Draft

Newport & Ford Residential Project

Initial Study / Mitigated Negative Declaration

Prepared for
City of Costa Mesa

August 2018

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Newport & Ford Residential Project

Initial Study / Mitigated Negative Declaration

Prepared for

City of Costa Mesa
Development Services Department
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EXECUTIVE SUMMARY

This Initial Study assesses the potential environmental impacts of a proposal by The Olson Company to construct and operate the Newport & Ford Residential Project, which consists of a 38-townhome community, located at 1957 Newport Boulevard & 1963 Newport Boulevard, Costa Mesa, California.

This Initial Study finds with the imposition of mitigation measures related to Biological Resources, Cultural Resources, Hazards and Hazardous Materials, Noise, Tribal Resources and Mandatory Findings of Significance, all potentially significant impacts associated with the Project would be reduced to less than significant levels. Consequently, a Mitigated Negative Declaration will be prepared for the Project.

SECTION 1
Introduction

1.1 Initial Study Required

Following preliminary review of the proposed Newport & Ford Residential Project (Project), City of Costa Mesa (City) has determined that the Project is subject to the guidelines and regulations of the California Environmental Quality Act (CEQA). This Initial Study addresses the direct, indirect, and cumulative environmental effects associated with the Project, as proposed.

1.2 Statutory Authority

This Initial Study has been prepared in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 2100021177) and pursuant to Section 15063 of Title 14 of the California Code of Regulations (CCR).

Consistent with the statutory authority, the purpose of this Initial Study is to provide the Lead Agency (i.e. the City) with information to determine if the proposed Project would have a significant environmental impact. Specifically, this Initial Study will:

- Facilitate environmental assessment early in the design of the Project;
- Provide the City with information to use as the basis for deciding whether to prepare an Environmental Impact Report (EIR) or Negative Declaration;
- Enable the applicant or City to modify the Project, mitigating adverse impacts, thereby enabling the Project to quality for a Negative Declaration or Mitigated Negative Declaration;
- Provide documentation of the factual basis for the findings in a Negative Declaration or Mitigated Negative Declaration that the Project will not have a significant effect on the environment.

The environmental documentation, which is ultimately selected by the City of Costa Mesa in accordance with CEQA, is intended as an informational document undertaken to provide an environmental basis for subsequent discretionary actions upon the Project. The resulting documentation is not, however, a policy document and its approval and/or certification neither presupposes nor mandates any actions on the part of those agencies from whom permits and other discretionary approvals would be required.

The environmental documentation and supporting analysis is subject to a public review period. The proposed Project is not a project "of statewide, regional, or areawide significance" as prescribed in Section 15206 of the CEQA Guidelines because it does not meet the criteria for

such projects. Furthermore, project implementation does not require any action by a State Agency (i.e., "responsible" or "trustee" agency). Therefore, the document will not be submitted to the State Clearinghouse for review and the review period is determined to be 20 days in accordance with Section 15073 of the CEQA Guidelines. Following review of any comments received, the City of Costa Mesa will consider these comments as a part of the Project's environmental review and include them with the Initial Study documentation for consideration by the City of Costa Mesa in accordance with Section 15074(b) of the CEQA Guidelines.

1.3 Incorporation by Reference

The information contained in this document is based, in part, on the following documents that include the Project site or provide information addressing the general project area or use:

- **City of Costa Mesa General Plan 2015-2035, adopted June 2016 (General Plan).** The General Plan is a policy document designed to provide long-range guidance for decision-making affecting the future character of Costa Mesa. It represents the official statement of the community's physical development, as well as its economic, social, and environmental goals. The General Plan was used throughout this Initial Study as the fundamental planning document governing development on the Project site.

- **Final Environmental Impact Report for the City of Costa Mesa General Plan 2015-2035, June 2016 (State Clearinghouse No. 2015111053) (General Plan EIR).** The General Plan EIR was prepared in support of the General Plan and in accordance with the California Environmental Quality Act (CEQA) as amended (Public Resources Code Section 21000 et seq.) and CEQA Guidelines (California Administrative Code Section 15000 et seq.). The General Plan EIR identifies baseline conditions for the City, potential impacts associated with implementing the General Plan and mitigation measures necessary to reduce potential impacts to less than significant levels.

- **City of Costa Mesa Zoning Code.** Title 13 of the City of Costa Mesa Municipal Code establishes the basic zoning regulations under which land is developed and utilized and by which the General Plan is systematically implemented. This includes allowable uses, building setback and height requirements, and other development standards. The basic intent of the Zoning Code is to promote and protect the public health, safety, convenience, and welfare of present and future citizens of the City.

SECTION 2
Project Description

2.1 Project Title

The Newport & Ford Residential Project Development Project

2.2 Lead Agency and Address

City of Costa Mesa
77 Fair Drive
Costa Mesa, California 92626

2.3 Contact Person and Phone Number

Minoo Ashabi, AIA, Principal Planner
714-754-5610, minoo.ashabi@costamesaca.gov.

2.4 Project Location

The project is located in the southwestern portion of the City of Costa Mesa. The site is located on Newport Boulevard, with regional connections to Pacific Coast Highway (Highway 1) located south of the site, and the San Diego Freeway (405 Freeway) and State Route 73 (SR-73) located north and northeast of the site (Reference Figure 1, Project Regional Location Map).

The Project site consists of three properties and a portion of Ford Road, a public street. The southwesterly property address is 1957 Newport Boulevard and the northeasterly properties' addresses are 1963 Newport Boulevard and 390 Ford Road, Costa Mesa, California. The Assessor Parcel Map Numbers (APNs) for the Project site are 419-211-05, 419-212-05 and 115-270-29, respectively (Reference Figure 2, Project Site Aerial Map).

2.5 Existing Setting

Existing uses on the 1957 Newport Boulevard portion of the site contains a two-story building with office use for a moving and storage business on the first floor and a two-bedroom apartment on the second floor. The northern portion of the parcel consists of individually rented storage units (conex boxes) and gravel driveways. The 1963 Newport Boulevard parcel contains RV and truck parking on a dirt lot. The 390 Ford Road parcel contains a trailer supply facility. A portion of Ford Road, a public street that occurs between the parcels is also part of the Project site. Surrounding properties include residential and lodging (hotel/motel). (Reference Figure 3, Project Site Aerial Map.)

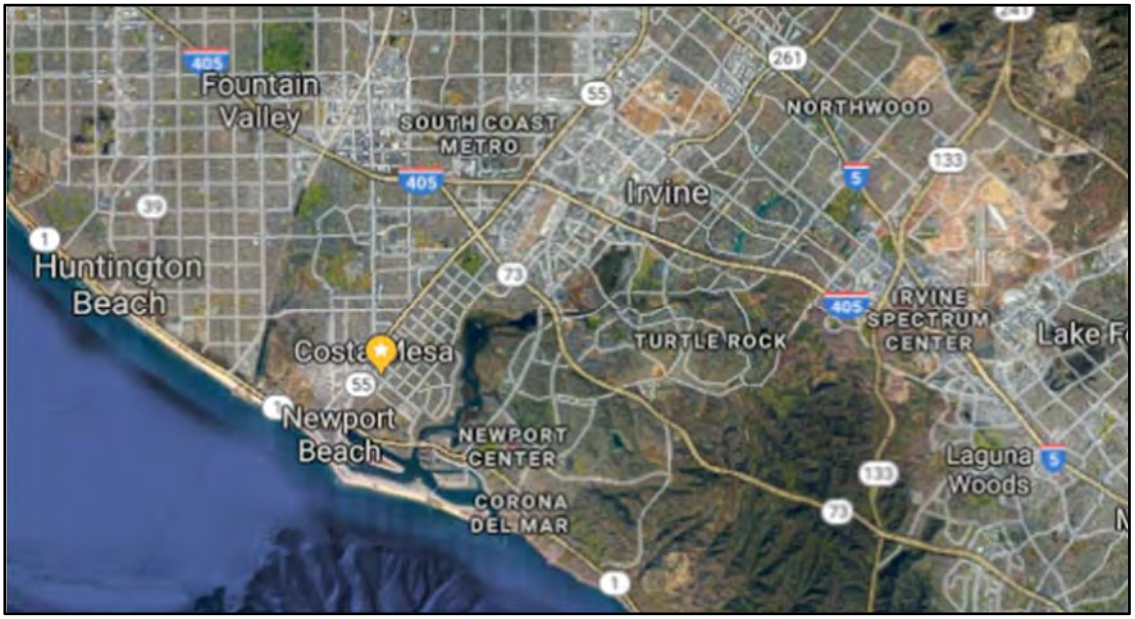
Past uses on the 1957 Newport Boulevard portion of the site include a building which was constructed about 1950 and used as a City police station until the late 1960's, then

commercial/retail businesses including antique shop, limousine service and retail until the early 1990s.[1] The parcel was redeveloped with the existing building in 1998 and utilized for office and residential purposes. No past buildings were developed on the 1963 Newport Boulevard portion. On the 390 Ford Road portion of the site, the current trailer supply building was constructed in about 1960 and was previously used as a general automotive repair shop, recreational vehicle dealer, and then the current trailer supply facility since about 1995.

Topographically the Project site is relatively flat with a slight grade in a westerly direction and an elevation of approximately 90 feet above mean sea level (MSL).

2.6 Surrounding Uses

North of the Project site is a mobile home park, residential, lodging (Sandpiper Motel) and commercial. West of the site is Newport Boulevard and the Costa Mesa (State Route SR-55) Freeway. South of the site is lodging (Travelodge), and east of the site are residential uses. (Reference Figure 4, Surrounding Area Aerial Map.)



Newport & Ford Residential Project / 160255.01

SOURCE: Google Maps

Figure 1
Project Regional Location Map

[1] *Phase 1 Environmental Site Assessment, 1957 and 1963 Newport Boulevard, Costa Mesa, California 92627,* prepared by Stantec Consulting Services on behalf of The Olson Company, September 7, 2017; *Phase 1 Environmental Site Assessment, 390 Ford Road, Costa Mesa, California 92627,* prepared by Stantec Consulting Services on behalf of The Olson Company, October 27, 2017; available at City of Costa Mesa Community Development offices.

Newport & Ford Residential Project / 160255.01

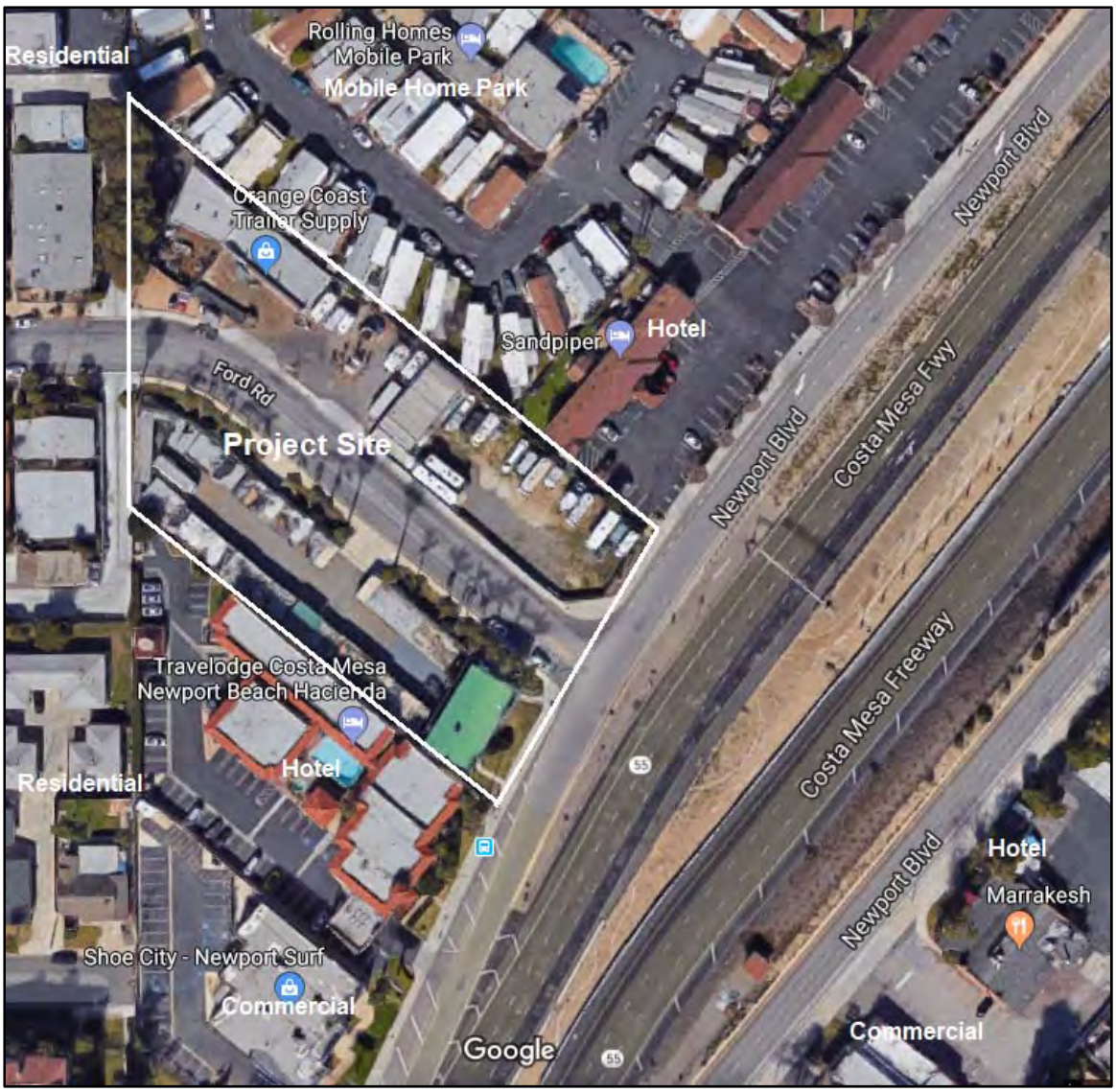
SOURCE: Comprehensive Planning Services

Figure 2
Project Site Aerial Location

Newport & Ford Residential Project / 160255.01

SOURCE: Comprehensive Planning Services

Figure 3
Project Site Aerial Map



Newport & Ford Residential Project / 160255.01#

SOURCE: Google Maps

Figure 4
Surrounding Area Aerial Map

2.7 Project Applicant

The Olson Company
3010 Old Ranch Parkway, Suite 100
Seal Beach, CA 90740

2.8 General Plan Designation

Existing General Plan Land Use Plan designation is General Commercial.

2.9 Zoning

Existing Zoning on the site is General Business (C-2).

2.10 Description of Project

The Project proposes to convert the existing 1.86-acre General Commercial site to High Density Residential with a zoning designation of General Mixed-Use PDR – HD (Planned Development Residential – High Density). The project site is comprised of three parcels and a portion of Ford Road right-of-way connecting to Newport Boulevard. The Project includes the abandonment of Ford Road from the existing residential uses to Newport Boulevard on the east and replacing it with a one-way 16-foot secondary access from Newport Blvd. The PDR – HD zones permits a density of up to 20 units per acre. The Project proposes to develop the site with 38 residential townhome units at a density of 20.4 units per acre. The additional 0.4 density will be permitted through a General Plan Amendment, site-specific PDR zoning and possible Development Agreement. The site is currently developed with a self-storage facility that includes several containers and a RV parking and storage that also provides RV service and maintenance. The following applications are requested for the residential development:

- General Plan Amendment to change the land use designation from General Commercial to High Density Residential (HDR) with a site specific density of 20.4 du/acre
- Rezone to change the zoning from General Business District (C-2) to Planned Development Residential High Density (PDR-HD) with a site specific density of 20.4 du/acre
- Master Plan for site and building design of the attached 38 townhome units
- Tentative Tract Map for subdivision of the 1.86-acre site into a 38-unit condominium development
- Abandonment of Ford Road from the existing residential uses to Newport Boulevard on the east and replacing it with a one-way 16-foot secondary access from Newport Blvd
- Deviation for open space
- Possible Development Agreement to accommodate a minor increase in density.

The units would be developed in 9 separate buildings dispersed on the site and connected via an internal street accessed from Ford Road. There will also be a one-way right-in only access from Newport Boulevard. (Reference Figure 5, Project Site Plan.) The proposed townhomes range in

size from 1,269 square feet to 1,814 square feet. Twelve of units would be 2-bedroom and the 26 remaining would be 3-bedroom units. Table 1, below, summarizes the units by Number, Plan Type, Number of Bedrooms (Bed) and Unit square footage (sq ft).

TABLE 1
PLAN SUMMARY

# Units	Plan Type	# Bed	Unit (sq ft)
12 units	Plan 1	2 bed	1,301 sq ft
8 units	Plan 2	3 bed	1,687 sq ft
14 units	Plan 3	3 bed	1,721 sq ft
4 units	Plan 3x	3 bed	1,814 sq ft

The Project also includes undergrounding of utility poles serving the site along Newport Boulevard and the public alley, which will have a positive visual impact. The lighting along the rear alley need to be relocated to provide for parallel parking and will be replaced with the project development to maintain the lighting and safety within the alley. The Project also includes installation of a secondary one-way right-in only ingress from Newport Boulevard.

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Figure 5
Project Site Plan

Each unit has a 2-car attached garage for a total of 76 garage spaces. Twenty-six of the units also have 2-car driveways with carports in front of their garages, providing 52 parking spaces. In addition, the Project site plan provides 14 open guest spaces for a Project total of 142 parking spaces, or 3.74 spaces per unit.

Vehicular entry to the Project would be from its western end at the proposed terminus of Ford Road. The entry will be enhanced by decorative paving and landscaping. The Project also proposes a gated pedestrian entry at its west and east ends that would be accessible to Project residents and the general public. The pedestrian access points would have enhanced paving and permit residents and others to directly access Newport Boulevard. Concreted sidewalks would be provided adjacent to all the internal streets.

Ornamental trees and shrubbery are proposed throughout the Project. Common usable open space areas and courtyards are provided within the Project site.

Architecture of the Project consists of three-story townhomes with stoops facing Newport Boulevard. and two-stories of living area over the garage. Architectural features include front porches, pot shelves, wood accents, Spanish style tile roof with varied roof lines, enhanced window trim, and decorative lighting. Maximum building height is 37’-6”. These architectural elements are incorporated in each of the Project’s nine building types. (Reference Figures 6 - 12. Project Architecture – Buildings 1 through 9.)

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Figure 6
Project Architecture – Building 1

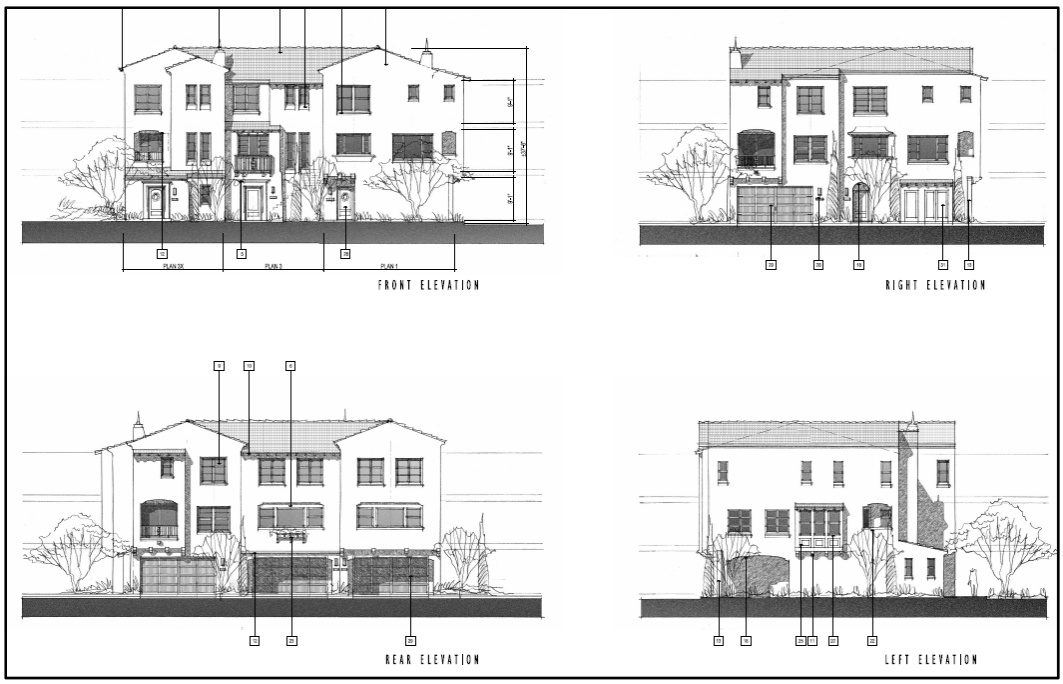

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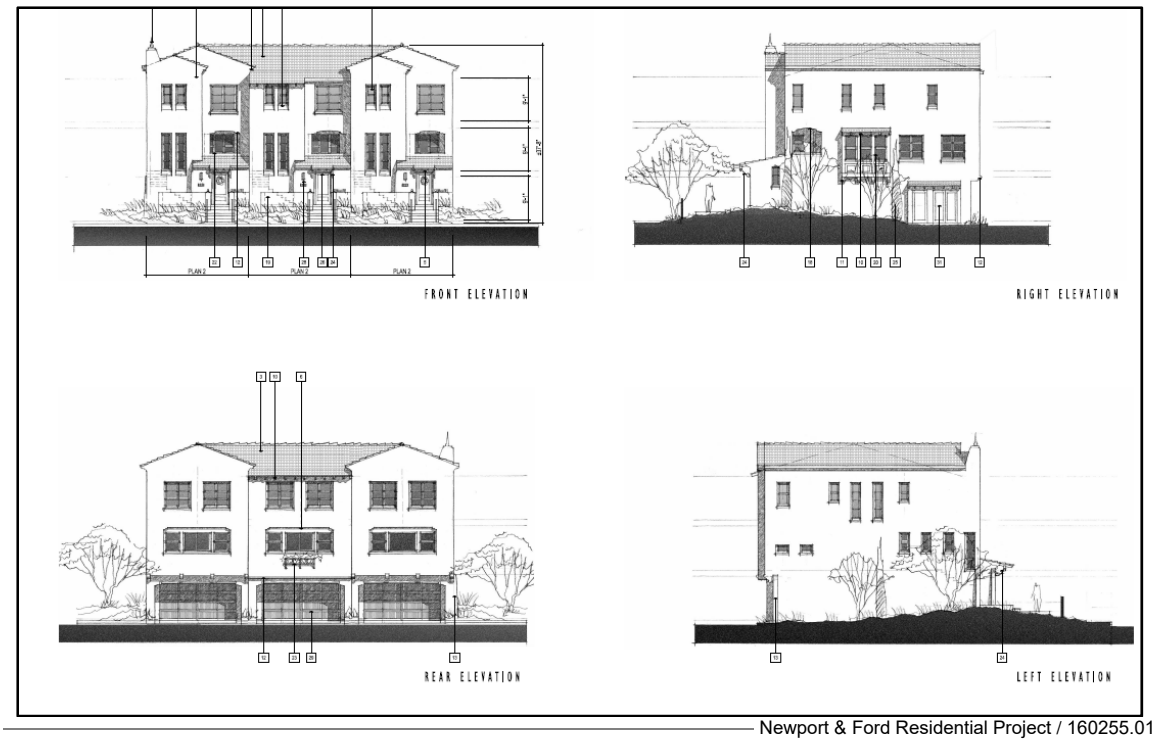
Figure 7
Project Architecture – Building 2

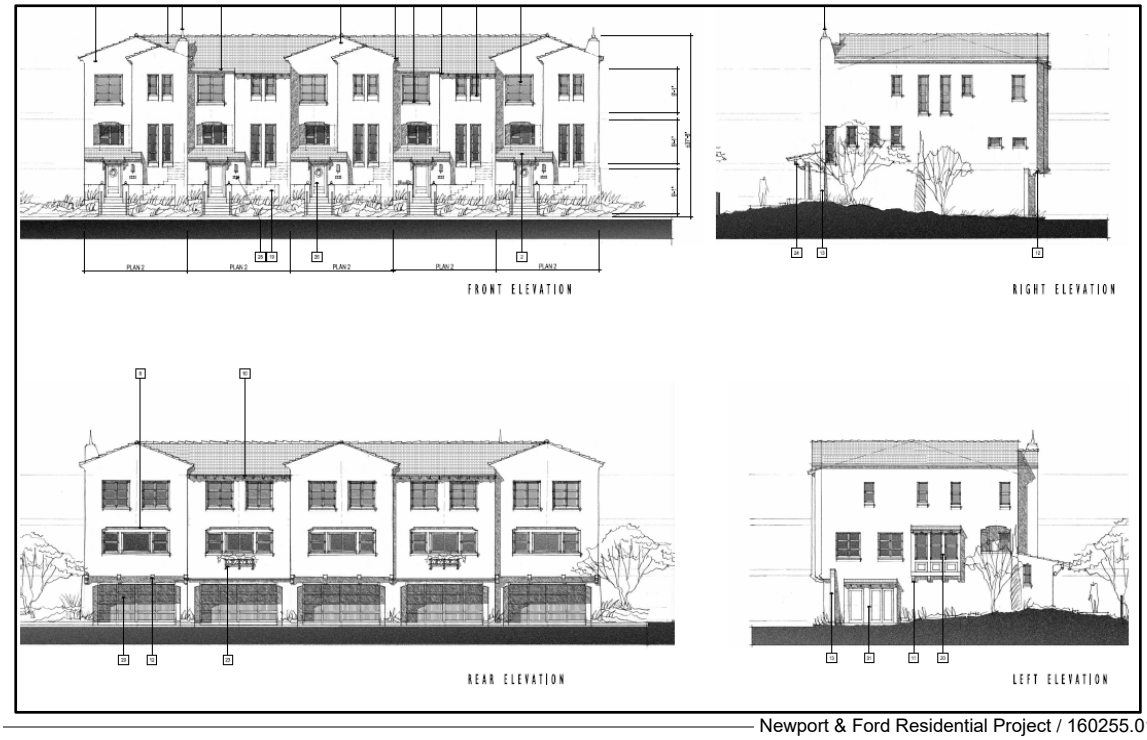
Newport & Ford Residential Project / 160255.01

Figure 8
Project Architecture – Buildings 3 and 4



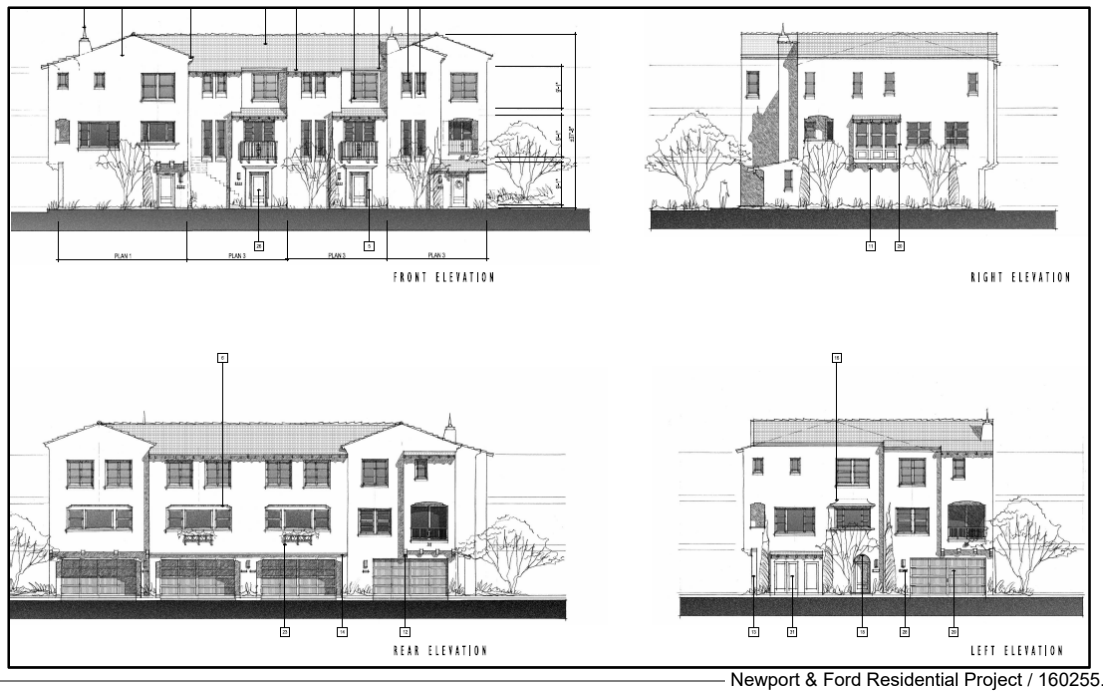
Newport & Ford Residential Project / 160255.01

Figure 9
Project Architecture – Building 5



Newport & Ford Residential Project / 160255.01

Figure 10
Project Architecture – Building 6



Newport & Ford Residential Project / 160255.01

Figure 11
Project Architecture – Buildings 7 and 8

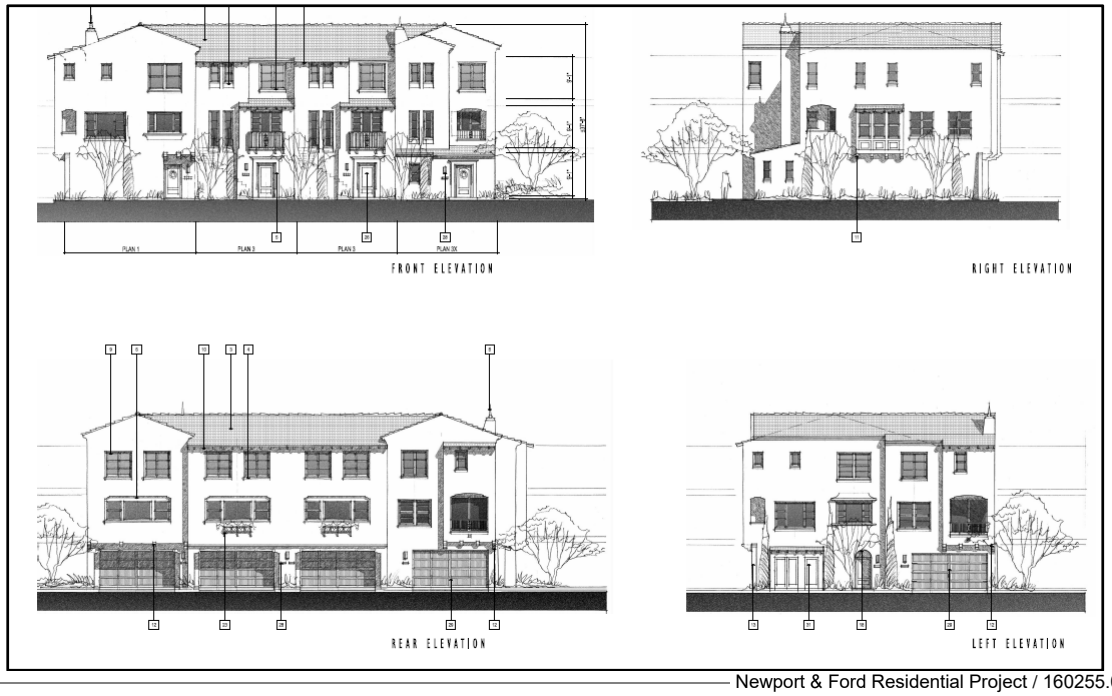


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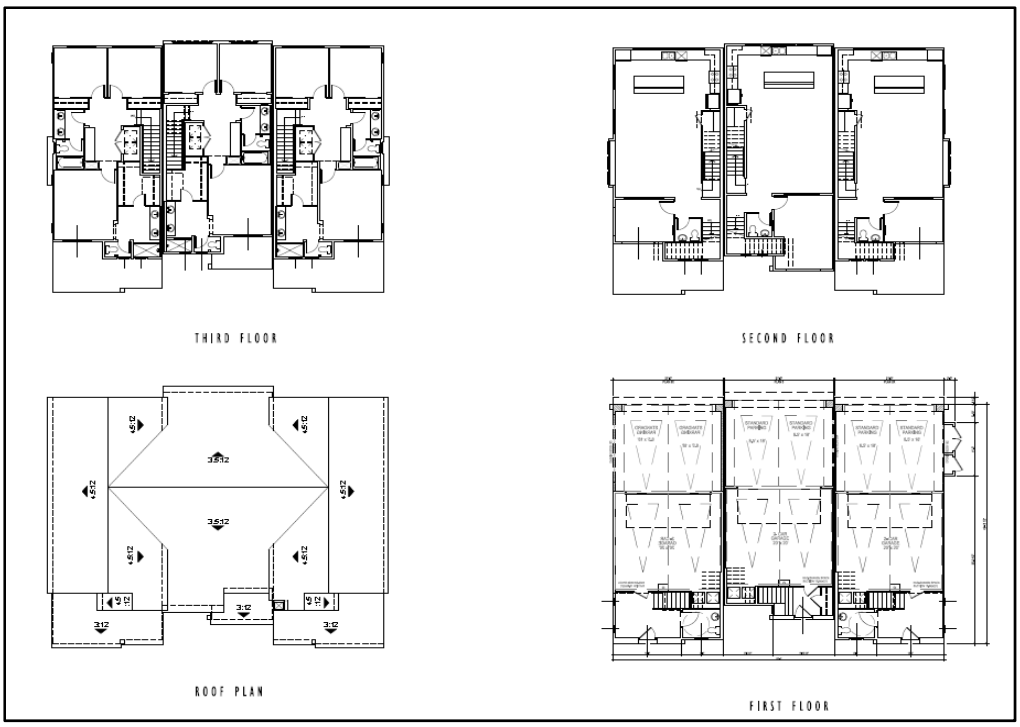
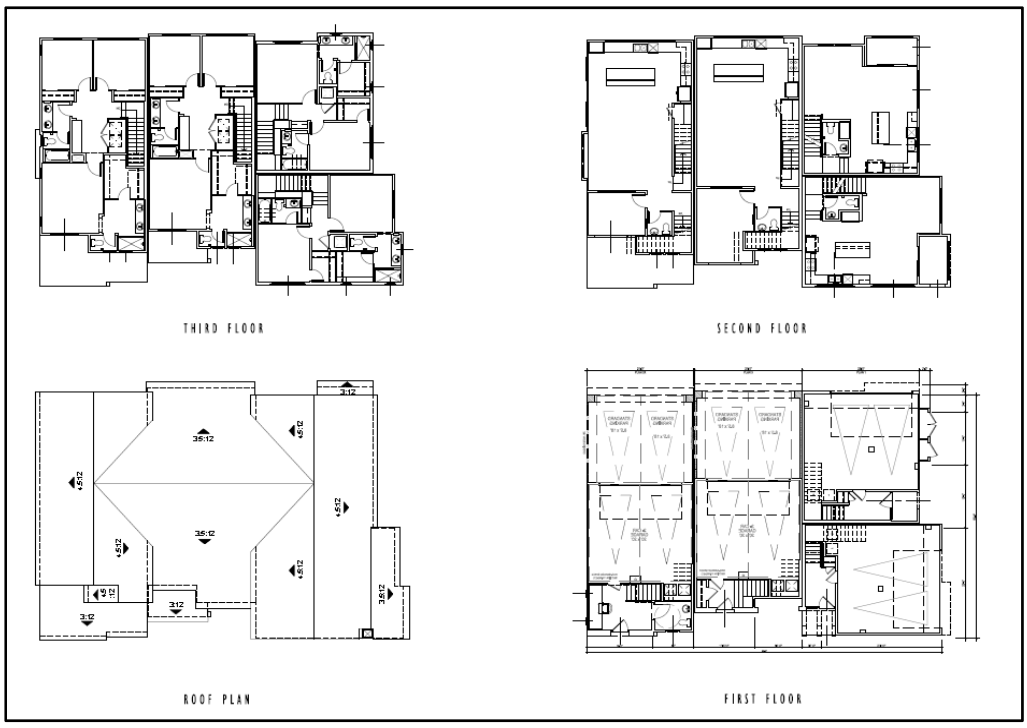
Figure 12
Project Architecture – Building 9

Floor plans for each of the nine building types are depicted below. (Reference Figures 13 - 19. Project Floor Plans – Buildings 1 through 9.)



