of boring at 10 feet No water No caving
				15	

Geotechnical Engineering Investigation 103, 110, 116, & 118 Electric St La Habra, California	Work Order 283417 Plate No. 3E

STRATA - TECH, INC.

SUMMARY OF PIT NO. 7

Date: 9/20/2017

Dry Density (Pcf)	Moisture (% Dry Wt.)	Samples U	Samples B	Depth (Ft.)	Description
					FILL: DARK GRAY-CLAY, MINOR RUBBLE, DAMP
				5	ORANGE, SANDY-CLAY, DAMP, FIRM
				10	End of boring at 8 feet No water No caving
				15	

Geotechnical Engineering Investigation 103, 110, 116, & 118 Electric St La Habra, California	Work Order 283417 Plate No. 3F

STRATA - TECH, INC.

SUMMARY OF PIT NO. 8

Date: 9/20/2017

Dry Density (Pcf)	Moisture (% Dry Wt.)	Samples U	Samples B	Depth (Ft.)	Description
					FILL: CLAY -SANDY, W/GRAVELL, CONC, MOD SOFT
				5	GRAVELLY POCKETS
					ORANGE COBBLY STREAM DEPOSIT
				10	
					End of boring at 11 feet No water No caving
				15	

Geotechnical Engineering Investigation
103, 110, 116, & 118 Electric St
La Habra, California

Work Order 283417

Plate No. 3G

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APPENDIX B

SPECIFICATIONS FOR GRADING

SITE CLEARING

All existing vegetation shall be stripped and hauled from the site.

PREPARATION

After the foundation for the fill has been cleared, plowed or scarified, it shall be disced or bladed until it is uniform and free from large clods, brought to a proper moisture content and compacted to not less than 90 percent of the maximum dry density in accordance with ASTM:D-1557 (5 layers - 25 blows per layer; 10 lb. hammer dropped 18"; 4" diameter mold).

MATERIALS

On-site materials may be used for fill, or fill materials shall consist of materials approved by the Soils Engineer and may be obtained from the excavation of banks, borrow pits or any other approved source. The materials used should be free of vegetable matter and other deleterious substances and shall not contain rocks or lumps greater than 8 inches in maximum dimension.

PLACING, SPREADING, AND COMPACTING FILL MATERIALS

Where natural slopes exceed five horizontal to one vertical, the exposed bedrock shall be benched prior to placing fill.

The selected fill material shall be placed in layers which, when compacted, shall not exceed 6 inches in thickness. Each layer shall be spread evenly and shall be thoroughly mixed during the spreading to ensure uniformity of material and moisture of each layer.

Where moisture of the fill material is below the limits specified by the Soils Engineer, water shall be added until the moisture content is as required to ensure thorough bonding and thorough compaction.

Where moisture content of the fill material is above the limits specified by the Soils Engineer, the fill materials shall be aerated by blading or other satisfactory methods until the moisture content is as specified.

After each layer has been placed, mixed and spread evenly, it shall be thoroughly compacted to not less than 90 percent of the maximum dry density in accordance with ASTM:D-1557-02 (5 layers - 25 blows per layer; 10 lbs. hammer dropped 18 inches; 4" diameter mold) or other density tests which will attain equivalent results.

Compaction shall be by sheepsfoot roller, multi-wheel pneumatic tire roller or other types of acceptable rollers.

Rollers shall be of such design that they will be able to compact the fill to the specified density. Rolling shall be accomplished while the fill material is at the specified moisture content. Rolling of each layer shall be continuous over the entire area and the roller shall make sufficient trips to ensure that the desired density has been obtained. The final surface of the lot areas to receive slabs on grade should be rolled to a dense, smooth surface.

The outside of all fill slopes shall be compacted by means of sheepsfoot rollers or other suitable equipment. Compaction operations shall be continued until the outer 9 inches of the slope is at least 90 percent compacted. Compacting of the slopes may be progressively in increments of 3 feet to 5 feet of fill height as the fill is brought to grade, or after the fill is brought to its total height.

Field density tests shall be made by the Soils Engineer of the compaction of each layer of fill. Density tests shall be made at intervals not to exceed 2 feet of fill height provided all layers are tested. Where the sheepsfoot rollers are used, the soil may be disturbed to a depth of several inches and density readings shall be taken in the compacted material below the disturbed surface. When these readings indicate that the density of any layer of fill or portion there is below the required 90 percent density, the particular layer or portion shall be reworked until the required density has been obtained.

The grading specifications should be a part of the project specifications.

The Soil Engineer shall review the grading plans prior to grading.

INSPECTION

The Soil Engineer shall provide continuous supervision of the site clearing and grading operation so that he can verify the grading was done in accordance with the accepted plans and specifications.

SEASONAL LIMITATIONS

No fill material shall be placed, spread or rolled during unfavorable weather conditions. When work is interrupted by heavy rains, fill operations shall not be resumed until the field tests by the Soils Engineer indicate the moisture content and density of the fill are as previously specified.

EXPANSIVE SOIL CONDITIONS

Whenever expansive soil conditions are encountered, the moisture content of the fill or recompacted soil shall be as recommended in the expansive soil recommendations included herewith.

Attachment F

Conditions of Approval

TO BE INCLUDED IN FINAL WQMP

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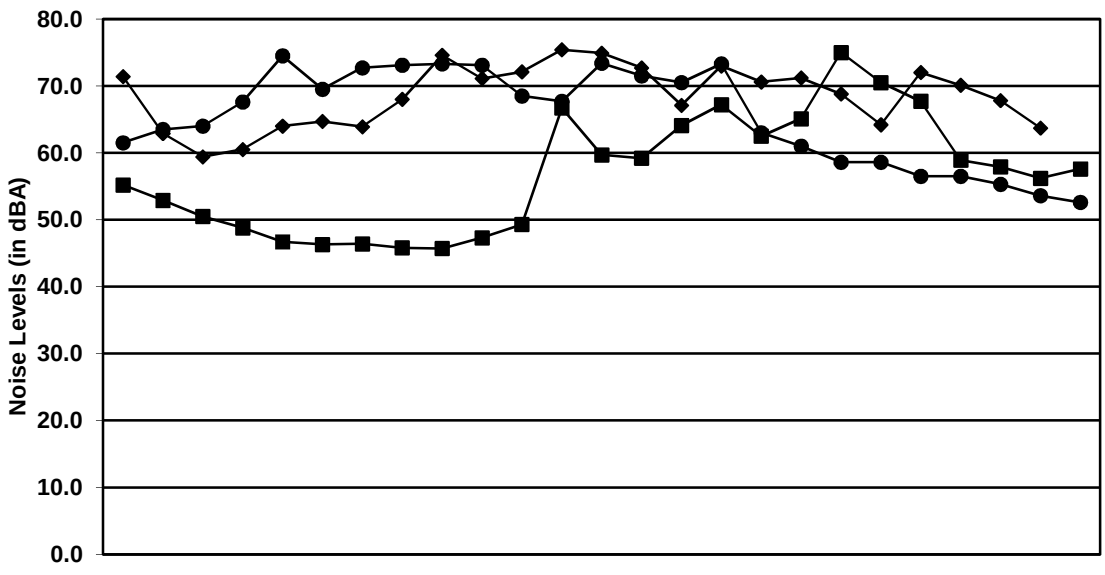
Actual Noise Levels During Measurement				Noise Measurement Results in Leq%				
1-25	26-50	51-75	76-100	L%	1-25	26-50	51-75	76-100
67.5	71.4	55.2	61.5	L_{99}	82.4	75.4	75.0	74.5
68.8	62.9	52.9	63.5		75.1	74.9	70.5	73.4
58.6	59.4	50.5	64.0	L_{90}	72.6	74.6	67.7	73.3
57.0	60.5	48.8	67.6		71.3	73.0	67.2	73.3
60.7	64.0	46.7	74.5		68.8	72.7	66.7	73.1
64.7	64.7	46.3	69.5		67.5	72.1	65.1	73.1
65.0	63.9	46.4	72.7		65.4	72.0	64.1	72.7
72.6	68.0	45.8	73.1		65.0	71.4	62.5	71.5
56.6	74.6	45.7	73.3		64.7	71.2	59.7	70.5
53.2	71.1	47.3	73.1		63.6	71.1	59.2	69.5
48.4	72.1	49.3	68.5		63.2	70.6	58.9	68.5
47.6	75.4	66.7	67.7	L_{50}	60.7	70.1	57.9	67.7
48.5	74.9	59.7	73.4		60.7	68.8	57.6	67.6
49.6	72.7	59.2	71.5		59.5	68.0	56.2	64.0
59.5	67.1	64.1	70.5		58.6	67.8	55.2	63.5
63.2	73.0	67.2	73.3		57.0	67.1	52.9	63.0
55.6	70.6	62.5	63.0		56.6	64.7	50.5	61.5
53.8	71.2	65.1	61.0		55.6	64.2	49.3	61.0
54.6	68.8	75.0	58.6		54.6	64.0	48.8	58.6
60.7	64.2	70.5	58.6	L_{25}	53.8	63.9	47.3	58.6
82.4	72.0	67.7	56.5		53.2	63.7	46.7	56.5
65.4	70.1	58.9	56.5		49.6	62.9	46.4	56.5
63.6	67.8	57.9	55.3	L_{10}	48.5	60.5	46.3	55.3
75.1	63.7	56.2	53.6		48.4	59.4	45.8	53.6
71.3	59.0	57.6	52.6		47.6	59.0	45.7	52.6



Noise Measurements
East of Euclid Street

Source: Blodgett Baylosis Environmental Planning

82.4	
75.4	99%
75.1	
75.0	
74.9	
74.6	
74.5	
73.4	
73.3	
73.3	
73.1	90%
73.1	
73.0	
72.7	
72.7	
72.6	
72.1	
72.0	
71.5	

71.4	
71.3	
71.2	
71.1	
70.6	
70.5	
70.5	75%
70.1	
69.5	
68.8	
68.8	
68.5	
68.0	
67.8	
67.7	
67.7	
67.6	
67.5	
67.2	
67.1	
66.7	
65.4	
65.1	
65.0	
64.7	
64.7	
64.2	
64.1	
64.0	
64.0	
63.9	
63.7	50%
63.6	
63.5	
63.2	
63.0	
62.9	
62.5	
61.5	
61.0	
60.7	
60.7	
60.5	
59.7	
59.5	
59.4	
59.2	
59.0	
58.9	
58.6	
58.6	
58.6	
57.9	
57.6	
57.0	
56.6	
56.5	
56.5	
56.2	

55.6
55.3
55.2
54.6
53.8
53.6
53.2
52.9
52.6
50.5
49.6
49.3
48.8
48.5
48.4
47.6
47.3
46.7
46.4
46.3
45.8
45.7

6283.7
62.837

Demolition Noise
Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/05/2019
Case Description: Volara Townhomes Demolition Phase

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential	Residential	63.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	70.0	8.0
Excavator	No	40		80.7	130.0	8.0
Excavator	No	40		80.7	150.0	8.0
Dozer	No	40		81.7	70.0	8.0
Dozer	No	40		81.7	150.0	8.0

Results

	Calculated (dBA)				Noise Limits (dBA)				Noise Limit Exceedance (dBA)			
	Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	69.8	65.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	64.4	60.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	63.2	59.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	70.7	66.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	64.1	60.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	70.7	70.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Page 1

Site Preparation
Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/05/2019
Case Description: Volara Townhomes Site Preparation Phase

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential	Residential	63.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	70.0	8.0
Backhoe	No	40		77.6	100.0	8.0
Backhoe	No	40		77.6	130.0	8.0
Backhoe	No	40		77.6	150.0	8.0
Dozer	No	40		81.7	70.0	8.0
Dozer	No	40		81.7	130.0	8.0
Dozer	No	40		81.7	150.0	8.0
Front End Loader	No	40		79.1	70.0	8.0
Front End Loader	No	40		79.1	100.0	8.0
Front End Loader	No	40		79.1	130.0	8.0
Front End Loader	No	40		79.1	150.0	8.0
Tractor	No	40	84.0		70.0	8.0
Tractor	No	40	84.0		100.0	8.0
Tractor	No	40	84.0		130.0	8.0
Tractor	No	40	84.0		150.0	8.0

Results

Calculated (dBA)						Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
Day			Evening			Night			Day			Evening			Night		
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Backhoe	66.6	62.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	63.5	59.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	61.3	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	60.0	56.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	70.7	66.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	65.4	61.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	64.1	60.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Page 1

Site Preparation

N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Front End Loader			68.2	64.2	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Front End Loader			65.1	61.1	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Front End Loader			62.8	58.8	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Front End Loader			61.6	57.6	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Tractor			73.1	69.1	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Tractor			70.0	66.0	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Tractor			67.7	63.7	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Tractor			66.5	62.5	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
		Total	73.1	75.1	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				

Page 2

Grading Phase
Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/05/2019
Case Description: Volara Townhomes Grading Phase

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential	Residential	63.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	70.0	8.0
Backhoe	No	40		77.6	130.0	8.0
Backhoe	No	40		77.6	150.0	8.0
Excavator	No	40		80.7	100.0	8.0
Dozer	No	40		81.7	100.0	8.0
Grader	No	40	85.0		100.0	8.0
Front End Loader	No	40		79.1	70.0	8.0
Front End Loader	No	40		79.1	130.0	8.0
Front End Loader	No	40		79.1	150.0	8.0
Tractor	No	40	84.0		70.0	8.0
Tractor	No	40	84.0		130.0	8.0
Tractor	No	40	84.0		150.0	8.0

Results

Equipment	Calculated (dBA) Lmax	Leq	Noise Limit Exceedance (dBA) Lmax	Leq	Noise Limits (dBA) Lmax	Leq	Lmax	Leq	Lmax
	Day		Evening		Night		Day	Evening	Night
Backhoe	66.6	62.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	61.3	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	60.0	56.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	66.7	62.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	67.6	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	71.0	67.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	68.2	64.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	62.8	58.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Page 1

Grading Phase

Front End Loader			61.6	57.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor			73.1	69.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor			67.7	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor			66.5	62.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total			73.1	74.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Page 2

Construction Phase
Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/05/2019
Case Description: Volara Townhomes Construction Phase

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential	Residential	63.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	70.0	8.0
Backhoe	No	40		77.6	130.0	8.0
Backhoe	No	40		77.6	150.0	8.0
Crane	No	16		80.6	80.0	8.0
Front End Loader	No	40		79.1	70.0	8.0
Front End Loader	No	40		79.1	130.0	8.0
Front End Loader	No	40		79.1	150.0	8.0
Tractor	No	40	84.0		70.0	8.0
Tractor	No	40	84.0		130.0	8.0
Tractor	No	40	84.0		150.0	8.0
Man Lift	No	20		74.7	70.0	8.0
Man Lift	No	20		74.7	100.0	8.0
Man Lift	No	20		74.7	130.0	8.0

Results

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Backhoe	66.6	62.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	61.3	57.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	60.0	56.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	68.5	60.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	68.2	64.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	62.8	58.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	61.6	57.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	73.1	69.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Page 1

Construction Phase

N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Tractor			67.7	63.7	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Tractor			66.5	62.5	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Man Lift			63.8	56.8	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Man Lift			60.7	53.7	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Man Lift			58.4	51.4	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
		Total	73.1	73.2	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				

Page 2

Paving Phase
Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/05/2019
Case Description: Volara Townhomes Paving Phase

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residential	Residential	63.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	70.0	8.0
Concrete Mixer Truck	No	40		78.8	130.0	8.0
Paver	No	50		77.2	70.0	8.0
Roller	No	20		80.0	70.0	8.0
Roller	No	20		80.0	130.0	8.0
Pavement Scarafier	No	20		89.5	70.0	8.0
Pavement Scarafier	No	20		89.5	90.0	8.0
Front End Loader	No	40		79.1	70.0	8.0
Front End Loader	No	40		79.1	130.0	8.0
Front End Loader	No	40		79.1	150.0	8.0
Tractor	No	40	84.0		70.0	8.0
Tractor	No	40	84.0		130.0	8.0
Tractor	No	40	84.0		150.0	8.0

Results

Equipment	Calculated (dBA) Lmax	Leq	Noise Limit Exceedance (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq
Concrete Mixer Truck	67.9	63.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Mixer Truck	62.5	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	66.3	63.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	69.1	62.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	63.7	56.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	78.6	71.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	76.4	69.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	68.2	64.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Page 1

Paving Phase

N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Front End Loader			62.8	58.8	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Front End Loader			61.6	57.6	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Tractor			73.1	69.1	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Tractor			67.7	63.7	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
Tractor			66.5	62.5	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				
		Total	78.6	76.7	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A				

Page 2

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TRAFFIC IMPACT STUDY

58-Unit Townhomes

104, 110, 116, 118 E Electric Avenue, La Habra

Date: September 12, 2019

Prepared For:

Bonanni Development
5500 Bolsa Ave, #120
Huntington Beach, CA 92649

Prepared By:

K2 Traffic Engineering, Inc.
1442 Irvine Blvd, Suite 210
Tustin, CA 92780
(714) 832-2116

TABLE OF CONTENTS

EXECUTIVE SUMMARY 2
INTRODUCTION 3
STUDY SCENARIOS 3
EXISTING CONDITIONS 6
TRIP GENERATION 8
TRIP DISTRIBUTION 9
TRAFFIC ASSIGNMENT 9
EXISTING CONDITIONS PLUS PROJECT 12
OPENING YEAR CONDITIONS WITHOUT PROJECT 18
OPENING YEAR CONDITIONS + PROJECT 20
THRESHOLD OF SIGNIFICANT IMPACT 22
OTHER SIGNALIZED INTERSECTIONS 24
SITE ACCESS 24
ON-SITE CIRCULATION 24

LIST OF EXHIBITS

Exhibit 1	Site Plan	4
Exhibit 2	Vicinity Map	5
Exhibit 3	Existing Lane Configuration and Traffic Volumes	7
Exhibit 4	Trip Distribution	10
Exhibit 5	Traffic Assignment	11
Exhibit 6	Existing Conditions Plus Project	13
Exhibit 7	Other Developments (Cumulative Projects)	15
Exhibit 8	Location Map of Cumulative Projects	16
Exhibit 9	Other Development Traffic Volumes	17
Exhibit 10	Opening Year Conditions Without Project	19
Exhibit 11	Opening Year Conditions With Project	21

LIST OF TABLES

Table 1	Existing Conditions	6
Table 2	Trip Generation Rate	8
Table 3	Project Trip Generation	8
Table 4	Existing Conditions Plus Project	12
Table 5	Opening Year Conditions Without Project	18
Table 6	Opening Year Conditions With Project	20
Table 7	Threshold of Significant Impact	22
Table 8	Traffic Impact Analysis: Existing Conditions	22
Table 11	Traffic Impact Analysis: Opening Year Conditions	23

Traffic Impact Study for
58-Unit Townhomes at
104, 110, 116, 118 E Electric Avenue, La Habra

Prepared under the supervision of

Jende Kay Hsu, P.E., T. E.
California License # T2285

EXECUTIVE SUMMARY

The proposed developments are located at 104, 110, 116, 118 E Electric Avenue in the City of La Habra. The developments include replacing existing outdoor storage facilities with 58-unit townhomes.

This study is prepared in accordance with the methodologies set forth by Caltrans' Guide for the Preparation of Traffic Impact Study and the scoping agreement approved by the City of La Habra. The proposed developments are expected to generate 5 inbound and 16 outbound trips in the AM peak hour, 16 inbound and 10 outbound trips in the PM peak hour, and 321 daily trips. The study has analyzed the nearby intersection for potential impacts under existing conditions, existing conditions plus project, project opening year, and project opening year plus project conditions. The project does not result in a significant impact for any of the study scenario. Mitigation measure is, therefore, not required for the project.

The project driveway is properly aligned with Electric Avenue west of Euclid Street. The driveway is 32 feet wide featuring curb returns of 15 feet radius. There is no dedicated left-turn lane on Euclid Street at Electric Avenue, similar to most stop-controlled intersections along Euclid Street. Nonetheless, Euclid Street may be subject to future consideration of additional left-turn lanes and/or two-way-left-turn lane at Electric Avenue to take advantage of the available street width and improve traffic safety for left-turn movements on Euclid Street.

Corner sight distance is adequate provided that the height of shrubs, planting, and other visual obstructions be limited to a maximum height of thirty inches to maintain sufficient corner sight distance of the driveway. The site plan is subject to further review and final approval by the City of La Habra.

The site consists of a 26-foot-wide fire lane providing access to all buildings. Adequate setbacks are provided to ensure parking maneuvers be contained on site without affecting traffic on the public street. On-site circulation appears efficient and safe without bottleneck.

INTRODUCTION

The proposed developments are located at 104, 110, 116, 118 E Electric Avenue in the City of La Habra. The developments include replacing existing outdoor storage facilities with 58-unit townhomes. The proposed site plan is shown in **Exhibit 1**.

STUDY SCENARIOS

In compliance with the scoping agreement approved by the City of La Habra, **Appendix A**, level of service analysis are performed for the following intersections:

1. Euclid Street at Electric Avenue
2. Euclid Street at Olive Avenue
3. Euclid Street at Mountain View Avenue

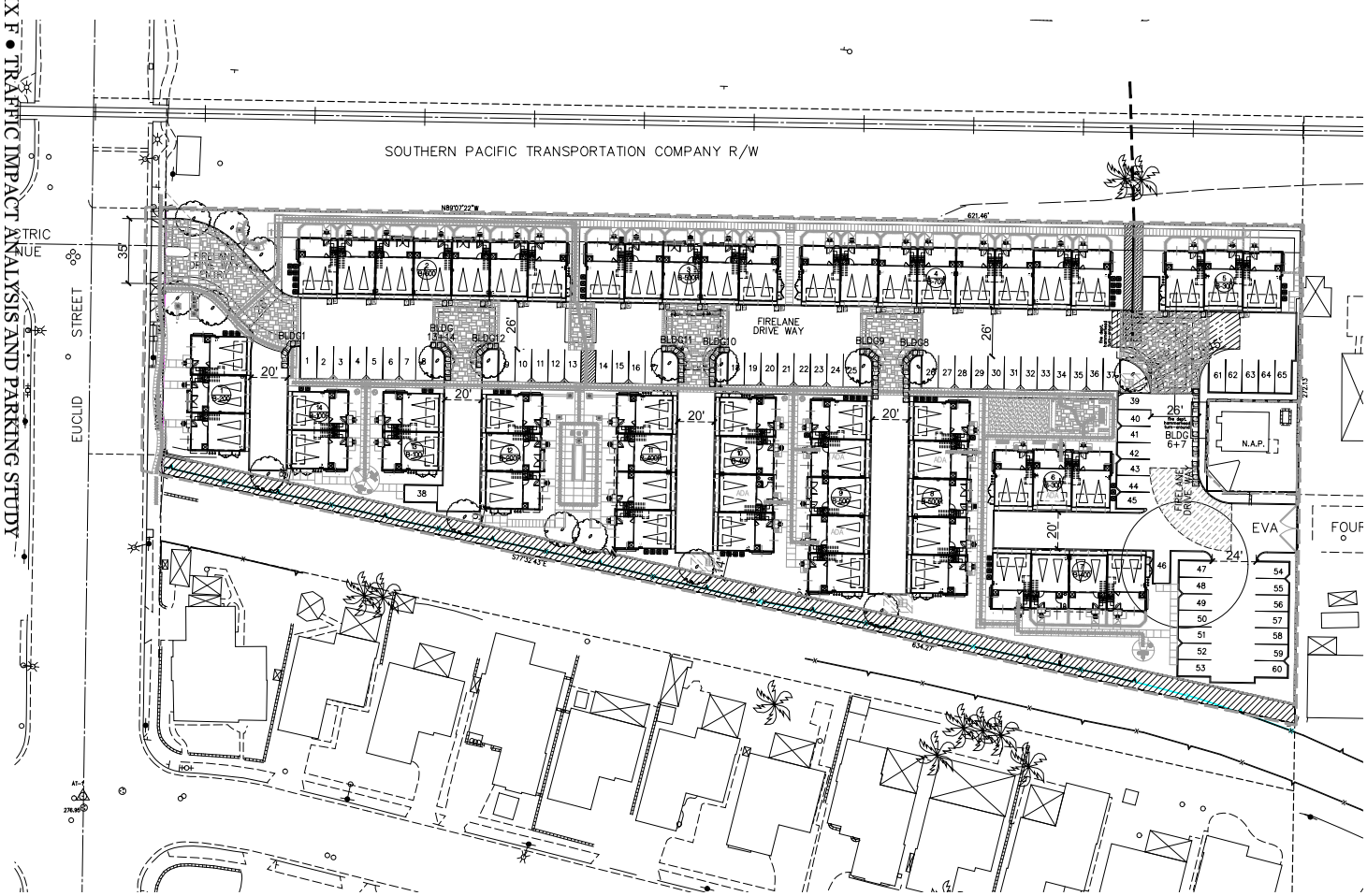
The following scenarios are analyzed for study intersections in order to evaluate the potential traffic impact generated by the project:

i. Existing Conditions

ii. Existing Conditions plus Project

iii. Opening Year (2020) Conditions without Project

iv. Opening Year (2020) plus Project



Property Address	Legal Description
Euclid Street La Habra, CA	Pin No. : Assessors No : TTM No. : Thomas Bros Grid : Map Sheet :

Jurisdiction Information	
Community Planing Area	Portola Park
Area Planning Commission	Orange County
Neighborhood Council	NA
Land Use Designation	R-4 Standards of Development

Zoning	
Current Zoning	Commercial
Proposed Zoning	R-4 Standards of Deveopment

Site Summary	Gross Site Area	Net Site Area
	127,043 SF	- SF
	2.92 AC	- AC
Dwelling Units*	58 DU	
Net Density	19.9 DU/AC	
Lot Coverage		
Lot Coverage	30 % Provided	
Lot Coverage Max. Permitted	40 %	
Density		
Permitted Density 1:800SF/DU	0 DU	
Provided Density	58 DU	
Building Height		
Allowed	35' (Per Sect. 18.26.040)	
Proposed	35'	

Townhomes Plan Summary	#	GFA	Beds	%	Total Plan S.F.	Avg. Net S.F.
P1	7	1,429	2	12.1%	10,003	
P2	19	1,441	2	32.8%	27,379	
P3	32	1,591	3	55.2%	50,912	
Total	58			100.0%	88,294	

Type	#	%
2 bedroom total	26	44.8%
3 bedroom total	32	55.2%
Total	**58**	**100%**

Parking Summary			
Parking Required per Code: Sect. 18.80.040		Spaces/ Unit	Spaces Req.
2 Bedroom		2.5	65
3 Bedroom		3	96
Totals			161
Guest Required		0.5	29
Total Required Parking			190
Parking Provided	Spaces/Guest	Spaces/Unit	Spaces Provided
Garage Spaces		2	116
Guest Spaces		1.1	64
Accessible Space (Sect. 18.14.080)	0.03		2
Total Provided Parking*			182
*			

CITY OF LA HABRA • APPENDICES
VOLARA TOWNHOMES • EUCLID STREET

EXHIBIT 1. SITE PLAN

ktgy
Architecture + Planning
17911 Von Karman Ave,
Suite 200
Irvine, CA 92614
949.851.2133
ktgy.com

BONANNI DEVELOPMENT

VOLARA
LA HABRA, CA # 20180108

PARCEL
# #
EUCLID STREET
LA HABRA, CA

12-20-2018 3RD SUBMITTAL
07-23-2018 2ND SUBMITTAL
04-27-2018 1ST SUBMITTAL
PLOT DATE - December 19, 2018

SITEPLAN

A1.0

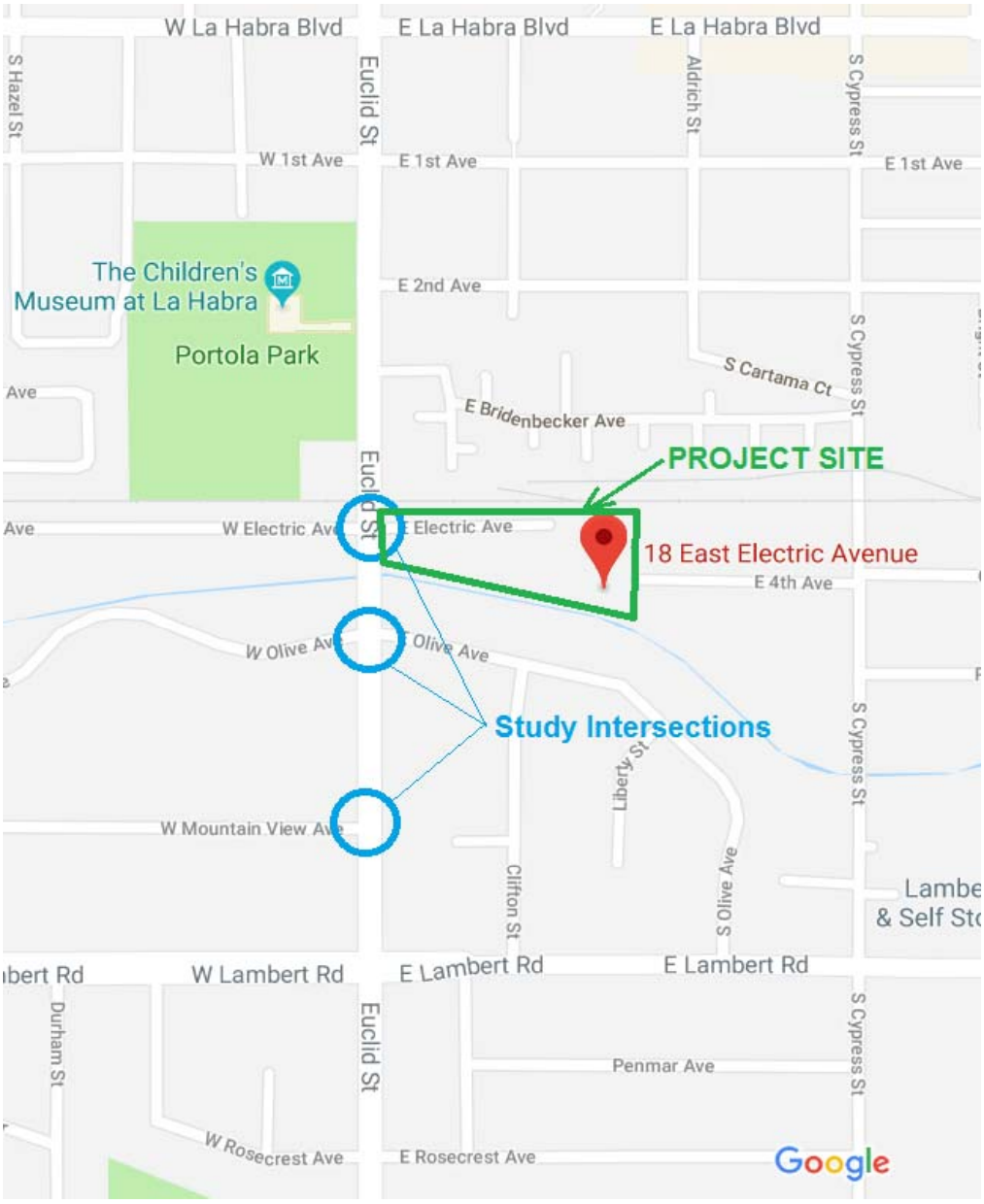


EXHIBIT 2. VICINITY MAP
No Scale

EXISTING CONDITIONS

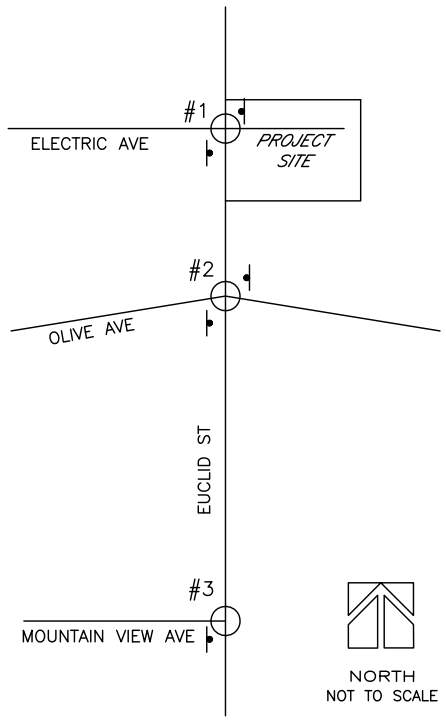
The project site is situated at 104, 110, 116, 118 E Electric Avenue in the City of La Habra. The vicinity map is shown on **Exhibit 2**. The site is previously used as outdoor storage and currently vacant at the time of this study. The site is adjacent to Euclid Street, which is an undivided north-south arterial with two lanes in each direction. Electric Avenue is an east-west residential street. The intersection of Electric Avenue and Euclid Street is controlled by stop signs on Electric Avenue. There is no dedicated left-turn lane on Euclid Street at project site, as well as other similar stop-controlled intersections of residential streets.

AM and PM peak hour turning movement counts were performed on February 6, 2018 at study intersections. Existing traffic volumes and lane configuration are illustrated in **Exhibit 3**. Traffic data can be found in **Appendix B**.

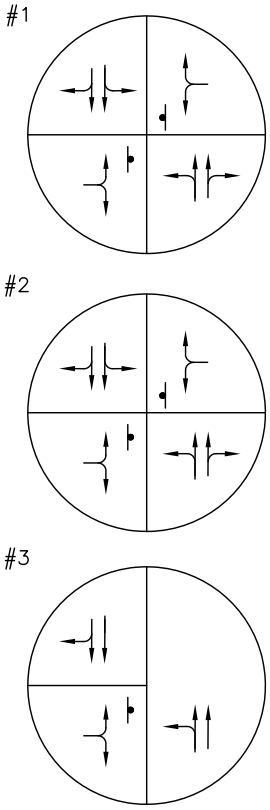
The intersection analysis is performed using SYNCHRO software and the Intersection Capacity Utilization (ICU) method. **Table 1** shows existing traffic conditions of studied intersections. All studied intersections are currently operated at level of service "A". The analysis worksheets can be found in **Appendix C**.

Table 1. Existing Conditions

Intersection	AM Peak ICU	AM Peak LOS	PM Peak ICU	PM Peak LOS
1. Euclid St at Electric Ave	32.6%	A	47.5%	A
2. Euclid St at Olive Ave	49.3%	A	54.7%	A
3. Euclid St at Mountain View Ave	38.3%	A	46.6%	A



LANE CONFIGURATION

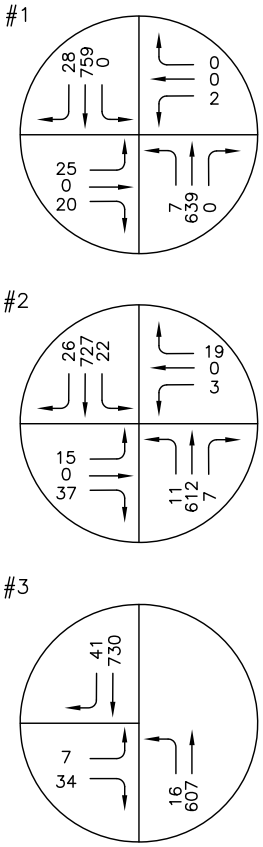


LEGEND:

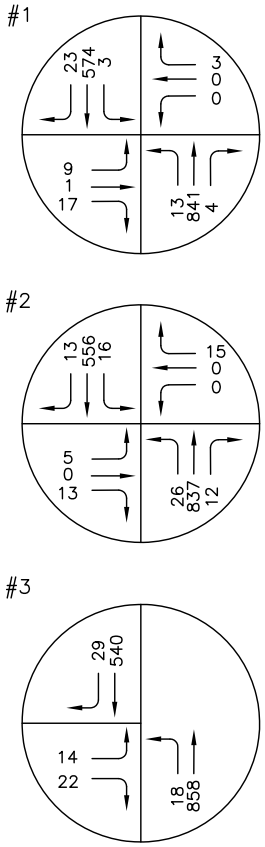
INTERSECTION

STOP SIGN

AM PEAK HOUR TRAFFIC VOLUMES



PM PEAK HOUR TRAFFIC VOLUMES



EXISTING LANE CONFIGURATION AND TRAFFIC VOLUMES

58-Unit Townhome
104, 110, 116, 118 E Electric Avenue, La Habra

K2 TRAFFIC ENGINEERING

EXHIBIT 3

TRIP GENERATION

Trip generation represents the amount of traffic attracted and produced by the project development. Based upon the recommendations from *"Trip Generation"* Tenth Edition, published by the Institute of Transportation Engineers (ITE), project related trip generation rates are shown in **Table 2**.