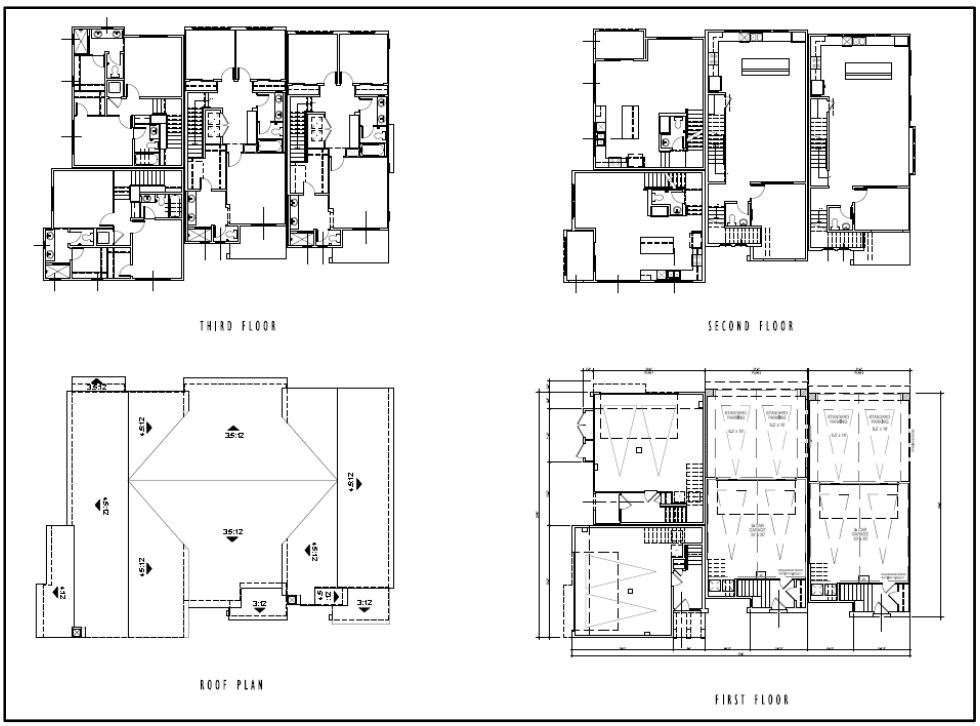
Newport & Ford Residential Project / 160255.01

Figure 13
Project Floor Plan – Building 1



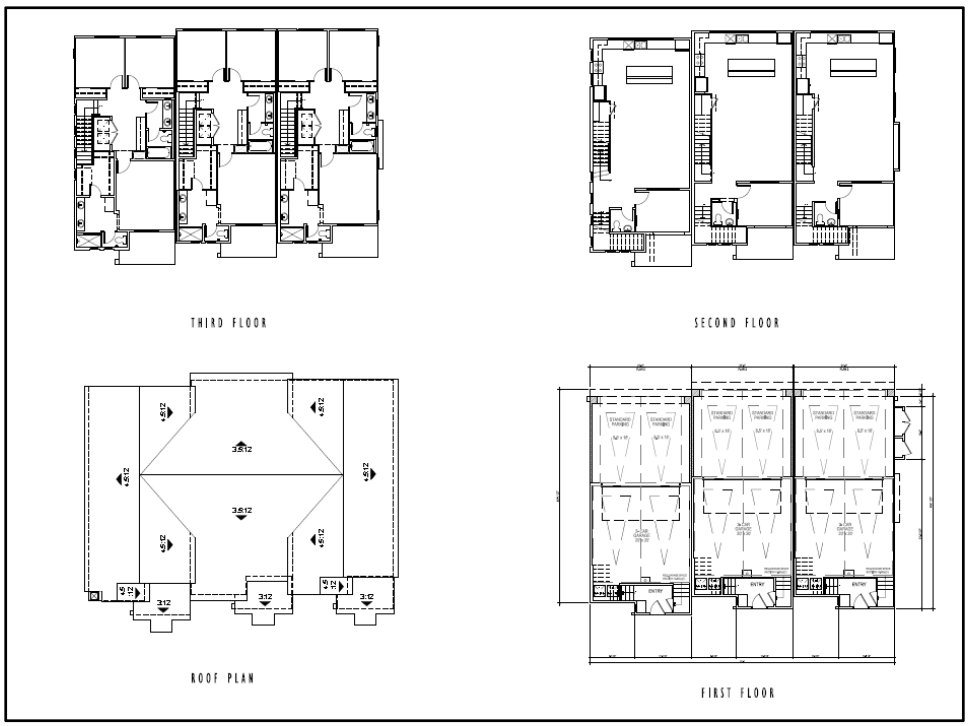
Newport & Ford Residential Project / 160255.01

Figure 14
Project Floor Plan – Building 2



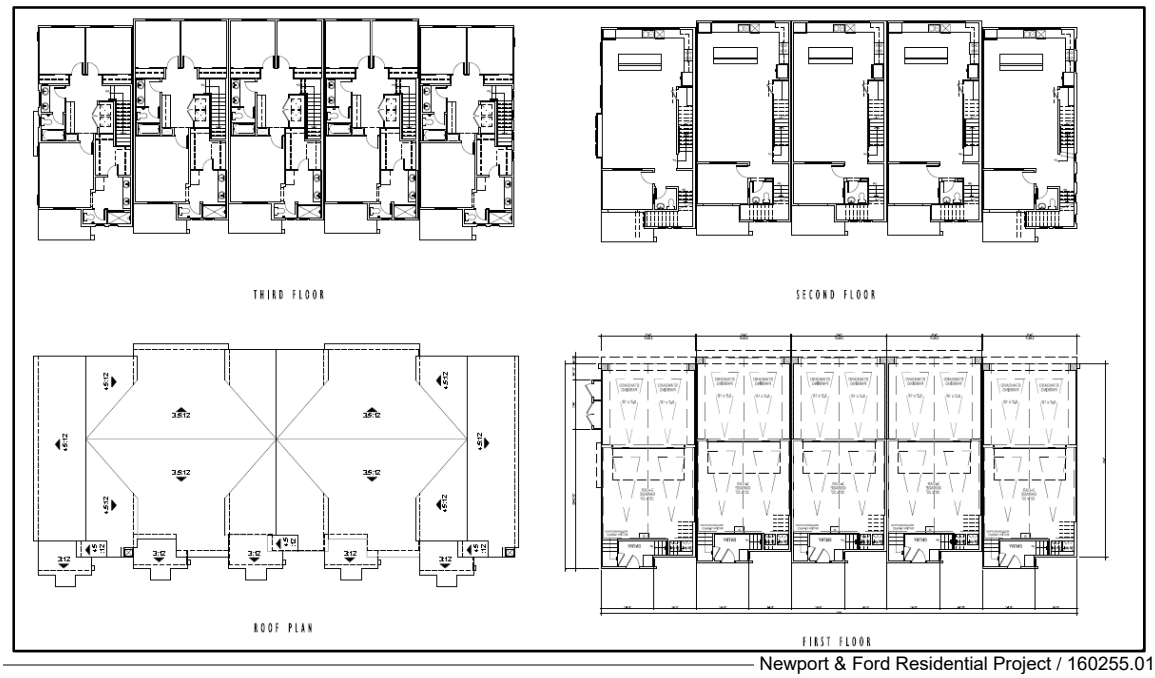
Newport & Ford Residential Project / 160255.01

Figure 15
Project Floor Plan – Buildings 3 and 4



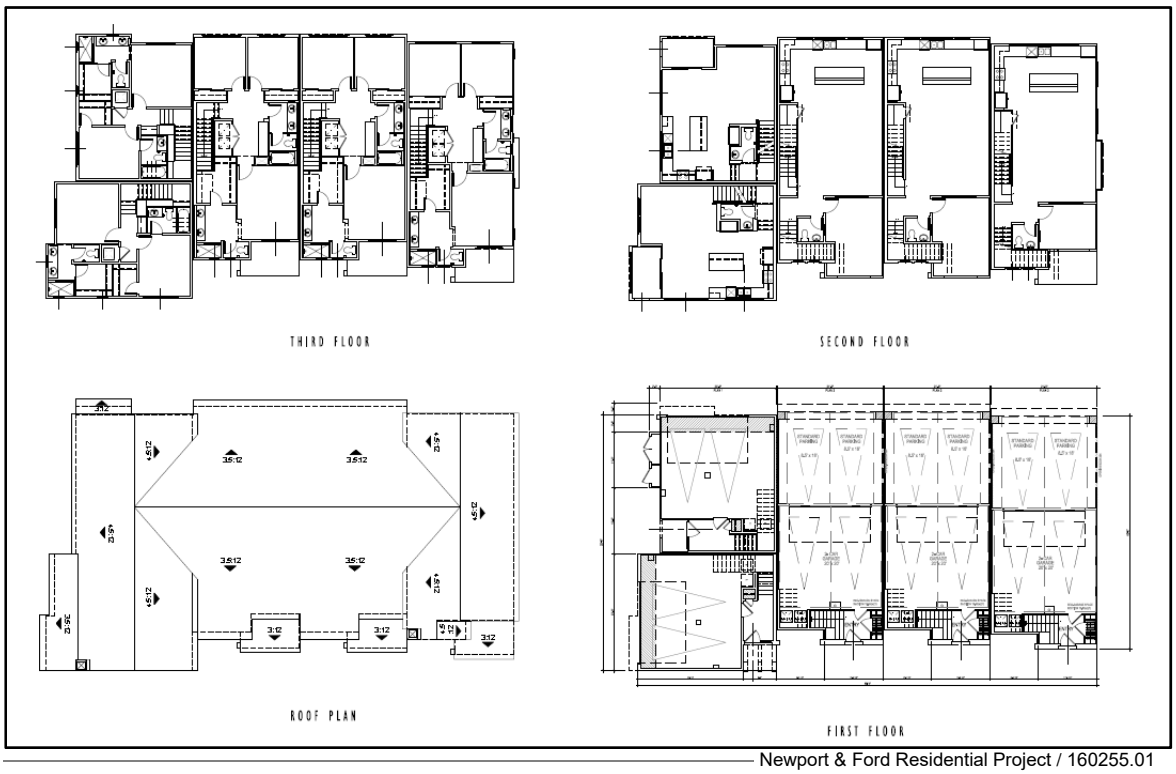
Newport & Ford Residential Project / 160255.01

Figure 16
Project Floor Plan – Building 5



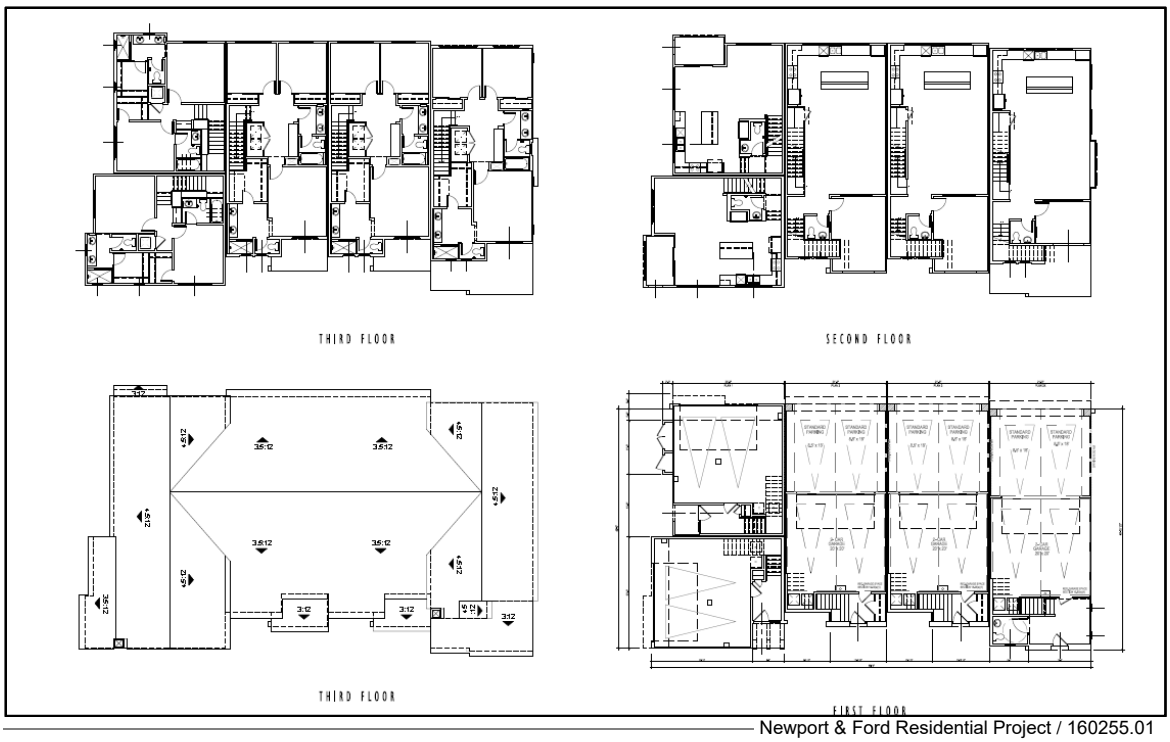
Newport & Ford Residential Project / 160255.01

Figure 17
Project Floor Plan – Building 6



Newport & Ford Residential Project / 160255.01

Figure 18
Project Floor Plan – Buildings 7 and 8



Newport & Ford Residential Project / 160255.01

Figure 19
Project Floor Plan – Building 9

2.11 Required Entitlements

Entitlement of the Project will require approval of this Initial Study/Mitigated Negative Declaration by the City of Costa Mesa City Council, acting as lead agency. The Project also requires approval by the City Council of a General Plan Land Use Map Amendment and Zoning Map Amendment, a Tentative Tract Map, a Master Plan, the vacation of a portion of a public street, a minor deviation for open space, and a possible Development Agreement to accommodate a minor increase in density. Approvals from other public agencies is not required.

SECTION 3

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages. Mitigation measures have been added to the Project to reduce each of these potential impacts to less than significant levels.

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

SECTION 4

Determination (to be completed by Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

8-7-18
Date

SECTION 5
Evaluation of Environmental Impacts

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the Project falls outside a fault rupture zone.) A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the Project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a) Earlier Analysis Used. Identify and state where they are available for review.

    b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or

refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepares or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

    a) the significance criteria or threshold, if any, used to evaluate each question; and

    b) the mitigation measure identified, if any, to reduce the impact to less than significance.

SECTION 6
Initial Study Checklist

The Initial Study Checklist, Table 2, provides a summary of the environmental topics considered in this environmental assessment. For each environmental topic, the thresholds of significance are presented and the finding relative to each threshold is checked. The analysis supporting each finding is presented in Section 7.0.

TABLE 2
INITIAL STUDY CHECKLIST

	Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant	No Impact
I. AESTHETICS.				
a) Have a substantial adverse effect on a scenic vista?				X
b) Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) Substantially degrade the existing visual character and quality of the site and its surroundings?				X
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?				X
II. AGRICULTURAL/FOREST RESOURCES.				
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
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined in Public Resources Code section 4526)				X
d) Result in loss of forest land or conversion of forest land to non-forest use?				X
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
III. AIR QUALITY.				
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Violate any air quality standard or contribute to an existing or projected air quality violation?			X	

	Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			X	
d) Expose sensitive receptors to substantial pollutant concentrations?			X	
e) Create objectionable odors affecting a substantial number of people?			X	
IV. BIOLOGICAL RESOURCES.				
a) Have a substantial adverse effect, either directly or through habitat modification, on any species identified as 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?		X		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife?				X
c) Have a substantial adverse effect on federally protected wetlands as defined by Boulevard 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling hydrological interruption, or other means?				X
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		
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			X	
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservancy Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X
V. CULTURAL AND RESOURCES.				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?		X		
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X		
d) Disturb any human remains including those interred outside of formal cemeteries?		X		

	Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant	No Impact
VI. GEOLOGY AND SOILS.				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?				X
iv) Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil?			X	
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
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?				X
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X
VII. GREENHOUSE GAS EMISSIONS.				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?			X	
VIII. HAZARDS AND HAZARDOUS MATERIALS.				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?		X		
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		
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		

	Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Boulevard 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard for people residing or working in the Project area?				X
f) For a project within the vicinity of a private airstrip, would the Project result in a safety hazard for people residing or working in the Project area?				X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X
IX. HYDROLOGY AND WATER QUALITY.				
a) Violate any water quality standards or waste discharge requirements?			X	
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?				X
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?				X
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?				X
f) Otherwise substantially degrade water quality?			X	
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				X

	Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant	No Impact
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
j) Inundation by seiche or mudflow?				
X. LAND USE AND PLANNING.				
a) Physically divide an established community?				X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?			X	
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				X
XI. MINERAL RESOURCES.				
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
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
XII. NOISE.				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X		
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			X	
c) A substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the project?				X
d) A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the project?		X		
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?			X	
f) For a project within the vicinity of a private airstrip, would the Project expose people residing or working in the Project area to excessive noise levels?				X
XIII. POPULATION AND HOUSING.				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X

	Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant	No Impact
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X
XIV. PUBLIC SERVICES. Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant Environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
a) Fire protection?			X	
b) Police protection?			X	
c) Schools?			X	
d) Parks?			X	
e) Other public facilities?			X	
XV. RECREATION.				
a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			X	
b) Does the Project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?			X	
XVI. TRANSPORTATION/ TRAFFIC.				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?			X	
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?				X
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
e) Result in inadequate emergency access?				X

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

	Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant	No Impact
XVIV. MANDATORY FINDINGS OF SIGNIFICANCE.				
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, reduce the number or restrict the range of a rare or an endangered threatened species, or eliminate important examples of the major periods of California history or prehistory?		X		
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		
c) Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		X		

SECTION 7
Analysis of Environmental Impacts

The following section presents the analysis that supports the findings for each environmental topic and threshold presented in Table 2, Initial Study Checklist. For each environmental topic, an assessment of cumulative impacts and mitigation requirements is also presented.

7.1 Aesthetics

7.1.1 Analysis of Environmental Impacts

a) Would the Project have a substantial adverse effect on a scenic vista?

No Impact. Section 4.1 of the General Plan EIR identifies scenic vistas within the City as the Pacific Ocean, Santa Ana River, and Santa Ana Mountains, and finds that these scenic vistas generally require large expanses of undeveloped land in close enough proximity so that a viewer can see the backdrop uninterrupted. Such locations include Fairview Park, Talbert Regional Park, and adjacent wildlife refuge, golf courses, and parks, and ballfields in the City. The Project site is a developed site consisting a two-story building, conex boxes, a trailer supply building, and RV and truck parking, and a portion of Ford Road. Surrounding properties include a mobile home park, residential, lodging (hotel/motel) and commercial. The adjacent lodging facilities are two-story structures, but the Travel Lodge to the south of the Project site has a tower element which extends several feet above the two-story element and the existing two-story building on the Project site has architectural elements which extend higher than the two-story building roof.

The Pacific Ocean and Santa Ana River are at sea level, located below and several miles from the Project site which is at an elevation of approximately 90 feet above mean sea level (MSL), and are not visible from the site. However, the Santa Ana Mountains which rise as high as 5,689 feet above MSL, are visible from the site despite their location approximately 35 miles north of the site.

he Project proposes three-story buildings which a maximum height of 37’-6”. Although the Project would have building elements higher than adjacent buildings, the site is not within or adjacent to a large expanse of undeveloped land in close enough proximity so that a viewer can see the backdrop uninterrupted. Consequently, the Project would not block views of a scenic vista and would not have an adverse effect on a scenic vista.

b) Would the Project substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. Section 4.1 of the General Plan EIR identifies scenic resources as occurrences of aesthetically pleasing natural or human-made forms. Typical examples of natural scenic resources include rock outcroppings, trees, natural land, water bodies, and prominent ridgelines. Scenic resources can also be architecturally distinctive structures or historic buildings. The Santa Ana River and its natural areas constitute a scenic resource, as do the Santa Ana Mountains and Upper Newport Bay. The Project site is about 4 miles from the Santa Ana River and about 2.5 miles from Upper Newport Bay, neither of which are visible from the site. As noted above, although the Santa Ana Mountains are visible from the site, there is not an adjacent large expanse of undeveloped land in close enough proximity so that a viewer can see the backdrop uninterrupted. Also, there are no scenic highways in the City. Consequently, the Project site would not impede views of the identified scenic resources within the City nor would it damage trees, outcroppings or historic buildings within a state scenic highway. Consequently, the Project would not damage scenic resources or scenic highways.

c) Would the Project substantially degrade the existing visual character or quality of the site and its surroundings?

No Impact. As discussed in Section 7.1.a, above, the Project would construct a three-story townhome product with a maximum height of 37'-6", replacing various storage uses. Although the Project would have building elements higher than adjacent buildings, it would not block views of scenic features.

Chapter 13.58 of the Zoning Code establishes setbacks for the PDR-HD zone in which the site is located. Setbacks within zoning districts are established to create adequate separations that provide for light and privacy between uses on neighboring properties. Setbacks can be most important adjacent to residential uses which typically desire sufficient light and privacy. Although no setbacks are established for the PDR-HD zone, the setbacks established for the PDR zone are listed below along with the proposed setbacks for the Project. The Project would exceed the required setbacks of the PDR zone, which would provide adequate separation, light and privacy from the existing residential uses to the rear (west) and side (north) of the site.

	Chapter 13.58 PDR Minimum Setbacks	Proposed Project Setbacks
Front	5 feet with sidewalk	20 – 42 feet with sidewalk
Side	0 feet on one side, 10 feet combined	12 feet on north side; 8 feet on south side; 20 feet combined
Rear	5 feet	10-20 feet

The Project would remove a mix of temporary structures and trailers and older buildings with a master planned residential community. Architecture of the Project includes a cohesive design with front porches, pot shelves, wood accents, Spanish style tile roof with varied roof lines, enhanced window trim, and decorative lighting. Project landscaping consists of ornamental trees and shrubbery.

The Project also includes undergrounding of utility poles serving the site along Newport Boulevard and the public alley, which will have a positive visual impact. The lighting along the rear alley need to be relocated to provide for parallel parking and will be replaced with the project development to maintain the lighting and safety within the alley.

The General Plan Community Design Element identifies the following policies to support Goal CD-7 "Quality Residential" (Page CD-28):

- Objective CD-7.1: Encourage excellence in architectural design.
- CD-7A: Ensure that new and remodeled structures are designed in architectural styles which reflect the City's eclectic quality yet are compatible in scale and character with existing buildings and the natural surroundings within residential neighborhoods. Continue to update and maintain the Costa Mesa Residential Guidelines.
- CD-7B: Preserve the character and scale of Costa Mesa's established residential neighborhoods where possible; when new residential development is proposed, require that new structures are consistent with the prevailing character of existing development in the immediate vicinity, and that new development does not have a substantial adverse impact on adjacent areas.

The Project would be consistent with the above-mentioned architectural design by including traditional architecture with varied building materials, textures, and high-quality landscaping.

The Project would require the review and approval of a master plan of development as required by Section 13.56 of the Municipal Code for Planned Development projects. As such, the City's review, conditions, and requirements completed during the review process are intended to ensure the Project has a consistent and aesthetic design that will enhance the site and surrounding area. Consequently, the Project would provide an aesthetically cohesive development that would be compatible with adjacent residential uses, and it would not adversely impact visual character and quality of the site or its surroundings.

d) Would the Project create a new source of substantial light or glare which would adversely affect day or night time views in the area?

No Impact. Street lights and lighting from existing on-site uses and adjacent uses currently occur. Other existing light sources include headlights from vehicles travelling on Newport Boulevard. As an infill development, the light generated from the Project would replace that of the existing uses on the site and be similar to that of nearby uses.

In addition, the Project would be required to comply with the City lighting guidelines, including the Municipal Code and Standard Condition SC 4.1-1. The Municipal Code includes the following lighting guidelines:

- Chapter VI. Off-street Parking Standards, Article 3. Development Standards, Sec 13-93(d). General Standards:

- (d) Lighting. All required parking areas and driveways shall be illuminated under the direction of the planning division. Lights used to illuminate parking areas shall be directed away from any adjoining premises located in any residential zone under direction of the Planning Division.

Additionally, SC 4.1-1 requires preparation of a Lighting Plan and Photometric Study to demonstrate that the Project lighting meets "minimum security" lighting requirements and minimizes light/glare to residents. Consequently, the Project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

7.1.2 Cumulative Impacts

The analysis determined that the proposed Project would not result in significant adverse aesthetic impacts. Although the proposed Project would change the visual character of the site and surrounding area, it would be consistent with existing residential west of the site. Consequently, the Project would not result in significant adverse cumulative aesthetics impacts.

7.1.3 Mitigation Measures

The analysis determined that the proposed Project would not result in any significant adverse impacts regarding aesthetics. Consequently, no mitigation is required.

7.2 Agriculture and Forest Services

7.2.1 Analysis of Environmental Impacts

a) Would the Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance?

No Impact. Prime Farmland or Farmland of Statewide Importance must meet the following two criteria: (1) must have been used for irrigated agricultural production at some time during the 4 years prior to the important farmland map date; (2) the soil must meet the physical and chemical criteria for Prime Farmland or Farmland of Statewide Importance as determined by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service.

According to the General Plan Land Use Element, as of 2015, of the 8,042 net acres in the City of Costa Mesa, only 87.1 acres—or 1.1 percent—were either vacant or support agricultural production. The agricultural uses are temporary, as the lands are entitled for development. The Project site does not contain agricultural uses and is designation by the state of California Department of Conversation areas as "urban and built-up land".[2] Consequently, the Project would not convert farmland to a non-agricultural use.

[2] https://maps.conservation.ca.gov/dlrp/ciff/; accessed February 28, 2018.

b) Would the Project conflict with existing zoning for agricultural use or a Williamson Act Contract?

No Impact. The Williamson Act allows county governments to enter into contracts with private landowners who agree to restrict parcels of land to agricultural uses or uses compatible with agriculture for at least 10 years. According to the General Plan EIR, there are no active Williamson Act contracts within the City. Similarly, there is no agricultural zoning in the City and no agricultural uses on the site. Consequently, the Project would not conflict with an agricultural use or Williamson Act contract.

c) Would the Project conflict with existing zoning for or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined in Public Resources Code section 4526)?

No Impact. The City, inclusive of the Project site, is developed with urban land uses. There are no forest, timberlands or forest zoning in the City. Consequently, the Project would not conflict with zoning for forest land or timberland.

d) Would the Project result in the loss of forest land or the conversion of forest land to a non-forest use?

No Impact. As discussed in Section 7.2.c, above, the City, inclusive of the Project site, is developed with urban land uses. There are no forest, timberlands or forest zoning in the City. Consequently, the Project would not result in the loss or conversion of forest land.

e) Would the Project involve other changes in the existing environment that, due to their location or nature, may result in conversion of farmland to non-agricultural use

No Impact. As discussed in Sections 7.2.a, b and c, above, the City, inclusive of the Project site, is developed with urban land uses. There are no farmlands or forests in the City. Consequently, the Project would not result in the loss or conversion of farmland or forest land.

7.2.2 Cumulative Impacts

The analysis determined that the proposed Project would not result in any significant adverse impacts to agriculture and forest resources. Consequently, the Project would not result in significant adverse cumulative agriculture and or forest resource impacts.

7.2.3 Mitigation Measures

The analysis indicated that the implementation of the proposed Project would not result in any significant impacts on agriculture and or forest resources. As a result, no mitigation is required.

7.3 Air Quality

7.3.1 Analysis of Environmental Impacts

Data presented in this Air Quality section includes information from the "Newport and Ford Residential Project Focused Air Quality and Greenhouse Gas Analysis, City of Costa Mesa, California, prepared by RK Engineering Group, Inc. May 1, 2018" (Air Quality Impact Study) provided in Appendix A of this IS/MND; and "Construction Health Risk Assessment for the Proposed Newport & Ford Residential Project in Costa Mesa, California", prepared by LSA, June 4, 2018 (Construction HRA) provided in Appendix B of this IS/MND.

a) Would the Project conflict with or obstruct the implementation of the applicable air quality plan?