Table 2. Trip Generation Rate

LAND USE	UNIT	Daily	AM Peak			PM Peak		
			Total	IN	OUT	Total	IN	OUT
Multifamily Housing (Mid-Rise) (221)	Dwelling Unit	5.44	0.36	26%	74%	0.44	61%	39%

The proposed developments are expected to generate 5 inbound and 16 outbound trips in the AM peak hour, 16 inbound and 10 outbound trips in the PM peak hour, and 321 daily trips. The projected trips associated with the project are provided in **Table 3**.

Table 3. Project Trip Generation

LAND USE	UNIT	Quan-tity	AM Peak			PM Peak			Daily
			Total	IN	OUT	Total	IN	OUT	
Multifamily Housing (Mid-Rise) (221)	Dwelling Unit	58	21	5	16	26	16	10	321

TRIP DISTRIBUTION

Trip distribution represents the directional orientation of traffic to and from the proposed project. Directional orientation is largely influenced by the geographical location of the site, among many other factors. The trip distribution pattern for the project is illustrated on **Exhibit 4**.

TRAFFIC ASSIGNMENT

The traffic assignment to and from the Site has been based upon the results of trip generation, trip distribution, and access layouts. **Exhibit 5** illustrates the traffic assignment of the proposed project for the AM and PM peak hours.

EXHIBIT 4. TRIP DISTRIBUTION

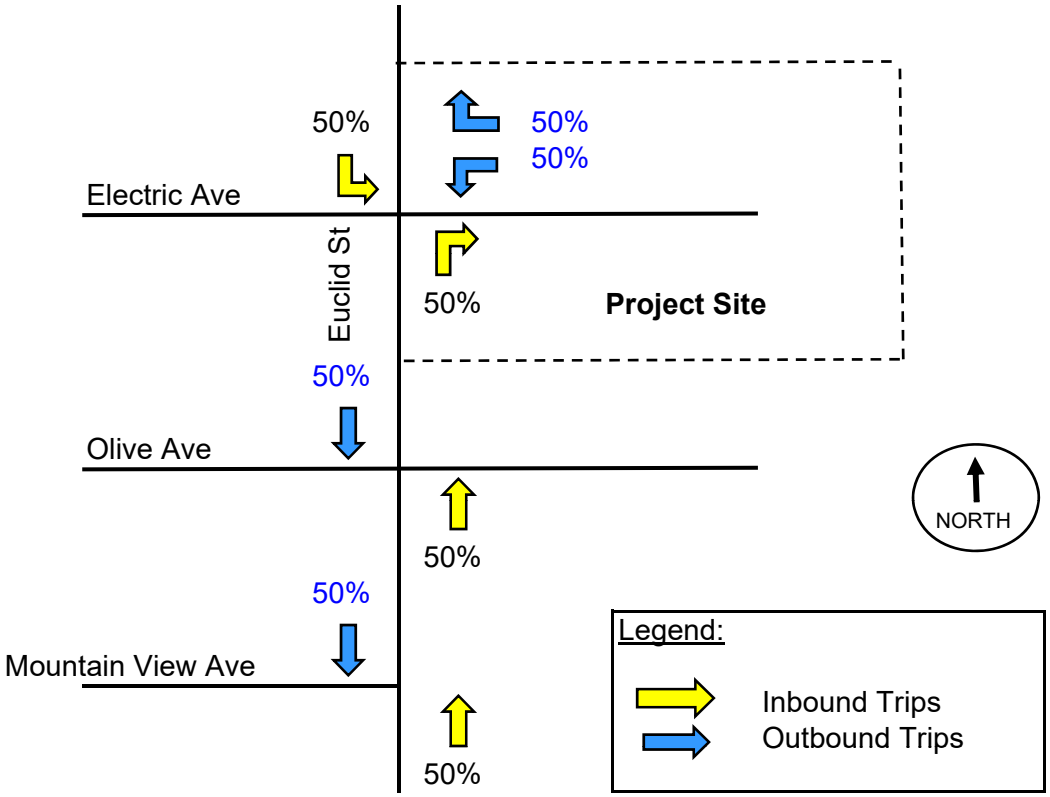
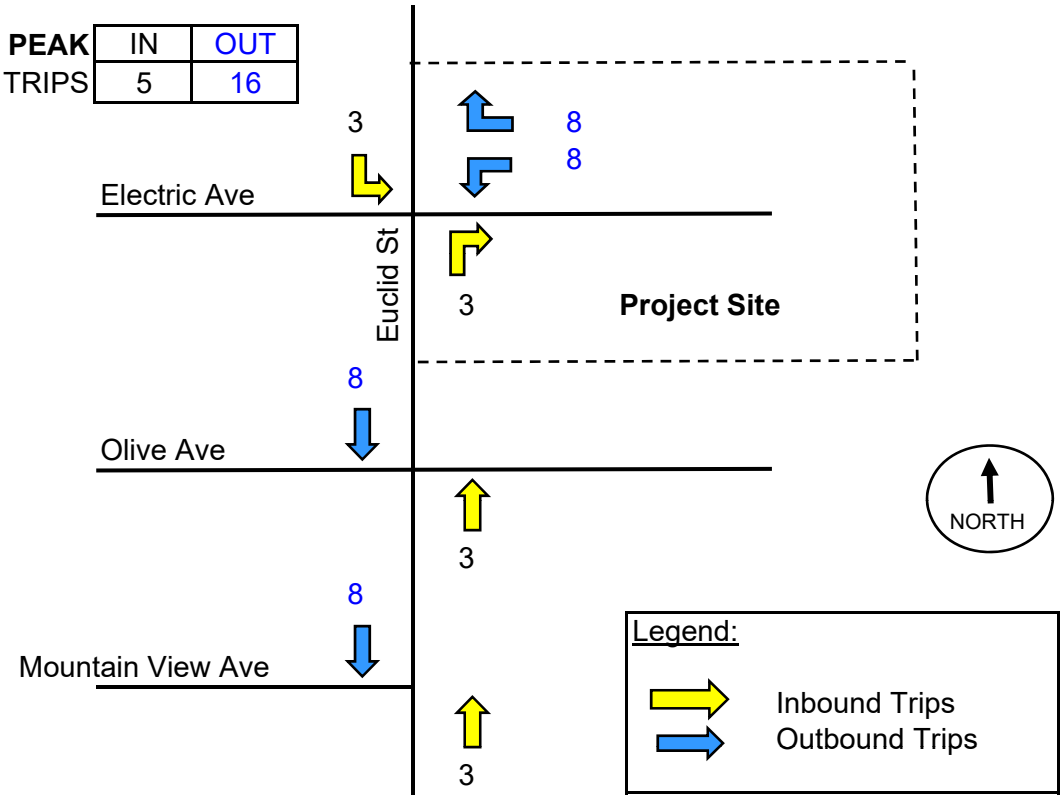
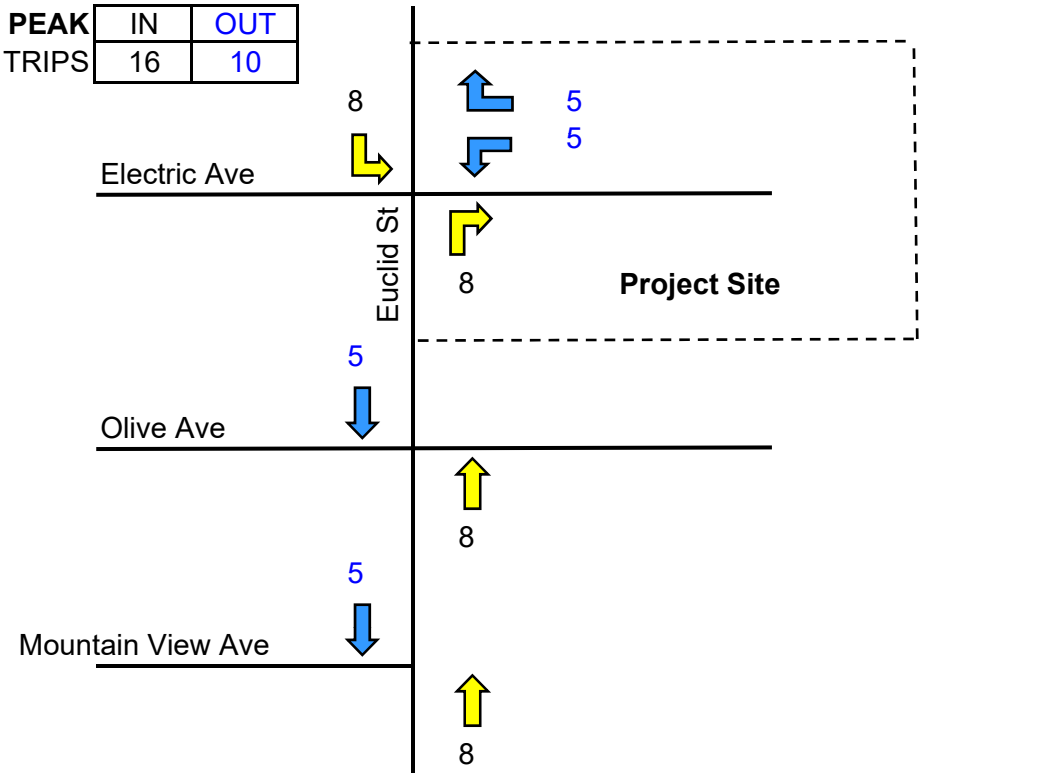


EXHIBIT 5. TRAFFIC ASSIGNMENT

AM PEAK TRIPS	IN	OUT
	5	16



PM PEAK TRIPS	IN	OUT
	16	10



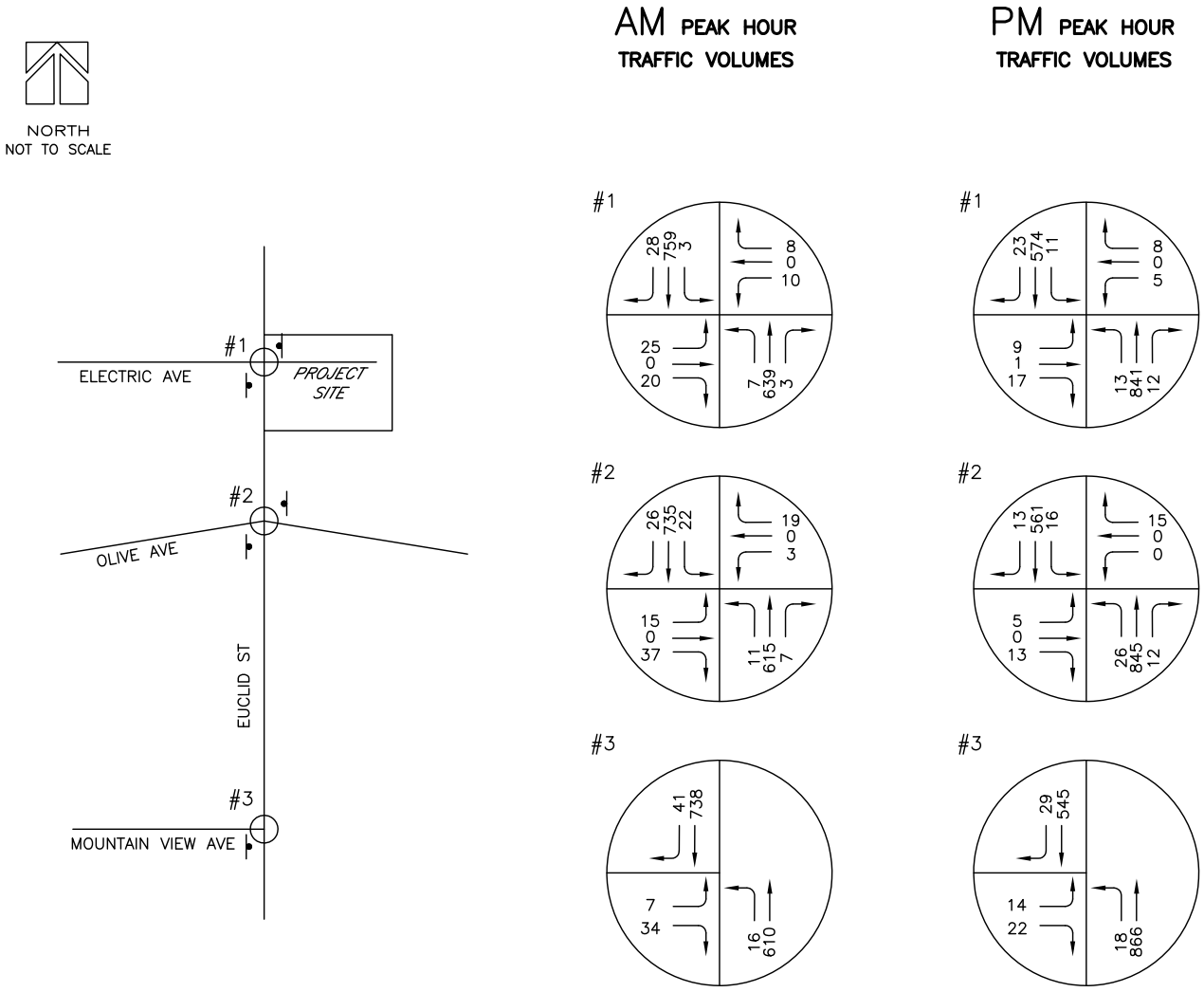
EXISTING CONDITIONS PLUS PROJECT

Traffic volumes of the existing condition plus project traffic are shown in **Exhibits 6**.

The project's level of significance of traffic impact under existing conditions for the AM and PM peak hour are shown in **Table 4**. All studied intersections will maintain level of service "A" for the existing conditions plus project.

Table 4. Existing Conditions Plus Project

Intersection	AM Peak ICU	AM Peak LOS	PM Peak ICU	PM Peak LOS
1. Euclid St at Electric Ave	34.0%	A	42.8%	A
2. Euclid St at Olive Ave	49.5%	A	54.9%	A
3. Euclid St at Mountain View Ave	38.4%	A	46.8%	A



58-Unit Townhome
104, 110, 116, 118 E Electric Avenue, La Habra

EXISTING CONDTITIONS PLUS PROJECT

K2 TRAFFIC ENGINEERING

EXHIBIT 6

OTHER DEVELOPMENTS

Other developments approved by the City of La Habra were also taken into consideration. Based on information provided by the Planning Department of the City of La Habra, other development projects affecting the study intersections are listed in **Exhibit 7**. The location map of these other development projects are illustrated on **Exhibit 8**. **Exhibit 9** illustrates traffic volumes generated by other development projects for study intersections.

EXHIBIT 7. OTHER DEVELOPMENT PROJECTS

#	Project Information	AM Peak			PM Peak			Daily
		IN	OUT	Total	IN	OUT	Total	
1	La Habra Civic Center Infill Housing	10	42	52	42	21	63	673
2	32-unit Residential Condominium (La Habra Blvd w/o Idaho St)	2	12	14	11	6	17	186

Source: Planning Department, City of La Habra

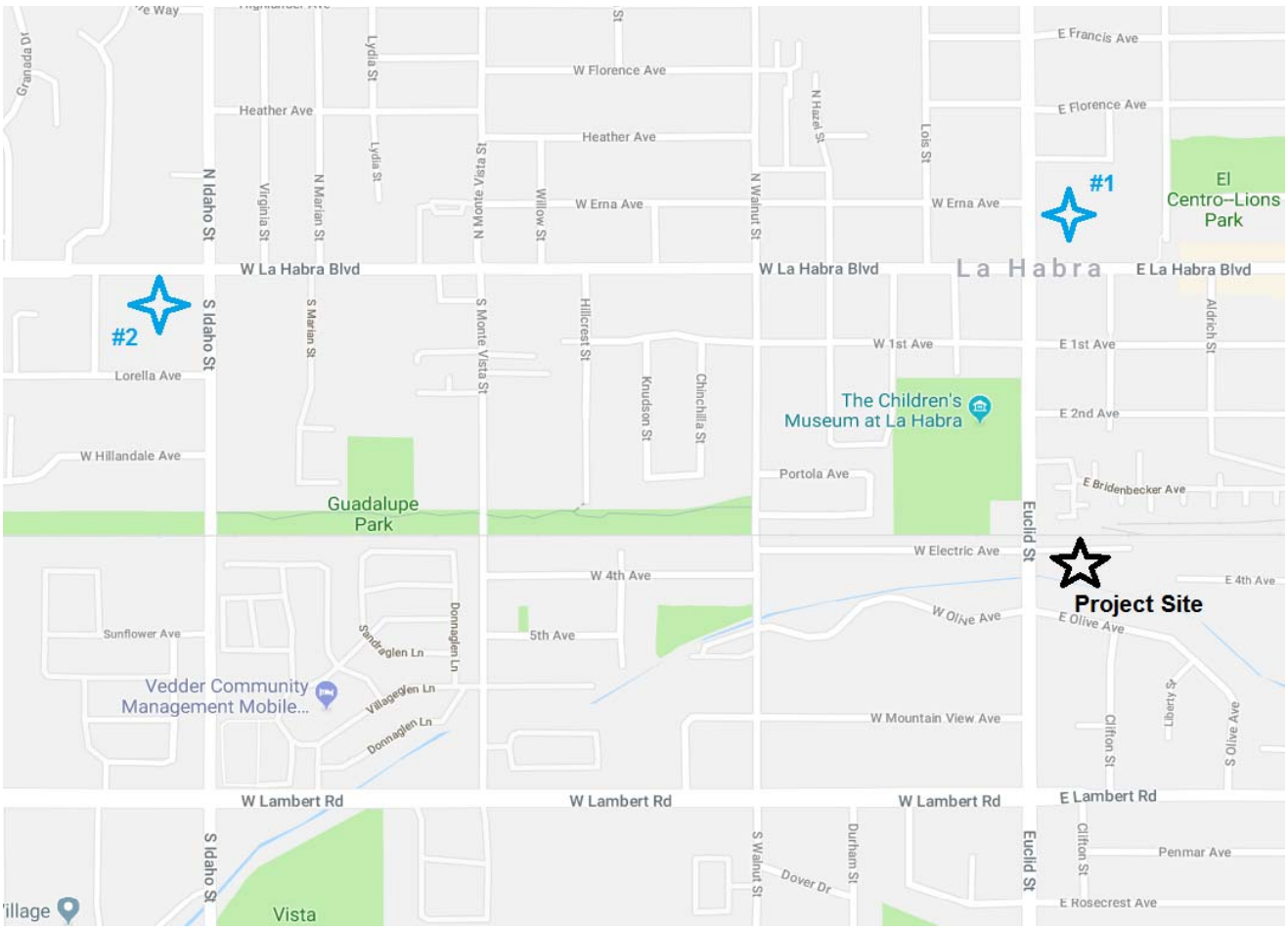
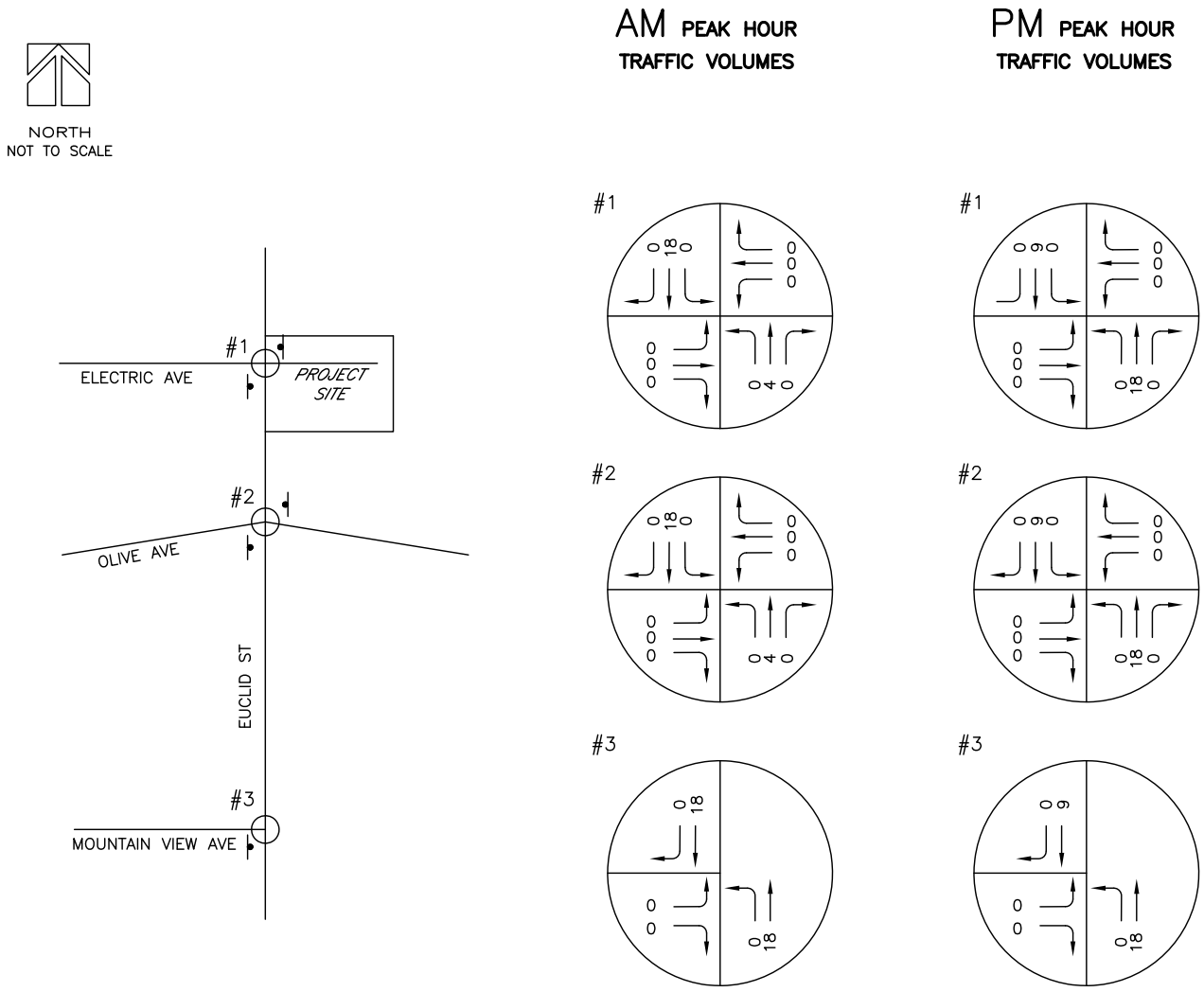


EXHIBIT 8. LOCATION MAP OF OTHER DEVELOPMENT
No Scale



58-Unit Townhome
104, 110, 116, 118 E Electric Avenue, La Habra

OTHER DEVELOPMENT
TRAFFIC VOLUMES

K2 TRAFFIC ENGINEERING

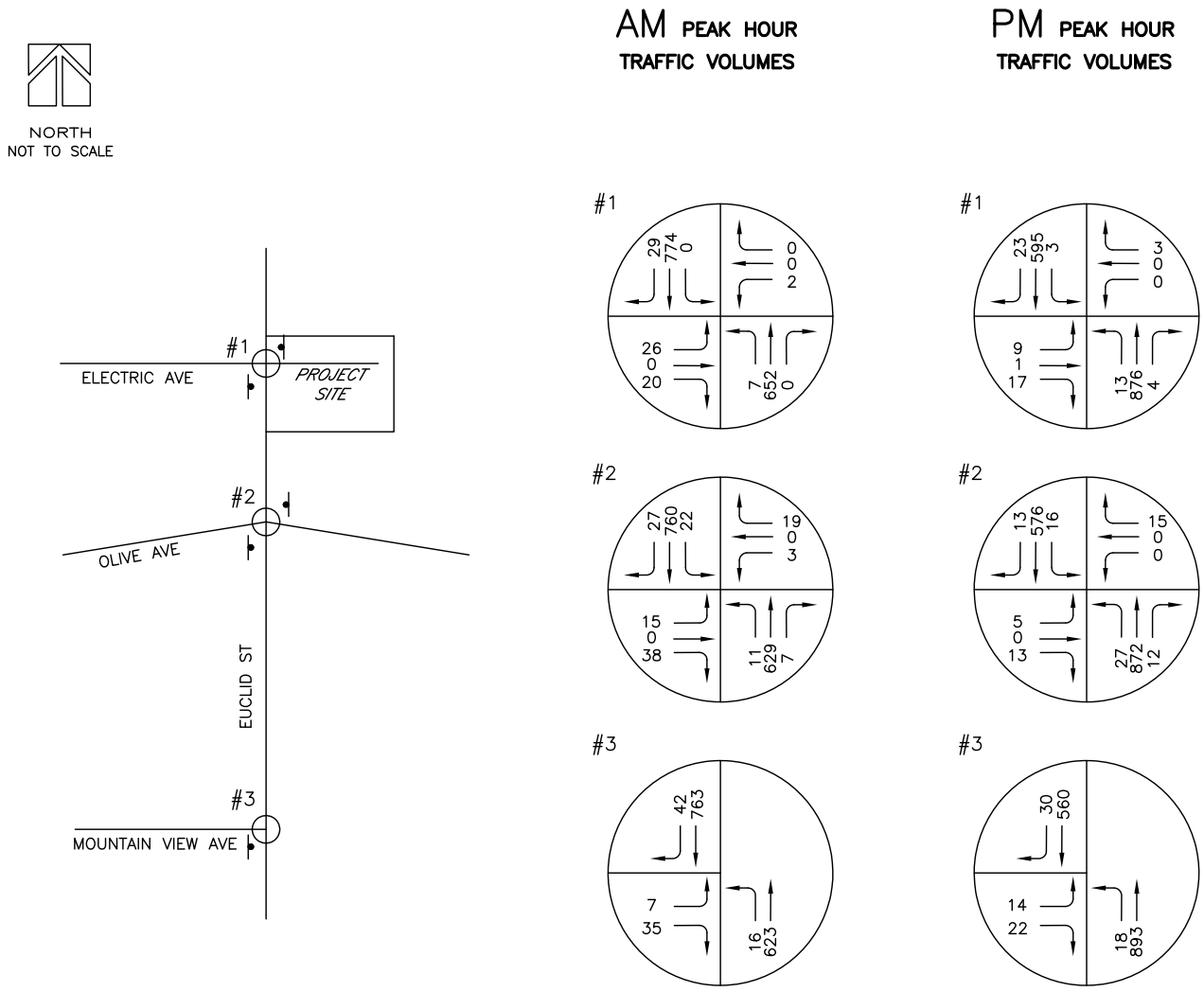
EXHIBIT 9

OPENING YEAR CONDITIONS WITHOUT PROJECT

Traffic conditions prior to completion of the proposed developments (year 2020) are estimated by applying an annual growth rate of one percent (1%) over existing traffic counts plus traffic generated by other developments. Traffic volumes for the pre-project completion are illustrated in **Exhibit 10**. All studied intersections will maintain level of service "A" for both AM and PM peak hours, as shown in **Table 5.**

Table 5. Opening Year Conditions without Project

Intersection	AM Peak ICU	AM Peak LOS	PM Peak ICU	PM Peak LOS
1. Euclid St at Electric Ave	33.1%	A	48.5%	A
2. Euclid St at Olive Ave	50.2%	A	56.4%	A
3. Euclid St at Mountain View Ave	38.7%	A	47.5%	A



OPENING YEAR CONDITION
WITHOUT PROJECT

58-Unit Townhome
104, 110, 116, 118 E Electric Avenue, La Habra

K2 TRAFFIC ENGINEERING

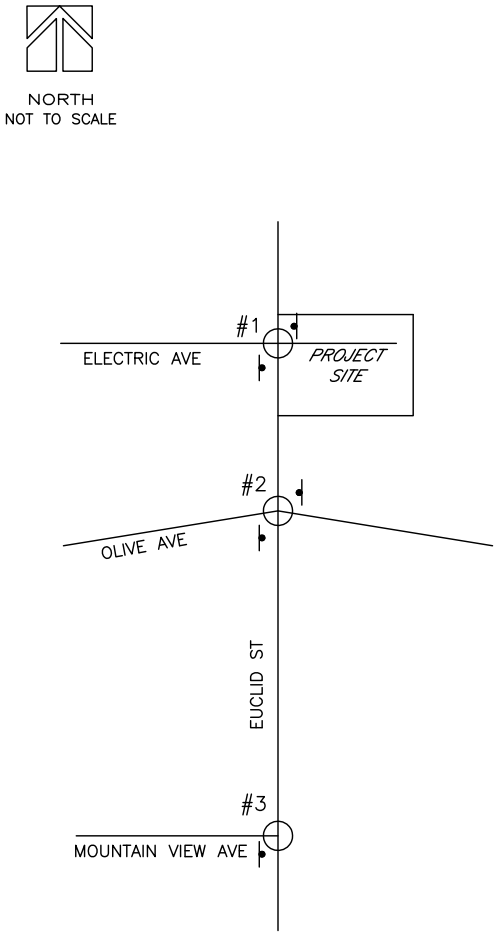
EXHIBIT 10

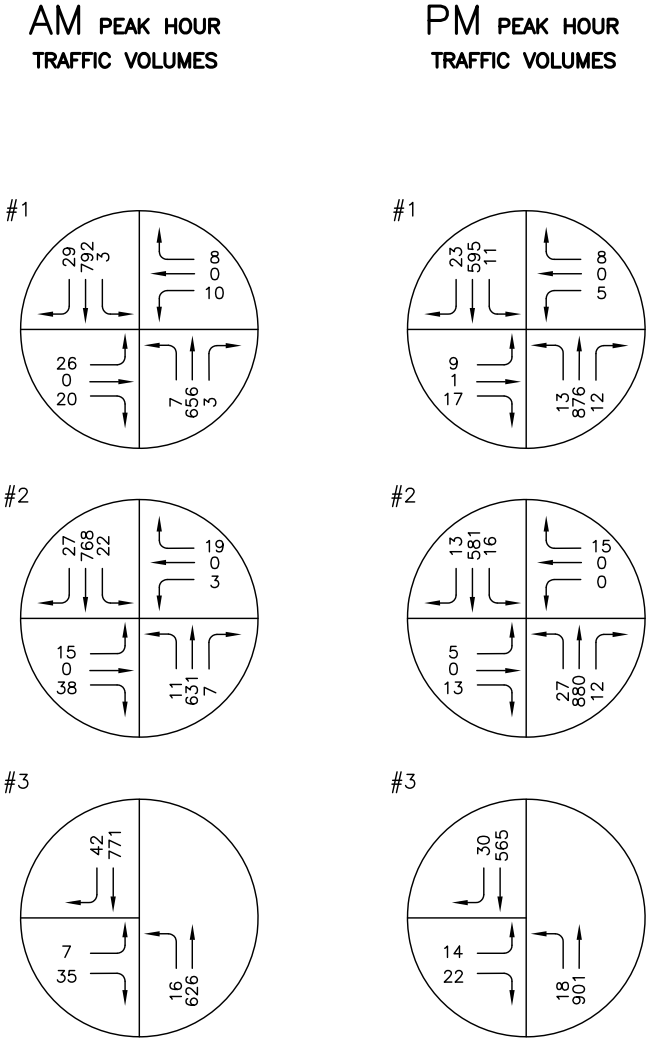
OPENING YEAR CONDITIONS + PROJECT

Traffic volumes for year 2020 after project completion are illustrated in **Exhibit 11**. All studied intersections will maintain level of service "A" for both AM and PM peak hours, as shown in **Table 6**.

Table 6. Opening Year Conditions Plus Project

Intersection	AM Peak ICU	AM Peak LOS	PM Peak ICU	PM Peak LOS
1. Euclid St at Electric Ave	34.9%	A	43.8%	A
2. Euclid St at Olive Ave	50.5%	A	56.6%	A
3. Euclid St at Mountain View Ave	38.8%	A	47.7%	A





OPENING YEAR CONDITIONS
PLUS PROJECT

58-Unit Townhome
104, 110, 116, 118 E Electric Avenue, La Habra

K2 TRAFFIC ENGINEERING

EXHIBIT 11

THRESHOLD OF SIGNIFICANT IMPACT

The threshold of significant traffic impact on an intersection are shown in **Table 7**.

Table 7. Threshold of Significant Impact

LOS	Final V/C Ratio	Project-Related Increase In V/C
C	> 0.700 - 0.800	≥ 0.050
D	> 0.800 - 0.900	≥ 0.030
E, F	> 0.900	≥ 0.010

The traffic impact of the project at the study intersections for existing conditions are shown in **Table 8**. The project does not result in a significant impact based on existing conditions. Therefore, mitigation measure is not required.

Table 8. Project Impact Analysis- Existing Conditions

Scenario	Without Project		With Project		Significant Impact
	ICU	LOS	ICU	LOS	
AM PEAK					
1. Euclid St at Electric Ave	32.6%	A	34.0%	A	No
2. Euclid St at Olive Ave	49.3%	A	49.5%	A	No
3. Euclid St at Mountain View Ave	38.3%	A	38.4%	A	No
PM PEAK					
1. Euclid St at Electric Ave	47.5%	A	42.8%	A	No
2. Euclid St at Olive Ave	54.7%	A	54.9%	A	No
3. Euclid St at Mountain View Ave	46.6%	A	46.8%	A	No

The traffic impact of the project at the study intersections for the opening year conditions are shown in **Table 9**. The project does not result in a significant impact based on the opening year conditions. Therefore, mitigation measure is not required.

Table 9. Project Impact Analysis- Opening Year Conditions

Scenario	Without Project		With Project		Significant Impact
	ICU	LOS	ICU	LOS	
AM PEAK					
1. Euclid St at Electric Ave	33.1%	A	34.9%	A	No
2. Euclid St at Olive Ave	50.2%	A	50.5%	A	No
3. Euclid St at Mountain View Ave	38.7%	A	38.8%	A	No
PM PEAK					
1. Euclid St at Electric Ave	48.5%	A	43.8%	A	No
2. Euclid St at Olive Ave	56.4%	A	56.6%	A	No
3. Euclid St at Mountain View Ave	47.5%	A	47.7%	A	No

OTHER SIGNALIZED INTERSECTIONS

The intersections on Euclid Street at La Habra Avenue, Bridenbecker Avenue, and Lambert Road are controlled by traffic signals. The project is not expected to have any significant impact to these major intersections due to low project trip distribution compared to the overall traffic volumes. Based on field observation, traffic signals at these locations appear to be well operated with reasonable efficiency and no apparent safety issues.

SITE ACCESS

The project driveway is properly aligned with Electric Avenue west of Euclid Street. The driveway is 32 feet wide featuring curb returns of 15 feet radius. There is no dedicated left-turn lane on Euclid Street at Electric Avenue, similar to most stop-controlled intersections along Euclid Street. Nonetheless, Euclid Street may be subject to future consideration of additional left-turn lanes and/or two-way-left-turn lane at Electric Avenue to take advantage of the available street width and improve traffic safety for left-turn movements on Euclid Street.

Corner sight distance is adequate provided that the height of shrubs, planting, and other visual obstructions be limited to a maximum height of thirty inches to maintain sufficient corner sight distance of the driveway. The site plan is subject to further review and final approval by the City of La Habra.