Less Than Significant Impact. The City of Costa Mesa is within the South Coast Air Basin (SCAB), which is bounded by the Pacific Ocean to the south and west and mountains to the north and east. Air quality in the South Coast Air Basin is managed by the South Coast Air Quality Management District (SCAQMD). The SCAQMD and the Southern California Association of Governments (SCAG) are the agencies responsible for preparing the Air Quality Management Plan (AQMP) for the SCAB. Since 1979, a number of AQMPs have been prepared. The AQMP was designed to comply with State and federal requirements, reduce the high level of pollutant emissions in the SCAB, and ensure clean air for the region through various control measures.

The regional AQMP is updated periodically with the most recent SCAB AQMP adopted on March 3, 2017 and referred to as the 2016 AQMP. According to the 2016 AQMP, the most significant air quality challenge in the SCAB is to reduce nitrogen oxide (NOx) emissions sufficiently to meet the upcoming ozone standard deadlines. The 2016 AQMP suggests that total SCAB emissions of NOx must be reduced to approximately 141 tons per day (tpd) in 2023 and 96 tpd in 2031 to attain the 8-hour ozone standards. This represents an additional 45 percent reduction in NOx in 2023, and an additional 55 percent NOx reduction beyond 2031 levels.

In compliance with the 2016 AQMP, the SCAQMD establishes air quality emissions thresholds for criteria air pollutants for the purposes of determining whether a project may have a significant effect on the environment per Section 15002(g) of the Guidelines for implementing CEQA. By complying with the thresholds of significance, the Project would be in compliance with the SCAQMD AQMP as well as federal and state air quality standards.

The SCAQMD CEQA Handbook provides additional compatibility criteria for projects that include a General Plan amendment. For these projects, SCAQMD establishes a two-part criteria to consider whether the project is consistent with the AQMP:

1. Will the project result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP?
2. Will the project exceed the assumptions in the AQMP in 2016 or increments based on the year of project buildout and phase?

Table 3 lists the air quality significance thresholds for the six criteria air pollutants, including NOx, that are relevant to the Project and analyzed in the Air Quality Study. As discussed in Section 7.1.b, below, neither the construction nor the operation would exceed NOx thresholds set by the 2016 AQMP or any of the other air pollutant thresholds set by the SCAQMD and listed above in Table 3. Consequently, the Project is consistent with the goals of 2016 AQMP and its two-part criteria for General Plan amendments, and the Project impacts are less than significant.

TABLE 3
SCAQMD REGIONAL SIGNIFICANCE THRESHOLDS

Pollutant [1]	Construction (lbs/day)	Operation (lbs/day)
NO_X	100	55
VOC	75	55
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_X	150	150
CO	550	550

a. ROG (reactive organic gases); NOx (oxides of nitrogen); CO (carbon monoxide); PM-10 (respirable 10-micron diameter particulate matter); PM-2.5 (respirable 2.5-micron diameter particulate matter; SOx (oxides of sulfur).

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less Than Significant Impact. A violation of an air quality standard could occur over the short-term during construction, or over the long-term during its subsequent operation. Each is addressed below.

Construction Impacts: Project construction raises localized ambient pollutant concentrations. Construction air quality impacts are considered significant if they exceed any of the construction thresholds listed in Table 3.

During construction air quality impacts may occur during demolition, site preparation, and construction activities associated with the project. Major sources of emissions during construction include exhaust emissions, fugitive dust generated as a result of soil and material disturbance during site preparation, and grading activities, and painting of the structures.

Table 4 presents the calculation of daily emissions projected for site construction. The calculations presented in the Table are the results of the CalEEMod Model which applies typical construction equipment, labor, phasing and materials to the project, based on its size, location and proposed timing. The CalEEMod Model is not intended as an exact accounting of what equipment will ultimately be used and what emissions are produced by a project. Rather, the model represents a "yard stick" by which projects may be compared on a one-to-one basis. The methodology applied by the CalEEMod Model are based on studies performed by the SCAQMD for construction projects in the southern California. The SCAQMD recommends use of the CalEEMod Model for typical construction projects.

To assess air quality construction impacts for the Project, the Air Quality Impact Study inputted the following assumptions into the CalEEMod Model: (1) Construction of the Project is assumed to begin in year 2019 and last approximately 12 months; (2) Approximately 2,025 tons of debris, asphalt and materials will be removed from the site during demolition.

SCAQMD's Rule 403 governs fugitive dust emissions from construction projects. This rule sets forth a list of control measures that must be undertaken for all construction projects to ensure that no dust emissions from the project are visible beyond the property boundaries. Adherence to Rule 403 is mandatory and as such, does not denote mitigation under CEQA. The Air Quality Impact Study assumes the use of the minimal measures specified in Rule 403 that overlap between the rule and the CalEEMod model. These include as well as provisions of the Building Code would apply to Project construction:

- All active construction areas shall be watered two (2) times daily.
- All haul trucks shall be covered or shall maintain at least two (2) feet of freeboard.
- Speed on unpaved roads shall be reduced to less than 5 mph.
- Any visible dirt deposition on any public roadway shall be swept or washed at the site access points within 30 minutes.
- Any on-site stockpiles of debris, dirt or other dusty material shall be covered or watered twice daily.
- All operations on any unpaved surface shall be suspended if winds exceed 15 mph.
- Access points shall be washed or swept daily.
- Construction sites shall be sandbagged for erosion control.
- Prepare and implement a Construction Management Plan which will include Best Available Control Measures that will be submitted to the City of Costa Mesa.
- Construction equipment shall be maintained in proper tune.
- All construction vehicles shall be prohibited from excessive idling. Excessive idling is defined as five (5) minutes or longer.
- Minimize simultaneous operation of multiple construction equipment units.

- The use of heavy construction equipment and earthmoving activity shall be suspended during Air Alerts when the Air Quality Index reaches the "Unhealthy" level.
- Utilize low emission "clean diesel" equipment with new or modified engines that include diesel oxidation catalysts, diesel particulate filers or Moyer Program retrofits that meet CARB best available control technology.
- Establish an electricity supply to the construction site and use electric powered equipment instead of diesel-powered equipment or generators, where feasible.
- Establish staging areas for the construction equipment that are as distant as possible from adjacent sensitive receptors (residential land uses).
- Use haul trucks with on-road engines instead of off-road engines for on-site hauling.

Table 4 presents the calculated daily emissions projected for site construction. As shown in the Table, all emissions are within their respective threshold values and the impact is less than significant. All values are so low such that even if phases were to overlap, the impact would remain less than significant.

TABLE 4
COMPARISON OF PROJECTED CONSTRUCTION EMISSIONS AND DAILY CRITERIA VALUES (POUNDS/DAY)

	Maximum Daily Emissions (lbs/day)					
Activity	**VOC**	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Demolition	2.44	25.72	16.08	0.03	2.45	1.43
Site Preparation	1.75	19.51	8.17	0.02	3.19	1.97
Grading	1.46	16.51	6.89	0.02	2.71	1.67
Building Construction	2.41	16.51	14.57	0.03	1.25	0.98
Paving	0.90	8.49	9.30	0.01	0.62	0.47
Architectural Coating	24.04	1.70	2.00	0.00	0.17	0.13
Maximum[1]	**24.04**	**25.72**	**16.08**	**0.03**	**3.19**	**1.97**
SCAQMD Threshold	75	100	550	150	150	55
Exceeds Threshold (?)	**No**	**No**	**No**	**No**	**No**	**No**

NOTE: [1] Maximum daily emissions during summer or winter; includes both on-site and off-site project emissions.

Operational Impacts: The major source of long-term air quality impacts is that associated with the emissions produced from project-generated vehicle trips. With the exception of wood combustion, stationary sources add only minimally to these values.

Existing Land Use Emissions: The Project site currently includes operating land uses that would be removed with Project implementation. The existing uses generate vehicular trips and associated emissions, as well as on-site air pollutant emissions including the combustion of natural gas for space and water heating and the potential use other heating sources. According to the Traffic Impact Analysis for the Project (Appendix G), the

number of daily trips associated with the existing land uses 177 average daily trips (ADT) on a weekday.

Additionally, the existing structures require maintenance such as repainting, thus resulting in the release of additional ROG emissions. Also, the use of commercial and consumer aerosol products, such as cleaners, is associated with the project and these release ROG emissions. Finally, the landscape would require maintenance and this equipment produces combustion emissions.

Proposed Land Use Emissions: The Project is expected to replace existing uses on the site by 2020. The Air Quality Impact Study applies the CalEEMod model using the traffic-projections provided by the Project Traffic Study (Reference Appendix G). According to the Project Traffic Study for the Project, the Project is estimated to generate approximately 278 average daily trips (ADT) on a weekday, with about 271 ADT for a Saturday and 232 ADT for a Sunday.

In addition to vehicle trips, the future Project occupants would produce emissions from on-site sources including the combustion of natural gas for space and water heating and the use other heating sources. Similar to the analysis for the existing site uses, the proposed Project structures would be maintained, and this requires repainting, resulting in the release of additional ROG emissions. Also, the use of consumer aerosol products, such as cleaners, is associated with the Project and these release ROG emissions. Finally, the landscape would require maintenance and this equipment produces combustion emissions.

Emissions associated with the Project assume full occupancy in 2020. As shown in Table 5, Project emissions, are all below their respective criteria values and Project operational impacts are less than significant.

TABLE 5
COMPARISON OF PROJECTED DAILY OPERATIONAL EMISSIONS AND DAILY CRITERIA (POUNDS/DAY)

Source	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Mobile Sources	0.53	2.24	7.22	0.03	2.27	0.62
Energy Sources	0.02	0.17	0.07	0.00	0.01	0.01
Area Sources	0.99	0.67	3.41	0.00	0.07	0.07
Total	**1.54**	**3.08**	**10.71**	**0.03**	**2.35**	**0.71**
Threshold	55	55	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No

NOTES: The CalEEMod model projects summer and winter emissions. These can differ for mobile sources and the higher of the two values were included in the table.

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

Less Than Significant Impact. The SCAQMD criteria pollutants and their respective thresholds for construction and operational emissions are shown in Tables 4 and 6, above. In accordance with SCAQMD methodology, projects that do not exceed or can be mitigated to less than the daily threshold values do not add significantly to a cumulative impact. Neither the construction nor the operation of the Project would exceed the recommended SCAQMD threshold levels and this impact is less than significant.

d) Would the Project expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact.

Construction Localized Impacts: Sensitive receptors adjacent to the Project site include existing residential and lodging uses.

The Air Quality Impact Study found that Project construction would below all established SCAQMD emission thresholds that could impact sensitive receptors. The Project would also be required to follow all standard SCAQMD rules and requirements with regards to fugitive dust control, as described in Section 7.3.b, above.

Other construction related impacts to sensitive receptors could be caused by diesel emissions. In September 2000, the California Air Resources Board (CARB) adopted the Diesel Risk Reduction Plan, which recommends several control measures to reduce the risks associated with diesel particulate matter (DPM). The key elements of the Plan are to clean up existing engines through engine retrofit emission control devices, to adopt stringent standards for new diesel engines, to lower the sulfur content of diesel fuel, and implement advanced technology emission control devices on diesel engines.

The construction of the Project would require the use of diesel powered heavy trucks and off-road equipment that will emit DPM, resulting in potential health risks. DPM emissions during construction would be short-term. However, to evaluate the potential health risks to adjacent sensitive uses from Project construction, the City recommends the preparation of a Health Risk Assessment (HRA) in accordance with policies and procedures of the State Office of Environmental Health Hazard Assessment (OEHHA) and the SCAQMD. The purpose of the HRA is to estimate the increased health risk for people living near to a construction site based on exposure to toxic air contaminants (TACs).

The Construction HRA prepared for the Project (Appendix B) evaluates the Project's compliance, noting that the largest potential TAC risk is associated with DPM. Exposure to TAC from DPM greater than 10 in 1 million (1.0) is considered a significant impact.

The Construction HRA modeled the expected DPM from proposed Project construction equipment using a very conservative screening level assessment, the Federal Environmental Protection Agency (EPA) model AERSCREEN, version 16216, which models potential carcinogenic health risks and acute health risk hazards from DPM exposure. Based on this model run, the Construction HRA found that the resulting carcinogenic health risk exposure from Project construction to an adjacent resident would be 0.006 in a million, which is less than the threshold of 1.0. The chronic and acute health risk hazard indices would be less than 0.03 which is also less than the threshold of 1.0. Therefore, potential health risk levels from the construction of the Project would be less than significant.

Operational Localized Impacts: Long-term effects of the Project could be significant if they exceed the State or federal ambient air quality standards. As noted for construction, these criteria only apply to CO, NO2, PM10, and PM2.5. CO and NO2 would be significant if the Project were to raise existing levels above those values included in the standards. Because the Basin is a non-attainment area for particulate matter, the operational thresholds for both PM10 and PM2.5 are set at a measurable increase of 2.5 $\mu g/m^3$.[3]

Unlike construction equipment that generates exhaust and dust in a set area, the primary source of emissions from Project operations is due to the addition of vehicles on the roadway system. These emissions are then spread over a vast area and do not result in localized concentrations in proximity to the Project site. As such, localized modeling for project operations is not prepared for residential, limited commercial, or light industrial development that does not include a truck terminal. As shown in Table 5, the Project is not expected to exceed any the allowable daily emissions thresholds for criteria pollutants.

The residential Project does not include sources of toxic air contaminant (TAC) emissions that could impact sensitive uses, including nearby residents and hotel/motel lodgers. The Project site is located within 500 feet of a freeway with over 100,000 average daily traffic (ADT). CARB provides guidelines recommending a 500-foot buffer distance between freeways and residential uses. However, consistent with the California Building Industry Association v. Bay Area Air Quality Management District (2015) 62 Cal. 4th 369 (CBIA) case, residential already occurs in the vicinity of the Project site and the Project would not exacerbate pre-existing TAC exposure to sensitive uses, including existing nearby residents and hotel/motel lodgers.

The General Plan establishes policies related to air quality, including: “Require that sensitive uses such as schools, childcare centers, parks and playgrounds, housing, and community gathering places are protected from adverse impacts of emissions by implementing project design features”. The Project proposes to include a number of features that would reduce potential impacts from freeway emissions to future Project

[3] Micrograms (one-millionth of a gram) per cubic meter air or µg/m3.

residents, including: a solid barrier wall along Newport Boulevard shielding residential units from the adjacent freeway; installation of vegetation, including trees and/or thick foliage along the Newport Boulevard perimeter; provision of housing ventilation units with upgraded minimum efficiency reporting value (MERV) filters. These features are consistent with the CARB's 2017 guidelines, entitled "Strategies to Reduce Air Pollution Exposure near High-Volume Roadways". Consequently, Project impacts relative to exposure of sensitive receptors to substantial pollutant concentrations would be less than significant.

e) Would the Project create objectionable odors affecting a substantial number of people?

Less Than Significant Impact. Project construction would involve the use of heavy equipment creating exhaust pollutants from on-site earth movement and from equipment bringing concrete and other building materials to the site. Odors associated with this exhaust would be confined to the immediate vicinity of the equipment itself. By the time such emissions reach any sensitive receptor sites away from the Project site, they will be diluted to well below any level of air quality concern. Additionally, some odor would be produced from the application of asphalt, paints, and coatings. Any exposure to these common odors would be of short-term duration and, while unpleasant and potentially adverse, are not associated with a specific health hazard and are less than significant. Operational odors could be produced from on-site cooking or barbeque typical of a residential use. Because these odors are common in the environment, they would not constitute a significant impact.[4] Impacts would be less than significant.

7.3.2 Cumulative Impacts

As discussed above, in accordance with SCAQMD methodology, projects that do not exceed or can be mitigated to less than the daily threshold values do not add significantly to a cumulative impact. Neither the construction nor the operation of the Project would exceed the recommended SCAQMD threshold levels and consequently, the Project would not create significant cumulative impacts relative to air quality.

7.3.3 Mitigation Measures

The Project would not have significant impacts relative to air quality, and no mitigation is required.

4 SCAQMD CEQA Air Quality Handbook, Figure 5-4, Land Uses Associated with Odor Complaints identifies potentially significant odor impacts from such uses as agriculture (farming and livestock), a wastewater treatment plant, a food processing plant, a chemical plant, a composting facility, a refinery, a landfill, or a dairy. No significant odor impacts are identified from residential uses.

7.4 Biological Resources

Data presented in this Biological Resource section includes information for the "Biological Evaluation, Newport & Ford Project, Costa Mesa, Orange County California" (Biological Evaluation) prepared by Hamilton Biological, April 7, 2018. The Biological Evaluation is provided as Appendix C of this IS/MND.

7.4.1 Analysis of Environmental Impacts

a) Would the Project adversely impact 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?

Less Than Significant with Mitigation Incorporated. As part of the Biological Evaluation for the Project, a field visit was conducted on January 27, 2018. A records search of the following resources was also conducted:

- California Department of Fish and Wildlife, Natural Diversity Database. October 2017. Special Animals List. Periodic publication. 65 pp.
- California Department of Fish and Wildlife, Natural Diversity Database. January 2018. Special Vascular Plants, Bryophytes, and Lichens List. Quarterly publication. 127 pp.
- California Natural Diversity Data Base. Rarefind data accessed online on April 7, 2018, for the U.S. Geologic Survey's Newport Beach, Irvine, and Laguna Beach 7.5' topographic quadrangles.

The literature review yielded dozens of special-status species that have been recorded within the Newport Beach, Irvine, and Laguna Beach USGS 7.5' topographic quadrangles. Very few of the special-status species identified through the literature search are capable of surviving in fully developed areas like the Project site, which supports no natural plant communities. Table 6, below provides information on those special-status species that have legitimate potential to occur on the project site.

TABLE 6
SPECIAL STATUS SPECIES

Species	Regulatory Status	Potential Status in Study Area
Plants		
Southern Tarplant *Centromadia parryi* ssp. *australis*	California Native Plant Society (CNPS) Rank 1B.1, for species that CNPS con siders "rare, threatened, or endangered in CA and elsewhere."	Southern Tarplant typically occurs on flat, disturbed ground near the coast that receives intermittent flooding. The species very rarely occurs in disturbed lots (pers. obs.). In the general project vicinity, substantial populations occur around the edges of Upper Newport Bay. Disturbed portions of the project site have marginal potential to sup- port Southern Tarplant, but the species is conspicuous, and I searched specifically for its dead stalks, which would have been visible at the time of the field survey. Based on the lack of observations of this species, and the developed nature of the site, this plant has very low potential to occur on the site.
Invertebrates		
Monarch *Danaus plexippus*	California Special Animal, referring to all of the taxa the California Natural Diversity Database (CNDDB) is interested in tracking, regardless of their legal or protection status. The Department of Fishand Wildlife considers thislist to include the taxa of greatest conservation need, although not all are equally atrisk.	This butterfly species is of concern due to its limited number of remaining overwintering sites, which are covered by statues of the California Public Resources Code and the California Fish and Game Code. Numbers have been fluctuating over the years, with a downward trend during the recent past. In southern California, Monarchs usually overwinter in groves of eucalyptus in natural areas between a half-mile and one mile from the coast. Based on the small size and urban location of the eucalyptus stand on the site (shown in Photo 4 on page 4), and lack of observation of Monarchs during the site visit, I consider it to have very low potential to provide overwintering habitat for Monarchs.
Birds		
Cooper's Hawk *Accipiter cooperii*	California Special Animal, referring to all of the taxa the CNDDB is interested in tracking, regardless of their legal or protection status. The Department of Fishand Wildlife considers thislist to include the taxa of greatest conservation need, although not all are equally atrisk.	Once found mainly in natural areas with riparian and oak woodlands (e.g., Hamilton, R. A., and D. R. Willick. 1996. *The Birds of Orange County, California, Status and Distribution*. Sea and Sage Press, Irvine.), this species has experienced "significant population increases and range expansions starting in 1990s, most noticeable in the form of breeders colonizing urban and suburban areas" (Curtis, O. E., R. N. Rosenfield, and J. Bielefeldt. 2006. Cooper's Hawk (Accipiter cooperii), version 2.0 in The Birds of North America; A. F. Poole, Editor. Cornell Lab of Ornithology, Ithaca, NY). Following rapid expansion of the breeding population into urban and suburban southern California during the past two decades, Cooper's Hawk is now a common, wide spread resident. Cooper's Hawk was not observed during the field survey but has moderate potential to breed on or around the site, and high potential to occur there during migration and/or winter.

Based on the Biological Evaluation findings, no native habitat or protected species of plant or wildlife occur on the Project site, and none of the species listed in Table 6 were observed. Vegetation on and around the site consists entirely, or nearly entirely, of non-native species, including plants commonly used in commercial landscaping and typical weedy species found in urban environments in coastal southern California. Non-native vegetation on the site includes Palm Trees on the public right-of-way adjacent to Ford Road and a row of trees behind the trailer supply building adjacent to a public alley.

Wildlife observed, and typical of the area, consists entirely of native and non- native species that are highly adapted to the urban environment in Costa Mesa and surrounding cities, including eight bird species, five native and three non-native. The native species observed are Anna's Hummingbird (*Calypteannae*), Allen's Hummingbird (*Selasphorus sasin*), Black Phoebe (*Sayornis nigricans*), Yellow-rumped Warbler (*Setophaga coronata*), and Lesser Goldfinch (*Spinus psaltria*). The non-native species are Japanese White-eye (*Zosterops japonicus*), European Starling (*Sturnus vulgaris*), House Sparrow (Passer domesticus). No amphibians or reptiles were observed, but the common Western Fence Lizard (*Sceloperus occidentalis*) could potentially occur. The only mammal detected was a non-native Eastern Fox Squirrel (*Sciurus niger*). A few native mammals highly adapted to urban settings, such as the Botta Pocket Gopher (*Thomomys bottae*), Raccoon (*Procyon lotor*), Virginia Opossum (*Didelphis virginiana*), and Striped Skunk (*Mephitis mephitis*) could also occur.

Although the Project site is fully developed in the existing condition and does not support any plant communities that might be subject to resource-project regulations, there are two potentially applicable resource protection regulations applicable to the Project: (1) requirements to avoid impacts to actively nesting birds, and (2) compliance with the City's tree removal ordinance.

Nesting Birds

The federal Migratory Bird Treaty Act (MBTA) of 1918 implemented the 1916 Convention between the U.S. and Great Britain (for Canada) for the protection of migratory birds. Later amendments implemented treaties between the U.S. and Mexico, the U.S. and Japan, and the U.S. and the Soviet Union (now Russia). At the heart of the MBTA is this language:

> *Establishment of a federal prohibition, unless permitted by regulations, to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention for the protection of migratory birds…or any part, nest, or egg of any such bird." (16 U.S.C. 703)*

From a federal regulatory standpoint, an "incidental take" of birds or their active nests that might occur, for example, as an unintended result of construction activity or vegetation removal, would not represent a violation of the MBTA.

Sections 3503 and 3513 of the California Fish and Game Code states, "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." Section 3513 of the Code interprets "incidental take" more broadly and may protect an active nest of virtually any native bird species. If tree removal occurs during the general nesting season of February

through August, there may be a potential impact to nesting birds protected in accordance with the MBTA and California Fish and Game Code Section 3500. Potential impacts to nesting birds would be a significant impact. Implementation of Mitigation Measure BIO-1 would reduce potential significant impacts to a less than significant level through avoidance of nesting season or avoidance of nesting disturbance.

Protected Trees

Section 13-108(c) in Title 13, Chapter VII of the Costa Mesa Municipal Code states:

> *Trees shall not be destroyed or removed without prior City approval. Site plans which identify existing and replacement trees shall be submitted to the Planning Division for review, along with written request and justification for the removal. Additionally, the Planning Division may require a report prepared by a California licensed arborist. Where possible, and under the direction of the Planning Division, replacement trees shall be of a size consistent with that to be removed. Trees may be replaced upon approval of plans by the Planning Division.*

The Project would be required to comply with this ordinance. Therefore, the Project would not have an impact on any local policy or ordinance protecting trees and biological resources.

b) Would the Project have a substantial impact 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 Wildlife or U.S. Fish and Wildlife Service?

No Impact. As noted above, the Project site is fully developed and does not contain any native habitat including riparian or other sensitive natural community. Consequently, the Project would not cause a substantial adverse effect on any riparian habitat or sensitive natural community.

c) Would the Project have a substantial impact on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. Wetlands are defined under the federal Clean Water Act as land that is flooded or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that normally does support, a prevalence of vegetation adapted to life in saturated soils. Wetlands include areas such as swamps, marshes, streams, lakes, and bogs. According to the USFWS National Wetlands Mapper[5], there no wetlands within the City of Costa Mesa. This finding is further supported by the Biological

[5] http://www.fws.gov/wetlands/data/mapper.HTML; accessed December 29, 2017.

Evaluation conducted for the Project. Consequently, the Project would not cause a substantial adverse effect on federally protected wetlands.

d) Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory life corridors, or impede the use of native wildlife nursery sites?

Less Than Significant with Mitigation Incorporated. As discussed above, the Project site is surrounded by urban land uses and does not contain identified native or sensitive species, riparian or sensitive habitats or wetlands. However, there are non-native trees and vegetation on the site. The trees could contain an active bird nest. In view of these regulations, the Biological Resource evaluation recommends avoiding construction during the bird nesting season, which is generally February 15 to August 31. Potential impacts to nesting birds would be a significant impact.

Additionally, the project site does not function as a wildlife movement corridor or facilitate the movement of wildlife between open space areas that may be used for roaming, foraging or breeding. Therefore, the project will have no impact on wildlife movement corridors.

e) Would the Project conflict with any local policies or ordinances, protecting biological resources, such as a tree preservation policy or ordinance?

Less Than Significant Impact. As discussed above, although the Project site is fully developed in the existing condition and does not support any plant communities that might be subject to resource-project regulations, the City's tree removal ordinance may apply to the Project. Section 13-108(c) in Title 13, Chapter VII of the Costa Mesa Municipal Code states that trees shall not be destroyed or removed without prior City approval. Existing non-native trees on the site including Palm Trees on the public right-of-way adjacent to Ford Road and a row of trees behind the trailer supply building adjacent to a public alley. Through required compliance with the Municipal Code provision, potential impacts relative to conflict with a policy that protects biological resources such as a tree preservation policy would be less than significant.

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 City is not part of a habitat conservation plan. Consequently, the Project would not conflict with provisions of an adopted Habitat Conservation Plan or Natural Community Conservation Plan.

7.4.2 Cumulative Impacts

The impacts on biological resources are typically site specific. The proposed Project would not involve any loss of protected habitat since no such habitat is found within the Project site's

boundaries. Potential impacts to nesting birds would be mitigated through Mitigation Measure BIO-1 and to trees through required compliance with Section 13-108(c) in Title 13, Chapter VII of the Costa Mesa Municipal Code. As a result, no significant cumulative impacts on biological resources will be associated with the proposed project's implementation.

7.4.3 Mitigation Measures

The following mitigation will be required to protect nesting birds:

> **Mitigation Measure BIO-1: Nesting Birds.** The Applicant shall ensure that removal of trees occur outside the bird nesting season, which occurs generally February 15 to August 31, is monitored by a qualified biologist to ensure that no impacts to actively nesting birds take place. If any active bird nests are found (i.e., containing at least one nestling or potentially viable egg), protection of the nest and contents should be accomplished by setting up appropriate buffers around any active nesting sites until young fledge or the nest fails.

Significance after Mitigation

Implementation of Mitigation Measure BIO-1 would reduce potential significant impacts to a less than significant level through avoidance of nesting season or avoidance of nesting disturbance.

7.5 Cultural Resources

Data presented in this Cultural Resources section includes a records search conducted by the South Central Coastal Information Center, dated February 8, 2018, and is provided in Appendix D of this IS/MND; Native American Heritage Commission Sacred Lands File Search results provided in Appendix E of this IS/MND; a paleontological resources record search conducted by the Natural History Museum of Los Angeles County, dated February 20, 2018 that is provided in Appendix F of this IS/MND; and, a Geotechnical Comment: Depth to Native Soils, dated June 25, 2018 that is provided in Appendix G of this IS/MND.

7.5.1 Analysis of Environmental Impacts

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

No Impact. The CEQA Guidelines, Section 15064.5, define "historic resources" as resources listed in the California Register of Historical Resources, or determined to be eligible by the California Historical Resources Commission for listing in the California Register of Historic Resources.[6] The criteria for eligibility are generally set by the Historic Sites Act of 1935, which established the National Register which recognizes properties that are significant at the national, state and local levels. To be eligible for listing in the National Register, a structure must demonstrate at least one of the following criteria:

[6] California Public Resources Code Section 5020.1(k), Section 5024.1(g).

1. It is associated with events or patterns of events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States; or
2. It is associated with the lives of persons important to local, California, or national history; or
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values; or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition, unless the property possesses exceptional significance, it must be at least 45 years old to be eligible.

Existing structures on the 1957 Newport Boulevard portion of the site include a two-story building which was constructed in 1998. The building has no known significance or exceptional architectural value and because of its relatively new age, 20 years old, it does not possess any know cultural or historical characteristics that meet the National Register qualifications for a historic resource. The 390 Ford Road parcel contains a trailer supply building constructed in about 1960, making it 58 years old which meets the National Register qualification of at least 45 years old. Past uses of the building include a general automotive repair shop, recreational vehicle dealer, and then the current trailer supply facility since about 1995. The building demonstrates no known significance or exceptional architectural value. It is a one-story stucco structure with a flat roof, typical of the 1960 period and is not a designated historic resource. (Reference Figure 20, 390 Ford Road Building Photo.)

Chapter 11 of the Costa Mesa General Plan contains the Historical and Cultural Resources Element, which identifies 31 historical properties, built environments, and landmarks that have been determined eligible for listing in the City's Local Register of Historic Places. Five of these historical properties have been determined eligible for listing in the National Register of Historic Places and in the California Register of Historical Resources:

- Methodist Church: 420 West 19th Street
- Diego Sepulveda Adobe: 1900 Adams Avenue
- Segerstrom House: 3315 Fairview Road
- Segerstrom Barn: 3315 Fairview Road
- Station Master's House: 2150 Newport Boulevard.

None of the above eligible resources are within the vicinity of the Project site, with the closest being the Methodist Church located 0.3 miles away. The General Plan also identifies sites eligible for Local Register Listing, but none of the listed sites are within the vicinity of the Project site with the closest being the Stater Brothers building located one mile west of the site across Newport Boulevard.

Within a ½ mile radius of the Project site, the South Central Coastal Information Center (SCCIC) records search identified 40 properties listed on the California State Historic Properties Directory (HPD) and 2 properties listed on the California Register of Historical Resources. However, none of these listed properties are located proximate to the Project site. (Reference Section 2.6 Surrounding Uses.) The buildings on the Project site are not designated historic resources and there are no designated resources in the vicinity of the site. Consequently, the Project would not result in an impact to a historical resource.

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SOURCE: Comprehensive Planning Services

Figure 20
390 Ford Road Building Photo

b) Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15067.5 of the CEQA Guidelines?

Less Than Significant with Mitigation Incorporated. California Public Resources Code § 21080.3.1 and Assembly Bill (AB) 52 require formal consultation with the Native American tribal representatives. This consultation process is presented in Section 7.17 of this document. This Section discusses potential impacts to other "unique archaeological resources" which are defined by §15067.5 of the CEQA Guidelines as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

A NAHC Sacred Lands File check of the site was conducted on behalf of the City. As noted in a January 24, 2018 from NAHC to the City, no tribal resources on or in the vicinity of the site were identified, although the general area is considered sensitive for cultural tribal resources.[7] The SCCIC records search did not identify any known archaeological resources within a ½-mile radius from the Project site (Appendix D). Although the site is currently developed, the SCCIC notes that there is the potential for the discovery of prehistoric and historic cultural resources within the project boundaries. Agricultural remains, foundations, trails, hearths, trash dumps, privies, changes in soil colorations, human or animal bone, pottery, chipped or shaped stone, etc. are all potential indications of an archaeological site.