ON-SITE CIRCULATION

The site consists of a 26-foot-wide fire lane providing access to all buildings. Adequate setbacks are provided to ensure parking maneuvers be contained on site without affecting traffic on the public street. On-site circulation appears efficient and safe without bottleneck.

APPENDIX A

TRAFFIC STUDY SCOPING AGREEMENT

Traffic Impact Study Scope

Project Names:	65-Unit Townhomes
Project Address:	104,110,116,118 E Electric Avenue, La Habra
Project Description:	New 65-unit townhomes to replace existing outdoor storages. See Site Plan (Exhibit 1), Location Map (Exhibit 2)

	Consultant	Developer
Name	Kay Hsu, PE, TE K2 Traffic Engineering, Inc.	Chris Segesman Bonanni Development
Address	1442 Irvine Blvd, Ste 210 Tustin, CA 92780	5500 Bolsa Ave, #120 Huntington Beach, CA 92649
Telephone	714-832-2116	562-537-6908
Email	khsu@k2traffic.com	chris@bonannidevelopment.com

A. Trip Generation

Proposed Land Use	Residential Townhome
Reference	Trip Generation (10th Edition) by ITE, see Exhibit 3

Trips (See Exhibit 3)	Inbound	Outbound	Total
AM Peak Hour	6	18	24
PM Peak Hour	18	11	29
Daily Trip	360		

B. Trip Distribution See Exhibit 4 and 5

C. Background Traffic

Project Opening Year	2020	Growth Rate	1% Annual

D. Study Intersections (New Counts will be conducted)

✓ 1. Euclid St at Olive Ave	
✓ 2. Euclid St at Mountain View Ave	
✓ 3. Euclid St at Electric Ave	

E. Specific Issues to be addressed in the Study

✓ 1. The project is not expect to have any signficant impact to existing signals on Euclid St at La Habra Ave, Bridenbecker Ave, and Lambert Rd due to low project trip distribution but a brief discussion of signal operation and safety based on field observations will be included.
✓ 2. Site Access and On-Site Circulation
✓ 3. Study scenarios: Existing Conditions, Existing Plus Project, Opening Year with Cumulative Projects, Opening Year with Cumulative Projects Plus Project
✓ 4. Cumulative projects: 201 E. La Habra Blvd. (City Ventures) and 1020-1040 W. La Habra Blvd. (Shae Homes)

Recommended by:

1/10/2018

Consultant Date

Submitted on 1/10/2018

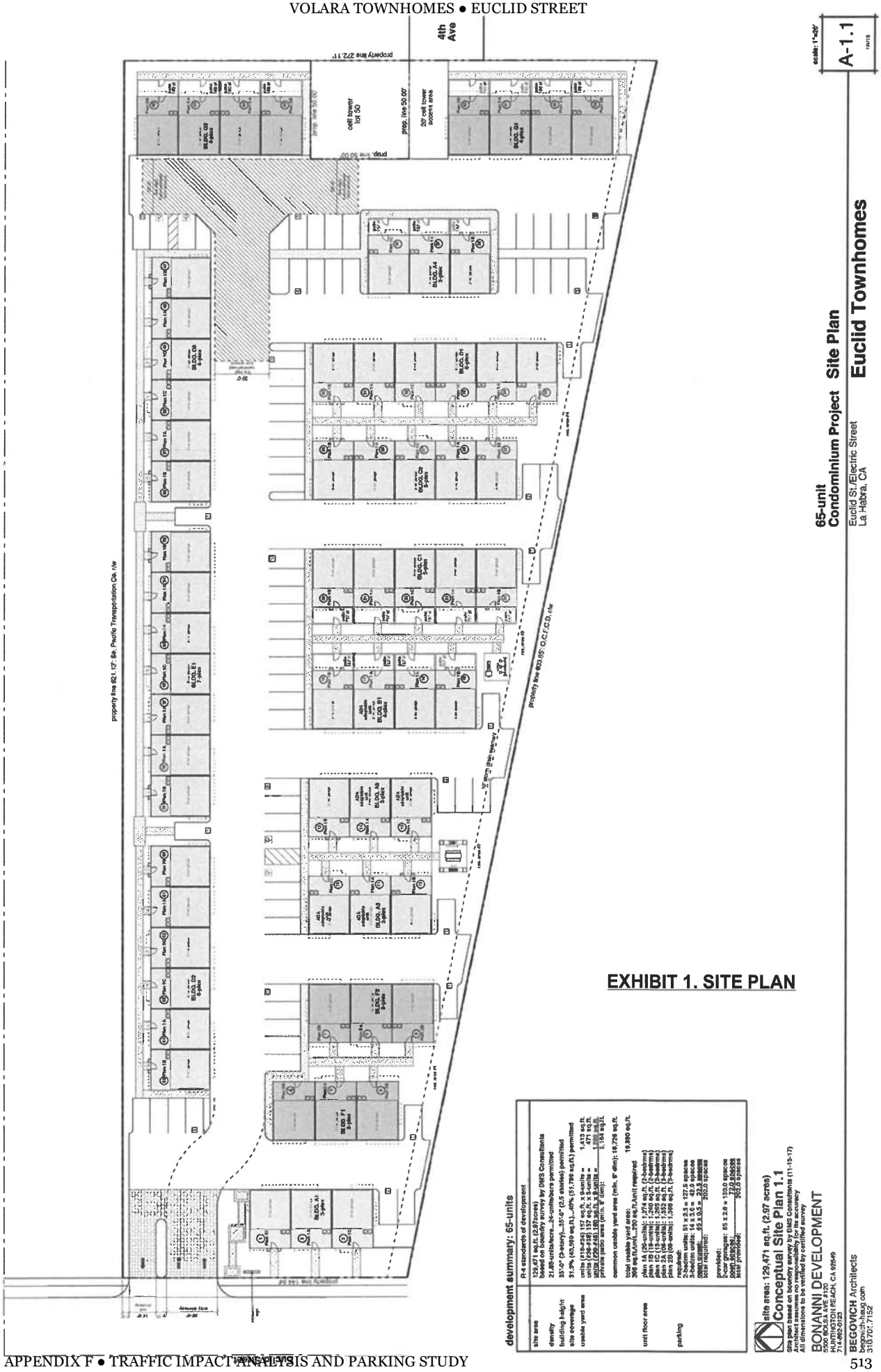
Revised on

Approved by:

MICHAEL PLOTNIK 1/31/2018

City of La Habra Date

Public Works Dept., Engineering Div.


4th Ave
property line 272.11'
cell tower lot 50'
prop. line 50.00'
20' cell tower access area
property line 603.85' O.C.T.C.D. r/w
property line 621.13' So. Pacific Transportation Co. r/w
BLDG. A1 5-plex
BLDG. A2 4-plex
BLDG. A3 4-plex
BLDG. B1 5-plex
BLDG. B2 5-plex
BLDG. C1 5-plex
BLDG. C2 5-plex
BLDG. D1 5-plex
BLDG. D2 5-plex
BLDG. E1 5-plex
BLDG. E2 5-plex
BLDG. F1 5-plex
BLDG. F2 5-plex
EXHIBIT 1. SITE PLAN
development summary: 65-units
site area 129,471 sq.ft. (2.97 acres) 2.97 acres net per survey by DMS Consultants
density 21.88-units/acre...24-units/acre permitted
building height 33'-0" (3-story)...35'-0" (2.5 stories) permitted
site coverage 31.9% (40,999 sq.ft)...40% (51,788 sq.ft) permitted
usable yard area units (26-2BR) 137 sq.ft. x 3-units = 411 sq.ft.
units (26-2BR) 137 sq.ft. x 3-units = 411 sq.ft.
units (26-2BR) 180 sq.ft. x 3-units = 540 sq.ft.
private patio area (min. 6' dim): 1,184 sq.ft.
common usable yard area (min. 6' dim): 19,726 sq.ft.
total usable yard area: 19,890 sq.ft.
300 sq.ft./unit...250 sq.ft./unit required
unit floor area plan 1A (26-units): 1,274 sq.ft. (2-bedrms)
plan 1B (13-units): 1,268 sq.ft. (2-bedrms)
plan 1C (13-units): 1,268 sq.ft. (2-bedrms)
plan 2A (04-units): 1,852 sq.ft. (3-bedrms)
plan 2B (09-units): 1,996 sq.ft. (3-bedrms)
parking 2-bedrm units: 51 x 2.5 = 127.5 spaces
3-bedrm units: 14 x 3.0 = 42.0 spaces
total required: 169.5 spaces
total provided: 262.0 spaces
provided:
2-car garages: 65 x 2.0 = 130.0 spaces
open spaces: 132.0 spaces
total provided: 262.0 spaces
site area: 129,471 sq.ft. (2.97 acres)
Conceptual Site Plan 1.1
site plan based on boundary survey by DMS Consultants (11-15-17)
all dimensions to be verified by certified survey
BONANNI DEVELOPMENT
HUNTINGTON BEACH, CA 92649
714-892-0123
BEGOVICH Architects
begovich-haug.com
318 7Q: 7152
65-unit Condominium Project Site Plan
Euclid St./Electric Street
La Habra, CA
Euclid Townhomes
scale: 1"=20'
A-1.1

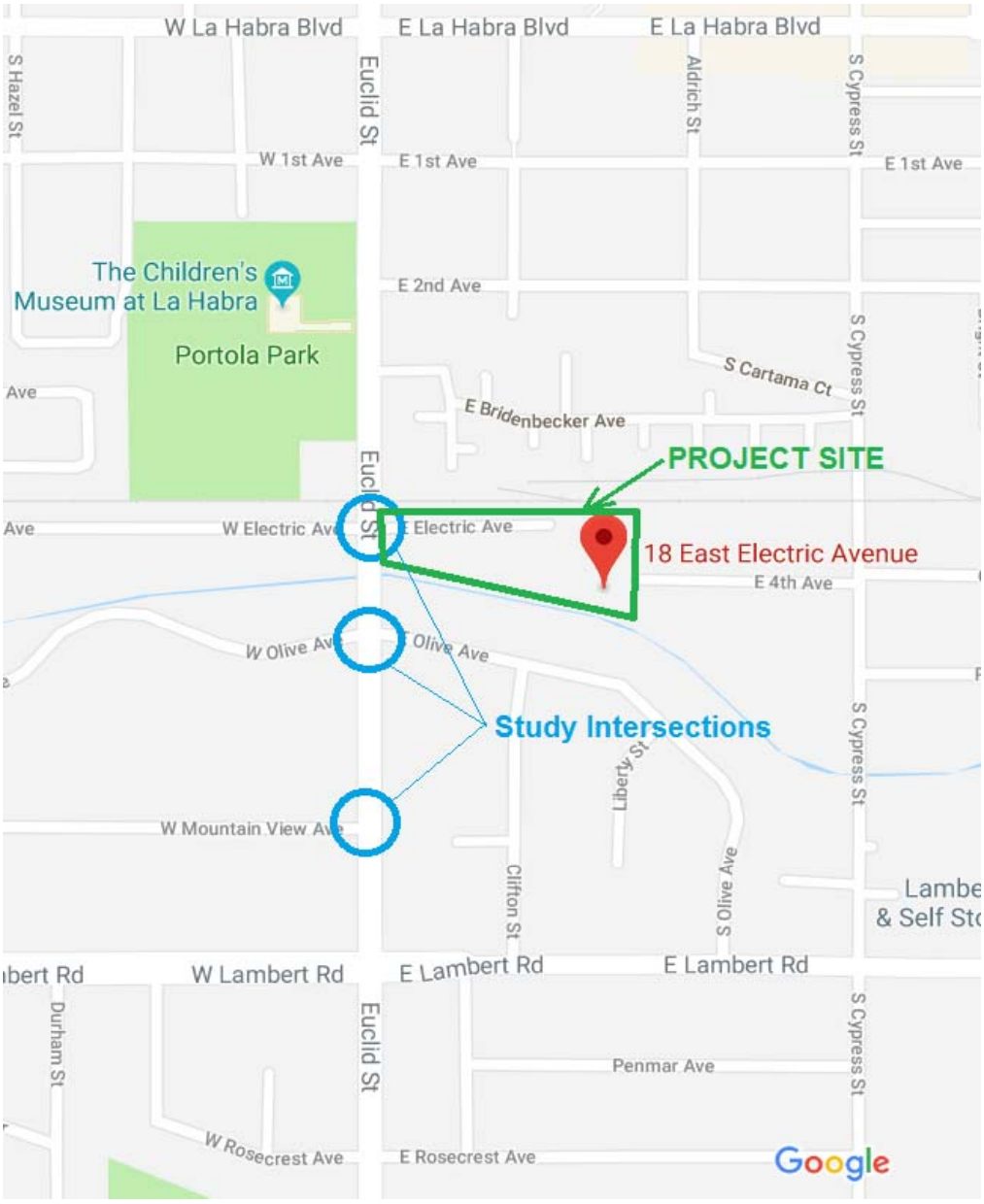


EXHIBIT 2. VICINITY MAP
No Scale

EXHIBIT 3. TRIP GENERATION

TABLE 1. TRIP GENERATION RATE (ITE)

LAND USE	ITE CODE	UNITS	AM PEAK HOUR		PM PEAK HOUR		DAILY
			IN	OUT	IN	OUT	
Multifamily Housing (Mid-Rise)	221	Dwelling Units	0.09	0.27	0.27	0.17	5.54

Source: Institute of Transportation Engineer(ITE), "Trip Generation", Tenth Edition

TABLE 2. PROJECT TRIP GENERATION

LAND USE	ITE CODE	Quantity	AM PEAK HOUR		PM PEAK HOUR		DAILY
			IN	OUT	IN	OUT	
Multifamily Housing (Mid-Rise)	221	58	5	16	16	10	321

EXHIBIT 4. TRIP DISTRIBUTION

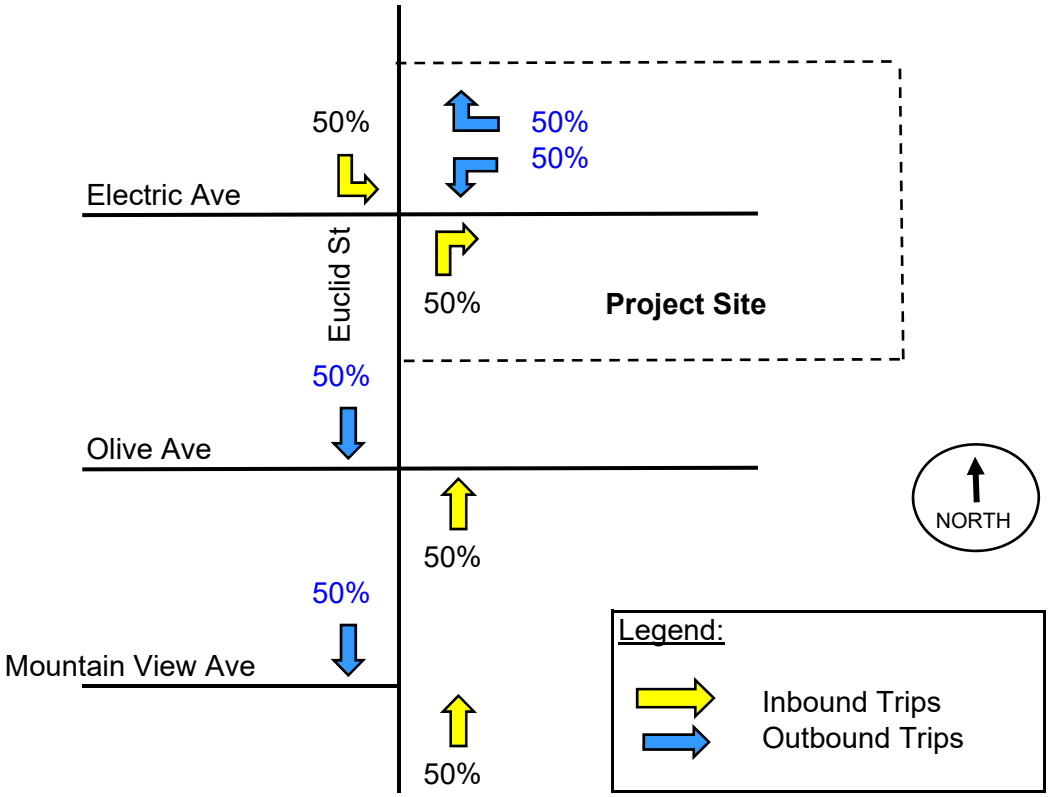
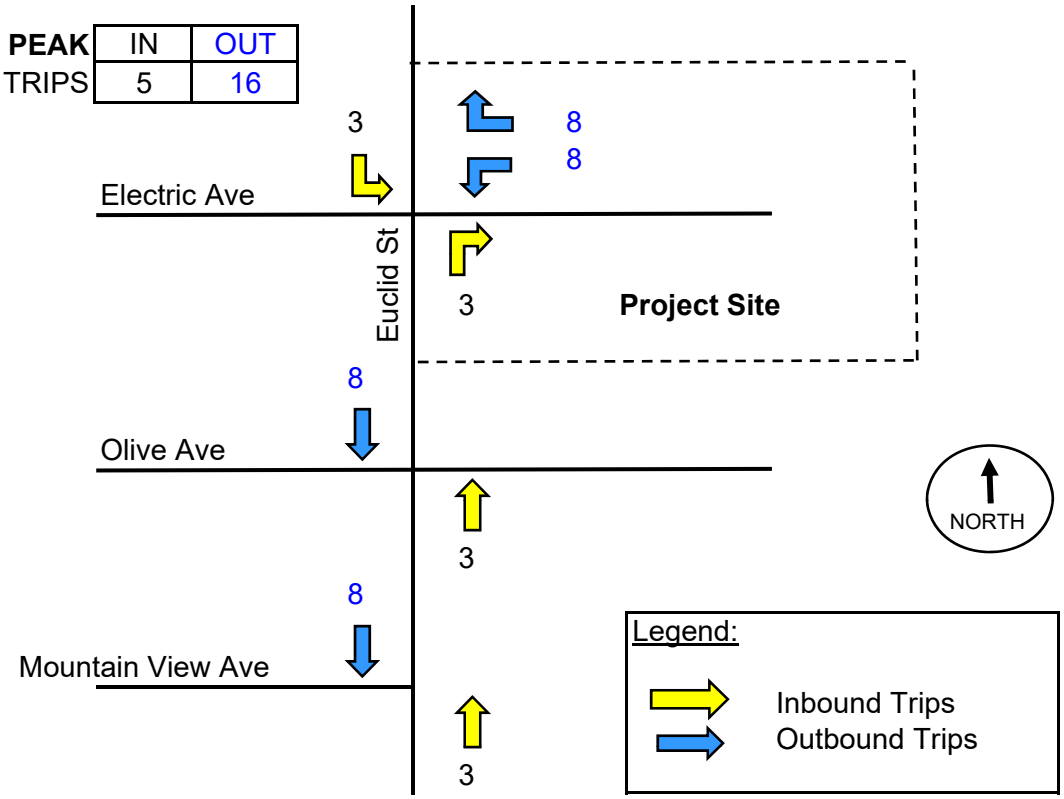
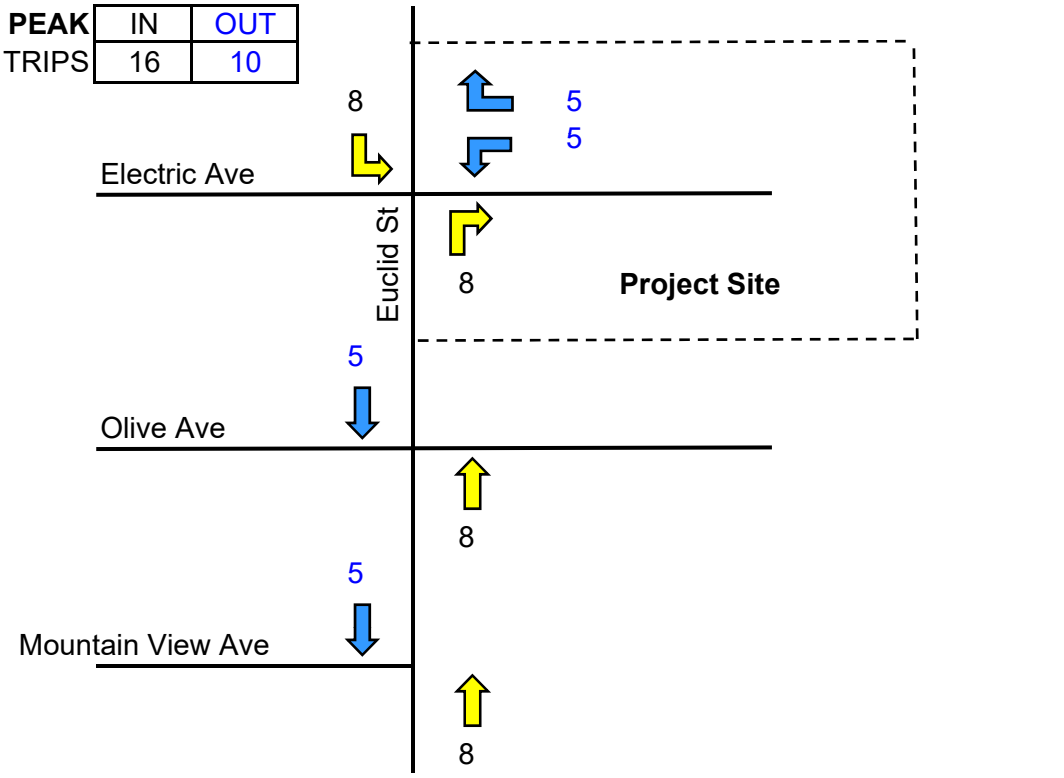