As described in previous sections, the Project site consists of developed land that has been permanently disturbed by the construction of below ground and aboveground improvements (buildings, driveways, streets, hardscapes, and utilities). Given the highly disturbed condition of the site, the potential to impact an unidentified archeological resource is considered low. Proposed excavation during Project construction would be limited to 4-6 feet as needed to lay utilities. During the construction phase of the Project, ground-disturbing activities such as grading or excavation could disturb previously unidentified subsurface archaeological resources. If archaeological resources are encountered, potential significant impacts could occur. To reduce these potential impacts to cultural resources, Mitigation Measure CUL-1 shall be implemented.

c) Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant with Mitigation Incorporated. The Natural History Museum of Los Angeles County records search did not identify any vertebrate fossil localities that lie directly within the immediate vicinity of the Project site. However, fossils have been found nearby with the closest being a vertebrate fossil specimen of undetermined elephant, Proboscidea, near the intersection of 19th Street and Anaheim Avenue, approximately 0.6 miles southwest of the site. Further northeast approximately 1.5 miles from the site, at the SR-55 Freeway near Santa Isabel Avenue, a fossil sea turtle, Cheloniidae, and camel, Camelidae, bones were found. Further to the south-southwest approximately 2 miles from the site, at the Hoag Hospital lower campus parcel near the intersection of Superior Avenue and the Pacific Coast Highway, a specimen of a fossil horse, Equus was found. Northwest approximately 3.5 miles from the site along Adams

[7] Correspondence from Gayle Totton of the Native American Heritage Commission to Minoo Ashabi of the City of Costa Mesa, dated January 24, 2018; available in City of Costa Mesa Community Development Department offices.

Avenue near the top of the mesa bluffs east of the Santa Ana River, fossil specimens of mammoth, Mammuthus, and camel, Camelidae, bones were found.

According to the geologic mapping conducted by the Natural History Museum of Los Angeles County, the entire Project site has surface exposures of marine younger Quaternary Terrace deposits, although vertebrate fossil localities in this area almost always contain terrestrial fossil vertebrates. These deposits typically do not contain significant vertebrate fossils in the very uppermost layers, but they are usually underlain by older Quaternary deposits that frequently do contain significant vertebrate fossils. Average depth to the older Quaternary deposits on site is 3 feet below surface.[8] According to Samuel A. McLeod, Ph.D. of the Natural History Museum of Los Angeles County, the Los Angeles Basin inclusive of the Project area has produced almost no vertebrate fossils within 5 to 6 feet of the natural surface.[9]

The Natural History Museum of Los Angeles County recommends that any substantial excavations on the site should be monitored closely to quickly and professionally recover any fossil remains discovered while not impeding development. Additionally, the museum recommends that sediment samples should be collected and processed to determine the small fossil potential in the site. Any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

Development of the Project would require surficial excavation needed to lay out utility lines and flatten pads. The site is also flat with no identified unique geologic features. However, because the presence of Quaternary soils and the numerous fossil finds in the areas near the Project site, Mitigation Measure CUL-2 is added to the Project and would reduce impacts to less than significant.

d) Would the Project disturb any human remains, including those interred outside of formal cemeteries?

Less Than Significant with Mitigation Incorporated. As noted above, the Project site has been significantly disturbed and developed. Therefore, the potential for the disturbance of any human remains is considered low. However, in the event that human remains are encountered during earth removal or disturbance activities, California Health and Safety Code Section 7050.5 requires that all activities cease immediately and a qualified archaeologist and Native American monitor be contacted immediately. The Coroner would also be contacted pursuant to Sections 5097.98 and 5097.99 of the Public Resources Code relative to Native American remains. If the Coroner determines the human remains are of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission (NAHC). The NAHC would then be required to

8 *Geotechnical Comment, Depth to Native Soils, 1957 Newport Boulevard and 390 Ford Road, Costa Mesa, California*, prepared by Albus-Keefe & Associates, Inc. on behalf of The Olson Company, dated June 25, 2018; available at City of Costa Mesa Community Development Department offices.

9 Email correspondence from Samuel A. McLeod, Ph.D. of the Natural History Museum of Los Angeles County to Joann Lombardo, Comprehensive Planning Services, dated June 25, 2018.

contact the most likely descendant of the deceased Native American, who would then serve as consultant on how to proceed with the remains. Compliance with the established regulatory framework (California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98) and the addition of Mitigation Measure CUL-3 would reduce impacts involving the disturbance of human remains to less than significant levels.

7.5.2 Cumulative Impacts

The impacts on cultural resources are generally site specific. The proposed Project site is already disturbed on no archaeological or paleontological resources have been identified on or immediately adjacent to the site. However, because the potential for these cultural resources exist, Mitigation Measures CUL-1 through CUL-5 are added to the Project. As a result, no significant cumulative impacts on cultural resources.

7.5.3 Mitigation Measures

The following mitigation will be required to protect potential archaeological and paleontological resources:

Mitigation Measure CUL-1: Unanticipated Discovery of Archaeological Resources. If cultural resources are encountered during ground-disturbing activities, work within 50 feet of the find must halt and a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology must be contacted immediately to evaluate the find. If the discovery proves to be significant under CEQA, additional work such as data recovery excavation may be warranted. The on-site monitoring shall end when the project site grading and excavation activities are completed, or sooner if the archaeologist indicates that the site has a low potential for archeological resources. During monitoring, the archaeologist shall complete monitoring logs on a daily basis. The logs will provide descriptions of the daily activities, including construction activities, locations, soil, and any cultural materials identified. Following completion of monitoring, the archaeologist shall prepare a summary memorandum of finds, their significance under CEQA and their disposition.

Mitigation Measure CUL-2: Unanticipated Discovery of Paleontological Resources. The applicant shall retain a qualified paleontologist to observe all grading activities that occur three (3) feet or more below the site's surface. The paleontologist shall be responsible for monitoring all subsequent excavations and professionally recovering and evaluating any fossil remains discovered during excavation, while not impeding development. Additionally, the paleontologist shall collect and process sediment samples to determine the small fossil potential in the site. The paleontologist shall ensure that any fossils recovered are deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

Mitigation Measure CUL-3: Unanticipated Discovery of Human Remains. The discovery of human remains is always a possibility during ground-disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the county coroner must be notified immediately. If the human remains are determined to be prehistoric, the

coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

Significance after Mitigation

With the implementation of Mitigation Measures CUL-1 through CUL-3, project implementation would result in a less-than-significant impact involving an adverse change in the significance of archaeological and unique paleontological resource and human remains.

7.6 Geology and Soils

7.6.1 Analysis of Environmental Impacts

a) Would the Project cause exposure of people or structures to 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), ground-shaking, liquefaction, or landslides?

(i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Map issued by the State Geologist for the area or base on other substantial evidence of a known fault?

No Impact. The City of Costa Mesa is within the seismically active Southern California region that includes five nearby faults, including the Newport-Inglewood, San Joaquin Hills, Whittier, San Andreas, and San Jacinto. Of these faults, only the Newport-Inglewood traverses Costa Mesa. This fault extends over 40 miles from the Santa Monica Mountains to Newport Beach, where it projects offshore for an unknown distance. The fault is seismically active, with numerous recorded earthquakes. The largest and most completely documented was the Long Beach earthquake of 1933 (magnitude 6.3M), which resulted in strong shaking in Costa Mesa and throughout Southern California. The fault traverses the southern portion of Costa Mesa; however, the faults main trace line, classified on the basis of seismic activity, lies 0.3 miles south of the City limits.

The Newport-Inglewood fault is not delineated on the most recent Alquist-Priolo Earthquake Fault Map, and the City of Costa Mesa is not affected by any Alquist-Priolo Earthquake Fault Zone. Consequently, Project impacts related to rupture of a known earthquake fault as delineated on the Alquist-Priolo Earthquake Fault Map would not be significant.

ii) Strong seismic ground shaking?

Less Than Significant Impact. As discussed above, there are five nearby faults in Costa Mesa, with the Newport-Inglewood Fault traversing the southern portion of the City. As required by the California Building Code (CBC), the Project would be required to provide a geotechnical study for review and approval by the City prior to issuance of a building permit. Project construction must then comply with the requirements of the approved geotechnical report and CBC. Compliance with these measures would mitigate potential adverse impacts from strong seismic ground shaking. Consequently, Project impacts related to rupture of a known earthquake fault would be less than significant.

iii) Seismic-related ground failure, including liquefaction?

No Impact. Liquefaction can be defined as the loss of soil strength or stiffness due to a buildup of pore-water pressure during a seismic event and is associated primarily with relatively loose, saturated fine- to medium-grained unconsolidated soils. Seismic ground shaking of relatively loose, granular soils that are saturated or submerged can cause the soils to liquefy and temporarily behave as a dense fluid. The General Plan EIR Figure 4.6-6 Geologic Hazards Map identifies the west and northern areas of the City as susceptible to liquefaction. Within the south and central areas of the City that include the Project site, no liquefaction potential is identified. Consequently, potential Project impacts from seismic-related ground failure include liquefaction are not significant.

iv) Landslides?

No Impact. The General Plan EIR Figure 4.6-6 Geologic Hazards Map identifies areas in the west of the City as susceptible to landslides. Within the balance of the City that includes the Project site, no landslide potential is identified. Consequently, potential Project impacts related to landslides are not significant.

b) Would the Project cause substantial soil erosion or the loss of topsoil?

Less Than Significant Impact. Soil erosion or loss of top soil could occur during construction activities. However, the Project site is currently developed with buildings and paving. The underlying soil has been extensively disturbed to accommodate the existing development on the Project site, and no topsoil exists on the site. The Project would remove all existing buildings and paving and result in additional disturbance. However, Project grading and earthwork activities would be subject to compliance with the CBC which requires erosion control. In addition, Project construction would be required to comply with water quality measures included in Section 8-32, Water Quality, of the Municipal Code, and requirements set forth in the National Pollutant Discharge Elimination System (NPDES) Storm Water General Construction Permit for construction activities. (Reference Section 7.9, Hydrology and Water Quality.) Section 8-32 of the Municipal Code includes conditions and requirements related to the reduction or elimination of storm water runoff pollutants. The NPDES Storm Water General Construction Permit requires preparation of a Storm Water Pollution Prevention Plan

(SWPPP), which would identify specific erosion and sediment control Best Management Practices (BMPs) that would be implemented to protect storm water runoff during construction activities.

Potential soil erosion during Project operation would be mitigated by required compliance with NPDES, including the Project Water Quality Management Plan (WQMP) and Drainage Area Master Plan (DAMP). Consequently, potential Project impacts relative to soil erosion or loss of top soil would be less than significant.

c) Would the Project cause location on a geologic unit or a 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?

No Impact. As discussed above, the Project site is not susceptible unstable soils including landslides or liquefaction. Consequently, Project impacts related to unstable soils, including liquefaction or landslides liquefaction would be less than significant.

d) Would the Project cause location on expansive soil, as defined in California Building Code (2013), creating substantial risks to life or property?

Less Than Significant Impact. Expansive soils are defined as soils possessing clay particles that react to moisture changes by shrinking (when dry) or swelling (when wet). Impacts associated with expansive soils are generally structurally related, including cracked walls and foundations. Compliance with the CBC requirement for a site geotechnical study would ensure that potential expansive soils are identified, and if present remedied as required by the geotechnical study. Consequently, Project impacts related to expansive soils are not significant.

e) Would the Project cause soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact. An existing City sanitary sewer line runs along Newport Boulevard adjacent to the Project site. The Project proposes to connect to the existing sewer line. The Project would not use septic tanks or an alternative waste water disposal system.

7.6.2 Cumulative Impacts

The potential cumulative impacts related to geology and soils are site specific. Furthermore, the analysis presented above determined that the implementation of the Project would not result in impacts to geology or soils. Consequently, no significant cumulative impacts relative to geology or soils are expected to occur as a result of the Project.

7.6.3 Mitigation Measures

The Project would not have significant impacts relative to geology and soils, and no mitigation is required.

7.7 Greenhouse Gas Emissions

Data presented in this Greenhouse Gas Emissions section includes information from the "Newport and Ford Residential Project Focused Air Quality and Greenhouse Gas Analysis, City of Costa Mesa, California, prepared by RK Engineering Group, Inc. May 1, 2018" (Air Quality Impact Study) and it is provided in Appendix A of this IS/MND.

7.7.1 Analysis of Environmental Impacts

a) Generate greenhouse gas emissions either directly or indirectly, that may have a significant impact on the environment.

Less Than Significant Impact. To provide guidance to local lead agencies on determining significance for greenhouse gas (GHG) emissions in their CEQA documents, the SCAQMD has convened a GHG CEQA Significance Threshold Working Group. The SCAQMD is in the process of establishing a threshold for GHG emissions to determine a project's regional contribution toward global climate change impacts for California. On December 5, 2008, SCAQMD adopted a threshold of 3,000 metric tons (Mtons) of CO2e per year for residential and commercial projects for which it is the lead agency under CEQA.

Construction: As presented in the Air Quality Study, the default greenhouse gas modelling (CalEEmod model) estimates that construction would take approximately 291 working days to complete. For the purposes of this analysis, construction is estimated to begin in year 2019 and last approximately 12 months. Construction activities would consume fuel and result in the generation of greenhouse gases. Construction CO2e emissions are as projected using the CalEEmod computer model and included in Table 7 which demonstrates that total construction emissions would be 262.70 Mtons of CO2e, well within the 3,000 Mtons threshold, therefore below a level of significance.

Site Operations: During Project operation, the majority of greenhouse gas emissions, and specifically CO2, is due to vehicle travel and energy consumption. As shown in Table 8, the CalEEmod model projects that combined, mobile, area source, energy, waste, water conveyance and amortized construction emissions would generate 521.97 Mtons of CO2e on an annual basis. This emission level is under the suggested threshold of 3,000 Mtons per year, therefore the impact is less than significant.

TABLE 7
CONSTRUCTION-RELATED GREENHOUSE GAS EMISSIONS (MTONS/YEAR)

	Emissions (MTC02e)[a]		
Activity	**On-site**	**Off-site**	**Total**
Demolition	21.55	9.07	30.62
Site Preparation	1.56	0.08	1.64
Grading	2.55	0.16	2.71
Building Construction	183.55	36.11	219.66
Paving	5.93	0.62	6.55
Architectural Coating	1.28	0.24	1.52
Total	216.42	46.28	262.70
Averaged over 30 years[b]	7.21	1.54	8.76
SCAQMD Threshold	---	---	3,000
Exceeds Threshold?			**No**

[a] $MTCO_2e$ = metric tons of carbon dioxide equivalents (includes carbon dioxide, methane, nitrous oxide, and/or hydroflurocarbons).
[b] The emissions are averaged over 30 years and added to the operational emissions, pursuant to SCAQMD recommendations

TABLE 8
YEARLY OPERATIONAL GREENHOUSE GAS EMISSIONS (MTONS/YEAR)

Source	**Total $MTCO_2e$[a]**
Mobile Source	378.99
Energy Source	96.37
Area Source	9.84
Water	19.22
Waste	8.79
Construction (30-year average)	8.76
Total Yearly Emissions	**521.97**
Threshold	3,000
Exceeds Threshold?	No

[a] MTCO2e = metric tons of carbon dioxide equivalents

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Less Than Significant Impact. The Project is required to comply with the local, regional and State established GHG reduction plans. Locally, the City of Costa Mesa does not currently have formal GHG emissions reduction plans or recommended emissions thresholds for determining significance associated with GHG emissions from development projects. Relevant state and regional GHG reduction plans include:

- Executive Orders S-3-05 and S-30-15: Executive Order S-3-05 was issued by California Governor Arnold Schwarzenegger and established targets for the reduction of greenhouse gas emission at the milestone years of 2010, 2020, and 2050. Statewide GHG emissions must be reduced to 1990 levels by year 2020 and by 80 percent beyond that by year 2050.
- California Global Warming Solutions Act: The California State Legislature adopted the California Global Warming Solutions Act in 2006 (AB32). AB32 establishes the caps on statewide greenhouse gas emissions proclaimed in Executive Order S-3-05 and establishes a regulatory timeline to meet the reduction targets.
- Sustainable Communities and Climate Protection Act: In January 2009, California Senate Bill (SB) 375 went into effect known as the Sustainable Communities and Climate Protection Act (SCAG 2015). The objective of SB375 is to better integrate regional planning of transportation, land use, and housing to reduce sprawl and ultimately reduce greenhouse gas emissions and other air pollutants.
- California Air Resources Board (CARB) Scoping Plan: The CARB Scoping Plan is the comprehensive plan to reach the GHG reduction targets stipulated in AB32. The key elements of the plan are to expand and strengthen energy efficiency programs, achieve a statewide renewable energy mix of 33 percent, develop a cap-and-trade program with other partners in the Western Climate Initiative (includes seven states in the United States and four territories in Canada), establish transportation-related targets, and establish fees (CARB 2008).

The Project proposes a number of GHG reduction features which include:

- Highly efficient Whole House Ventilation Cooling Fan with an ECM motor providing energy efficient cooling for the home with a quieter appliance.
- High efficient furnace – 92% & mid-range efficient Air Conditioner – 14.5 SEER/12.2 EER ratings.
- Highly rated insulation value for the attic – at least an R-38 blown-in insulation on the floor of the attic.
- Cool roof tiles as provided by Eagle Tile.
- Efficient window values: 0.33 U-value and 0.23 SHGC-value.
- 100% LED lighting.

Because a local GHG reduction plan is not in place, the Project and its proposed GHG reduction features are compared in Table 9 below to the CARB Scoping Plan measures applicable to the Project:

TABLE 9
COMPARISON OF PROJECT GHG REDUCTION FEATURES TO CARB SCOPING PLAN MEASURES

Scoping Plan Reduction Measure	Project Consistency
1. California Cap-and-Trade Program Linked to Western Climate Initiative. Implement a broad-based California Cap-and-Trade program to provide a firm limit on emissions. Link the California cap-and-trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater environmental and economic benefits for California. Ensure California's program meets all applicable AB 32 requirements for market-based mechanisms.	**Not applicable.** Although the cap-and-trade system is on-going, the Project is not one targeted by the cap-and-trade system regulations, and, therefore, this measure does not apply to the project.
2. California Light-Duty Vehicle Greenhouse Gas Standards. Implement adopted standards and planned second phase of the program. Align zero- emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.	**Not directly applicable.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. However, the standards would be applicable to the light-duty vehicles that would access the Project site.
3. Energy Efficiency. Maximize energy efficiency building and appliance standards; pursue additional efficiency including new technologies, policy, and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California.	**Consistent.** This is a measure for the State to increase its energy efficiency standards in new buildings. The project is required to build to the latest standards and would increase its energy efficiency through compliance. As indicated above, this will include Highly Efficient cooling and ventilation, cooling roof tiles and energy efficient windows.
4. Renewable Portfolio Standard. Achieve 33 percent renewable energy mix statewide. Renewable energy sources include (but are not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.	**Not applicable.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. Southern California Edison is required to increase its percent of power supply from renewable sources to 33 percent by the year 2020 pursuant to the Renewable Portfolio Standard. The project would purchase power from more renewable sources and could install renewable solar power systems that will assist the utility in achieving the mandate.
5. Low Carbon Fuel Standard. Develop and adopt the Low Carbon Fuel Standard.	**Not directly applicable.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. All fuel consumption associated with the project's construction and operational activities would use fuel that meets these standards.
6. Regional Transportation-Related Greenhouse Gas Targets. Develop regional greenhouse gas emissions reduction targets for passenger vehicles. This measure refers to SB 375.	**Not applicable.** The project is not related to developing GHG emission reduction targets.
7. Vehicle Efficiency Measures. Implement light-duty vehicle efficiency measures.	**Not directly applicable.** The standards would be applicable to the light-duty vehicles that would access the Project site.
8. Goods Movement. Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.	**Not applicable.** The Project does not propose any changes to maritime, rail, or intermodal facilities or forms of transportation.
9. Million Solar Roofs Program. Install 3,000 Megawatts of solar-electric capacity under California's existing solar programs.	**Consistent.** This measure is to increase solar throughout California, which is being done by various electricity providers and existing solar programs. The Project would comply with Title 24, which requires new buildings to be "solar ready." The Project would not preclude the implementation of this strategy.
10. Medium/Heavy-Duty Vehicles. Adopt medium and heavy-duty vehicle efficiency measures.	**Not directly applicable.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. The standards phase in over model years 2014 through 2018 and are applicable to the vehicles that access the Project site.

Scoping Plan Reduction Measure	Project Consistency
11. Industrial Emissions. Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive CH4 emissions and reduce flaring at refineries.	**Not applicable.** This measure would apply to the direct GHG emissions at major industrial facilities emitting more than 500,000 MT CO_2e per year. The Project is not an industrial land use.
12. High Speed Rail. Support implementation of a high-speed rail system.	**Not applicable.** This is a statewide measure that cannot be implemented by a project applicant or lead agency. The Project would not preclude the implementation of this strategy.
13. Green Building Strategy. Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.	**Consistent.** The Project would comply with the California Energy Code, and thus incorporate applicable energy efficiency features designed to reduce project energy consumption.
14. High Global Warming Potential Gases. Adopt measures to reduce high global warming potential gases.	**Not applicable.** This measure is applicable to the high global warming potential gases that would be used by sources with large equipment (such as in commercial refrigerators) that are not part of this residential Project.
15. Recycling and Waste. Reduce CH4 emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero waste.	**Consistent**. The Project would utilize City of Costa Mesa recycling services.
16. Sustainable Forests. Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation.	**Not applicable.** The Project site is not forested; therefore, no preservation is possible.
17. Water. Continue efficiency programs and use cleaner energy sources to move and treat water.	**Consistent.** The Project would comply with the California Energy Code and the California Updated Model Landscape Ordinance. With adherence to these regulations, the project will consume energy and water in an efficient manner.
18. Agriculture. In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020.	**Not applicable.** The Project site is not designated or in use for agriculture purposes. No grazing, feedlot, or other agricultural activities that generate manure occur on-site or are proposed to be implemented by the project.

SOURCE of ARB Scoping Plan Reduction Measures: California Air Resources Board 2008.

As shown in Table 9, the Project is consistent with the applicable strategies and would not conflict with the recommendations of AB 32 in achieving a statewide reduction in greenhouse emissions. The impact would be less than significant. Further, like air quality impacts, projects that generate de minimus levels (i.e., less than 3,000 Mtons of CO2e per year) and don't result in a significant impact or can be mitigated to less than significant would be deemed to be in compliance of the local policies with respect to GHG. As shown in Table 8 above, the operation of the Project is anticipated to result in about 521.97 Mtons of CO2e on an annual basis and remains less than the 3,000-Mton per year threshold suggested by the SCAQMD, which further supports the finding that the Project impact is less than significant.

7.7.2 Cumulative Impacts

The analysis indicated that the implementation of the proposed Project would not result in any significant impacts relative to greenhouse gas emissions. Consequently, no significant cumulative impacts relative to no greenhouse gas mitigation is expected to occur as a result of the Project.

7.7.3 Mitigation Measures

The Project would not have significant impacts relative to greenhouse gas emissions, and no mitigation is required.

7.8 Hazards and Hazardous Materials

7.8.1 Analysis of Environmental Impacts

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

Less Than Significant with Mitigation Incorporated. Residential development is not typically associated with the transport, use or disposal of hazardous materials. However, past uses or structures on the site may contain hazardous materials. To determine the condition of the Project site, Phase I Environmental Site Assessments were prepared for each of the three properties that comprise the site.[10] The Phase I Assessments identified the following environmental concerns in connection with the Project site and Project construction:

Asbestos Containing Materials ("ACM"). ACM can be found in many building applications, including sprayed-on or blanket-type insulation, pipe wraps, mastics, floor and ceiling tiles, wallboard, mortar, roofing materials, and a variety of other materials commonly used in construction. The greatest asbestos-related human health risks are associated with friable asbestos, which is ACM that can be reduced to powder by hand pressure. Friable asbestos can become airborne and be inhaled and has been associated with specific types of respiratory disease. The manufacturing and use of asbestos in most building products was curtailed during the late 1970s. Because the existing two-story building on the 1957 Newport Boulevard property was constructed in 1998 after ACM use was curtailed, the presence of ACM on that property is unlikely. However, the 390 Ford Road existing trailer supply building was constructed in about 1960 prior to ACM curtailment, and therefore may contain ACM. Release of ACM could be a potentially significant effect on workers during construction activities at the site. Within the southern California region inclusive of Costa Mesa, clean-up of ACM is regulated by the SCAQMD. Pursuant to SCAQMD regulations, a pre-demolition asbestos survey would be required prior to demolition activities on the 390 Ford Road property. Any identified

[10] *Phase 1 Environmental Site Assessment, 1957* and *1963 Newport Boulevard, Costa Mesa, California 92627*, prepared by Stantec Consulting Services on behalf of The Olson Company, September 7, 2017; *Phase 1 Environmental Site Assessment, 390 Ford Road, Costa Mesa, California 92627*, prepared by Stantec Consulting Services on behalf of The Olson Company, October 27, 2017; available at City of Costa Mesa Community Development offices.

ACM should be removed from the site by a licensed asbestos abatement contractor in accordance with all applicable regulations. In addition, required notices should be provided to tenants, employees and contractors. Mitigation Measure HAZ-1, below, is added to require pre-demolition asbestos surveys be conducted consistent with SCAQMD requirements, and any identified ACM is removed from the site by a licensed asbestos abatement contractor in accordance with all applicable regulations.

Lead-Based Paint ("LBP"). Up until the 1970s, lead was a common additive to household paint. In 1971, the first federal law restricting use of LBD was enacted. This law has been subsequently amended and expanded. Health risks associated with lead poisoning from neurological disorders, stomach disorders, high blood pressure and death. Because the existing two-story building on the 1957 Newport Boulevard property was constructed in 1998 after LBP use was curtailed, the presence of LBP on that property is unlikely. However, the 390 Ford Road existing trailer supply building was constructed in about 1960 prior to LBP curtailment, and therefore may contain LBP. Release of LBP could be a potentially significant effect on workers during construction activities at the site. LBP testing should occur, and any LBP should be removed from the site in accordance with all applicable regulations. Mitigation Measure HAZ-2, below, is added to require pre-demolition lead-based paint surveys be conducted consistent with applicable regulations, and any identified LBP is removed from the site by a licensed LBP abatement contractor in accordance with all applicable regulations.

Petromat. Asphalt is present at the site. Stress-absorbing fabrics, which are commonly known as "Petromat," are sometimes placed between asphalt layers. These fabrics can be coated with mastic or a tack adhesive that may contain asbestos. According to the Phase I Assessments, no asphalt occurs on the 1957 and 1963 Newport Boulevard, but asphalt is present on the 390 Ford Road property. A Petromat assessment was conducted on the Ford property site including asphalt sampling, and no Petromat was found and the property was determined to be clear of Petromat.[11] Petromat could also be present on the portion of Ford Road that is included in the Project site. Because the road is currently used as a public street, no sampling was conducted. Mitigation Measure HAZ-3 is added to the Project to require a Petromat assessment of the road prior to demolition. Should Petromat be found on the road, removal and disposal would be required consistent with SCAQMD requirements, and any identified ACM is removed from the site by a licensed asbestos abatement contractor in accordance with all applicable regulations.

With inclusion of Mitigation Measures HAZ-1, HAZ-2 and HAZ-3, potential Project impacts regarding on-site hazardous materials would be reduced to less than significant levels.

[11] *Petromat® Assessment Memorandum- 1957* and 1*963 Newport Boulevard, and 390 Ford Road, Costa Mesa, California*, prepared by Stantec Consulting Services on behalf of The Olson Company, November 7, 2017; available at City of Costa Mesa Community Development offices.

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

Less Than Significant with Mitigation Incorporated. As a residential development, the Project is not associated with the transport or use of hazardous materials. However, the existing 390 Ford Road building is associated with potential ACM and LBP and paving on Ford Road could contain Petromat with asbestos. As discussed in Section 7.8.a, above, these potential hazards would be mitigated through Mitigation Measure HAZ-1, HAZ-2 and HAZ-3 below. With inclusion of these measures, potential Project impacts regarding significant hazards from the release of hazardous materials would be reduced to less than significant levels.

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

Less Than Significant with Mitigation Incorporated. The closest school to the Project site is the Everett A. Rea Elementary School located 0.9 miles northwest of the site outside the one-quarter mile radius. As discussed above, the proposed residential Project is not associated with the transport or use of hazardous materials. However, an existing building and street paving on the Project site are associated with elevated levels of ACM, LBP or Petromat. These potential hazards would be mitigated through Mitigation Measure HAZ-1, HAZ-2 and HAZ-3 below. With inclusion of these measures, Project impacts regarding emitting hazardous emissions, materials, substances or waste within a close radius of a school would be reduced to less than significant levels.

d) Would the Project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. The Phase I assessments conducted for the Project site do not identify the Project site as being listed as a hazardous materials site pursuant to Government Code Section 65962.5. This finding is supported by the state of California Department of Toxic Substances Envirostar website.[12] Consequently, the Project would not create a significant hazard to the public or the environment pursuant to Government Code Section 65962.5.

e) Would the Project be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard for people residing or working in the Project area?

No Impact. The nearest airport to the Project site is the John Wayne Airport, located approximately 4 miles northeast. As noted in the General Plan EIR (Page 4.8-14), only

[12] http://www.envirostor.dtsc.ca.gov/public/mapfull.asp?global; accessed March 2, 2018.

areas within the northern portion of the City immediately adjacent to the airport are within the Safety Compatibility Zones of the airport, as designated in the Airport Environs Land Use Plan for John Wayne Airport (AELUP) (OC ALUC 2008). The Project site is not located within the airport safety zone and is more than 2 miles away. Consequently, the Project would not result in significant impacts related to airport safety hazards.

f) For a project within the vicinity of a private airstrip, would the Project result in a safety hazard for people residing or working in the Project area?

No Impact. The Project site is not located within the vicinity of a private air strip. Consequently, the Project would not result in an impact related to a safety hazard from a private airstrip.

g) Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. The Costa Mesa Emergency Operations Plan (EOP) serves as the City's primary emergency preparedness and response plan.[13] The EOP provides guidance during emergency situations associated with natural disasters, technological incidents, and nuclear defense operations. The EOP analyzes potential large-scale disasters that require a coordinated and immediate response and considers the City's evacuation routes in its planning.

The Project would not physically interfere with an adopted emergency response plan or emergency evacuation plan. General Plan Safety Element Figure S-9, Public Safety Facilities and Emergency Evacuation Routes, illustrates the City's emergency evacuation routes and indicates that the nearest designated emergency evacuation routes to the Project site are Harbor Boulevard and 19th Street, located to the west of the site.

As proposed, the Project would close Ford Road at Newport Boulevard, diverting traffic to the nearby parallel streets, primarily West 19th Street south of Ford Road and West Bay Street north of Ford Road. To assess the impact of the road closure on the adjacent streets, a Traffic Impact Analysis, prepared by LSA, July 2018, was conducted on behalf of the Project Applicant and subsequently, reviewed and accepted by the City Public Works Director.[14] (Reference Appendix G and discussion in Section 7.16.a.) The Traffic Impact Analysis found that the road closure would not significantly impact City streets and including nearby evacuation routes on 19th Street and Harbor Boulevard. Consequently, Project impacts related to impairment or interference with the City's emergency response or evacuation plans would be less than significant.

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13 http://www.costamesaca.gov/ftp/council/agenda/2013/2013-07-02/CC-8-Attachment-3.pdfEmergency Operations Plan (EOP); accessed March 2, 2018.

14 Meeting with Haggai Mazler, The Olson Company, and the City Public Works Director Raja Sethuraman, December 5, 2017.

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

No Impact. As discussed in the General Plan Safety Element (Page S-22), no part of Costa Mesa is listed as a high fire area in either state of California Department of Forestry and Fire Project maps or in local maps. The Project site and surroundings are urbanized, and no wildlands exists within proximity to the Project site. Consequently, the Project would not expose people or structure to a significant risk from wildland fires.

7.8.2 Cumulative Impacts

The Project could disturb potential hazardous materials that were used during construction of an existing building and road on the Project site. Mitigation Measures HAZ-1, HAZ-2 and HAZ-3 are added to the Project to reduce potential impacts related to hazardous materials to less than significant levels. As a result, no significant cumulative impacts relative to hazards or hazardous materials will be associated with the proposed Project implementation.

7.8.3 Mitigation Measures

The following mitigations will be required to mitigate potential Project impacts related to hazards or hazardous materials to less than significant levels:

Mitigation Measure HAZ-1: The Applicant shall be responsible for conducting the following measure and providing evidence of such and proper disposal to the Chief Building Official prior to any clearing or demolition permits being issued for the Project site: a pre-demolition asbestos material survey shall be performed on the existing 390 Ford Road building as required by the South Coast Air Quality Management District, and any identified asbestos shall be removed from the site by a licensed asbestos abatement contractor in accordance with all applicable regulations.

Mitigation Measure HAZ-2: The Applicant shall be responsible for conducting the following measure and providing evidence of such and proper disposal to the Chief Building Official prior to any clearing or demolition permits being issued for the Project site: a pre-demolition lead based paint survey shall be performed of the existing 390 Ford Road building consistent with applicable regulations, and any identified lead based paint shall be removed from the site by a licensed abatement contractor in accordance with all applicable regulations.

Mitigation Measure HAZ-3: The Applicant shall be responsible for conducting the following measure and providing evidence of such and proper disposal to the Chief Building Official prior to any clearing or demolition permits being issued for the Project site: a pre-demolition Petromat survey of the asphalt within the portion of Ford Road included in the Project site. The survey shall be performed as required by the South Coast Air Quality Management District, and any identified asbestos shall be removed from the site by a licensed asbestos abatement contractor in accordance with all applicable regulations.

Significance after Mitigation

With the implementation of Mitigation Measures HAZ-1 through HAZ-3, project implementation would result in a less-than-significant impact related to the release of hazardous materials.

7.9 Hydrology and Water Quality

Data presented in this Hydrology and Water Quality section includes information from the Preliminary Hydrology Report included in Appendix H of this IS/MND.

7.9.1 Analysis of Environmental Impacts

a) Would the Project violate any water quality standards or waste discharge requirements?

Less Than Significant Impact. Pursuant to the federal Water Pollution Control Act (also known as the Clean Water Act [CWA]) and the National Pollution Discharge Elimination System (NPDES), new developments in the City are required to include the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) for the construction phase of a project, and a Water Quality Management Plan (WQMP) for the operation phase of a project.[15] The City of Costa Mesa is in the jurisdictional area of the Santa Ana Regional Water Quality Control Board (RWQCB). WQMP requirements within the RWQCB were further clarified by the County of Orange Drainage Area Management Plan (DAMP) which requires the preparation and implementation of WQMPs for development projects. Consistent with the DAMP, the Applicant would be required to submit a SWPPP prior to Project grading and construction and has submitted for City review and approval a Preliminary Project Water Quality Management Plan (Project WQMP) and Preliminary Hydrology Study for the proposed Project.[16]

As described in the Project WQMP and Preliminary Hydrology Study, the existing site is generally flat with a grade of 1% to 2% and sheet flows to the west. Existing site drainage is collected within Ford Road and is conveyed in a westerly direction, ultimately draining into a catch basin at the intersection of Ford Road and Harbor Boulevard.

The Project would retain the same drainage pattern as the existing condition and would install a series of best management practices (BMPs) to ensure that the ongoing operation and maintenance of the Project is consistent with the DAMP. The initial drainage would be collected in a proposed area drain system to deliver the required 3,472 ft "Design Capture Volume" to a proposed infiltration trench. Storm flows will then bubble up at the Project entry and continue to surface drain westerly in Ford Road.

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15 General Plan EIR Section 5.8.

16 *"Preliminary Water Quality Management Plan (WQMP) Tract No. 18156, Newport Boulevard & Ford Road, Costa Mesa, County of Orange"*, prepared by Alan R. Short, P.E. January 23, 2018; *"Preliminary Hydrology Study for City of Costa Mesa Tentative Tract No. 18156, 1957 Newport Boulevard"*, prepared by Alan R. Short, P.E. June 7, 2018; available at the City of Costa Mesa Community Development Department offices.

The immediate downstream storm drain facilities consist of reinforced concrete pipes (RCP). The "Susceptibility Analysis - Santa Ana River" map, updated February 2013, indicates that this property is not subject to hydromodification. A chambered infiltration trench is proposed for water quality purposes.

Through these BMPs, the initial drainage would be collected in the proposed area drain system to deliver the required 3,472 feet "Design Capture Volume" to the proposed infiltration trench. Storm flows would then bubble up at the Project entry and continue to surface drain westerly in Ford Road. This system would result in peak flow discharges for Project site Pre- and Post-Development flows as follows:

	Pre-Development (cubic feet per second)	Post-Development (cubic feet per second)
10-Year	3.90	4.79
25-Year	4.74	5.78
100-Year	6.15	7.43

Because the proposed development has increased storm flows after development due to the increased imperviousness of the site, the City has requested the increased runoff be mitigated on site. An analysis of this 25-year increase indicates that the Project would need to store 188 cubic feet of runoff. This volume is significantly less than the infiltration volume, therefore the infiltration system will offset the increase in storm flow exiting the Project. The Preliminary Hydrology Study calculates that this additional flow volume would be captured onsite flows through the infiltration BMPs described above, including 6 drywells and 200 linear feet of 48” HDPE pipe. Consequently, the BMPs would capture post-development flows and offset the increase in storm flow exiting the Project. The required preparation and implementation of the SWPPP and WQMP would reduce potential Project violations of water quality standards and waste discharge requirements to less than significant levels.

b) Would the Project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned used for which permits have been granted)?

No Impact. The Project WQMP identifies groundwater depth at the Project site ranging from about 22.5 to 51.5 feet below the existing ground surface. Through the use of BMPs described in Section 7.9.a above, the Project would minimize the impervious area to 73.6%. This design would allow storm water to flow underground replenishing existing groundwater levels. Consequently, the Project would not substantially deplete groundwater supplies or interfere with groundwater recharge.

c) Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on-or off-site?

No Impact. There are no streams or rivers in the vicinity of the Project site. The site is relatively flat and currently developed with buildings and paving. As described in Section 7.9.a, above, the existing site is generally flat and sheet flows to the west. The Project would retain the existing drainage flow but would capture and filter the runoff water in compliance with the Project WQMP. Consequently, no significant Project impacts would occur relative to substantial alteration of the existing drainage pattern of the site or area or substantial erosion.

d) Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site?

No Impact. As discussed in Section 7.9.b, the Project would retain the existing drainage flow and would capture and filter the runoff water in compliance with the Project WQMP, ensuring that post-development flows do not exceeding existing flows. The Project also would be designed to minimize impervious surfaces on the site to 73.6%. Consequently, the Project would not alter the existing drainage pattern of the site or area and would not alter the course of a stream or river.

e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

No Impact. As discussed in Sections 7.9.b and 7.9.d, the Project would retain the existing drainage flow but would capture and filter the runoff water in compliance with the Project WQMP. The Project also would be designed to minimize impervious surfaces on the site to 73.6%. Proposed drywells and HDPE pipes would filter and detain Project runoff before releasing the surface flows on to Ford Road west of the Project site. Consequently, the Project would not create or contribute to runoff water that in excess of the capacity of the stormwater drainage systems or the substantial addition of polluted runoff would be reduced to less than significant levels.

f) Would the Project otherwise substantially degrade water quality?

Less Than Significant Impact. As discussed in Section 7.9.a, the required preparation and implementation of the SWPPP and WQMP would reduce potential Project impacts regarding substantial degradation of water quality to less than significant levels.

g) Would the Project place housing within a 100-year flood hazard area as mapped on federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No Impact. The Phase I Site Assessments for the Project reports that the site is not within a 100- year or 500-year flood plain, with no surface body of water within one mile of the site. Consequently, the Project would not place housing within a 100-year flood hazard area.

h) Would the Project place within a 100-year flood hazard area structures which would impede or redirect flood flows?

No Impact. As discussed above, the Project site is not within a flood hazard area. Consequently, the Project would not place structures within a 100-year flood hazard area.

i) Would the Project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of levee or dam?

No Impact. As discussed in the General Plan Safety Element (Page S-13), the Santiago Creek Dam and Prado Dam provide flood protection for numerous cities within Orange County, including Costa Mesa. Prado Dam is located at the border of Orange and Riverside Counties, approximately 30 miles from Costa Mesa. The Santiago Creek Dam, located near Irvine, is approximately 15 miles from the City. In the event of a failure at either dam, portions of Costa Mesa are susceptible to potential flooding. These dam inundation areas are primarily located in the northern and western portions of the City. As illustrated in General Plan Safety Element Figure S-6, Dam Inundation Areas, the inundation areas end about 3 miles north of the Project site. Consequently, the Project would not expose people or structures to risks from flooding or inundation.

j) Would the Project be located in an area susceptible to inundation by seiche, tsunami, or mudflow?

No Impact. A tsunami is a tidal wave or sea wave caused by seismic activity. The Project site is located about 4 miles inland from the Pacific Ocean and is not subject to tsunamis. A seiche involves the oscillation of a body of water in an enclosed basin, such as a reservoir, storage tank, or lake. As discussed in the General Plan Safety Element (Page S-12), there are not any large bodies of water within Costa Mesa and the location of high bluffs adjacent to Newport Bay reduce the possibility of damage from seiche effects. Mudflows are caused by flooding of slopes or unstable soils. There is no surface water nor liquefaction hazard areas within several miles of the Project site removing the potential risk from mudflow. Consequently, the Project would not result in impacts relative to inundation by seiche, tsunami or mudflow.

7.9.2 Cumulative Impacts

The required preparation and implementation of the SWPPP and WQMP would reduce potential Project impacts to water quality. As a result, no significant cumulative impacts relative to hydrology and water quality will be associated with the proposed project's implementation.

7.9.3 Mitigation Measures

The analysis indicated that the implementation of the proposed Project would not result in any significant impacts on hydrology or water quality. As a result, no mitigation is required.

7.10 Land Use and Planning

7.10.1 Analysis of Environmental Impacts

a) Would the Project physically divide an established community?

No Impact. The Project site is currently developed with a mix of buildings, storage units (conex boxes), and truck and RV parking. Surrounding uses include lodging, two mobile home park, and both single family and multifamily housing. The predominant land use north and west of the site is residential. By converting the storage and RV parking uses on the site to townhome residential, the Project would aesthetically and functionally expand the surrounding residential community. Consequently, the Project would not physically divide an established community.

b) Would the Project conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to, a general plan, proposed project, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

Less Than Significant Impact. The Project requires approval of a General Plan Amendment to change the land use designation from General Commercial to High Density Residential. The Project proposes to convert the existing 1.86-acre General Commercial site to High Density Residential with a zoning designation of General Mixed-Use PDR – HD (Planned Development Residential – High Density). This proposed transition to residential is consistent with the goals and policies of Costa Mesa's Housing Element, specifically:

Goal HOU-1: "Preservation and Enhancement"

Policy HOU-1.1 "Develop standards and/or guidelines for new development with emphasis on site (including minimum site security lighting) and building design to minimize vulnerability to criminal activity."

Compatible: The Project design would minimize criminal activity by restricting full vehicular access on Ford, with limited right in access from Newport Boulevard, and putting 'eyes on the street' to minimize vulnerability to criminal activity.

Policy HOU-1.2 "Encourage existing stabilized residential neighborhoods, including but not limited to mobile home parks and manufactured home parks, from the encroachment of incompatible or potentially disruptive land uses and/or activities.

Compatible: The Project would provide a more compatible use with the interior neighborhood along Ford Road than the existing commercial storage uses. The

proposed site design would relate well to the existing attached homes located on Ford and the mobile home park uses located to the northwest.

Policy HOU-1.3 "Actively enforce existing regulations regarding derelict or abandoned vehicles, outdoor storage, and substandard or illegal buildings and establish regulations to abate weed-filled yards when any of the above is deemed to constitute a health, safety or fire hazard."

Compatible: The Project would establish a Homeowner Association (HOA) to enforce the rules and regulations within the project area, to ensure that landscape maintenance, parking, storage, and other requirements are enforced.

Policy HOU-1.5 "Install and upgrade public service facilities (streets, alleys, and utilities) to encourage increased private market investment in declining or deteriorating neighborhoods."

Compatible: The Applicant would use private market resources to invest in the Project site, upgrading the area and creating a new residential community from two smaller sites and an abandoned street.

Policy HOU-1.7 "Minimize the displacement of existing residences due to public projects."

Compatible: The Project would not displace any residents, as it serves to replace a functionally obsolescent RV and public storage use with new homes.

Goal HOU-3 "Provision of Adequate Sites"

Policy HOU-3.1 "Encourage the conversion of existing marginal or vacant motels, commercial, and/or industrial land to residential, where feasible and consistent with environmental conditions that are suitable for new residential development."

Compatible: The Project would replace existing marginal temporary storage and RV parking areas with a new architecturally cohesive townhome community, adding 38 residential units to the Costa Mesa housing market.

This proposed transition to residential is also consistent with the goals and policies of Costa Mesa's Land Use Element, specifically:

Goal LU-1 "A Balanced Community with a Mix of Land Uses to Meet Resident and Business Needs"

Policy LU-1.3 "Strongly encourage the development of residential uses and owner-occupied housing (single-family detached residences, condominiums, townhouses) where feasible to improve the balance between rental and ownership housing opportunities."

Compatible: The proposed Project 38 townhomes would serve to provide more ownership opportunities, which would enhance stability in terms of property maintenance and residents' investment in their neighborhoods and the community.

Goal LU-2: "Preserve and Protect Residential Neighborhoods"

Policy LU-2.3 "Develop standards, policies, and other methods to encourage the grouping of individual parcels to eliminate obsolete subdivision patterns and to provide improved living environments while being consistent with the neighborhood character of the surrounding community."

Compatible: The proposed townhomes would consolidate three parcels (and a street abandonment) to eliminate obsolete subdivision patterns and to provide improved living environments while being consistent with the neighborhood character of the surrounding community.

Policy LU-2.6 "Encourage increased private market investment in declining or deteriorating neighborhoods."

Compatible: The Project would revitalize the Newport Boulevard and Ford Road area by providing private market investment to currently minimally maintained properties.

Goal LU-3 "Development that Maintains Neighborhood Integrity and Character"

Policy LU-3.1 "Protect existing stabilized residential neighborhoods, including mobile home parks (and manufactured housing parks), from the encroachment of incompatible or potentially disruptive land uses and/or activities. Encourage increased private market investment in declining or deteriorating neighborhoods."

Compatible: The Project would facilitate protection of adjacent residential uses, by replacing the incompatible commercial facilities with a residential use generating less potential traffic than a new commercial project and buffering the neighborhood from through traffic by closing Ford Road.

Policy LU-3.5 "Provide opportunities for the development of well-planned and designed projects which, through vertical or horizontal integration, provide for the development of compatible residential, commercial, industrial, institutional, or public uses within a single project or neighborhood."

Compatible: The Project is a cohesively planned development that proposes a pedestrian scale to the street and pedestrian connections to surrounding areas. The proposed homes would be separated from the existing residential uses on the west with a public alley, and the mobile home park and motel parking with parking and open space.

Policy LU-3.8 "Ensure that new development reflects existing design standards, qualities, and features that are in context with nearby development and surrounding residential neighborhoods."

Compatible: The proposed development would be cohesively designed, siding onto the existing lodging east and west of the site and orienting its entry to the adjacent residential community west of the Project site.

City Municipal Code Chapter 13-29 establishes the planning application review process for the proposed Project applications. The required findings for a proposed rezone is consistency with the General Plan. Because the Project proposes to change both the General Plan Land Use Map and the Zoning Map to a high density residential zone, consistency between the General Plan and zoning would be maintained. Consequently,

Project conflicts with an applicable land use plan, policy or regulation would be less than significant.

c) Would the Project conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. As discussed in Section 7.4.f, above, the City does not participate in a habitat conservation plan. Consequently, the Project would not conflict with provisions of an adopted habitat conservation plan or natural community conservation plan.

7.10.2 Cumulative Impacts

Converting the Project site to a mixed-use designation could encourage adjacent commercial properties to similarly convert. However, each proposed General Plan Land Use Map and Zoning Map amendment would be subject to its own review including review under CEQA. Consequently, cumulative impacts relative to land use and planning would be less than significant.

7.10.3 Mitigation Measures

The analysis determined that the proposed Project would not result in any significant adverse impacts regarding land use and planning. Consequently, no mitigation is required.

7.11 Mineral Resources

7.11.1 Analysis of Environmental Impacts

a) Would the Project 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 General Plan Safety Element Figure S-1, Geologic Map, identifies portions of the City that overlay the West Newport Oil Field, which is south of 17th Street between Pomona and Westminster Avenues. Currently, the only active oil wells in Costa Mesa operate west of Whittier Avenue between 17th and 19th Streets. Peat deposits are located adjacent to the Santa Ana River and in the vicinity of the Upper Newport Bay. No oil, peat or other mineral resources are within the vicinity of the Project site. Consequently, the Project would not result in the loss of a known mineral resource.

b) Would the Project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, proposed project, or other land use plan?

No Impact. No oil, peat or other mineral resources are within the vicinity of the Project site. Consequently, the Project would not result in the loss of a locally important mineral resource recovery site.

7.11.2 Cumulative Impacts

The analysis determined that the proposed Project would not result in any significant adverse impacts to mineral resources. Consequently, no significant adverse cumulative impacts to mineral resources would occur as a result of the project.

7.11.3 Mitigation Measures

The analysis indicated that the implementation of the proposed Project would not result in any significant impacts on mineral resources. As a result, no mitigation is required.

7.12 Noise

Data presented in this Noise section is based on the "Noise Impact Analysis Newport and Ford Residential, City of Costa Mesa, California" (Noise Impact Analysis), prepared by Giroux & Associates, June 22, 2018, contained as Appendix F.

7.12.1 Analysis of Environmental Impacts

a) Would the Project expose persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant Impact within Mitigation Incorporated.

Noise Measurements

Since the human ear is not equally sensitive to all sound frequencies within the entire auditory spectrum, human response is factored into sound descriptions by weighting sounds within the range of maximum human sensitivity more heavily in a process called "A-weighting," written as dB(A). Any further reference in this discussion to decibels written as "dB" should be understood to be A-weighted. Time variations in noise exposure are typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called LEQ), or alternately, as a statistical description of the sound pressure level that is exceeded over some fraction of a given observation period.

Typical human hearing can detect changes in sound levels of approximately 3 dBA under normal conditions. Changes of 1 to 3 dBA are detectable under quiet, controlled conditions, and changes of less than 1 dBA are usually indiscernible. A change of 5 dBA is discernable to most people in an exterior environment while a change of 10 dBA is perceived as a doubling (or halving) of the noise. Because people are generally more sensitive to unwanted noise intrusion during the evening and at night, state law requires that, for planning purposes, an artificial dB increment be added to quiet time noise levels in a 24-hour noise descriptor called the Ldn (day-night) or the Community Noise Equivalent Level (CNEL). The CNEL metric has gradually replaced the Ldn factor, but the two descriptors are essentially identical.

Noise Standards

The General Plan Noise Element contains noise/land use compatibility standards for various classes of land uses. A noise environment of 65 dBA CNEL is the exterior noise-land use compatibility guideline for usable space (balconies, patios, etc.), for multi-family dwelling units. Levels of up to 70 dB CNEL are "conditionally acceptable" after an analysis of noise reduction is made. An interior CNEL of 45 dB is mandated by the State of California Noise Insulation Standards (CCR, Title 24, Part 6, Section T25-28) for multiple family dwellings. Conventional construction, but with closed windows and fresh air supply systems or air conditioning normally suffice to achieve acceptable interior noise levels.

For "stationary" noise sources such as mechanical equipment (pool pumps, air conditioners, etc.), the City has established noise performance standards designed to not adversely impact adjoining residential uses. These standards contained in Municipal Code Chapters 13-280 and 13-281 are set at a level not to be exceeded for more than 30 minutes per hour. The basic standards are as follows for single family dwellings depending on the time of day:

Time	Exterior*	Interior
7 a.m. to 11 p.m.	55 dB	55 dB
11 p.m. to 7 a.m.	50 dB	45 dB

*private yards or balconies deeper than 6 feet

The Municipal Code also regulates construction noise, permitting construction activities only between the hours of 7:00 AM and 7:00 PM Monday through Friday, and 9:00 AM and 6:00 PM Saturday.

Baseline Noise

To determine existing noise levels in the Project area, Giroux & Associates conducted baseline noise measurements at the two locations shown in **Figure 21**. Meter 1 was located on Ford Road near the SR-55. The late morning Leq at this location was equivalent to an existing CNEL of 67 or 68 dB. Meter 2 was also located on Ford Road but farther setback (west) from the SR-55. Meter 2 is representative of noise levels towards the rear of the Project site and demonstrates an existing that CNEL of 60 dB.

In the project vicinity, the SR-55 Freeway carries around 92,000 vehicles per day. The freeway ends just south of the site at 19th Street and turns into a local roadway. The area is often backed up with traffic and vehicular speeds are very low as cars queue up for the traffic light on 19th Street. The freeway is generally recessed from the site, ranging from at grade at the southern site perimeter, -5 feet in the middle and -10 feet at the north end of the shared property line. The northbound lanes of the SR-55 are separated from the southbound lanes by a wide berm. For the Project site, the berm assists in masking traffic noise from the northbound lanes. Because monitoring was conducted at ground level and

the proposed structures would be three stories, upper levels would be exposed to higher noise than ground floor units. To adjust for the difference, the Noise Impact Analysis added +3 dB decibels to ground level noise, which in a logarithmic calculation signifies a doubling of traffic noise. Therefore, a 68 dB CNEL ground level and 71 dB CNEL upper level traffic noise loadings were assumed for the Project.

Newport & Ford Residential Project / 160255.01

SOURCE: Comprehensive Planning Services

Figure 21
Noise Monitoring Locations

On-Site Impacts - Operational Noise – Impacts to Surrounding Uses

The proposed use, development of 38 townhome dwelling units, is generally a passive use with that would emit noise similar to adjacent residential uses. The most obvious source of operational noise would derive from heating/air conditioning (HVAC) equipment. Along the northern site perimeter, Project Buildings 2 and 3 would have air conditioner compressors in proximity to the adjacent mobile homes. The proposed equipment is a Goodman Split System Air Conditioner model GSX14 with a sound power noise level of 73 dBA. The distance from Building 2 to the property line is 12 feet, and there would be a 6-foot masonry wall at the property line. The closest mobile home is approximately 6 feet within the shared property line. Therefore, a receiver is modeled at a distance of 18 feet from the condenser and a receiver is assumed to be a standing adult with ear level at 5-foot above ground. Noise from the condenser is assumed to originate at a height of 3-feet above ground level. As presented in the Noise Impact Analysis, the resulting noise level at the mobile home park is less than 41 dBA. The exterior noise standard for the City of Costa Mesa is 55 dBA daytime and 50 dBA at night. Noise from the selected HVAC equipment would not exceed thresholds at the closest sensitive uses with construction of the 6-foot tall masonry wall at the shared property line. Regardless,

all HVAC equipment would be required to demonstrate compliance with the City of Costa Mesa Noise Ordinance Standard.

Surrounding Noise – Impacts to On-site Uses

Although the Noise Element allows exterior noise levels of up to 70 dBA CNEL for multifamily residential uses, a noise level of 65 dBA is the level at which ambient noise begins to interfere with one's ability to carry on a normal conversation at reasonable separation without raising one's voice. The observed noise level at the end of Ford Road was 68 dB CNEL at ground level and 71 dB CNEL is assumed for upper levels.

Proposed Project townhomes would be two and three-stories. Ground level patios or balconies facing the freeway would achieve 70 dB CNEL without the need for additional attenuation. There are planned balconies on the sides of the buildings. Second story balconies are planned directly facing the freeway. However, these balconies are recessed and like balconies on the sides of the buildings would only experience a partial noise exposure from the freeway. This would provide -3 dB of mitigation for a residual noise level of 68 dB CNEL. The Project would also include a three-foot berm and three-foot masonry patio wall along the site perimeter with Newport Boulevard for privacy. This wall would also assist in traffic noise attenuation. Inclusion of this patio wall is added to the Project as Mitigation Measure NOI-1

The Noise Impact Analysis calculates that with the proposed 3-foot berm and the 3-foot patio wall, noise at the second story balconies would be mitigated to an approximate 62 dB CNEL noise level. No additional mitigation is required for second story balconies to achieve the desirable 65 dB CNEL noise exposure. Balconies farther setback or facing interior to the site would experience traffic noise levels of 65 dB CNEL or lower with an even greater measure of safety. No mitigation is required for upper level balconies. Balconies farther setback or facing interior to the site would experience noise levels of 65 dB CNEL or lower.

Exterior common use areas for the Project are proposed to be located in the interior of the site and would be noise protected by the perimeter structures. Habitable interior space for proposed Project units adjacent to the SR-55 would be adequately noise protected to achieve 45 dB with only the ability to close windows. Where window closure is needed for policy compliance, supplemental ventilation is required by the CBC with some specified gradation of fresh air. Central air conditioning or a fresh air inlet on a whole house fan would meet this requirement. Given CBC requirements, and with the implementation of Mitigation Measure NOI-1, operational noise impacts would be less than significant.

On-Site Impacts – Construction Noise

The closest existing sensitive uses to the Project site are the residential uses to the west and the Travelodge along the southern property line. It is not likely that the heaviest equipment would operate right along the property line, but construction noise at existing

sensitive uses could be as high as 85 dB during demo and grading and 77 dB during construction. These short-term construction noise impacts would be mitigated by compliance with the City Municipal Code, which limits hours of construction from 7:00 a.m. to 7:00 p.m. Monday through Friday and 9:00 a.m. to 6:00 p.m. on Saturday. No construction is permitted on Sundays or federal holidays. To further minimize construction noise impacts to adjacent residential and lodging uses, the Noise Impact Analysis a series of construction noise abatement measures which are incorporated as Mitigation Measure NOI-2, below. With inclusion of this measure, construction related noise from the Project would be reduced to less than significant levels.

b) Would the Project expose people to, or generation of, excessive ground-borne vibration or noise levels?

Less Than Significant Impact. Construction activities generate ground-borne vibration when heavy equipment travels over unpaved surfaces or when it is engaged in soil movement. The effects of ground-borne vibration include discernible movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. Groundborne vibrations from construction activities rarely reach levels that can damage structures.

Project construction would involve the demolition of existing structures and construction and occupancy of residential structures. Compliance with the City Noise Ordinance that limits days and times of construction would control construction noise next to sensitive uses and would also have the effect of reducing construction related vibration. Proposed Project operation would be typical of surrounding residential uses and would not generate excessive ground-borne vibration or noise. Consequently, Project impacts relative to ground-borne vibration and noise levels would be less than significant.

c) Would the Project create a substantial permanent increase in ambient noise levels in the Project vicinity above noise levels existing without the project?

No Impact. The Project would replace existing storage and parking uses with townhome residential uses. Noise created by the Project would be similar to the existing residential uses located north and west of the site. New vehicular noise created by Project traffic would be nominal considering the site's proximity to SR-55 which is a substantial source of vehicular traffic noise. Consequently, the potential for the Project to create a substantial permanent increase in ambient noise levels in the Project vicinity above noise levels is not significant.

d) Would the Project create a substantial temporary or periodic increases in ambient noise levels in the Project vicinity above levels existing without the project?

Less Than Significant Impact. As discussed in Sections 7.12.a and c, above, temporary noise and vibration would occur during Project construction. Construction noise is short-term and would be limited to the hours set by the City Noise Ordinance. Consequently, temporary noise impacts from the Project would be less than significant.

e) For a project located with 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. John Wayne Airport, located approximately 4 miles northeast of the Project site, emits occasional overflight noise in the vicinity of the site. However, according to the 2017 Noise Contour Map for John Wayne Airport, the site is not located within any airport noise contour zones.[17] Consequently, Project impacts related to exposure to excessive airport related noise levels would not be significant.

f) For a project located within the vicinity of a private airstrip, would the Project expose people residing or working in the Project area to excessive noise levels?

No Impact. The Project site is not located within the vicinity of a private air strip. Consequently, the Project would not result in impacts related to excessive noise from a private airstrip.

7.12.2 Cumulative Impacts

Potential construction noise impacts to adjacent sensitive receptors would be reduced by compliance with the City Municipal Code that limits the days and times of construction.

In addition, Mitigation Measures NOI-1 and NOI-2 are added to the Project. As a result, no significant cumulative impacts resulting from Project noise.

7.12.3 Mitigation Measures

Mitigation Measure NOI-1: Surrounding Noise Impacts to On-site Uses. Prior to building occupancy, a 3-foot wall along the Newport Boulevard perimeter shall be constructed in order to allow for recreational space to be less than 65 dB CNEL. Since there would be a break in the barrier along Ford Road, the return should extend at least 16 feet on both sides of the road, or return into a taller structure for at least 16 feet.

Mitigation Measure NOI-2: Construction Noise. Prior to the Grading Permit Issuance, the Contractor shall demonstrate to the satisfaction of the City of Costa Mesa Public Works Department that the Project complies with the following:

- Construction contracts specify that all construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers and other state required noise attenuation devices.
- Construction haul routes shall be designed to avoid noise sensitive uses (e.g. residences, convalescent homes, etc.)

[17] http://www.ocair.com/reportspublications/accessnoise/cnelnoisecontours/2017.pdf; accessed March 22, 2018.

- Construction contractor shall ensure that unnecessary idling of internal combustion engines (i.e., idling in excess of 5 minutes) is prohibited.

- Construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists.

- At all times during project grading and construction, the construction contractor shall ensure that stationary noise-generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from adjacent residences.

- Construction contractor shall ensure that the construction staging areas shall be located to create the greatest feasible distance between the staging area and noise-sensitive receptors nearest the project site.

7.13 Population and Housing

7.13.1 Analysis of Environmental Impacts

a) Would the Project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less Than Significant Impact. The Project would convert the General Plan Land Use Map designation for the Project site from Commercial to High Density Residential. As discussed in Section 7.10.b, General Plan Land Use and Housing Element goals and policies support expanding housing opportunities and the conversion of underutilized commercial sites to residential. Assuming an average household size of 2.73 persons (State of California Department of Finance, Table 2: E-5 City/County Population and Housing Estimates, 1/1/2017), the Project's 38 residential units would generate 104 additional persons in the City, which represents a 0.009% increase over the City's current 114,044 population. This increase is nominal. Further, as discussed in Section 7.10.a, a predominant land use in the area of the Project site is residential. Consequently, Project impacts relative to inducement of substantial population growth would be less than significant.

b) Would the Project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No Impact. The Project site is currently developed with storage and parking uses. Existing uses on the 1957 Newport Boulevard portion of the site include a two-story building with office use for a moving and storage business on the first floor and a two-bedroom apartment on the second floor. The apartment would be vacated prior to the sale of the property to the Applicant. Consequently, the Project would not displace substantial numbers of existing housing.

c) Would the Project displace substantial numbers of people?

No Impact. As discussed above, the apartment would be vacated prior to the sale of the property to the Applicant. The Project would replace the existing site uses with 38 residential townhomes. Consequently, the Project would not displace substantial numbers of people necessitating the construction of replacement housing.

7.13.2 Cumulative Impacts

Converting the Project site to a residential designation could encourage adjacent commercial properties to similarly convert, potentially bringing additional residential population to the Project area. However, each proposed General Plan Land Use Map and Zoning Map amendment would be subject to its own review including review under CEQA. Consequently, cumulative impacts relative to population and housing would be less than significant.

7.13.3 Mitigation Measures

The analysis indicated that the implementation of the proposed Project would not result in any significant impacts on population and housing. As a result, no mitigation is required.