EXHIBIT 5. TRAFFIC ASSIGNMENT

AM PEAK TRIPS	IN	OUT
	5	16



PM PEAK TRIPS	IN	OUT
	16	10



APPENDIX B

TRAFFIC COUNT DATA

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:				
Tue, Feb 6, 18	LOCATION:	La Habra	PROJECT #:	SC1605
	NORTH & SOUTH:	Euclid	LOCATION #:	1
	EAST & WEST:	Electric	CONTROL:	STOP E/W

NOTES:

AM
PM
MD
OTHER
OTHER

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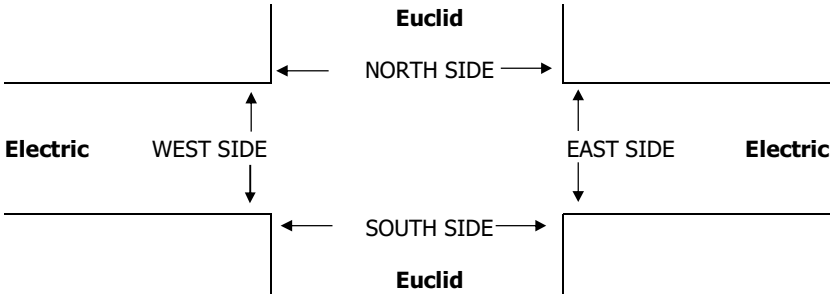
		NORTHBOUND Euclid			SOUTHBOUND Euclid			EASTBOUND Electric			WESTBOUND Electric			
	LANES:	NL 0	NT 2	NR 0	SL 0	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
AM	7:00 AM	1	101	0	0	177	2	0	0	3	0	0	0	284
	7:15 AM	3	130	0	0	210	1	0	0	6	0	0	0	350
	7:30 AM	0	171	0	0	204	9	11	0	2	0	0	0	397
	7:45 AM	1	158	0	0	194	11	7	0	8	2	0	0	381
	8:00 AM	3	180	0	0	151	7	7	0	4	0	0	0	352
	8:15 AM	0	162	1	0	131	4	3	0	1	0	0	1	303
	8:30 AM	1	110	0	0	159	4	2	0	2	0	0	0	278
	8:45 AM	0	101	0	0	130	0	2	0	3	1	0	0	237
	VOLUMES	9	1,113	1	0	1,356	38	32	0	29	3	0	1	2,582
	APPROACH %	1%	99%	0%	0%	97%	3%	52%	0%	48%	75%	0%	25%	
	APP/DEPART	1,123	/	1,145	1,394	/	1,388	61	/	1	4	/	48	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	7	639	0	0	759	28	25	0	20	2	0	0	1,480
	APPROACH %	1%	99%	0%	0%	96%	4%	56%	0%	44%	100%	0%	0%	
	PEAK HR FACTOR		0.883			0.924			0.750			0.250		0.932
	APP/DEPART	646	/	663	787	/	781	45	/	0	2	/	36	0
PM	4:00 PM	2	199	1	1	149	6	1	0	1	1	0	0	361
	4:15 PM	2	212	1	3	128	7	1	0	1	0	0	3	358
	4:30 PM	7	196	0	0	137	3	5	0	5	3	0	0	356
	4:45 PM	5	237	2	2	124	1	0	0	8	0	0	1	380
	5:00 PM	4	197	1	1	144	6	2	0	4	0	0	2	361
	5:15 PM	3	201	1	0	143	9	5	0	1	0	0	0	363
	5:30 PM	1	206	0	0	163	7	2	1	4	0	0	0	384
	5:45 PM	6	196	0	0	136	7	1	0	3	3	0	0	352
	VOLUMES	30	1,644	6	7	1,124	46	17	1	27	7	0	6	2,915
	APPROACH %	2%	98%	0%	1%	95%	4%	38%	2%	60%	54%	0%	46%	
	APP/DEPART	1,680	/	1,667	1,177	/	1,158	45	/	14	13	/	76	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	13	841	4	3	574	23	9	1	17	0	0	3	1,488
	APPROACH %	2%	98%	0%	1%	96%	4%	33%	4%	63%	0%	0%	100%	
	PEAK HR FACTOR		0.879			0.882			0.844			0.375		0.969
	APP/DEPART	858	/	853	600	/	591	27	/	8	3	/	36	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:				
Tue, Feb 6, 18	LOCATION:	La Habra	PROJECT #:	SC1605
	NORTH & SOUTH:	Euclid	LOCATION #:	2
	EAST & WEST:	Olive	CONTROL:	STOP E/W

NOTES:

AM SB queue

AM
PM
MD
OTHER
OTHER

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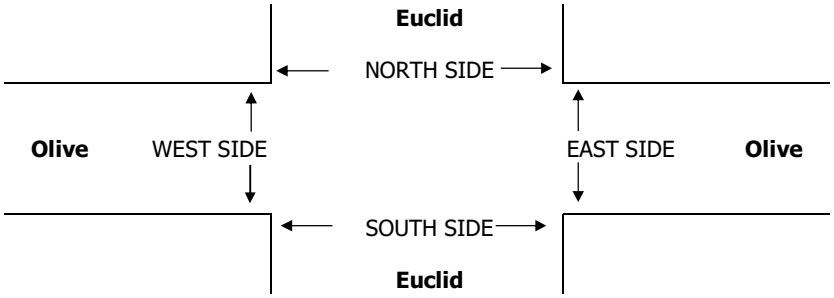
◄ W
E ►
S ▼

		NORTHBOUND Euclid			SOUTHBOUND Euclid			EASTBOUND Olive			WESTBOUND Olive			
	LANES:	NL 0	NT 2	NR 0	SL 0	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
AM	7:00 AM	1	101	0	2	176	6	2	0	8	0	0	2	298
	7:15 AM	1	124	0	6	202	2	1	0	7	0	0	6	349
	7:30 AM	4	153	1	3	195	4	5	0	13	1	0	5	384
	7:45 AM	2	149	2	8	189	13	3	0	8	0	0	3	377
	8:00 AM	4	186	4	5	141	7	6	0	9	2	0	5	369
	8:15 AM	6	148	0	0	133	6	6	0	3	0	0	8	310
	8:30 AM	3	101	0	2	147	1	5	0	4	1	0	1	265
	8:45 AM	2	91	1	4	135	5	1	1	5	1	0	3	249
	VOLUMES	23	1,053	8	30	1,318	44	29	1	57	5	0	33	2,601
	APPROACH %	2%	97%	1%	2%	95%	3%	33%	1%	66%	13%	0%	87%	
	APP/DEPART	1,084	/	1,117	1,392	/	1,385	87	/	37	38	/	62	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	11	612	7	22	727	26	15	0	37	3	0	19	1,479
	APPROACH %	2%	97%	1%	3%	94%	3%	29%	0%	71%	14%	0%	86%	
	PEAK HR FACTOR		0.812			0.923			0.722			0.786		0.963
	APP/DEPART	630	/	647	775	/	771	52	/	28	22	/	33	0
PM	4:00 PM	1	187	10	3	143	2	3	0	5	1	0	2	357
	4:15 PM	6	200	3	7	120	4	3	0	1	1	0	2	347
	4:30 PM	6	205	4	5	128	3	0	0	2	1	0	2	356
	4:45 PM	6	248	4	3	131	3	0	0	3	0	0	1	399
	5:00 PM	6	205	4	4	138	3	0	0	2	0	0	2	364
	5:15 PM	9	191	1	5	136	3	3	0	3	0	0	8	359
	5:30 PM	5	193	3	4	151	4	2	0	5	0	0	4	371
	5:45 PM	5	200	1	5	142	2	4	0	5	1	0	7	372
	VOLUMES	44	1,629	30	36	1,089	24	15	0	26	4	0	28	2,925
	APPROACH %	3%	96%	2%	3%	95%	2%	37%	0%	63%	13%	0%	88%	
	APP/DEPART	1,703	/	1,672	1,149	/	1,120	41	/	66	32	/	67	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	26	837	12	16	556	13	5	0	13	0	0	15	1,493
	APPROACH %	3%	96%	1%	3%	95%	2%	28%	0%	72%	0%	0%	100%	
	PEAK HR FACTOR		0.848			0.920			0.643			0.469		0.935
	APP/DEPART	875	/	857	585	/	570	18	/	28	15	/	38	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:				
Tue, Feb 6, 18	LOCATION:	La Habra	PROJECT #:	SC1605
	NORTH & SOUTH:	Euclid	LOCATION #:	3
	EAST & WEST:	Mountain View	CONTROL:	STOP E

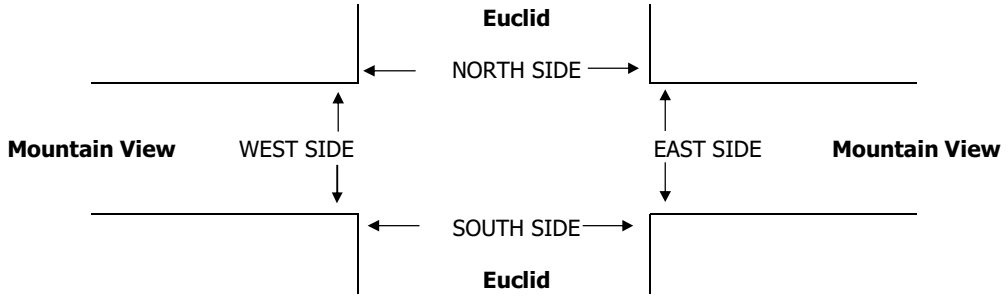
NOTES:

AM SB queue

AM / PM / MD / OTHER / OTHER

▲ N ◄ W E ► S ▼

		NORTHBOUND Euclid			SOUTHBOUND Euclid			EASTBOUND Mountain View			WESTBOUND Mountain View			
	LANES:	NL 0	NT 2	NR 0	SL 0	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 0	WR 0	TOTAL
AM	7:00 AM	3	99	0	1	182	3	3	0	11	0	0	0	302
	7:15 AM	3	120	0	0	194	6	1	0	10	0	0	0	334
	7:30 AM	0	155	0	1	186	9	1	0	10	0	0	0	362
	7:45 AM	6	154	0	0	197	11	3	0	9	0	0	0	380
	8:00 AM	7	178	0	0	153	15	2	0	5	0	0	0	360
	8:15 AM	5	148	0	0	128	9	7	0	6	0	0	0	303
	8:30 AM	4	101	0	0	144	8	3	0	10	0	0	0	270
	8:45 AM	5	99	0	0	140	2	1	0	9	0	0	0	256
	VOLUMES	33	1,054	0	2	1,324	63	21	0	70	0	0	0	2,567
	APPROACH %	3%	97%	0%	0%	95%	5%	23%	0%	77%	0%	0%	0%	
	APP/DEPART	1,087	/	1,077	1,389	/	1,397	91	/	0	0	/	93	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	16	607	0	1	730	41	7	0	34	0	0	0	1,436
	APPROACH %	3%	97%	0%	0%	95%	5%	17%	0%	83%	0%	0%	0%	
	PEAK HR FACTOR		0.842			0.928			0.854			0.000		0.945
	APP/DEPART	623	/	615	772	/	764	41	/	0	0	/	57	0
PM	4:00 PM	9	192	0	0	142	7	6	0	7	0	0	0	363
	4:15 PM	10	218	0	0	118	2	1	0	6	0	0	0	355
	4:30 PM	8	214	0	0	129	5	1	0	3	0	0	0	360
	4:45 PM	2	242	0	0	127	6	3	0	5	0	0	0	385
	5:00 PM	4	216	0	0	132	8	3	0	5	0	0	0	368
	5:15 PM	4	199	0	0	133	6	4	0	8	0	0	0	354
	5:30 PM	8	201	0	0	148	9	4	0	4	0	0	0	374
	5:45 PM	19	206	0	0	143	2	2	0	4	0	0	0	376
	VOLUMES	64	1,688	0	0	1,072	45	24	0	42	0	0	0	2,935
	APPROACH %	4%	96%	0%	0%	96%	4%	36%	0%	64%	0%	0%	0%	
	APP/DEPART	1,752	/	1,712	1,117	/	1,120	66	/	0	0	/	103	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	18	858	0	0	540	29	14	0	22	0	0	0	1,481
	APPROACH %	2%	98%	0%	0%	95%	5%	39%	0%	61%	0%	0%	0%	
	PEAK HR FACTOR		0.898			0.906			0.750			0.000		0.962
	APP/DEPART	876	/	872	569	/	565	36	/	0	0	/	44	0



APPENDIX C

LEVEL OF SERVICE ANALYSIS

Intersection Capacity Utilization
1: Euclid St & Electric Ave

03/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	0	20	2	0	0	7	639	0	0	759	28
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	45	0	0	2	0	0	646	0	0	787	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.91	0.85	0.95	0.95	0.85	0.95	1.00	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1724	0	0	1805	0	0	3616	0	0	3598	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	1928		0	1123		0	1368		0	1799	
Reference Time A (s)	0.0	2.8		0.0	0.2		0.0	27.1		0.0	26.2	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	9.7	11.1		8.1	8.1		NA	NA		NA	NA	
Reference Time (s)		2.8			0.2			27.1			26.2	
Adj Reference Time (s)		8.0			8.0			31.1			30.2	
Split Option												
Ref Time Combined (s)	0.0	3.1		0.0	0.1		0.0	21.4		0.0	26.2	
Ref Time Seperate (s)	1.7	0.0		0.1	0.0		0.5	21.2		0.0	25.3	
Reference Time (s)	3.1	3.1		0.1	0.1		21.4	21.4		26.2	26.2	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		25.4	25.4		30.2	30.2	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	8.0	31.1	
Split Option (s)	16.0	55.7	
Minimum (s)	8.0	31.1	39.1

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	32.6%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
2: Euclid St & Olive Ave

03/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	0	37	3	0	19	11	612	7	22	727	26
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	52	0	0	22	0	0	630	0	0	775	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.88	0.85	0.95	0.86	0.85	0.95	1.00	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1673	0	0	1643	0	0	3608	0	0	3594	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	906		0	1472		0	1174		0	932	
Reference Time A (s)	0.0	6.9		0.0	1.8		0.0	30.0		0.0	44.2	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	9.0	11.7		8.2	9.6		NA	NA		NA	NA	
Reference Time (s)		6.9			1.8			30.0			44.2	
Adj Reference Time (s)		10.9			8.0			34.0			48.2	
Split Option												
Ref Time Combined (s)	0.0	3.7		0.0	1.6		0.0	21.0		0.0	25.9	
Ref Time Seperate (s)	1.0	0.0		0.2	0.0		0.7	20.3		1.5	24.2	
Reference Time (s)	3.7	3.7		1.6	1.6		21.0	21.0		25.9	25.9	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		25.0	25.0		29.9	29.9	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	10.9	48.2	
Split Option (s)	16.0	54.8	
Minimum (s)	10.9	48.2	59.1

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	49.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
3: Euclid St & Moutain View Ave

03/05/2018

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	7	34	16	607	730	41
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	41	0	0	623	771	0
Lane Utilization Factor	1.00	1.00	1.00	0.95	0.95	1.00
Turning Factor (vph)	0.87	0.85	0.95	1.00	0.99	0.85
Saturated Flow (vph)	1649	0	0	3613	3589	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	110		0	988	1794	
Reference Time A (s)	44.7		0.0	33.9	25.8	
Adj Saturation B (vph	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)				33.9	25.8	
Adj Reference Time (s)				37.9	29.8	
Split Option						
Ref Time Combined (s)	3.0		0.0	20.7	25.8	
Ref Time Seperate (s)	0.5		1.1	20.1	24.4	
Reference Time (s)	3.0		20.7	20.7	25.8	
Adj Reference Time (s)	8.0		24.7	24.7	29.8	

Summary	EB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	Err	37.9	
Split Option (s)	8.0	54.5	
Minimum (s)	8.0	37.9	45.9

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	38.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
1: Euclid St & Electric Ave

09/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	0	20	10	0	8	7	639	3	3	759	28
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	45	0	0	18	0	0	649	0	0	790	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.91	0.85	0.95	0.91	0.85	0.95	1.00	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1724	0	0	1724	0	0	3613	0	0	3598	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	1409		0	1409		0	1369		0	1623	
Reference Time A (s)	0.0	3.8		0.0	1.5		0.0	27.2		0.0	28.8	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	9.7	11.1		8.7	9.3		NA	NA		NA	NA	
Reference Time (s)		3.8			1.5			27.2			28.8	
Adj Reference Time (s)		8.0			8.0			31.2			32.8	
Split Option												
Ref Time Combined (s)	0.0	3.1		0.0	1.3		0.0	21.6		0.0	26.4	
Ref Time Seperate (s)	1.7	0.0		0.7	0.0		0.5	21.2		0.2	25.3	
Reference Time (s)	3.1	3.1		1.3	1.3		21.6	21.6		26.4	26.4	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		25.6	25.6		30.4	30.4	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	8.0	32.8	
Split Option (s)	16.0	55.9	
Minimum (s)	8.0	32.8	40.8

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	34.0%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
2: Euclid St & Olive Ave

09/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	0	37	3	0	19	11	615	7	22	735	26
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	52	0	0	22	0	0	633	0	0	783	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.88	0.85	0.95	0.86	0.85	0.95	1.00	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1673	0	0	1643	0	0	3608	0	0	3595	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	906		0	1472		0	1176		0	937	
Reference Time A (s)	0.0	6.9		0.0	1.8		0.0	30.1		0.0	44.5	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	9.0	11.7		8.2	9.6		NA	NA		NA	NA	
Reference Time (s)		6.9			1.8			30.1			44.5	
Adj Reference Time (s)		10.9			8.0			34.1			48.5	
Split Option												
Ref Time Combined (s)	0.0	3.7		0.0	1.6		0.0	21.1		0.0	26.1	
Ref Time Seperate (s)	1.0	0.0		0.2	0.0		0.7	20.4		1.5	24.5	
Reference Time (s)	3.7	3.7		1.6	1.6		21.1	21.1		26.1	26.1	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		25.1	25.1		30.1	30.1	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	10.9	48.5	
Split Option (s)	16.0	55.2	
Minimum (s)	10.9	48.5	59.4

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	49.5%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
3: Euclid St & Moutain View Ave

09/06/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	7	34	16	610	738	41
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	41	0	0	626	779	0
Lane Utilization Factor	1.00	1.00	1.00	0.95	0.95	1.00
Turning Factor (vph)	0.87	0.85	0.95	1.00	0.99	0.85
Saturated Flow (vph)	1649	0	0	3613	3589	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	110		0	991	1795	
Reference Time A (s)	44.7		0.0	34.0	26.0	
Adj Saturation B (vph	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)				34.0	26.0	
Adj Reference Time (s)				38.0	30.0	
Split Option						
Ref Time Combined (s)	3.0		0.0	20.8	26.0	
Ref Time Seperate (s)	0.5		1.1	20.2	24.7	
Reference Time (s)	3.0		20.8	20.8	26.0	
Adj Reference Time (s)	8.0		24.8	24.8	30.0	

Summary	EB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	Err	38.0	
Split Option (s)	8.0	54.8	
Minimum (s)	8.0	38.0	46.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	38.4%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
1: Euclid St & Electric Ave

03/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	0	20	2	0	0	7	656	0	0	792	29
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	46	0	0	2	0	0	663	0	0	821	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.91	0.85	0.95	0.95	0.85	0.95	1.00	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1726	0	0	1805	0	0	3616	0	0	3598	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	1929		0	1141		0	1377		0	1799	
Reference Time A (s)	0.0	2.9		0.0	0.2		0.0	27.7		0.0	27.4	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	9.7	11.2		8.1	8.1		NA	NA		NA	NA	
Reference Time (s)		2.9			0.2			27.7			27.4	
Adj Reference Time (s)		8.0			8.0			31.7			31.4	
Split Option												
Ref Time Combined (s)	0.0	3.2		0.0	0.1		0.0	22.0		0.0	27.4	
Ref Time Seperate (s)	1.7	0.0		0.1	0.0		0.5	21.8		0.0	26.4	
Reference Time (s)	3.2	3.2		0.1	0.1		22.0	22.0		27.4	27.4	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		26.0	26.0		31.4	31.4	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	8.0	31.7	
Split Option (s)	16.0	57.4	
Minimum (s)	8.0	31.7	39.7

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	33.1%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
2: Euclid St & Olive Ave

03/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	0	38	3	0	19	11	629	7	22	760	27
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	53	0	0	22	0	0	647	0	0	809	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.88	0.85	0.95	0.86	0.85	0.95	1.00	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1672	0	0	1643	0	0	3609	0	0	3595	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	915		0	1466		0	1186		0	954	
Reference Time A (s)	0.0	6.9		0.0	1.8		0.0	30.5		0.0	45.3	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	9.0	11.8		8.2	9.6		NA	NA		NA	NA	
Reference Time (s)		6.9			1.8			30.5			45.3	
Adj Reference Time (s)		10.9			8.0			34.5			49.3	
Split Option												
Ref Time Combined (s)	0.0	3.8		0.0	1.6		0.0	21.5		0.0	27.0	
Ref Time Seperate (s)	1.0	0.0		0.2	0.0		0.7	20.9		1.5	25.3	
Reference Time (s)	3.8	3.8		1.6	1.6		21.5	21.5		27.0	27.0	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		25.5	25.5		31.0	31.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	10.9	49.3	
Split Option (s)	16.0	56.5	
Minimum (s)	10.9	49.3	60.3

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	50.2%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
3: Euclid St & Moutain View Ave

03/05/2018

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	7	35	16	623	763	42
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	42	0	0	639	805	0
Lane Utilization Factor	1.00	1.00	1.00	0.95	0.95	1.00
Turning Factor (vph)	0.87	0.85	0.95	1.00	0.99	0.85
Saturated Flow (vph)	1649	0	0	3613	3589	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	110		0	1001	1795	
Reference Time A (s)	45.9		0.0	34.5	26.9	
Adj Saturation B (vph	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)				34.5	26.9	
Adj Reference Time (s)				38.5	30.9	
Split Option						
Ref Time Combined (s)	3.1		0.0	21.2	26.9	
Ref Time Seperate (s)	0.5		1.1	20.7	25.5	
Reference Time (s)	3.1		21.2	21.2	26.9	
Adj Reference Time (s)	8.0		25.2	25.2	30.9	

Summary	EB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	Err	38.5	
Split Option (s)	8.0	56.1	
Minimum (s)	8.0	38.5	46.5

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	38.7%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
1: Euclid St & Electric Ave

09/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	0	20	10	0	8	7	656	3	3	792	29
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	46	0	0	18	0	0	666	0	0	824	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.91	0.85	0.95	0.91	0.85	0.95	1.00	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1726	0	0	1724	0	0	3613	0	0	3598	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	1402		0	1423		0	1378		0	1630	
Reference Time A (s)	0.0	3.9		0.0	1.5		0.0	27.8		0.0	29.9	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	9.7	11.2		8.7	9.3		NA	NA		NA	NA	
Reference Time (s)		3.9			1.5			27.8			29.9	
Adj Reference Time (s)		8.0			8.0			31.8			33.9	
Split Option												
Ref Time Combined (s)	0.0	3.2		0.0	1.3		0.0	22.1		0.0	27.5	
Ref Time Seperate (s)	1.7	0.0		0.7	0.0		0.5	21.8		0.2	26.4	
Reference Time (s)	3.2	3.2		1.3	1.3		22.1	22.1		27.5	27.5	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		26.1	26.1		31.5	31.5	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	8.0	33.9	
Split Option (s)	16.0	57.6	
Minimum (s)	8.0	33.9	41.9

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	34.9%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
2: Euclid St & Olive Ave

09/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	0	38	3	0	19	11	631	7	22	768	27
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	53	0	0	22	0	0	649	0	0	817	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.88	0.85	0.95	0.86	0.85	0.95	1.00	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1672	0	0	1643	0	0	3609	0	0	3595	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	915		0	1466		0	1187		0	959	
Reference Time A (s)	0.0	6.9		0.0	1.8		0.0	30.6		0.0	45.6	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	9.0	11.8		8.2	9.6		NA	NA		NA	NA	
Reference Time (s)		6.9			1.8			30.6			45.6	
Adj Reference Time (s)		10.9			8.0			34.6			49.6	
Split Option												
Ref Time Combined (s)	0.0	3.8		0.0	1.6		0.0	21.6		0.0	27.3	
Ref Time Seperate (s)	1.0	0.0		0.2	0.0		0.7	21.0		1.5	25.6	
Reference Time (s)	3.8	3.8		1.6	1.6		21.6	21.6		27.3	27.3	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		25.6	25.6		31.3	31.3	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	10.9	49.6	
Split Option (s)	16.0	56.9	
Minimum (s)	10.9	49.6	60.6

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	50.5%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
3: Euclid St & Moutain View Ave

09/06/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	7	35	16	626	771	42
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	42	0	0	642	813	0
Lane Utilization Factor	1.00	1.00	1.00	0.95	0.95	1.00
Turning Factor (vph)	0.87	0.85	0.95	1.00	0.99	0.85
Saturated Flow (vph)	1649	0	0	3613	3590	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	110		0	1004	1795	
Reference Time A (s)	45.9		0.0	34.6	27.2	
Adj Saturation B (vph	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)				34.6	27.2	
Adj Reference Time (s)				38.6	31.2	
Split Option						
Ref Time Combined (s)	3.1		0.0	21.3	27.2	
Ref Time Seperate (s)	0.5		1.1	20.8	25.8	
Reference Time (s)	3.1		21.3	21.3	27.2	
Adj Reference Time (s)	8.0		25.3	25.3	31.2	

Summary	EB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	Err	38.6	
Split Option (s)	8.0	56.5	
Minimum (s)	8.0	38.6	46.6

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	38.8%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
1: Euclid St & Electric Ave

03/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	1	17	0	0	3	13	841	4	3	574	23
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	27	0	0	3	0	0	858	0	0	600	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.89	0.85	0.95	0.85	0.85	0.95	1.00	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1692	0	0	1615	0	0	3612	0	0	3596	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	274		0	1615		0	1237		0	1572	
Reference Time A (s)	0.0	11.8		0.0	0.2		0.0	39.1		0.0	22.4	
Adj Saturation B (vph	0	0		0	1615		NA	NA		NA	NA	
Reference Time B (s)	8.6	9.9		0.0	0.2		NA	NA		NA	NA	
Reference Time (s)		9.9			0.2			39.1			22.4	
Adj Reference Time (s)		13.9			8.0			43.1			26.4	
Split Option												
Ref Time Combined (s)	0.0	1.9		0.0	0.2		0.0	28.5		0.0	20.0	
Ref Time Seperate (s)	0.6	0.1		0.0	0.0		0.9	27.9		0.2	19.2	
Reference Time (s)	1.9	1.9		0.2	0.2		28.5	28.5		20.0	20.0	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		32.5	32.5		24.0	24.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	13.9	43.1	
Split Option (s)	16.0	56.5	
Minimum (s)	13.9	43.1	57.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	47.5%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
2: Euclid St & Olive Ave

03/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	0	13	0	0	15	26	837	12	16	556	13
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	18	0	0	15	0	0	875	0	0	585	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.88	0.85	0.95	0.85	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	1671	0	0	1615	0	0	3605	0	0	3601	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	316		0	1615		0	910		0	953	
Reference Time A (s)	0.0	6.8		0.0	1.1		0.0	50.8		0.0	32.8	
Adj Saturation B (vph	0	0		0	1615		NA	NA		NA	NA	
Reference Time B (s)	8.3	9.3		0.0	1.1		NA	NA		NA	NA	
Reference Time (s)		6.8			1.1			50.8			32.8	
Adj Reference Time (s)		10.8			8.0			54.8			36.8	
Split Option												
Ref Time Combined (s)	0.0	1.3		0.0	1.1		0.0	29.1		0.0	19.5	
Ref Time Seperate (s)	0.3	0.0		0.0	0.0		1.7	27.8		1.1	18.5	
Reference Time (s)	1.3	1.3		1.1	1.1		29.1	29.1		19.5	19.5	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		33.1	33.1		23.5	23.5	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	10.8	54.8	
Split Option (s)	16.0	56.6	
Minimum (s)	10.8	54.8	65.6

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	54.7%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
3: Euclid St & Moutain View Ave

03/05/2018

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	14	22	18	858	540	29
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	36	0	0	876	569	0
Lane Utilization Factor	1.00	1.00	1.00	0.95	0.95	1.00
Turning Factor (vph)	0.89	0.85	0.95	1.00	0.99	0.85
Saturated Flow (vph)	1692	0	0	3614	3590	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	113		0	1100	1795	
Reference Time A (s)	38.3		0.0	43.9	19.0	
Adj Saturation B (vph	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)				43.9	19.0	
Adj Reference Time (s)				47.9	23.0	
Split Option						
Ref Time Combined (s)	2.6		0.0	29.1	19.0	
Ref Time Seperate (s)	1.0		1.2	28.5	18.1	
Reference Time (s)	2.6		29.1	29.1	19.0	
Adj Reference Time (s)	8.0		33.1	33.1	23.0	

Summary	EB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	Err	47.9	
Split Option (s)	8.0	56.1	
Minimum (s)	8.0	47.9	55.9

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	46.6%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
1: Euclid St & Electric Ave

09/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	1	17	5	0	8	13	841	12	11	574	23
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	27	0	0	13	0	0	866	0	0	608	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.89	0.85	0.95	0.89	0.85	0.95	1.00	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1692	0	0	1691	0	0	3607	0	0	3594	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	1368		0	1218		0	1239		0	1153	
Reference Time A (s)	0.0	2.4		0.0	1.3		0.0	39.4		0.0	29.4	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	8.6	9.9		8.3	8.9		NA	NA		NA	NA	
Reference Time (s)		2.4			1.3			39.4			29.4	
Adj Reference Time (s)		8.0			8.0			43.4			33.4	
Split Option												
Ref Time Combined (s)	0.0	1.9		0.0	0.9		0.0	28.8		0.0	20.3	
Ref Time Seperate (s)	0.6	0.1		0.3	0.0		0.9	28.0		0.7	19.2	
Reference Time (s)	1.9	1.9		0.9	0.9		28.8	28.8		20.3	20.3	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		32.8	32.8		24.3	24.3	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	8.0	43.4	
Split Option (s)	16.0	57.1	
Minimum (s)	8.0	43.4	51.4

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	42.8%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
2: Euclid St & Olive Ave

09/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	0	13	0	0	15	26	845	12	16	561	13
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	18	0	0	15	0	0	883	0	0	590	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.88	0.85	0.95	0.85	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	1671	0	0	1615	0	0	3605	0	0	3601	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	316		0	1615		0	915		0	957	
Reference Time A (s)	0.0	6.8		0.0	1.1		0.0	51.1		0.0	33.0	
Adj Saturation B (vph	0	0		0	1615		NA	NA		NA	NA	
Reference Time B (s)	8.3	9.3		0.0	1.1		NA	NA		NA	NA	
Reference Time (s)		6.8			1.1			51.1			33.0	
Adj Reference Time (s)		10.8			8.0			55.1			37.0	
Split Option												
Ref Time Combined (s)	0.0	1.3		0.0	1.1		0.0	29.4		0.0	19.7	
Ref Time Seperate (s)	0.3	0.0		0.0	0.0		1.7	28.1		1.1	18.7	
Reference Time (s)	1.3	1.3		1.1	1.1		29.4	29.4		19.7	19.7	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		33.4	33.4		23.7	23.7	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	10.8	55.1	
Split Option (s)	16.0	57.1	
Minimum (s)	10.8	55.1	65.9

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	54.9%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
3: Euclid St & Moutain View Ave

09/06/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	14	22	18	866	545	29
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	36	0	0	884	574	0
Lane Utilization Factor	1.00	1.00	1.00	0.95	0.95	1.00
Turning Factor (vph)	0.89	0.85	0.95	1.00	0.99	0.85
Saturated Flow (vph)	1692	0	0	3614	3590	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	113		0	1104	1795	
Reference Time A (s)	38.3		0.0	44.1	19.2	
Adj Saturation B (vph	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)				44.1	19.2	
Adj Reference Time (s)				48.1	23.2	
Split Option						
Ref Time Combined (s)	2.6		0.0	29.4	19.2	
Ref Time Seperate (s)	1.0		1.2	28.7	18.2	
Reference Time (s)	2.6		29.4	29.4	19.2	
Adj Reference Time (s)	8.0		33.4	33.4	23.2	