7.14 Public Services

This section assesses whether the Project would result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services.

7.14.1 Analysis of Environmental Impacts

a) Fire Protection?

Less Than Significant Impact. The Costa Mesa Fire Department (CMFD) provides fire protection and emergency response services to the City, including the Project site. The CMFD is responsible for fire prevention, enforcement of fire protection laws and ordinances, fire suppression, emergency medical services, hazardous materials response, and weed abatement. In addition to providing response services, the Fire Department practices fire prevention and emergency preparation through use of built-in fire protection such as early warning and detection systems, automatic fire sprinklers, fire resistive design of structures and materials, fire prevention inspections, and public education. The CMFD is staffed by 78 (sworn) uniformed personnel, including the fire chief, battalion chiefs, fire captains, engineers, and firefighter/paramedics. (General Plan EIR, Page 4.14-1.) The CMFD staffs six fire stations, 24-hours a day, 7 days a week. The 2448 Vanguard Way Fire Station is the closest to the Project site, located approximately 0.3 miles northeast.

The transition of the Project site from storage and parking facilities to 38 residential townhomes could put new demands on CMFD fire protection services. As discussed in Section 7.13.a, above, the Project would generate 104 additional persons in the City, which represents a 0.009% increase over the City's current 114,044 population. This increase is nominal. Additionally, compliance with City Building and Fire codes and provision of new water lines and fire hydrants would reduce fire risks at the site. Consequently, the Project is not expected to create substantial new demands on fire services Project impacts relative to new or physically altered fire protection facilities would be less than significant.

b) Police Protection?

Less Than Significant Impact. The Costa Mesa Police Department (CMPD) provides police protection services to the City, including the Project site. The CMPD operates out of their headquarters, located at 99 Fair Drive, which is located approximately 0.3 miles northeast of the site. The CMPD currently has a service ratio of 1.00 officer per 1,000 residents. (General Plan EIR, Page 4.14-14). With an estimated build-out population of 131,690 for the City and assuming this ratio is maintained, a total of 160 sworn officers would be needed to meet the long-term service needs of the City, an increase of three officers.

The transition of the Project site from storage and parking facilities to 38 residential townhomes could put new demands on CMPD police protection services. As discussed in Section 7.13.a, above, the Project would generate 104 additional persons in the City, which represents a 0.009% increase over the City's current 114,044 population. This increase is nominal. Additionally, the Project would be developed with contemporary lighting and place residents on a site which currently has very little day or night-time activity. This new development along with its proposal to restrict vehicular access on Ford, with limited right-in access from Newport Boulevard, could reduce the Project area's vulnerability to criminal activity. Consequently, the Project is not expected to create substantial new demands on police services and Project impacts relative to new or physically altered police protection facilities would be less than significant.

c) Schools?

Less Than Significant Impact. Newport Mesa Unified School District (NMUSD) provides public education to the City of Costa Mesa, including the Project site. The closest school is Everett A. Rea Elementary School located at 661 Hamilton Street, 0.9 miles northeast of the site. The transition of the Project site from storage and parking facilities to 38 residential townhomes could put new demands on school services. However, per California Government Code (CGC), the Project would be subject to the payment of school impact fees (Section 53080, CGC). As authorized under Section 17620(a) of the California Education Code (CEC) and Section 65995(b) of the CGC, local school districts are authorized to impose and collect school "impact fees" for all residential and non-residential development activities that occur within their jurisdiction

to off-set the additional costs associated with the new students that result directly from the construction of new homes. Payment of school impact fees constitutes full mitigation for the impacts associated with new residential and non-residential development. Consequently, Project impacts relative to new or physically altered school facilities would be less than significant.

d) Parks?

Less Than Significant Impact. According to the General Plan EIR (Page 4.14-19), Costa Mesa has approximately 3.66 acres of parkland existed in Costa Mesa for every 1,000 residents. However, the City's goal is to attain and maintain a park standard of 4.26 acres of parkland for every 1,000 residents. The nearest park to the Project site is Lions Park located 0.5 southwest.

The transition of the Project site to residential, although nominal, could put new demands on park services. However, the Project is also proposing passive open space amenities, including common usable open space areas and courtyards. In addition, the Project would be required to pay the applicable Quimby fees to offset the Project's demand for public parks and recreational facilities. Payment of the Quimby fee would off-set the Project's incremental demand for park facilities. Consequently, Project impacts relative to new or physically altered park facilities would be reduced to less than significant levels.

e) Other Public Facilities?

Less Than Significant Impact. Other public facilities include library and general municipal services. There are three public libraries within the City of Costa Mesa. The nearest public library to the project site is the Costa Mesa Donald Dungan Library which is located about 0.6 miles southwest at 1855 Park Avenue. As indicated previously, the Project would generate 104 additional residents. However, the potential increase in residents in the City is not anticipated to result in significant adverse impacts on the existing library services and facilities and/or other public services provided by the City due to the availability and accessibility of electronic library services, which reduce the need and demand for library facilities. Similarly, other municipal services are typically funded through user fees, property tax or sales tax revenues to which the future Project residents would contribute. Consequently, Project impacts relative to new or physically altered public facilities would be less than significant.

7.14.2 Cumulative Impacts

The analysis determined that the proposed Project would not result in any significant adverse public services impacts subject to payment of applicable school and Quimby fees and future Project resident contribution to user fees, property tax or sales tax revenues. Consequently, the Project would not result in significant adverse cumulative impacts to public services.

7.14.3 Mitigation Measures

The analysis indicated that the implementation of the proposed Project would not result in any significant impacts on public services. As a result, no mitigation is required.

7.15 Recreation

7.15.1 Analysis of Environmental Impacts

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 transition of the Project site from to 38 residential townhomes could put new demands on recreational services. However, the Project is also proposing passive park amenities, totaling 35,037 square feet. In addition, the Project would be required to pay the applicable Quimby fees to offset the project's demand for public parks and recreational facilities. Payment of the Quimby fee would off-set the Project's incremental demand for park and recreational facilities. Consequently, Project impacts relative to substantial physical deterioration of parks or other recreational facilities would be less than significant.

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. As discussed previously, the Project includes common usable open space areas and courtyards. In addition, the Project would be required to pay the applicable park in-lieu fee pursuant to Section 18.64.070 of the Costa Mesa Municipal Code to offset the project's demand for parks and recreational facilities. Payment of the park in-lieu fee would off-set the Project's incremental demand for park and recreational facilities. Consequently, Project impacts relative to construction or expansion of recreational facilities which might have an adverse physical effect on the environment would be less than significant.

7.15.2 Cumulative Impacts

The analysis determined that the proposed Project would not result in any significant adverse recreation impacts subject to payment of Quimby fees. Consequently, the Project would not result in significant adverse cumulative impacts to recreation facilities or services.

7.15.3 Mitigation Measures

The analysis indicated that the implementation of the proposed Project would not result in any significant impacts on recreation. As a result, no mitigation is required.

7.16 Transportation/Traffic

Data presented in this Transportation/Traffic section includes information from the "Traffic Impact Analysis, 1957 Newport Boulevard, Costa Mesa, California", prepared by LSA, July 2018, contained as Appendix G.

7.16.1 Analysis of Environmental Impacts

a) Would the Project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Less Than Significant Impact. The General Plan Circulation Element establishes goals and policies to improve transportation in the City including bicycle and pedestrian travel capabilities, roadway systems and transit through a "complete streets" concept consistent with Assembly Bill 1358 (The California Complete Streets Act). The complete streets concept ensures that the needs of motorists, commercial goods users, bicyclists, transit users, pedestrians, and the disabled are met by accommodating all roadway users with a range of transportation choices.

Transit/Bikeways/Pedestrian

Transit is available to the City from Orange County Transportation Authority (OCTA) with local bus routes running along Newport Boulevard adjacent to the Project site. These bus routes provide connections within the City and to adjacent communities within the County.

Bikeways within the City are designated either Class I "Off-Street Paved Bike Paths", Class II "On-Street Striped and Signed Bicycle Lanes", or Class III "On-Street Shared-Lane Signed Bicycle Routes". A Class II bikeway runs along Newport Boulevard with connections to other bikeways within the City. Existing sidewalks are located along both sides of Newport Boulevard and Ford Road. The Project proposes sidewalks and pedestrian areas within its site plan. These walkways would provide access to adjacent bus routes, bikeways and sidewalks.

Vehicular Traffic on City Streets

To determine the impact of the Project on City streets, the Traffic Impact Analysis evaluated the following scenarios for potential traffic impacts:

1. Existing Conditions
2. Existing Plus Project Conditions
3. Future (2020) Baseline Conditions

4. Future (2020) Plus Project Conditions
5. General Plan Buildout Baseline Conditions
6. General Plan Buildout Plus Project Conditions

The following six intersections were evaluated for the study conditions and scenarios listed above:

1. Parsons Street/Bay Street
2. Newport Boulevard/Bay Street
3. Harbor Boulevard/Ford Road
4. Parsons Street/Ford Road
5. Newport Boulevard/Ford Road
6. Newport Boulevard/19th Street.

To assess traffic conditions at these intersections, the Traffic Impact Analysis followed City standards which require using Intersection Capacity Utilization (ICU) methodology for signalized intersections and Highway Capacity Manual 2010 (HCM 2010) methodology for unsignalized intersections. The ICU methodology compares the amount of traffic an intersection is able to process (capacity) to the level of traffic during peak hours (volume). The resulting volume-to-capacity (v/c) ratio is expressed in terms of LOS. The HCM 2010 methodology calculates the delay experienced by all movements through an intersection. LOS thresholds rate traffic congestion on a scale from A to F, based on the volume of traffic to the capacity of the roadway (V/C):

A: free flow. Traffic flows at or above the posted speed limit and motorists have complete mobility between lanes. (V/C=0-0.60)

B: reasonably free flow. LOS A speeds are maintained, maneuverability within the traffic stream is slightly restricted. (V/C=0.61-0.70)

C: stable flow, at or near free flow. Ability to maneuver through lanes is noticeably restricted and lane changes require more driver awareness. (V/C=0.71-0.80)

D: approaching unstable flow. Speeds slightly decrease as traffic volume slightly increase. Freedom to maneuver within the traffic stream is much more limited and driver comfort levels decrease. (V/C=0.81-0.90)

E: unstable flow, operating at capacity. Flow becomes irregular and speed varies rapidly because there are virtually no usable gaps to maneuver in the traffic stream and speeds rarely reach the posted limit. (V/C=0.91-100)

F: forced or breakdown flow. Every vehicle moves in lockstep with the vehicle in front of it, with frequent slowing required. Travel time cannot be predicted, with generally more demand than capacity. The road is in a constant traffic jam. (V/C>1.00)

In the City of Costa Mesa, traffic flow is considered acceptable if the intersection operates with a V/C ratio of 0.90 (LOS D) as the upper limit of satisfactory operations. A project is considered to have a significant impact if the ICU value under the Existing Plus Project conditions exceeds 0.90 (LOS E or F) and the ICU increase attributed to the project is 0.01 or greater.

Baseline: EXISTING (WITHOUT PROJECT). To assess existing traffic conditions at the six study intersections, vehicle turning volumes were collected as part of the Traffic Impact Analysis during the peak morning (7:00 AM–9:00 AM) and evening (4:00 PM–6:00 PM) commute periods during a typical weekday (Wednesday, November 8, 2017). Table 10 summarizes the results of the existing AM and PM peak-hour LOS analysis for the study area intersections. As Table 10 indicates, all study area intersections currently operate at an acceptable LOS (i.e., LOS D or better) in the AM and PM.

TABLE 10
EXISTING INTERSECTION LEVEL OF SERVICE SUMMARY (WITHOUT PROJECT)

	AM Peak Hour		PM Peak Hour	
Intersections	**V/C ratio / Delay**	**LOS**	**V/C ratio / Delay**	**LOS**
Parsons St/Bay St (HCM)	10.0 sec	B	10.6 sec	B
Newport Blvd/Bay St (ICU)	0.33	A	0.42	A
Harbor Blvd/Ford Rd (HCM)	14.9 sec	B	30.7 sec	D
Parsons St/Ford Rd (HCM)	9.7 sec	A	10.1 sec	B
Newport Blvd/Ford Rd (HCM)	11.5 sec	B	13.6 sec	B
Newport Blvd/19th St (ICU)	0.85	D	0.82	D

LOS = level of service
HCM = Highway Capacity Manual methodology
ICU = Intersection Capacity Utilization methodology
sec = seconds
V/C = volume-to-capacity

Baseline: 2020. The Project is anticipated to be completed by 2020. It would take vehicular access via an internal street from Ford Road, and a one-way right-in only access from Newport Boulevard. City staff did not identify any approved or pending projects in the vicinity of the Project site that would have the potential to add measurable traffic to the study intersections. Table 11 summarizes the results of the future AM and PM peak-hour LOS analysis for study area intersections. As the Table indicates, the study area intersections remain unchanged and continue to operate at an acceptable LOS in the AM and PM peak hours in the future (2020) baseline condition.

TABLE 11
FUTURE (2020) INTERSECTION LEVEL OF SERVICE SUMMARY (WITHOUT PROJECT)

	AM Peak Hour		PM Peak Hour	
Intersections	**V/C ratio / Delay**	**LOS**	**V/C ratio / Delay**	**LOS**
Parsons St/Bay St (HCM)	10.0 sec	B	10.7 sec	B
Newport Blvd/Bay St (ICU)	0.34	A	0.43	A
Harbor Blvd/Ford Rd (HCM)	15.2 sec	B	33.4 sec	D
Parsons St/Ford Rd (HCM)	9.7 sec	A	10.1 sec	B
Newport Blvd/Ford Rd (HCM)	11.7 sec	B	13.8 sec	B
Newport Blvd/19th St (ICU)	0.87	D	0.84	D

LOS = level of service
HCM = Highway Capacity Manual methodology
ICU = Intersection Capacity Utilization methodology
sec = seconds
V/C = volume-to-capacity

Baseline: GENERAL PLAN BUILDOUT. Because the Project proposes a General Plan Land Use Map amendment to change the land use designation of the site from a commercial to a residential use, the Traffic Impact Analysis provides a summary of traffic conditions at the six study intersections for expected General Plan buildout in year 2035. This summary presented in Table 12 assumes the Project site remains as a commercial use. As shown in the Table, all study area intersections operate at an acceptable LOS in the AM and PM peak hours in the General Plan buildout baseline condition with the exception of the intersection of Harbor Boulevard/Ford Road. At that intersection, traffic volume increases along Harbor Boulevard by 2035 are anticipated to increase resulting in a LOS F during the PM peak due to delay for vehicles making westbound left turns.

TABLE 12
FUTURE (2035) GENERAL PLAN BUILDOUT INTERSECTION LEVEL OF SERVICE SUMMARY (WITHOUT PROJECT)

	AM Peak Hour		PM Peak Hour	
Intersections	**V/C ratio / Delay**	**LOS**	**V/C ratio / Delay**	**LOS**
Parsons St/Bay St (HCM)	10.0 sec	B	10.7 sec	B
Newport Blvd/Bay St (ICU)	0.34	A	0.43	A
Harbor Blvd/Ford Rd (HCM)	15.2 sec	B	33.4 sec	D
Parsons St/Ford Rd (HCM)	9.7 sec	A	10.1 sec	B
Newport Blvd/Ford Rd (HCM)	11.7 sec	B	13.8 sec	B
Newport Blvd/19th St (ICU)	0.87	D	0.84	D

LOS = level of service
HCM = Highway Capacity Manual methodology
ICU = Intersection Capacity Utilization methodology
sec = seconds
V/C = volume-to-capacity

Project Traffic: TRIP GENERATION. Trip generation for the Project was calculated by the Traffic Impact Analysis based on the ITE Trip Generation, Tenth Edition (2017), the most recent version. This calculation subtracts out existing trips generated by existing uses on the Project site, which are 101 total average daily trips (ADT) with 8 in the AM peak hour and 7 in the PM peak hour. Based on this calculation, the Project would generate 177 daily trips, 9 during AM peak hour and 14 during PM peak hour.

Project Traffic: TRIP DISTRIBUTION. The distribution of the Project traffic as well as future traffic assumes closure of Ford Road at Newport Boulevard even though the proposed Project includes a one-way access from Newport Avenue onto Ford Road. The closure of Ford Road at Newport Boulevard is considered a worst-case evaluation.

Project Traffic: EXISTING (WITH PROJECT). Table 13 summarizes traffic conditions at the six study area intersections with the addition of the Project trips and assuming the closure of Ford Road at Newport Boulevard. As Table 13 indicates, all study area intersections operate at an acceptable LOS (i.e., LOS D or better) in the AM and PM for Existing Plus Project conditions.

TABLE 13
EXISTING AND EXISTING PLUS PROJECT INTERSECTION LEVEL OF SERVICE SUMMARY

	Existing				Existing without Ford Road				Existing Plus Project					
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		Change with Project	
Intersection	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	AM	PM
Parsons St/Bay St (HCM)	10.0 sec	B	10.6 sec	B	10.2 sec	B	11.5 sec	B	10.3 sec	B	11.8 sec	B	0.3 sec	1.2 sec
Newport Blvd/Bay St (ICU)	0.33	A	0.42	A	0.33	A	0.45	A	0.34	A	0.46	A	0.00	0.04
Harbor Blvd/Ford Rd (HCM)	14.9 sec	B	30.7 sec	D	14.3 sec	B	29.1 sec	D	14.4 sec	B	29.7 sec	D	(0.5) sec	(1.0) sec
Parsons St/Ford Rd (HCM)	9.7 sec	A	10.1 sec	B	9.2 sec	A	9.3 sec	A	9.3 sec	A	9.3 sec	A	(0.4) sec	(0.8) sec
Newport Blvd/Ford Rd (HCM)	11.5 sec	B	13.6 sec	B	0.0 sec	A	0.0 sec	A	0.0 sec	A	0.0 sec	A	(11.5) sec	(13.6) sec
Newport Blvd/19th St (ICU)	0.85	D	0.82	D	0.85	D	0.82	D	0.85	D	0.82	D	0.00	0.00

LOS = level of service
HCM = Highway Capacity Manual methodology
ICU = Intersection Capacity Utilization methodology
sec = seconds
V/C = volume-to-capacity

Project Traffic: 2020 (WITH PROJECT). As noted previously, the Project is anticipated to be completed by year 2020. Table 14 summarizes traffic conditions at the six study area intersections with the addition of the Project trips and assuming the closure of Ford Road at Newport Boulevard for year 2020. As Table 14 indicates, all study area intersections operate at an acceptable LOS (i.e., LOS D or better) in the AM and PM for Future 2020 Plus Project conditions.

TABLE 14
FUTURE (2020) PLUS PROJECT INTERSECTION LEVEL OF SERVICE SUMMARY

	Future No Project				Future without Ford Road				Future Plus Project					
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		Change with Project	
Intersection	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	AM	PM
Parsons St/Bay St (HCM)	10.0 sec	B	10.7 sec	B	10.3 sec	B	11.7 sec	B	10.4 sec	B	11.9 sec	B	0.4 sec	1.2 sec
Newport Blvd/Bay St (ICU)	0.34	A	0.43	A	0.34	A	0.47	A	0.34	A	0.47	A	0.00	0.04
Harbor Blvd/Ford Rd (HCM)	15.2 sec	B	33.4 sec	D	14.5 sec	B	30.9 sec	D	14.6 sec	B	31.8 sec	D	(0.6) sec	(1.6) sec
Parsons St/Ford Rd (HCM)	9.7 sec	A	10.1 sec	B	9.2 sec	A	9.3 sec	A	9.3 sec	A	9.4 sec	A	(0.4) sec	(0.7) sec
Newport Blvd/Ford Rd (HCM)	11.7 sec	B	13.8 sec	B	0.0 sec	A	0.0 sec	A	0.0 sec	A	0.0 sec	A	(11.7) sec	(13.8) sec
Newport Blvd/19th St (ICU)	0.87	D	0.84	D	0.88	D	0.84	D	0.88	D	0.84	D	0.00	0.00

LOS = level of service
HCM = Highway Capacity Manual methodology
ICU = Intersection Capacity Utilization methodology
sec = seconds
V/C = volume-to-capacity

Project Traffic: GENERAL PLAN BUILDOUT (WITH PROJECT). Table 15 summarizes General Plan buildout conditions in year 2035, assuming the Project is developed and includes the closure of Ford Road at Newport Boulevard. As Table 15 indicates, all study area intersections operate at an acceptable LOS (i.e., LOS D or better) in the AM and PM for Future General Plan Buildout Plus Project conditions, with the exception of the intersection of Harbor Boulevard/Ford Road. The Harbor Boulevard/Ford Road intersection was found to operate at an unsatisfactory LOS in the General Plan No Project condition due to delay making westbound left turns. Adding the Project including closure of the Newport Boulevard/Ford Road intersection would redistribute traffic at this intersection but would not increase traffic levels of service.

Project Traffic: FINDINGS. Based on the results of the Traffic Impact Analysis, the proposed closure of the Newport Boulevard/Ford Road intersection and the proposed construction of 38 townhome dwelling units would not significantly impact the circulation system. All six study area intersections are anticipated to operate at a satisfactory LOS in both AM and PM peak hours under both existing and future conditions, with the exception of the Harbor Boulevard/Ford Road intersection. As noted previously, the future year 2035 conditions at Harbor Boulevard/Ford Road would occur with or without the Project. Traffic generated by the Project would contribute less than 0.01 to the volume to capacity ratio of the intersection. This increase is not significant according to the City's traffic impact guidelines. Consequently, the Project conflicts with applicable plans or policies that measure the effectiveness of the Project area circulation system would be less than significant.

TABLE 15
FUTURE (2035) GENERAL PLAN BUILDOUT PLUS PROJECT INTERSECTION LEVEL OF SERVICE SUMMARY

	General Plan No Project				General Plan without Ford Road				General Plan Plus Project					
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		Change with Project	
Intersection	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	AM	PM
Parsons St/Bay St (HCM)	10.2 sec	B	11.3 sec	B	10.6 sec	B	12.8 sec	B	10.6 sec	B	13.1 sec	B	0.4 sec	1.8 sec
Newport Blvd/Bay St (ICU)	0.34	A	0.69	B	0.34	A	0.69	B	0.35	A	0.70	B	0.00	0.00
Harbor Blvd/Ford Rd (HCM)	17.3 sec	C	82.7 sec	F	16.2 sec	C	65.3 sec	F	16.3 sec	C	66.8 sec	F	(1.0) sec	(15.9) sec
Parsons St/Ford Rd (HCM)	9.9 sec	A	10.3 sec	B	9.3 sec	A	9.4 sec	A	9.4 sec	A	9.5 sec	A	(0.5) sec	(0.8) sec
Newport Blvd/Ford Rd (HCM)	11.8 sec	B	16.5 sec	C	0.0 sec	A	0.0 sec	A	0.0 sec	A	0.0 sec	A	(11.8) sec	(16.5) sec
Newport Blvd/19th St (ICU)	0.87	D	0.72	C	0.87	D	0.72	C	0.87	D	0.72	C	0.00	0.00

LOS = level of service
HCM = Highway Capacity Manual methodology
ICU = Intersection Capacity Utilization methodology
sec = seconds
V/C = volume-to-capacity

b) Conflict with an applicable congestions management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

No Impact. The purpose of the Congestion Management Program (CMP) is to develop a coordinated approach to managing and decreasing traffic congestion by linking the various transportation, land use, and air quality planning programs throughout the County, consistent with that of the Southern California Association of Governments (SCAG). The CMP requires review of substantial individual projects, which might on their own impact the CMP transportation system. Specifically, the Congestion Management Program (CMP) Traffic Impact Analysis (TIA) measures impacts of a project on the CMP Highway System (CMPHS). Development projects that generate more than 2,400 daily trips are subject to a TIA for CMP evaluation. For projects that would directly access or be in close proximity to a CMP Highway System link, a reduced threshold of 1,600 trips per day is used.

As discussed in Section 7.16.a, above, the Project would generate 177 ADT, and does not meet the criteria for a CMP TIA. Project-related impacts on applicable CMPs and other established standards are considered less than significant.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

No Impact. The nearest airport to the Project site is the John Wayne Airport, located approximately 4 miles northeast. As noted in the General Plan EIR (Page 4.8-14), only areas within the northern portion of the City immediately adjacent to the airport are within the Safety Compatibility Zones of the airport, as designated in the Airport Environs Land Use Plan for John Wayne Airport (AELUP) (OC ALUC 2008). The Project site is not located within the approach or take-off aircraft safety zone. Consequently, the Project would not result in a change in air traffic patterns.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less Than Significant Impact. The Project includes the closure of Ford Road at Newport Boulevard. As discussed in Section 7.16.a, the proposed closure of the Newport Boulevard/Ford Road intersection and the proposed construction of 38 townhome dwelling units would not significantly impact the circulation system. Consequently, Project impacts related to a substantial increase in hazards due to a design feature would be less than significant.

e) Result in inadequate emergency access?

No Impact. As part of the City review, the Project site plan has been reviewed and approved by the City Public Works Director and CMFD staff to ensure adequate emergency access. The Project would provide one-way right-in-only emergency access from Newport Boulevard and no vehicular access from Ford Road to Newport Boulevard. Although vehicular access is limited to access only from Newport Boulevard, the Project allows traffic from emergency vehicle access from the Project site to exit to the west using Ford Road to access Harbor Boulevard. As a result, the proposed Project allow emergency vehicles that access the Project site from Ford Road to turnaround within the Project site and exit out to Ford Road. Also as discussed in Section 7.16.a, the closure of Ford Road would not adversely impact circulation on surrounding streets. Consequently, the Project would not result in inadequate emergency access.

f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

No Impact. As discussed in Section 7.16.a, above, the Project proposes sidewalks and pedestrian areas within its site plan. Transit is available from the Orange County Transportation Authority OCTA, which runs bus routes along Newport Boulevard immediately adjacent to the Project site. A Class II bikeway also is available along Newport Boulevard. Consequently, the Project would not conflict with adopted plans or policies regarding transit, bicycle or pedestrian facilities.

7.16.2 Cumulative Impacts

The analysis determined that the proposed Project, including proposed cumulative projects, would not result in any significant adverse transportation or traffic impacts subject to conditions. Consequently, no significant adverse cumulative transportation or traffic impacts would result from the project.

7.16.3 Mitigation Measures

The analysis indicated that the implementation of the proposed Project would not result in any significant impacts on transportation or traffic. As a result, no mitigation is required.

7.17 Tribal Cultural Resources

7.17.1 Analysis of Environmental Impacts

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k).

Less Than Significant Impact. The City of Costa Mesa has gathered a Historical Resources Inventory that can be found within the City's General Plan EIR on page 4.5-4, Table CUL-1. The table outlines 31 historical resources that are either eligible for the National, State, or Local Register Listings. The Project site is not located on or within the close vicinity of any site listed on that table. A records search conducted at the South Central Coastal Information Center did not indicate any recorded archaeological sites are located on or adjacent to the Project. Moreover, in compliance with Assembly Bill (AB) 52 and Senate Bill (SB) 18, which require lead agency consultation with California Native American tribes for projects that involve CEQA review and or an amendment to a general plan, the NAHC has provided the City a list of tribes requesting consultations and the City has contacted the tribes as described below. Compliance with the consultation process reduces potential impacts to archaeologic historical resources to less than significant levels.

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Less Than Significant Impact with Mitigation Incorporated. As discussed in Section 7.5.b, above, California Public Resources Code § 21080.3.1 and Assembly Bill (AB) 52 require formal consultation with the Native American tribal representatives. Pursuant to these requirements, the City of Costa Mesa sent correspondence dated January 31, 2018 inviting the known tribal representatives with potential cultural linkages to the Costa Mesa area, informing them of the Project and inviting consultation. Included in the list of tribes contacted by the City were the Ewiiaapaayp Tribe, Gabrieleño Band of Mission Indians – Kizh Nation, Gabrieleño /Tongva Band of Mission Indians, Campo Band of Mission Indians, La Posta Band of Mission Indians, San Fernando Band of Mission Indians, Sycuan Band of the Kumeyaay Nation, Viejas Band of the Kumeyaay Nation and San Pasqual Band of Mission Indians. One request for consultation was requested by Mr. Andrew Salas, a designated tribal representative for the Gabrieleño Band of Mission Indians/Kizh Nation, and the consultation was subsequently conducted with City staff on March 12, 2018. Mr. Salas discussed his tribe's history in the region and requested that mitigation measures be applied to the Project to provide tribal monitors during site excavation.

This request for mitigation is encompassed in Mitigation Measure TCR-1. With inclusion of this measure, potential impacts to tribal resources would be reduced to less than significant levels.

7.17.2 Cumulative Impacts

Mitigation Measures CUL-1 through CUL-3 presented in Section 7.5.3 of this Initial Study Checklist are added to the Project to protect potential tribal resources or remains that could be found on site during excavation activities. By reducing on site impacts to less than significant impact, cumulative impacts relative to tribal resources would also be reduced to less than significant levels.

7.17.3 Mitigation Measures

The following mitigation will be required to protect potential tribal cultural resources:

Mitigation Measure TCR-1: Native American Monitoring. The applicant shall retain representative(s) of Gabrielino heritage to perform Native American monitoring of all ground disturbance. If prehistoric cultural resources are recovered, all tribal groups shall have input in regard to treatment and all materials will be reburied on site at a location deep enough not to be disturbed in the future. Native American monitoring shall cease when the project site grading and excavation activities are completed, or sooner if the Native American monitor indicates that the site has a low potential for Native American resources. During monitoring, the archaeologist shall complete monitoring logs on a daily basis. The logs will provide descriptions of the daily activities, including construction activities, locations, soil, and any cultural materials identified. Following completion of monitoring, the monitor shall prepare a summary memorandum of finds, their significance under CEQA and their disposition.

Significance after Mitigation

With the implementation of Mitigation Measure TCR-1, project implementation would result in a less-than-significant impact involving an adverse change in the significance of a Tribal Cultural Resource.

7.18 Utilities and Service Systems

7.18.1 Analysis of Environmental Impacts

a) Would the Project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Less Than Significant Impact. As discussed in the General Plan EIR (Page 4.17-11), Orange County Sanitation District (OCSD) Reclamation Plant Number 1 in Fountain Valley has a total rated primary capacity of 108 million gallons per day (mgd) and secondary treatment capacity of 80 mgd. Treatment Plant No. 2 in Huntington Beach has a rated primary capacity of 168 mgd and secondary treatment capacity of 90 mgd. The Costa Mesa Sanitary District Sewer System Management Plan (SSMP) is currently designed to accommodate a service population of approximately 116,700. Without expansion, the wastewater conveyance and treatment system could be insufficient to provide for the projected City build-out. However, the City's Municipal Code requires incremental expansion of wastewater treatment facilities based on new development through the collection of development fees. Furthermore, the OCSD will be required to comply with the RWQCB wastewater discharge requirements to ensure that effluent discharges are within acceptable water quality parameters. The General Plan EIR finds that the requirement for the collection of development fees on new development which pay for facility upgrades, reduces impacts associated with wastewater treatment requirements to less than significant.

Relative to the Project, wastewater collection services are provided to the site by the Costa Mesa Sanitary District (CMSD). CMSD is responsible for sewer collection services and transmission to the OCSD for treatment and disposal and provides service to all of Costa Mesa. CMSD maintains 224.2 miles of gravity sewer mains and approximately 4,707 sewer manholes within the system. There are 20 sewer lift stations located within the collection system.[18]

The Project would connect to the existing City sewer main on Newport Boulevard. Its proposed transition of the Project site to a residential use would add nominally to total wastewater generation and consequently would not add significantly to the regional wastewater system. Consequently, Project impacts relative to exceedance of wastewater treatment requirements would be less than significant.