Summary	EB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	Err	48.1	
Split Option (s)	8.0	56.5	
Minimum (s)	8.0	48.1	56.1

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	46.8%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
1: Euclid St & Electric Ave

03/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	1	17	0	0	3	13	876	4	3	595	23
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	27	0	0	3	0	0	893	0	0	621	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.89	0.85	0.95	0.85	0.85	0.95	1.00	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1692	0	0	1615	0	0	3613	0	0	3597	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	274		0	1615		0	1254		0	1579	
Reference Time A (s)	0.0	11.8		0.0	0.2		0.0	40.3		0.0	23.1	
Adj Saturation B (vph	0	0		0	1615		NA	NA		NA	NA	
Reference Time B (s)	8.6	9.9		0.0	0.2		NA	NA		NA	NA	
Reference Time (s)		9.9			0.2			40.3			23.1	
Adj Reference Time (s)		13.9			8.0			44.3			27.1	
Split Option												
Ref Time Combined (s)	0.0	1.9		0.0	0.2		0.0	29.7		0.0	20.7	
Ref Time Seperate (s)	0.6	0.1		0.0	0.0		0.9	29.1		0.2	19.8	
Reference Time (s)	1.9	1.9		0.2	0.2		29.7	29.7		20.7	20.7	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		33.7	33.7		24.7	24.7	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	13.9	44.3	
Split Option (s)	16.0	58.4	
Minimum (s)	13.9	44.3	58.2

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	48.5%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
2: Euclid St & Olive Ave

03/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	0	13	0	0	15	27	872	12	16	576	13
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	18	0	0	15	0	0	911	0	0	605	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.88	0.85	0.95	0.85	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	1671	0	0	1615	0	0	3605	0	0	3601	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	316		0	1615		0	912		0	970	
Reference Time A (s)	0.0	6.8		0.0	1.1		0.0	52.8		0.0	33.5	
Adj Saturation B (vph	0	0		0	1615		NA	NA		NA	NA	
Reference Time B (s)	8.3	9.3		0.0	1.1		NA	NA		NA	NA	
Reference Time (s)		6.8			1.1			52.8			33.5	
Adj Reference Time (s)		10.8			8.0			56.8			37.5	
Split Option												
Ref Time Combined (s)	0.0	1.3		0.0	1.1		0.0	30.3		0.0	20.2	
Ref Time Seperate (s)	0.3	0.0		0.0	0.0		1.8	29.0		1.1	19.2	
Reference Time (s)	1.3	1.3		1.1	1.1		30.3	30.3		20.2	20.2	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		34.3	34.3		24.2	24.2	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	10.8	56.8	
Split Option (s)	16.0	58.5	
Minimum (s)	10.8	56.8	67.7

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	56.4%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
3: Euclid St & Moutain View Ave

03/05/2018

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	14	22	18	893	560	30
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	36	0	0	911	590	0
Lane Utilization Factor	1.00	1.00	1.00	0.95	0.95	1.00
Turning Factor (vph)	0.89	0.85	0.95	1.00	0.99	0.85
Saturated Flow (vph)	1692	0	0	3614	3590	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	113		0	1118	1795	
Reference Time A (s)	38.3		0.0	45.0	19.7	
Adj Saturation B (vph	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)				45.0	19.7	
Adj Reference Time (s)				49.0	23.7	
Split Option						
Ref Time Combined (s)	2.6		0.0	30.2	19.7	
Ref Time Seperate (s)	1.0		1.2	29.6	18.7	
Reference Time (s)	2.6		30.2	30.2	19.7	
Adj Reference Time (s)	8.0		34.2	34.2	23.7	

Summary	EB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	Err	49.0	
Split Option (s)	8.0	58.0	
Minimum (s)	8.0	49.0	57.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	47.5%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
1: Euclid St & Electric Ave

09/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	1	17	5	0	8	13	876	12	11	595	23
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	27	0	0	13	0	0	901	0	0	629	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.89	0.85	0.95	0.89	0.85	0.95	1.00	0.85	0.95	0.99	0.85
Saturated Flow (vph)	0	1692	0	0	1691	0	0	3608	0	0	3595	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	1368		0	1218		0	1256		0	1168	
Reference Time A (s)	0.0	2.4		0.0	1.3		0.0	40.6		0.0	30.0	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	8.6	9.9		8.3	8.9		NA	NA		NA	NA	
Reference Time (s)		2.4			1.3			40.6			30.0	
Adj Reference Time (s)		8.0			8.0			44.6			34.0	
Split Option												
Ref Time Combined (s)	0.0	1.9		0.0	0.9		0.0	30.0		0.0	21.0	
Ref Time Seperate (s)	0.6	0.1		0.3	0.0		0.9	29.1		0.7	19.8	
Reference Time (s)	1.9	1.9		0.9	0.9		30.0	30.0		21.0	21.0	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		34.0	34.0		25.0	25.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	8.0	44.6	
Split Option (s)	16.0	59.0	
Minimum (s)	8.0	44.6	52.6

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	43.8%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
2: Euclid St & Olive Ave

09/06/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	0	13	0	0	15	27	880	12	16	581	13
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	18	0	0	15	0	0	919	0	0	610	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.88	0.85	0.95	0.85	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	1671	0	0	1615	0	0	3605	0	0	3601	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	316		0	1615		0	916		0	974	
Reference Time A (s)	0.0	6.8		0.0	1.1		0.0	53.1		0.0	33.6	
Adj Saturation B (vph	0	0		0	1615		NA	NA		NA	NA	
Reference Time B (s)	8.3	9.3		0.0	1.1		NA	NA		NA	NA	
Reference Time (s)		6.8			1.1			53.1			33.6	
Adj Reference Time (s)		10.8			8.0			57.1			37.6	
Split Option												
Ref Time Combined (s)	0.0	1.3		0.0	1.1		0.0	30.6		0.0	20.3	
Ref Time Seperate (s)	0.3	0.0		0.0	0.0		1.8	29.2		1.1	19.3	
Reference Time (s)	1.3	1.3		1.1	1.1		30.6	30.6		20.3	20.3	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		34.6	34.6		24.3	24.3	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	10.8	57.1	
Split Option (s)	16.0	58.9	
Minimum (s)	10.8	57.1	67.9

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	56.6%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
3: Euclid St & Moutain View Ave

09/06/2019

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	14	22	18	901	565	30
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	36	0	0	919	595	0
Lane Utilization Factor	1.00	1.00	1.00	0.95	0.95	1.00
Turning Factor (vph)	0.89	0.85	0.95	1.00	0.99	0.85
Saturated Flow (vph)	1692	0	0	3614	3590	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	113		0	1122	1795	
Reference Time A (s)	38.3		0.0	45.3	19.9	
Adj Saturation B (vph	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)				45.3	19.9	
Adj Reference Time (s)				49.3	23.9	
Split Option						
Ref Time Combined (s)	2.6		0.0	30.5	19.9	
Ref Time Seperate (s)	1.0		1.2	29.9	18.9	
Reference Time (s)	2.6		30.5	30.5	19.9	
Adj Reference Time (s)	8.0		34.5	34.5	23.9	

Summary	EB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	Err	49.3	
Split Option (s)	8.0	58.4	
Minimum (s)	8.0	49.3	57.3

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	47.7%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

K2 TRAFFIC ENGINEERING, Inc.
Traffic Control . Signal . Synchronization . Parking . Study

October 3, 2019

Chris Segesman
Bonanni Development
5500 Bolsa Ave, Suite 120
Huntington Beach, CA 92649

Re: Parking Study- Stanton Wrap Mixed-Use Development
NEC of Beach Blvd and Stanford Ave, Stanton

Dear Chris,

Per your request, we have conducted a parking study for the proposed mixed-use development. This letter presents our analysis in regards to parking for the proposed uses.

PROJECT INFORMATION

The proposed mixed-use development is situated at the northeast corner of Beach Blvd and Stanford Ave in the City of Stanton. The proposed development includes 300-unit apartments (including 27 Studios, 178 one-bedrooms, and 95 two-bedrooms) and commercial uses of 6,313 square feet. The site provides a total of 556 parking stalls, including 526 stalls for residential use, 26 stalls for commercial use, and 4 stalls for leasing office. The leasing office parking will allow guest parking when the leasing office is closed (leasing office hours are from 10 am to 6 pm). Site plan is shown in **Exhibit 1**.

PARKING STANDARDS

According to Municipal Code of the City of Stanton, the required number of off-street parking space is two covered spaces per dwelling unit for residential components of mixed-use development and one space per 300 square feet for commercial uses. The project is required to provide a total of 621 parking spaces. The site provides a total of 556 stalls, a deficit of 65 parking spaces per city standards. Parking calculation per Municipal Code is shown in **Table 1**.

Table 1. Parking Calculation per Municipal Code

Use	Quantity	Unit	Parking Requirement	Required Parking	Provided Parking	Difference
Residential Component of Mixed-Use Development	300	Dwelling Unit	2 spaces per Dwelling Unit	600	526	-74
Commercial	6,313	Sq. Ft.	1 space per 300 SF	21	26	+5
Leasing Office				0	4	+4
Summary				621	556	-65

SIMILAR DEVELOPMENTS

National researches indicate that apartment renters today, especially the younger generations, are less dependent on automobiles than previous ones in years past. Contributing factors include lower ownership of cars, increased ridership of bicycle, Uber, and share riding programs. This study has listed a number of recent developments of similar apartments in order to research the provided parking ratio. These similar developments feature moderately sized apartment units with two or less bedrooms, and no three or more bedroom unit is provided.

Table 2. Comparable Apartment Developments

Apartment	Address	Studio	One-Bedroom	Two-Bedroom	Total
The Core	1815 S. Westside Drive, Anaheim	25	219	156	400
The George	2211 E. Orangewood Ave	20	180	140	340
Ocean & Beach	19891 Beach Blvd, Huntington Beach	28	91	54	173
Vantis	90 Vantis Drive, Aliso Viejo	16	236	183	435
Subject Apartment on Beach Blvd, Stanton		28	173	99	300

A full comparison of parking requirements of the corresponding city for each development are shown in **Table 3**.

Table 3. Comparison of Apartment Parking

Location			Number of Units				City's Parking Requirement (Per Unit)							
Apartment	City	Address	Studio	One-Bedroom	Two-Bedroom	Total	Studio	One-Bedroom	Two-Bedroom	Guest	Required Parking	Provided Parking	Reduction	Parking Ratio
The Core	Anaheim	1815 S. Westside Drive	25	219	156	400	1.25	2	2.25	0.25	921	712	23%	1.78
The George	Anaheim	2211 E. Orangewood Ave	20	180	140	340	1.25	2	2.25	0.25	785	578	26%	1.70
Ocean and Beach	Huntington Beach	19891 Beach Blvd	28	91	54	173	1	1	2	0.5	314	277	12%	1.60
Vantis	Aliso Viejo	90 Vantis Drive	16	236	183	435	1	1.2	2	0.5	883	753	15%	1.73
												AVERAGE:	**19%**	**1.70**
Beach Blvd Apartments	Stanton	12700 Beach Blvd	28	173	99	300	2 per dwelling unit for residential component of mixed-use development				600	526	**12.3%**	**1.75**

The comparable sites have parking ratios ranging between 1.60 and 1.78, all of them considerably lower than the 2.0 parking ratio required by the City of Stanton. The subject Stanton development provides a parking ratio of 1.75 per dwelling unit which is comparable to all similar sites and exceeds the average parking ratio of 1.70 for comparable sites.

The subject Stanton development reflects a modest 12.3% parking reduction from the city's standard requirement, which is below the average reduction of 19% and three out of four comparable sites. The parking capacity provided by the subject Stanton project appears reasonable and adequate.

Onsite observations of the comparable sites were limited due to restricted access of the parking structures that are automatic gate controlled for resident access only. There is apparently no illegal parking within the sites and no parking overflow onto surrounding roadways.

PARKING MANAGEMENT PLAN

As a conservative approach, the proposed development should prepare a Parking Management Plan and monitor parking conditions continuously. The following parking strategies may be considered in the Parking Management Plan:

1. Issue parking permits on a fee basis for up to two vehicles per dwelling unit. Additional parking permits may be purchased at higher costs, subject to availability.
2. Prohibit storage of non-vehicular properties within the parking area.
3. Prohibit long-term parking of non-operative vehicles.
4. Periodical inspections by the management to ensure compliance with the above provisions.
5. No public street parking (outside of the project) will be issued to residents of the proposed project. Notice of such restrictions is to be provided to residents and placed in the rental/lease agreements or CC&Rs, as appropriate.

Parking Management Plan is subject to final approval of the governing authorities including, but not limited to, Community Development, Public Works, and Fire Departments of the City of Stanton.

Regards,

K2 Traffic Engineering, Inc.

Jende "Kay" Hsu, T.E.
California Licensed TR2285

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City of La Habra

PUBLIC WORKS

"A Caring Community"

621 W. Lambert Road
La Habra, CA 90631-6755
Office: (562) 905-9792
Fax: (562) 905-1626

December 17, 2019

Re: "Conditional" Will Serve Letter for 104-118 E. Electric Ave., La Habra, CA.

The City of La Habra's Utility Authority oversees the operations of the water and sewer infrastructure adjacent to the proposed project site.

The existing water system currently provides ample volume and pressure to the surrounding community. The water system is anticipated to have sufficient volume and pressure to support the proposed project demand of 30,107 gallons per day for potable use. A water availability study shall be conducted by the project developer to verify the water system's ability to provide suitable fire protection for the proposed project. If improvements to the water system are necessary to meet the demands of the proposed project, those improvements will be implemented by the developer under direction of the Utility or its designee.

Similarly, the wastewater collection system has sufficient capacity to support the existing customer base. It is anticipated that the additional effluent of 24,086 gallons per day from the proposed development will have minimal impacts to the existing collection system. The developer shall perform a sewer capacity study of the existing system and provide supporting documentation of the requirements of the proposed project to verify that the future demands of the development can be sustained by the existing collection system. Should the calculations support improvements to the existing system, then it will be incumbent upon the developer to implement said improvements under the direction of the Utility or its designee.

The Utility Authority looks forward to providing water and sewer services for the proposed project. Should you have any further questions, please contact me at 562-383-4170 or by email at bjones@lahabraca.gov.

Respectfully,

Brian K. Jones
City of La Habra
Water and Sewer Manager

Appendix B

SOUTHERN CALIFORNIA
EDISON
An EDISON INTERNATIONAL Company

December 16, 2019

Bonanni Development

La Habra - Volara

As your Southern California Edison (SCE) Design Representative for this project, I am committed to providing you with excellent customer service. The following information is intended to help explain SCE's planning and permitting process for the electric infrastructure needed to serve your Project.

Depending on the scope of work necessary to serve your project (electric facility installation, removal, relocation, rearrangement and/or replacement), it may be necessary for you to submit an Advanced Engineering Fee. This Fee will be applied to certain expenses associated with preliminary design and engineering work required to estimate the cost for SCE to perform the electric work associated with your project. Please note: Depending on factors such as resource constraints, construction or relocation of SCE facilities requirements, the need for environmental review, and so forth, delays in meeting your projected completion date may occur. To help minimize the potential for delays it is imperative that you provide all requested information as early as possible.

If the project results in the need for SCE to perform work on SCE electrical facilities that operate at between 50 and 200 kilovolts (kV), please be advised these facilities are subject to the California Public Utilities Commission's (CPUC's) General Order 131-D (GO 131-D) Permit to Construct (PTC) requirements. For the CPUC PTC review, the CPUC acts as the lead agency under the California Environmental Quality Act (CEQA). Depending on the scope of SCE's work, certain exemptions to the PTC requirements may be available. If no exemptions are available, the PTC application preparation and environmental approval process could take a minimum of 24 - 48 months.

If you anticipate that your project will require work to be performed on SCE electrical facilities operated at between 50 kV and 200 kV, please inform me at your earliest possible convenience for further assistance to determine the potential G.O.131-D permitting requirements and/or permitting exemption(s).

In order for SCE to determine the required electrical utility work necessary to support your project, and to determine any permitting requirements and costs associated with constructing these facilities, project plans and a completed Customer Project Information Sheet will need to be submitted.

If you have any additional questions, please feel free to call me at 562) 448-4698.

Sincerely,

SCE Design Representative

Rev. 07/09/12 DS-125-1

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

December 16, 2019

Bonanni Development
5500 Bolsa Ave, Suite 120
Huntington Beach, CA 92649

Attn: Chris Segesman

Subject: Will Serve Letter for Residential Development at 104, 110, 116, 118 E. Electric Ave; APN #022-193-01, -02, -03, -56; La Habra

Thank you for inquiring about the availability of natural gas service for your project. We are pleased to inform you that Southern California Gas Company (SoCalGas) has facilities in the area where the above named project is being proposed. The service would be in accordance with SoCalGas' policies and extension rules on file with the California Public Utilities Commission (CPUC) at the time contractual arrangements are made.

This letter should not be considered a contractual commitment to serve the proposed project, and is only provided for informational purposes only. The availability of natural gas service is based upon natural gas supply conditions and is subject to changes in law or regulation. As a public utility, SoCalGas is under the jurisdiction of the Commission and certain federal regulatory agencies, and gas service will be provided in accordance with the rules and regulations in effect at the time service is provided. Natural gas service is also subject to environmental regulations, which could affect the construction of a main or service line extension (for example, if hazardous wastes were encountered in the process of installing the line). Applicable regulations will be determined once a contract with SoCalGas is executed.

If you need assistance choosing the appropriate gas equipment for your project, or would like to discuss the most effective applications of energy efficiency techniques, please contact our area Service Center at 800-427-2200.

Thank you again for choosing clean, reliable, and safe natural gas, your best energy value.

Katrina Regan
Planning Supervisor
SouthEast Region - Anaheim Planning & Engineering

KR/rs
wilserv.doc