[18] http://www.cmsdca.gov/index.php/wastewater/sewer-system-facts; accessed April 5, 2018.

b) Would the Project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less Than Significant Impact. The Mesa Consolidated Water District (Mesa Water) provides water service to 108,000 residents in an 18-square-mile area. The service area includes the City of Costa Mesa, parts of Newport Beach, and some unincorporated sections of Orange County.[19]

Existing 6-inch City water mains are located within Ford Road. The Project would include 6-inch water lines on-site and would connect the public water main through the site to the existing water main on Newport Boulevard. Per a letter dated October 11, 2017 issued by Phil Lauri, P.E. of the Mesa Water, there is sufficient water supply and adequate pressure for Mesa Water to serve the Project, including fire protection. In addition, the project Applicant would be required to pay all associated costs resulting from the necessary improvements for the Project. Impacts regarding wastewater treatment facilities are described in Section 7.17.a, above.

The transition of the Project site to a residential use would generate an increase of 0.009% to the City population, which represents a nominal increase to water supply or treatment demand. Consequently, Project impacts relative to the requirement for construction of new or expanded water or wastewater facilities would be less than significant.

c) Would the Project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less Than Significant Impact. As discussed in Section 7.9.a., above, the Project would construct on site storm drain facilities that would direct runoff towards 6 drywells to collect and filter storm runoff before releasing the surface flow westerly on to Ford Road. Because much of the existing site is dirt with minimal paving, the Project by adding impervious surfaces to the site would increase post-development storm water flows by 188 ft3. The Preliminary Hydrology Study calculates that this additional flow volume is significantly less than the infiltration volume that would be captured onsite flows through the infiltration BMPs described above, including 6 drywells and 200 linear feet of 48" HDPE pipe. With implementation of the proposed infiltration BMPs as outlined in the Project WQMP, the Project would not increase storm water flows or require new or expanded offsite storm drainage facilities. Consequently, Project impacts relative to the requirement for construction of new or expanded City storm drain facilities would be less than significant.

[19] https://www.mesawater.org/customer-service/service-area; accessed April 5, 2018.

d) Would the Project have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?

Less Than Significant Impact. Mesa Water provides water service and would serve the Project site. Mesa Water receives its water from two main sources: Lower Santa Ana River Groundwater basin, which is managed by the Orange County Water District (OCWD) and imported water from the Municipal Water District of Orange County (MWDOC). As stated in the General Plan EIR (Page 4.17-12), Mesa Water's 2010 Urban Water Management Plan (UWMP) accounts for a total water demand of 19,400 acre-feet annually consisting of 2,400 acre-feet of imported water, 15,900 acre-feet of local groundwater, and 1,100 acre-feet of recycled water. The UWMP includes an analysis of water supply reliability projected through 2035 and determines that adequate supply would be available.

As discussed in Section 7.13.a, above, the transition of the Project site to a residential use would increase City population by 0.009%, which represents a nominal increase to water supply demand and would not alter the UWMP 2035 projections. Consequently, Project impacts relative to sufficient water supplies would be less than significant.

e) Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less Than Significant Impact. As discussed in Section 7.18.a, above, the Project transition of the site to residential would add nominally to total wastewater generation and consequently would not add significantly to the regional wastewater system. Consequently, Project impacts relative to the wastewater treatment provider's determination that there is adequate capacity to serve the Project and existing commitments would be less than significant.

f) Would the Project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less Than Significant Impact. The City of Costa Mesa including the Project site would be served by the following solid waste facilities and landfills: Frank R. Bowerman Sanitary Landfill, Olinda Alpha Sanitary Landfill, and Prima Deshecha Sanitary Landfill. The Frank R. Bowerman Sanitary Landfill has 725 acres of Irvine hillside with 534 acres allocated for waste disposal. It is permitted for 11,500 tons per day (TPD) maximum with an 8,500 TPD annual average. The landfill has enough projected capacity to serve residents and businesses until approximately 2053.[20] The Olinda Alpha Sanitary Landfill has 565 total acres, of which 453 acres is permitted for refuse disposal. The landfill has enough projected capacity to serve residents and businesses until 2030. The Prima Deschecha Sanitary Landfill has 1,530 total acres, with 697 acres for waste disposal. The site averages approximately 1,400 tons per day, with a daily maximum permitted tonnage

[20] http://www.oclandfills.com/landfill/active/; accessed April 5, 2018.

of 4,000. The Prima Deshecha site has a projected capacity to serve residents and businesses until approximately 2067.

The Project transition of the site to residential would add nominally to total landfill demand and consequently would not add significantly to the capacity of the three landfills that serve the City. Consequently, Project impacts relative to sufficient landfill capacity would be less than significant.

g) Would the Project comply with federal, state, and local statutes and regulations related to solid waste?

Less Than Significant Impact. AB 939 requires that local jurisdictions divert at least 50 percent of all solid waste generated by January 1, 2000. SB 2202 clarified that local governments shall continue to divert 50 percent of all solid waste on and after January 1, 2000. SB 1016 introduced a per capita disposal measurement system that measures the 50 percent diversion requirement using a disposal measurement equivalent. At the local level, the City implements these diversion requirements through the City's Source Reduction and Recycling Element (SRRE) for diverting solid waste. Compliance with the SRRE would reduce the volume of solid waste ultimately disposed of at a landfill. Consequently, Project impacts relative to compliance with solid waste regulations would be less than significant.

7.17.2 Cumulative Impacts

The analysis determined that the proposed Project would not result in any significant increases in water demand, or wastewater, storm drain or solid waste generation. No significant adverse impacts relative to utilities would occur from the project. Consequently, no cumulative significant adverse utility impacts would occur.

7.17.3 Mitigation Measures

The Project would not result in significant adverse impacts to utilities. Therefore, no mitigation is required.

SECTION 8
Conclusions

8.1 Mandatory Findings of Significance

8.1.1 Analysis of Environmental Impacts

a) Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, 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?

Less Than Significant with Mitigation Incorporated. The Project would not have substantial impacts on special status species, stream habitat, and wildlife dispersal and migration. Furthermore, the Project would not affect the local, regional, or national populations or ranges of any plant or animal species and would not threaten any plant communities. However, because there are trees on the site, the Project could cause potential impacts on nesting birds which would be reduced to less than significant levels through Mitigation Measure BIO-1. There also is potential for cultural and Native American resources to exist and to be disturbed during Project grading. Potential impacts to these would be mitigated by Mitigation Measures CUL-1, CUL-2, CUL-3, and TRC-1. With implementation of these mitigation measures, the Project's Mandatory Finding of Significance relative to degrading the quality of the environment would be less significant.

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 the past projects, the effects of other current projects, and the effects of probable future projects)?

Less Than Significant with Mitigation Incorporated. The Project would result in potential significant impacts relative to biological resources, cultural resources, existing on-site hazardous materials, and noise. Mitigation measures BIO-1, CUL-1, CUL-2, CUL-3, TRC-1, HAZ-1, HAZ-2 HAZ-3, NOI-1 and NOI-2 are added to the Project to reduce these impacts to less than significant levels. Consequently, with these mitigation measures added, cumulative impacts relative to these environmental areas would also be less than significant. Consequently, the Project's Mandatory Finding of Significance relative to contribution to cumulative impacts would be less than significant with mitigation incorporated.

c) Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant with Mitigation Incorporated. The Project would result in potential significant impacts relative to hazardous materials due to the disturbance of potential ACMs, LBP and asbestos containing asphalt that may occur in an existing on-site building and paving. Mitigation measures HAZ-1, HAZ-2 and HAZ-3 are added to the Project to reduce these impacts to less than significant levels. Construction noise from the Project and Roadway noise to on-site Project occupants would be reduced to less than significant levels through Mitigation measures NOI-1 and NOI-2. Consequently, the Project's Mandatory Finding of Significance relative to a substantial adverse effect on human beings would be less than significant with mitigation incorporated.

Appendix A

Air Quality and Greenhouse Gas Analysis

NEWPORT BOULEVARD AND FORD ROAD RESIDENTIAL
AIR QUALITY AND GREENHOUSE GAS ANALYSIS
City of Costa Mesa, California

NEWPORT & FORD
RESIDENTIAL DEVELOPMENT
AIR QUALITY AND GREENHOUSE GAS ANALYSIS
City of Costa Mesa, California

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1.0 Introduction

The purpose of this air quality and greenhouse gas (GHG) impact study is to determine whether the estimated criteria air pollutant and greenhouse gas emissions generated from the construction and operation of the proposed Newport and Ford Residential Development (project) would cause significant impacts to air resources. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.). The methodology follows the California Air Resources Board (CARB) and the South Coast Air Quality Management District (SCAQMD) recommendations for quantification of emissions and evaluation of potential impacts.

1.1 Site Location

The project site is located along the north and south side of Ford Road, west of Newport Boulevard, in the City of Costa Mesa. At its nearest point, the site is located approximately 125 feet northwest of the centerline of the Costa Mesa Freeway (SR-55). The project location map is provided in Exhibit A.

The project site is currently occupied by two businesses located at 1957 Newport Boulevard and 390 Ford Road. The business at 1957 Newport Boulevard is a self-storage facility with 54 storage units and one manager's apartment. This business also owns a lot directly across Ford Road, which is used for recreational vehicle storage. The business at 390 Ford Road repairs recreational vehicles and sells parts for recreational vehicles. The project site is currently designated for General Commercial in the City's General Plan Land Use Map (June 2016) and is zoned for General Business (C2) in the City's Zoning Map (June 2015).

Land uses surrounding the project site include residential uses adjacent to the site to the north and west and commercial land uses the south and east.

The project site is located within the South Coast Air Basin (SCAB), the SCAQMD Coastal General Forecast Area, and the North Orange County Coastal Air Monitoring Area-18.

1.2 Project Description

The project will consist of constructing and operating 38 multi-family residential townhome dwelling units on 1.86 acres. The project would include a general plan amendment and zone change. The site plan used in this analysis was provided by KTGY

ARCHITECTURE + PLANNING and is illustrated in Exhibit B. The proposed project land uses are shown in Table 1.

Table 1
Land Use Summary

Land Use	Quantity	Metric[1]
Multi-Family Residential Townhomes	38	Dwelling units

Construction of the project is estimated to begin in year 2019 and last approximately 11 months. Construction activities are expected to consist of demolition, site preparation, grading, building construction, paving, and architectural coating.

The site contains approximately 9,000 square feet of existing structures and 10,000 sqaure feet of storage containers to be removed during demolition. Additionally, approximately 30,000 square feet of paved/concrete surface area would first be removed during demolition. The project does not require the import or export of earthwork material beyond that which is expected to be removed during demolition.

The project is expected to be operational in year 2020.

1.3 Sensitive Receptors

Sensitive receptors are considered land uses or other types of population groups that are more sensitive to air pollution exposure. Sensitive population groups include children, the elderly, the acutely and chronically ill, and those with cardio-respiratory diseases. For CEQA purposes, the SCAQMD considers a sensitive receptor to be a location where a sensitive individual could remain for 24-hours or longer, such as residencies, hospitals, and schools (etc), as described in the Localized Significance Threshold Methodology (SCAQMD 2008a, page 3-2).

The nearest existing sensitive receptors to the project site are existing residential dwelling units located adjacent (north and west) of the site.

1.4 Summary of Analysis Results

Table 2 provides a summary of the CEQA air quality impact analysis results.

Table 2
CEQA Air Quality Impact Criteria

Air Quality Impact Criteria	Potentially Significant	Potentially Significant Unless Mitigated	Less Than Significant Impact	No Impact
Would the project:				
a) Conflict with, or obstruct implementation of, the applicable air quality plan?			X	
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			X	
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?			X	
d) Expose sensitive receptors to substantial pollutant concentrations?			X	
e) Create objectionable odors affecting a substantial number of people?			X	

Table 3 provides a summary of the CEQA GHG impact criteria analysis results.

Table 3
CEQA GHG Impact Criteria

GHG Impact Criteria	Potentially Significant	Potentially Significant Unless Mitigated	Less Than Significant Impact	No Impact
Would the project:				
a) Result in the generation of greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of greenhouse gases?			X	

1.5 Recommended Project Design Features (DF)

The following recommended project design features include standard rules and requirements, best practices and recognized design guidelines for reducing air quality and GHG emissions. Design features are assumed to be part of the conditions of the project and integrated into its design. Incorporating design features helps ensure the project does not conflict with established plans, policies and/or regulations regarding air quality and GHG reduction.

DF-1. The project must follow the standard SCAQMD rules and requirements with regards to fugitive dust control, which includes, but are not limited to the following:

1. All active construction areas shall be watered two (2) times daily.
2. All haul trucks shall be covered or shall maintain at least two (2) feet of freeboard.
3. Speed on unpaved roads shall be reduced to less than 5 mph.
4. Any visible dirt deposition on any public roadway shall be swept or washed at the site access points within 30 minutes.
5. Any on-site stockpiles of debris, dirt or other dusty material shall be covered or watered twice daily.
6. All operations on any unpaved surface shall be suspended if winds exceed 15 mph.
7. Access points shall be washed or swept daily.
8. Construction sites shall be sandbagged for erosion control.

DF-2. Prepare and implement a Construction Management Plan which will include Best Available Control Measures that will be submitted to the City of Costa Mesa.

DF-3. Construction equipment shall be maintained in proper tune.

DF-4. All construction vehicles shall be prohibited from excessive idling. Excessive idling is defined as five (5) minutes or longer.

DF-5. Minimize simultaneous operation of multiple construction equipment units.

DF-6. The use of heavy construction equipment and earthmoving activity shall be suspended during Air Alerts when the Air Quality Index reaches the “Unhealthy” level.

DF-7. Utilize low emission "clean diesel" equipment with new or modified engines that include diesel oxidation catalysts, diesel particulate filers or Moyer Program retrofits that meet CARB best available control technology.

DF-8. Establish an electricity supply to the construction site and use electric powered equipment instead of diesel-powered equipment or generators, where feasible.

DF-9. Establish staging areas for the construction equipment that are as distant as possible from adjacent sensitive receptors (residential land uses).

DF-10. Use haul trucks with on-road engines instead of off-road engines for on-site hauling.

DF-11. Prior to demolition of existing structures, an asbestos evaluation must be completed in accordance with the Asbestos National Emission Standard for Hazardous Air Pollutants (NESHAP) regulations.

DF-12. Project shall comply with all Title 24 Green Building Code requirements.

DF-13. Provide a solid barrier wall along Newport Boulevard shielding residential units from the adjacent freeway. The wall shall be as tall as allowed by the City's zoning code.

DF-14. Install vegetation, including trees and/or thick foliage along the Newport Boulevard perimeter wall to further shield residents from air pollution exposure. Vegetation should grow to a minimum of 5 meters in height and gaps in the vegetation should be avoided.

DF-15. Provide housing ventilation units with upgraded minimum efficiency reporting value (MERV) filters and high efficiency particulate air (HEPA) filters.

DF-16. Buildings facing the SR-55 Freeway should have their ventilation intakes along the opposite side of the building, away from the freeway.

DF-17. The project applicant and future homeowners should disclose the potential health risks of living within 1,000 feet of a freeway in any purchasing or leasing agreements.

DF-18. Use zero VOC paint whenever possible.

DF-19. Use electric landscaping equipment, such as lawn mowers and leaf blowers, whenever possible.

DF-20. Implement water conservation strategies such as installing low flow fixtures and toilets, installing water efficient irrigation systems, drought tolerant/native landscaping, and reducing the amount of turf.

DF-21. Implement a waste recycling and composting program with the goal of diverting at least 50% of waste away from a landfill.

DF-22. Encourage development to address "heat island" effects by including cool roofs, cool pavements, and strategically placed shade trees.

DF-23. Incorporate measures that reduce energy use through solar orientation by taking advantage of shade, prevailing winds, landscaping, and sun screens.

DF-24. Incorporate solar ready design features into the building construction.

DF-25. Provide pedestrian and bicycle access to the project site from Newport Boulevard.

2.0 Air Quality Setting

The Federal Clean Air Act (§ 7602) defines an air pollution as any agent or combination of such agents, including any physical, chemical, biological, or radioactive substance which is emitted into or otherwise enters the ambient air. Household combustion devices, motor vehicles, industrial facilities and forest fires are common sources of air pollution. Air pollution can cause disease, allergies and death. It affects soil, water, crops, vegetation, manmade materials, animals, wildlife, weather, visibility, and climate. It can also cause damage to and deterioration of property, present hazards to transportation, and negatively impact the economy.

This section provides background information on criteria air pollutants, the applicable federal, state and local regulations concerning air pollution, and the existing physical setting of the project within the context of local air quality.

2.1 Description of Air Pollutants

The following section describes the air pollutants of concern related to the project. Criteria air pollutants are defined as those pollutants for which the federal and state governments have established air quality standards for outdoor or ambient concentrations to protect public health. The following descriptions of criteria air pollutants have been provided by the SCAQMD.

- **Carbon Monoxide (CO)** is a colorless, odorless, toxic gas produced by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, and biomass). Sources include motor vehicle exhaust, industrial processes (metals processing and chemical manufacturing), residential wood burning, and natural sources. CO is somewhat soluble in water; therefore, rainfall and fog can suppress CO conditions. CO enters the body through the lungs, dissolves in the blood, and competes with oxygen, often replacing it in the blood, thus reducing the blood's ability to transport oxygen to vital organs in the body. The ambient air quality standard for carbon monoxide is intended to protect persons whose medical condition already compromises their circulatory system's ability to deliver oxygen. These medical conditions include certain heart ailments, chronic lung diseases, and anemia. Persons with these conditions have reduced exercise capacity even when exposed to relatively low levels of CO. Fetuses are at risk because their blood has an even greater affinity to bind with CO. Smokers are also at risk from ambient CO levels because smoking increases the background level of CO in their blood. The South Coast basin is has recently achieved attainment status for carbon monoxide by both USEPA and CARB.

- **Nitrogen Dioxide (NO_2)** is a byproduct of fuel combustion. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts quickly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_x. NO_2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in young children has also been observed at concentrations below 0.3 parts per million (ppm). NO_2 absorbs blue light which results in a brownish red cast to the atmosphere and reduced visibility. Although NO_2 concentrations have not exceeded national standards since 1991 and the state hourly standard since 1993, NO_x emissions remain of concern because of their contribution to the formation of O3 and particulate matter.

- **Ozone (O_3)** is one of a number of substances called photochemical oxidants that are formed when volatile organic compounds (VOC) and NO_x react in the presence of ultraviolet sunlight. O_3 concentrations in the South Coast basin are typically among the highest in the nation, and the damaging effects of photochemical smog, which is a popular name for a number of oxidants in combination, are generally related to the concentrations of O_3. Individuals exercising outdoors, children, and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be the subgroups most susceptible to O_3 effects. Short-term exposures (lasting for a few hours) to O_3 at levels typically observed in southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. In recent years, a correlation between elevated ambient O_3 levels and increases in daily hospital admission rates, as well as mortality, has also been reported. The South Coast Air Basin is designated by the USEPA as an extreme non-attainment area for ozone. Although O_3 concentrations have declined substantially since the early 1990s, the South Coast basin continues to have peak O_3 levels that exceed both state and federal standards.

- **Fine Particulate Matter (PM_{10})** consists of extremely small suspended particles or droplets 10 microns or smaller in diameter that can lodge in the lungs, contributing to respiratory problems. PM_{10} arises from such sources as re-entrained road dust, diesel soot, combustion products, tire and brake abrasion, construction operations, and fires. It is also formed in the atmosphere from NO_x and SO_2 reactions with ammonia. PM_{10} scatters light and significantly reduces visibility. Inhalable particulates pose a serious health hazard, alone or in combination with other pollutants. More than half of the smallest particles inhaled will be deposited in the lungs and can cause

permanent lung damage. Inhalable particulates can also have a damaging effect on health by interfering with the body's mechanism for clearing the respiratory tract or by acting as a carrier of an absorbed toxic substance. The South Coast basin has recently achieved federal attainment status for PM_{10}, but is non-attainment based on state requirements.

- **Ultra-Fine Particulate Matter ($PM_{2.5}$)** is defined as particulate matter with a diameter less than 2.5 microns and is a subset of PM_{10}. $PM_{2.5}$ consists mostly of products from the reaction of NO_x and SO_2 with ammonia, secondary organics, finer dust particles, and the combustion of fuels, including diesel soot. $PM_{2.5}$ can cause exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease, declines in pulmonary function growth in children, and increased risk of premature death from heart or lung diseases in the elderly. Daily fluctuations in $PM_{2.5}$ levels have been related to hospital admissions for acute respiratory conditions, school absences, and increased medication use in children and adults with asthma. The South Coast basin is designated as non-attainment for $PM_{2.5}$ by both federal and state standards.

- **Sulfur dioxide (SO_2)** is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Health effects include acute respiratory symptoms and difficulty in breathing for children. Individuals with asthma may experience constriction of airways with exposure to SO_2. Though SO_2 concentrations have been reduced to levels well below state and federal standards, further reductions in SO_2 emissions are needed because SO_2 is a precursor to sulfate and PM_{10}. The South Coast basin is considered a SO_2 attainment area by USEPA and CARB.

- **Lead (Pb)** is a toxic heavy metal that can be emitted into the air through some industrial processes, burning of leaded gasoline and past use of lead based consumer products. Lead is a neurotoxin that accumulates in soft tissues and bones, damages the nervous system, and causes blood disorders. It is particularly problematic in children, in that permanent brain damage may result, even if blood levels are promptly normalized with treatment. Concentrations of lead once exceeded the state and federal air quality standards by a wide margin, but as a result of the removal of lead from motor vehicle gasoline, ambient air quality standards for lead have not been exceeded since 1982. Though special monitoring sites immediately downwind of lead sources recorded localized violations of the state standard in 1994, no violations have been recorded since. Consequently, the South Coast basin is designated as an attainment area for lead by both the USEPA and CARB. This report

does not analyze lead emissions from the project, as it is not expected to emit lead in any significant measurable quantity.

- **Volatile Organic Compounds (VOC),** although not actually a criteria air pollutant, VOCs are regulated by the SCAQMD because they cause chemical reactions which contribute to the formation of ozone. VOCs are also transformed into organic aerosols in the atmosphere, contributing to higher PM_{10} and lower visibility levels. Sources of VOCs include combustion engines, and evaporative emissions associated with fuel, paints and solvents, asphalt paving, and the use of household consumer products such as aerosols. Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations of VOC. Some hydrocarbon components classified as VOC emissions are hazardous air pollutants. Benzene, for example, is a hydrocarbon component of VOC emissions that is known to be a human carcinogen. The term reactive organic gases (ROG) are often used interchangeably with VOC.

- **Toxic Air Contaminants (TACs)** are defined as air pollutants which may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health, and for which there is no concentration that does not present some risk. This contrasts with the criteria pollutants, in that there is no threshold level for TAC exposure below which adverse health impacts are not expected to occur. The majority of the estimated health risk from TACs can be attributed to a relatively few compounds, the most common being diesel particulate matter (DPM). In addition to DPM, benzene and 1,3-butadiene are also significant contributors to overall ambient public health risk in California.

2.2 Federal and State Ambient Air Quality Standards

The Federal Clean Air Act, which was last amended in 1990, requires the EPA to set National Ambient Air Quality Standards (NAAQS) for criteria pollutants considered harmful to public health and the environment. The State of California has also established additional and more stringent California Ambient Air Quality Standards (CAAQS) in addition to the seven criteria pollutants designated by the federal government.

AAQS are designed to protect the health and welfare of the populace with a reasonable margin of safety. The standards are divided into two categories, primary standards and secondary standards. Primary standards are implemented to provide protection for the "sensitive" populations such as those with asthma, or the children and elderly. Secondary

standards are to provide protection against visible pollution as well as damage to the surrounding environment, including animals, crops, and buildings.

Table 4 shows the Federal and State Ambient Air Quality Standards.

Table 4
Federal and State Ambient Air Quality Standards (AAQS)[1]

Air Pollutant	Averaging Time	Federal Standard (NAAQS)[2]	California Standard (CAAQS)[2]
Ozone	1 Hour	--	0.09 ppm
	8 Hour	0.070 ppm[4]	0.070 ppm
Carbon Monoxide (CO)	1 Hour	35 ppm	20 ppm
	8 Hour	9 ppm	9 ppm
Nitrogen Dioxide (NO_2)	1 Hour	0.100 ppm	0.18 ppm
	Annual	0.053 ppm	0.030 ppm
Sulfur Dioxide (SO_2)	1 Hour	0.075 ppm	0.25 ppm
	3 Hour	0.5 ppm[3]	--
	24 Hour	--	0.04 ppm
Particulate Matter (PM_{10})	24 Hour	150 μg/m^3	50 μg/m^3
	Mean	--	20 μg/m^3
Particulate Matter (PM2.5)	24 Hour	35 μg/m^3	--
	Annual	12 μg/m^3	12 μg/m^3
Lead[4]	30-day	--	1.5 μg/m
	Quarter	1.5 μg/m	--
	3-month average	0.15 μg/m	--
Visibility reducing particles	8 Hour	--	0.23/km extinction coefficient. (10-mile visibility standard)
Sulfates	24 Hour	--	25 μg/m
Vinyl chloride[4]	24 Hour	--	0.01 ppm
Hydrogen sulfide	24 Hour	--	0.03 ppm

[1] Source: USEPA and California Air Resources Board (CARB).
[2] ppm = parts per million of air, by volume; µg/m3 = micrograms per cubic meter; Annual = Annual Arithmetic Mean; 30-day = 30-day average; Quarter = Calendar quarter.
[3] Secondary standard
[4] The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Several pollutants listed in Table 4 are not addressed in this analysis. Lead is not included because the project is not anticipated to emit lead. Visibility-reducing particles are not explicitly addressed in this analysis because particulate matter is addressed. The project is not expected to generate or be exposed to vinyl chloride because proposed project uses do not utilize the chemical processes that create this pollutant and there are no such uses in the project vicinity. The proposed project is not expected to cause exposure to hydrogen sulfide because it would not generate hydrogen sulfide in any substantial quantity.

In addition to setting out primary and secondary AAQS, the State has established a set of episode criteria for O_3, CO, NO_2, SO_2, and PM_{10}. These criteria refer to episode levels representing periods of short-term exposure to air pollutants that actually threaten public health, as required in the California Air Pollution Emergency Plan and Title 40 of the U.S. Code of Federal Regulations. Health effects are progressively more severe as pollutant levels increases from Stage One to Stage Three. An alert level is that concentration of pollutants at which initial stage control actions are to begin. An alert will be declared when any one of the pollutant concentrations can be expected to remain at these levels for 12 or more hours or to increase or, in the case of oxidants, the situation is likely to recur within the next 24 hours, unless control actions are taken.

Pollutant alert levels:

- O_3: 392 micrograms per cubic meter (μg/m3) (0.20 parts per million [ppm]), 1-hour average
- CO: 17 milligrams per cubic meter (mg/m3) (15 ppm), 8-hour average
- NO_2: 1,130 μg/m3 (0.6 ppm) 1-hour average; 282 μg/m3 (0.15 ppm) 24-hour average

2.3 Attainment Status

The Clean Air Act requires states to prepare a State Implementation Plan (SIP) to ensure air quality meets the NAAQS. The California Air Resources Board (CARB) provides designations of attainment for air basins where AAQS are either met or exceeded. If the AAQS are met, the area is designated as being in "attainment", if the air pollutant concentrations exceed the AAQS, than the area is designated as being "nonattainment". If there is inadequate or inconclusive data to make a definitive attainment designation, the area is considered "unclassified."

National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different

definition, or 'form' of what constitutes attainment, based on specific air quality statistics. For example, the Federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual $PM_{2.5}$ standard is met if the three-year average of the annual average $PM_{2.5}$ concentration is less than or equal to the standard.

When a state submits a request to the EPA to re-designate a nonattainment area to attainment, the Clean Air Act (CAA) section 175A(a) requires that the state (or states, if the area is a multi-state area) submit a maintenance plan ensuring the area can maintain the air quality standard for which the area is to be re-designated for at least 10 years following the effective date of re-designation. Table 5 lists the attainment status for the criteria pollutants in the South Coast Air Basin (SCAB).

Table 5
South Coast Air Basin Attainment Status[1]

Pollutant	State Status	National Status
Ozone	Nonattainment	Nonattainment (Extreme)
Carbon monoxide	Attainment	Attainment (Maintenance)
Nitrogen dioxide (annual)	Attainment	Attainment (Maintenance)
Nitrogen dioxide (1-hour)	Attainment	Attainment
Total	Attainment	Attainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
Lead	Attainment	Nonattainment (Partial)[2]

[1] Source: California Air Resources Board. http://www.arb.ca.gov/desig/adm/adm.htm
[2] Partial Nonattainment designation – Los Angeles County portion of Basin only.

2.4 South Coast Air Quality Management District (SCAQMD)

The agency responsible for air pollution control for the South Coast Air Basin (SCAB) is the South Coast Air Quality Management District (SCAQMD). SCAQMD is responsible for controlling emissions primarily from stationary sources. SCAQMD maintains air quality monitoring stations throughout the SCAB. SCAQMD, in coordination with the Southern California Association of Governments, is also responsible for developing, updating, and

implementing the Air Quality Management Plan (AQMP) for the SCAB. An AQMP is a plan prepared and implemented by an air pollution district for a county or region designated as nonattainment of the federal and/or California ambient air quality standards. The term nonattainment area is used to refer to an air SCAB where one or more ambient air quality standards are exceeded.

Every three (3) years the SCAQMD prepares a new AQMP, updating the previous plan and having a 20-year horizon. The latest version is the 2016 AQMP. The 2016 AQMP is a regional blueprint for achieving the federal air quality standards and healthful air. While air quality has dramatically improved over the years, the SCAB still exceeds federal public health standards for both ozone and particulate matter (PM) and experiences some of the worst air pollution in the nation. The 2016 AQMP includes both stationary and mobile source strategies to ensure that rapidly approaching attainment deadlines are met, that public health is protected to the maximum extent feasible, and that the region is not faced with burdensome sanctions if the Plan is not approved or if the NAAQS are not met on time.

The most significant air quality challenge in the SCAB is to reduce nitrogen oxide (NOx) emissions sufficiently to meet the upcoming ozone standard deadlines. Based on the inventory and modeling results, 522 tons per day (tpd) of total SCAB NOx 2012 emissions are projected to drop to 255 tpd and 214 tpd in the 8-hour ozone attainment years of 2023 and 2031 respectively, due to continued implementation of already adopted regulatory actions ("baseline emissions"). The analysis suggests that total SCAB emissions of NOx must be reduced to approximately 141 tpd in 2023 and 96 tpd in 2031 to attain the 8-hour ozone standards. This represents an additional 45 percent reduction in NOx in 2023, and an additional 55 percent NOx reduction beyond 2031 levels.

The SCAQMD establishes a program of rules and regulations to obtain attainment of the state and federal standards in conjunction with the AQMP. Several of the rules and regulations that may be applicable to this project include, but are not limited to, the following:

SCAQMD Rule 402 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

SCAQMD Rule 403 governs emissions of fugitive dust during construction and operation activities. Compliance with this rule is achieved through application of standard Best Management Practices, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph, and establishing a permanent ground cover on finished sites.

SCAQMD Rule 445 restricts wood burning devices from being installed into any new development and is intended to reduce the emissions of particulate matter for wood burning devices.

SCAQMD Rule 1113 governs the sale, use, and manufacturing of architectural coating and limits the VOC content in paints and paint solvents. This rule regulates the VOC content of paints available during construction. Therefore, all paints and solvents used during construction and operation of project must comply with Rule 1113.

SCAQMD Rule 1143 governs the manufacture, sale, and use of paint thinners and solvents used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations by limiting their VOC content. This rule regulates the VOC content of solvents used during construction. Solvents used during the construction phase must comply with this rule.

SCAQMD Rule 1186 limits the presence of fugitive dust on paved and unpaved roads and sets certification protocols and requirements for street sweepers that are under contract to provide sweeping services to any federal, state, county, agency or special district such as water, air, sanitation, transit, or school district.

SCAQMD Rule 1303 governs the permitting of re-located or new major emission sources, requiring Best Available Control Measures and setting significance limits for PM10 among other pollutants.

SCAQMD Rule 2202 On-Road Motor Vehicle Mitigation Options, is to provide employers with a menu of options to reduce mobile source emissions generated from employee commutes, to comply with federal and state Clean Air Act requirements, Health & Safety Code Section 40458, and Section 182(d)(1)(B) of the federal Clean Air Act. It applies to any employer who employs 250 or more employees on a full or part-time basis at a worksite for a consecutive six-month period calculated as a monthly average.

2.5 South Coast Air Basin

The project is located within the South Coast Air SCAB (SCAB). To the west of the SCAB is the Pacific Ocean. To the north and east are the San Gabriel, San Bernardino, and San Jacinto mountains, while the southern limit of the SCAB is the San Diego County line. The SCAB consists of Orange County, all of Los Angeles County except for the Antelope Valley, the non-desert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County.

The local dominant wind blows predominantly from the south-southwest with relatively low velocities. The annual average annual wind speed is about 10 miles per hour. Summer wind speeds average slightly higher than winter wind speeds. Low average wind speeds, together with a persistent temperature inversion limit the vertical dispersion of air pollutants throughout the SCAB.

The region also experiences periods of hot, dry winds from the desert, known as Santa Ana winds. If the Santa Ana winds are strong, they can surpass the sea breeze, which blows from the ocean to the land, and carry the suspended dust and pollutants out to the ocean. If the winds are weak, they are opposed by the sea breeze and cause stagnation, resulting in high pollution events.

The annual average temperature varies little throughout much of the SCAB, ranging from the low to middle 60s (°F). With more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas.

The mountains surrounding the region form natural horizontal barriers to the dispersion of air contaminants. Air pollution created in the coastal regions and Los Angeles metropolitan area are transported inland until reaching the mountains, where the combination of mountains and temperature inversion layers generally prevent further dispersion. This poor ventilation results in a gradual degradation of air quality from the coastal areas to inland areas of the SCAB. Air stagnation may occur during the early evening and early morning periods of transition between day and nighttime flows.

Temperature inversions are an important feature that limits the vertical depth through which pollution can be mixed. During the summer, coastal areas are characterized by a sharp discontinuity between the cool marine air at the surface and the warm, sinking air aloft within the high-pressure cell over the ocean to the west. This marine/subsidence inversion allows for good local mixing, but acts like a giant lid over the SCAB. The air

remains stagnant, as the average wind speed in downtown Los Angeles becomes less than five mph.

A second type of inversion forms on clear winter nights when cold air off the mountains sinks to the valley floor while the air aloft over the valley remains warm. This forms radiation inversions. These inversions, in conjunction with calm winds, trap pollutants such as those from automobile exhaust near their source. They lead to air pollution "hotspots" in heavily developed coastal areas of the SCAB, although onshore breezes often push the pollutants along canyons into the inland valleys. Summers are often periods of hazy visibility and occasionally unhealthful air, while winter air quality impacts tend to be highly localized and can consist of elevated levels of nitrogen dioxide and fine particulate matter.

2.6 Local Climate and Meteorology

The weather station closest to the project site is a National Weather Service Cooperative weather station located at Newport Beach Harbor (ID: 046175). Climatological data from the National Weather Service at this station is summarized in Table 6.

Table 6
Meteorological Summary[1]

Month	Temperature (˚F)			Mean Precipitation (inches)
	Max.	Min.	Mean	
January	63.2	46.9	55.1	2.19
February	63.4	48.2	55.8	2.30
March	63.9	49.8	56.9	1.72
April	65.2	52.3	58.8	0.92
May	67.0	56.0	61.6	0.23
June	69.1	59.1	64.1	0.07
July	72.2	62.2	67.2	0.01
August	73.4	63.2	68.3	0.06
September	73.0	61.2	67.1	0.21
October	70.9	57.2	64.0	0.38
November	67.8	51.4	59.6	1.08
December	64.2	47.5	55.9	1.85
Annual	**67.8**	**54.6**	**61.2**	**11.00**

[1] Source: Western Regional Climate Center, data from 1921 to 2012.

2.7 Local Air Quality

The SCAQMD has divided the SCAB into fourteen general forecasting areas and thirty six Source Receptor Areas (SRA) for monitoring and reporting local air quality. The SCAQMD provides daily reports of the current air quality conditions in each general forecast area and SRA. The monitoring areas provide a general representation of the local meteorological, terrain, and air quality conditions within the SCAB.

The project is located within the Coastal general forecasting area and North Orange County Coastal air monitoring area (SRA-16). Table 7 summarizes the published air quality monitoring data from 2014 through 2016, which is the most recent 3-year period available. These pollutant levels were used to comprise a "background" for the project location and existing local air quality. For criteria pollutants not monitored at the North Orange County Coastal station, data from the nearest monitoring station with a comparable setting were used.

The data shows that during the past few years, the project area has exceeded State thresholds for Ozone, PM_{10} and $PM_{2.5}$.

Table 7
Local Air Quality

Air Pollutant Location	Averaging Time	Item	2014	2015	2016
Carbon Monoxide -- North Orange County Coastal	1 Hour	Max 1-Hour (ppm)	3.0	3.0	2.1
		Exceeded State Standard (20 ppm)	No	No	No
		Exceeded National Standard (35 ppm)	No	No	No
	8 Hour	Max 8 Hour (ppm)	1.9	2.2	1.7
		Exceeded State Standard (9 ppm)	No	No	No
		Exceeded National Standard (9 ppm)	No	No	No
Ozone -- North Orange County Coastal	1 Hour	Max 1-Hour (ppm)	0.096	0.099	0.090
		Days > State Standard (0.09 ppm)	1	1	0
	8 Hour	Max 8 Hour (ppm)	0.079	0.079	0.069
		Days > State Standard (0.07 ppm)	6	2	0
		Days >National Standard (0.070 ppm)	4	2	0
Nitrogen Dioxide -- North Orange County Coastal	1 Hour	Max 1-Hour (ppm)	0.0606	0.0524	0.0598
		Exceeded State Standard (0.18 ppm)	No	No	No
	Annual	Annual Average (ppm)	0.0108	0.0116	0.0101
		Exceeded >State Standard (0.030 ppm)	No	No	No
		Exceeded >National Standard (0.053 ppm)	No	No	No
Sulfur Dioxide -- North Orange County Coastal	1 Hour	Max 1 Hour (ppm)	0.0088	0.0045	0.0033
		Exceed State Standard (0.25 ppm)	No	No	No
		Exceed National Standard (0.075 ppm)	No	No	No
Coarse Particles (PM10) -- Central Orange County	24 Hour	Max 24-Hour ($\mu g/m^3$)	85	66	74
		Days > State Standard (50 $\mu g/m^3$)	2	11	3
		Days >National Standard (150 $\mu g/m^3$)	0	0	0
	Annual	Annual Average ($\mu g/m^3$)	26.8	24.8	24.4
		Exceeded State Standard (20 $\mu g/m^3$)	Yes	Yes	Yes
Fine Particulates (PM2.5) -- Central Orange County	24 Hour	Max 24-Hour ($\mu g/m^3$)	56.2	45.8	44.45
		Days >National Standard (35 $\mu g/m^3$)	6	3	1
	Annual	Annual Average ($\mu g/m^3$)	10.53	9.38	9.47
		Exceeded State Standard (12 $\mu g/m^3$)	No	No	No
		Exceeded National Standard (15 $\mu g/m^3$)	No	No	No

Source: EPA and ARB websites www.epa.gov/air/data.index.html and www.arb.ca.gov/adam/welcome.html
$\mu g/m^3$ = micrograms per cubic meter
ARB = California Air Resource Board
EPA= Environmental Protection Agency
ppm = part per million
(- -) = Data not provided

3.0 Global Climate Change Setting

Global climate change is the change in the average weather of the earth that is measured by such things as alterations in temperature, wind patterns, storms, and precipitation. Current data shows that the current period of warming is occurring more rapidly than past geological events. The average global surface temperature has increased approximately 1.4° Fahrenheit since the early 20th Century. 1.4° Fahrenheit may seem like a small change, but it's an unusual event in Earth's recent history, and small changes in temperature correspond to enormous changes in the environment.

The planet's climate record, preserved in tree rings, ice cores, and coral reefs, shows that the global average temperature has been stable over long periods of time. For example, at the end of the last ice age, when the Northeast United States was covered by more than 3,000 feet of ice, average global temperatures were only 5° to 9° Fahrenheit cooler than today. The Intergovernmental Panel on Climate Change (IPCC), which includes more than 1,300 scientists from the United States and other countries, forecasts a temperature rise of 2.5° to 10° Fahrenheit over the next century. Therefore, significant changes to the environment are expected in the near future.

The consequences of global climate change include more frequent and severe weather, worsening air pollution by increasing ground level ozone, higher rates of plant and animal extinction, more acidic and oxygen depleted oceans, strain on food and water resources, and threats to densely populated coastal and low lying areas from sea level rise.

The impacts of climate change are already visible in the Southwest United States. In California, the consequences of climate change include;

- A rise in sea levels resulting in displacement of costal businesses and residencies
- A reduction in the quality and supply of water from the Sierra snowpack
- Increased risk of large wildfires
- Exacerbation of air quality problems
- Reductions in the quality and quantity of agricultural products
- An increase temperature and extreme weather events
- A decrease in the health and productivity of California's forests

3.1 Greenhouse Gases

Most scientists agree the main cause of the current global warming trend is anthropogenic (human-induced) augmentation of the greenhouse effect. The greenhouse effect refers to the way gases in the earth's atmosphere trap and re-emits long wave infrared radiation, acting like a blanket insulating the earth. Activities such as fossil fuel combustion, industrial processes, agriculture, and waste decomposition have elevated the concentration of greenhouse gases in the atmosphere beyond the level of naturally occurring concentrations.

GHGs comprise less than 0.1 percent of the total atmospheric composition, yet they play an essential role in influencing climate. Greenhouse gases include naturally occurring compounds such as carbon dioxide (CO_2), methane (CH_4), water vapor (H_2O), and nitrous oxide (N_2O), while others are synthetic. Man-made GHGs include the chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs) and Perfluorocarbons (PFCs), as well as sulfur hexafluoride (SF_6). Different GHGs have different effects on the Earth's warming. GHGs differ from each other in their ability to absorb energy (their "radiative efficiency") and how long they stay in the atmosphere, also known as the "lifetime".

The Global Warming Potential (GWP) was developed to allow comparisons of the global warming impacts of different gases. Specifically, it is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of CO_2. The larger the GWP, the more that a given gas warms the Earth compared to CO_2 over that time period. The time period usually used for GWPs is 100 years. GWPs provide a common unit of measure, which allows analysts to add up emissions estimates of different gases, and allows policymakers to compare emissions reduction opportunities across sectors and gases.

Table 8 lists the 100-year GWP of GHGs from the Intergovernmental Panel on Climate Change (IPCC) fourth assessment report (AR4).

Table 8
Global Warming Potential of Greenhouse Gases[1, 2]

Gas Name	Formula	Lifetime (years)	GWP
Carbon Dioxide	CO_2		1
Methane	CH_4	12	25
Nitrous Oxide	N_2O	114	298
Sulphur Hexafluoride	SF_6	3200	22,800
Nitrogen Trifluoride	NF_3	740	17,200
Hexafluoroethane (PFC-116)	C_2F_6	10,000	12,200
Octafluoropropane (PFC-218)	C_3F_8	2,600	8,830
Octafluorocyclobutane (PFC-318)	C_4F_8	3,200	10,300
Tetrafluoromethane (PFC-14)	CF_4	50,000	7,390
Hydrofluorocarbon 125	HFC-125	29	3,500
Hydrofluorocarbon 134a	HFC-134a	14	1,430
Hydrofluorocarbon 143a	HFC-143a	52	4,470
Hydrofluorocarbon 152a	HFC-152a	1	124
Hydrofluorocarbon 227ea	HFC-227ea	34	3,220
Hydrofluorocarbon 23	HFC-23	270	14,800
Hydrofluorocarbon 236fa	HFC-236fa	240	9,810
Hydrofluorocarbon 245fa	HFC-245fa	8	1,030
Hydrofluorocarbon 32	HFC-32	5	675
Hydrofluorocarbon 365mfc	HFC-365mfc	9	794
Hydrofluorocarbon 43-10mee	HFC-43-10mee	16	1,640

[1] Source: IPCC Fourth Assessment Report (AR4)
[2] GWPs are used to convert GHG emission values to "carbon dioxide equivalent" (CO_2e) units

3.2 GHG Regulatory Setting - International

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations. The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC) (signed on March 21, 1994). Under the Convention, governments gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change. The 2014 UN Climate Change Conference in Lima Peru provided a unique opportunity to engage all countries to assess how developed countries are implementing actions to reduce emissions.

Kyoto Protocol. The Kyoto Protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. It has been estimated that if the commitments outlined in the Kyoto Protocol are met, global GHG emissions could be reduced by an estimated 5 percent from 1990 levels during the first commitment period of 2008 – 2012 (UNFCCC 1997). On December 8, 2012, the Doha Amendment to the Kyoto Protocol was adopted. The amendment includes: New commitments for Annex I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 2013 – 2020, a revised list of greenhouse gases (GHG) to be reported on by Parties in the second commitment period, and Amendments to several articles of the Kyoto Protocol, which specifically referenced issues pertaining to the first commitment period and which needed to be updated for the second commitment period.

The Paris Agreement. The Paris agreement is the first comprehensive global climate agreement to be ratified by the United States, United Nations, China, and India; the largest producers of greenhouse gas emissions in the world. The agreement was negotiated by a total of 195 nations, and entered into force on November 4, 2016. The central aim is to strengthen the global response to the threat of climate change by keeping the global temperature rise this century well below 2 degrees Celsius compared to pre-industrial levels, and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Additionally, the agreement aims to strengthen the ability of countries to deal with the impacts of climate change. Currently 122 parties have ratified the agreement. The

Trump administration has recently indicated the United States federal government will no longer participate in the Paris agreement.

3.3 GHG Regulatory Setting – National

Greenhouse Gas Endangerment. On December 2, 2009, the EPA announced that GHGs threaten the public health and welfare of the American people. The EPA also states that GHG emissions from on-road vehicles contribute to that threat. The decision was based on *Massachusetts v. EPA* (Supreme Court Case 05-1120) which argued that GHGs are air pollutants covered by the Clean Air Act and that the EPA has authority to regulate those emissions.

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy (CAFE) law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation's National Highway Safety Administration announced a joint final rule establishing a national program that would reduce greenhouse gas emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards would cut carbon dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). The second phase of the national program would involve proposing new fuel economy and greenhouse gas standards for model years 2017 – 2025 by September 1, 2011.

On October 25, 2010, the EPA and the U.S. Department of Transportation proposed the first national standards to reduce greenhouse gas emissions and improve fuel efficiency of heavy-duty trucks and buses. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a

10 percent reduction for gasoline vehicles and 15 percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively, if accounting for air conditioning leakage). Lastly, for vocational vehicles, the agencies are proposing engine and vehicle standards starting in the 2014 model year which would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions by 2018 model year.

Mandatory Reporting of Greenhouse Gases. On January 1, 2010, the EPA started requiring large emitters of heat-trapping emissions to begin collecting GHG data under a new reporting system. Under the rule, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of greenhouse gas emissions are required to submit annual reports to the EPA.

Climate Adaption Plan. The EPA Plan identifies priority actions the Agency will take to incorporate considerations of climate change into its programs, policies, rules and operations to ensure they are effective under future climatic conditions. The Plan reflects input received from States, Tribes and municipal and county officials during development, as well as comments received during a formal Tribal consultation process and a 60 day public comment period during the winter of 2013.

EPA is also releasing final Climate Change Adaptation Implementation Plans from its National Environmental Program Offices and all 10 Regional Offices. The Implementation Plans, which also reflect responses to public comment, provide more detail on how EPA Programs and Regions will carry out the work called for in the agency wide Plan in partnership with states, tribes, and local governments.

3.4 GHG Regulatory Setting – State of California

Tables 9 and 10 show the current climate change legislation and executive orders issued in the State of California.

Table 9
California Climate Change Legislation

Date	Legislation	Description
July 26, 2017	Assembly Bill 617 (Christina Garcia, Chapter 136, Statutes of 2017)	Companion to Cap-and-Trade Extension Establishes a groundbreaking program to measure and reduce air pollution from mobile and stationary sources at the neighborhood level in the communities most impacted by air pollutants. Requires the Air Resources Board to work closely with local air districts and communities to establish neighborhood air quality monitoring networks and to develop and implement plans to reduce emissions. The focus on community-based air monitoring and emission reductions will provide a national model for enhanced community protection.
July 25, 2017	Assembly Bill 398 (Eduardo Garcia, Chapter 135, Statutes of 2017)	Cap-and-Trade Extension Extends and improves the Cap and Trade Program, which will enable the state to meet its 2030 emission reduction goals in the most cost-effective manner. Furthermore, extending the Cap and Trade Program will provide billions of dollars in auction proceeds to invest in communities across California.
September 19, 2016	Senate Bill 1383 (Lara, Chapter 395, Statutes of 2016)	Short-lived Climate Pollutants Establishes statewide reduction targets for short-lived climate pollutants.
September 8, 2016	Assembly Bill 197 (Eduardo Garcia, Chapter 250, Statutes of 2016)	**Greenhouse gas regulations** Prioritizes direct emission reductions from large stationary sources and mobile sources.
September 8, 2016	Senate Bill 32 (Pavley, Chapter 249, Statutes of 2016)	**Greenhouse Gas emission reduction target for 2030** Establishes a statewide greenhouse gas (GHG) emission reduction target of 40 percent below 1990 levels by 2030.
October 7, 2015	Senate Bill 350 (De León, Chapter 547, Statutes of 2015)	**Clean Energy and Pollution Reduction Act of 2015** Establishes targets to increase retail sales of renewable electricity to 50 percent by 2030 and double the energy efficiency savings in electricity and natural gas end uses by 2030.
September 21, 2014	Senate Bill 605 (Lara, Chapter 523, Statutes of 2014)	**Short-lived climate pollutants** Requires the State Air Resources Board to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants by January 1, 2016.

Table 9
California Climate Change Legislation

Date	Legislation	Description
September 21, 2014	Senate Bill 1275 (De León, Chapter 530, Statutes of 2014)	**Charge Ahead California Initiative** Establishes a state goal of 1 million zero-emission and near-zero-emission vehicles in service by 2020. Amends the enhanced fleet modernization program to provide a mobility option. Establishes the Charge Ahead California Initiative requiring planning and reporting on vehicle incentive programs, and increasing access to and benefits from zero-emission vehicles for disadvantaged, low-income, and moderate-income communities and consumers.
September 21, 2014	Senate Bill1204 (Lara, Chapter 524, Statutes of 2014)	**California Clean Truck, Bus, and Off-Road Vehicle and Equipment Technology Program** Creates the California Clean Truck, Bus, and Off-Road Vehicle and Equipment Technology Program funded by the Greenhouse Gas Reduction Fund for development, demonstration, precommercial pilot, and early commercial deployment of zero- and near-zero emission truck, bus, and off-road vehicle and equipment technologies, with priority given to projects benefiting disadvantaged communities.
September 28, 2013	Assembly Bill 8 (Perea, Chapter 401, Statutes of 2013)	Alternative fuel and vehicle technologies: funding programs Extends until January 1, 2024, extra fees on vehicle registrations, boat registrations, and tire sales in order to fund the AB 118, Carl Moyer, and AB 923 programs that support the production, distribution, and sale of alternative fuels and vehicle technologies and air emissions reduction efforts. The bill suspends until 2024 ARB's regulation requiring gasoline refiners to provide hydrogen fueling stations and appropriates up to $220 million, of AB 118 money to create a hydrogen fueling infrastructure in the state.
September 28, 2013	Assembly Bill 1092 (Levine, Chapter 410, Statutes of 2013)	Building standards: electric vehicle charging infrastructure Requires the Building Standards Commission to adopt mandatory building standards for the installation of future electric vehicle charging infrastructure for parking spaces in multifamily dwellings and nonresidential development.

Table 9
California Climate Change Legislation

Date	Legislation	Description
September 30, 2012	Senate Bill 535 (De León, Chapter 830, Statutes of 2012)	Greenhouse Gas Reduction Fund and Disadvantaged Communities Requires the California Environmental Protection Agency to identify disadvantaged communities; requires that 25% of all funds allocated pursuant to an investment plan for the use of moneys collected through a cap-and-trade program be allocated to projects that benefit disadvantaged communities and 10 those 25% be use within disadvantaged communities; and requires the Department of Finance to include a description of how these requirements are fulfilled in an annual report.
September 30, 2012	Assembly Bill 1532 (J. Perez, Chapter 807, Statutes of 2012)	Greenhouse Gas Reduction Fund in the Budget Requires the Department of Finance to develop and submit to the Legislature an investment plan every three years for the use of the Greenhouse Gas Reduction Fund; requires revenue collected pursuant to a market-based compliance mechanism to be appropriated in the Annual Budget Act; requires the department to report annually to the Legislature on the status of projects funded; and specifies that findings issued by the Governor related to "linkage" as part of a market-base compliance mechanism are not subject to judicial review.
April 12, 2011	Senate Bill X1-2 (Simitian, Chapter 1, Statutes of 2011)	Governor Edmund G. Brown, Jr. signed Senate Bill X1-2 into law to codify the ambitious 33 percent by 2020 goal. SBX1-2 directs California Public Utilities Commission's Renewable Energy Resources Program to increase the amount of electricity generated from eligible renewable energy resources per year to an amount that equals at least 20% of the total electricity sold to retail customers in California per year by December 31, 2013, 25% by December 31, 2016 and 33% by December 31, 2020. The new RPS goals applies to all electricity retailers in the state including publicly owned utilities (POUs), investor-owned utilities, electricity service providers, and community choice aggregators. This new RPS preempts the California Air Resources Boards' 33 percent Renewable Electricity Standard.
September 29, 2011	Assembly Bill 1504 (Skinner, Chapter 534, Statutes of 2010)	Forest resources and carbon sequestration. Bill requires Department of Forestry and Fire Protection and Air Resources Board to assess the capacity of its forest and rangeland regulations to meet or exceed the state's greenhouse goals, pursuant to AB 32.

Table 9
California Climate Change Legislation

Date	Legislation	Description
September 30, 2008	Senate Bill 375 (Steinberg, Chapter 728, Statutes of 2008)	Sustainable Communities & Climate Protection Act of 2008 requires Air Resources Board to develop regional greenhouse gas emission reduction targets for passenger vehicles. ARB is to establish targets for 2020 and 2035 for each region covered by one of the State's 18 metropolitan planning organizations.
October 14, 2007	Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007)	Alternative Fuels and Vehicles Technologies The bill would create the Alternative and Renewable Fuel and Vehicle Technology Program, to be administered by the Energy Commission, to provide funding to public projects to develop and deploy innovative technologies that transform California's fuel and vehicle types to help attain the state's climate change policies.
August 24, 2007	Senate Bill 97 (Dutton, Chapter 187, Statutes of 2007)	Directs Governor's Office of Planning and Research to develop CEQA guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions."
July 18. 2006	Assembly Bill 1803 (Committee on Budget, Chapter 77, Statutes of 2006)	Greenhouse gas inventory transferred to Air Resources Board from the Energy Commission.
August 21, 2006	Senate Bill 1 (Murray, Chapter 132, Statutes of 2006)	California's Million Solar Roofs plan is enhanced by PUC and CEC's adoption of the California Solar Initiative. SB1 directs PUC and CEC to expand this program to more customers, and requiring the state's municipal utilities to create their own solar rebate programs. This bill would require beginning January 1, 2011, a seller of new homes to offer the option of a solar energy system to all customers negotiating to purchase a new home constructed on land meeting certain criteria and to disclose certain information.
September 26, 2006	Senate Bill 107 (Simitian, Chapter 464, Statutes of 2006)	SB 107 directs California Public Utilities Commission's Renewable Energy Resources Program to increase the amount of renewable electricity (Renewable Portfolio Standard) generated per year, from 17% to an amount that equals at least 20% of the total electricity sold to retail customers in California per year by December 31, 2010.

Table 9
California Climate Change Legislation

Date	Legislation	Description
September 27, 2006	Assembly Bill 32 (Núñez, Chapter 488, Statutes of 2006)	California Global Warming Solutions Act of 2006. This bill would require Air Resources Board (ARB) to adopt a statewide greenhouse gas emissions limit equivalent to the statewide greenhouse gas emissions levels in 1990 to be achieved by 2020. ARB shall adopt regulations to require the reporting and verification of statewide greenhouse gas emissions and to monitor and enforce compliance with this program. AB 32 directs Climate Action Team established by the Governor to coordinate the efforts set forth under Executive Order S-3-05 to continue its role in coordinating overall climate policy.
September 12, 2002	Senate Bill 1078 (Sher, Chapter 516, Statutes of 2002)	This bill establishes the California Renewables Portfolio Standard Program, which requires electric utilities and other entities under the jurisdiction of the California Public Utilities Commission to meet 20% of their renewable power by December 31, 2017 for the purposes of increasing the diversity, reliability, public health and environmental benefits of the energy mix.
September 7, 2002	Senate Bill 812 (Sher, Chapter 423, Statutes of 2002)	This bill added forest management practices to the California Climate Action Registry members' reportable emissions actions and directed the Registry to adopt forestry procedures and protocols to monitor, estimate, calculate, report and certify carbon stores and carbon dioxide emissions that resulted from the conservation-based management of forests in California.
July 22, 2002	Assembly Bill 1493 (Pavley, Chapter 200, Statutes of 2002)	The "Pavley" bill requires the registry, in consultation with the State Air Resources Board, to adopt procedures and protocols for the reporting and certification of reductions in greenhouse gas emissions from mobile sources for use by the state board in granting the emission reduction credits. This bill requires the state board to develop and adopt, by January 1, 2005, regulations that achieve the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks.
October 11, 2001	Senate Bill 527 (Sher, Chapter 769, Statutes of 2001)	This bill revises the functions and duties of the California Climate Action Registry and requires the Registry, in coordination with CEC to adopt third-party verification metrics, developing GHG emissions protocols and qualifying third-party organizations to provide technical assistance and certification of emissions baselines and inventories. SB 527 amended SB 1771 to emphasize third-party verification.

Table 9
California Climate Change Legislation

Date	Legislation	Description
September 30, 2000	Senate Bill 1771 (Sher, Chapter 1018, Statutes of 2000)	SB 1771 establishes the creation of the non-profit organization, the California Climate Action Registry and specifies functions and responsibilities to develop a process to identify and qualify third-party organizations approved to provide technical assistance and advice in monitoring greenhouse gas emissions, and setting greenhouse gas (GHG) emissions baselines in coordination with CEC. Also, the bill directs the Registry to enable participating entities to voluntarily record their annual GHG emissions inventories. Also, SB 1771 directs CEC to update the state's greenhouse gas inventory from an existing 1998 report and continuing to update it every five years.
September 28, 1988	Assembly Bill 4420 (Sher, Chapter 1506, Statutes of 1988)	The California Energy Commission (CEC) was statutorily directed to prepare and maintain the inventory of greenhouse gas emissions (GHG) and to study the effects of GHGs and the climate change impacts on the state's energy supply and demand, economy, environment, agriculture, and water supplies. The study also required recommendations for avoiding, reducing, and addressing related impacts - and required the CEC to coordinate the study and any research with federal, state, academic, and industry research projects.

[1] Source: http://www.climatechange.ca.gov/state/legislation.html

Table 10
California Climate Change Executive Orders

Date	Governor's Executive Order	Description
July 17, 2015	Executive Order # B-32-15	EO-B-32-15 directs State agencies to develop an integrated freight action plan by July 2016. Among other things, the plan calls for targets for transportation efficiency and a transition to near-zero-emission technologies.
April 29, 2015	Executive Order # B-30-15	EO-B-30-15 sets a greenhouse gas (GHG) emissions target for 2030 at 40 percent below 1990 levels.
April 25, 2012	Executive Order # B-18-12	EO-B-18-12 calls for significant reductions in state agencies' energy purchases and GHG emissions. The Executive Order included a Green Building Action Plan, which provided additional details and specific requirements for the implementation of the Executive Order
March 23, 2012	Executive Order # B-16-12	EO-B-16-12 orders State agencies to facilitate the rapid commercialization of zero-emission vehicles (ZEVs). The Executive Order sets a target for the number of 1.5 million ZEVs in California by 2025. Also the Executive Order sets as a target for 2050 a reduction of GHG emissions from the transportation sector equaling 80 percent less than 1990 levels.
November 14, 2008	Executive Order # S-13-08	EO-S-13-08 directs state agencies to plan for sea level rise and climate impacts through coordination of the state Climate Adaptation Strategy.
January 18, 2007	Executive Order # S-01-07	EO-S-01-07 establishes the 2020 target and Low Carbon Fuel Standard. The EO directs the Secretary of Cal/EPA as coordinator of 2020 target activities and requires the Secretary to report back to the Governor and Legislature biannually on progress toward meeting the 2020 target.
October 18, 2006	Executive Order # S-20-06	EO-S-20-06 establishes responsibilities and roles of the Secretary of Cal/EPA and state agencies in climate change.
April 25, 2006	Executive Order # S-06-06	EO-S-06-06 directs Secretary of Cal/EPA to participate in the Bio-Energy Interagency Working Group and addresses biofuels and bioenergy from renewable resources.
June 1, 2005	Executive Order # S-03-05	EO-S-3-05 establishes greenhouse gas emission reduction targets, creates the Climate Action Team and directs the Secretary of Cal/EPA to coordinate efforts with meeting the targets with the heads of other state agencies. The EO requires the Secretary to report back to the Governor and Legislature biannually on progress toward meeting the GHG targets, GHG impacts to California, Mitigation and Adaptation Plans.
December 14, 2004	Executive Order # S-20-04	EO-S-20-04 (Green Buildings) directs state agencies to reduce energy use in state owned buildings by 20% by 2015 and increase energy efficiency.

[1] Source: http://www.climatechange.ca.gov/state/executive_orders.html

3.5 GHG Emissions Inventory

National. The US EPA has previously prepared an annual report called the Inventory of U.S. Greenhouse Gas Emissions and Sinks (Inventory). This report tracks total annual U.S. emissions and removals by source, economic sector, and greenhouse gas going back to 1990. The EPA is currently undergoing changes that reflect the agency's new direction under President Donald Trump and Administrator Scott Pruitt, and as of this time, GHG inventory is not currently being reported.

- The most recent national Inventory report, from year 2014, shows that national net GHG emissions (sources and sinks) were **6,108.0 MMTCO_2e**. (MMTCO_2e = million metric tons of CO_2 equivalents)

State of California. The CARB is responsible for maintaining and updating California's annual GHG Inventory per California Global Warming Solutions Act (AB 32) and H&SC §39607.4. The GHG inventory is a critical piece in demonstrating the state's progress in achieving the statewide GHG target. An updated emission inventory is published annually to include additional years and improved estimation methods.

- The most recent state inventory data, from year 2015, shows that the total GHG emissions in the State of California for year 2015 were **440.4 MMTCO_2e.**

Southern California Association of Governments. The Southern California Association of Governments (SCAG) Regional Greenhouse Gas Emissions Inventory and Reference Case Projections, 1990-2035, was completed in May 2012 for SCAG by the Center for Climate Strategies. The final report presents an assessment of the region's anthropogenic GHG emissions and sinks from 1990 to 2035.

- The most recent regional estimates from SCAG are from year 2008. In 2008, the total GHG emissions in the SCAG region were estimated to be **230.7 MMTCO_2e.**

4.0 Modeling Parameters and Assumptions

The California Emissions Estimator Model Version 2016.3.2 (CalEEMod) was used to calculate criteria air pollutants and GHG emissions from the construction and operation of the project. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify criteria air pollutant and GHG emissions.

The model quantifies direct emissions from construction and operation activities (including vehicle use), as well as indirect emissions, such as GHG emissions from off-site energy generation, solid waste disposal, vegetation planting and/or removal, and water use. The model also identifies mitigation measures to reduce criteria pollutant and GHG emissions. The model was developed for the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the California air districts.

4.1 Construction Assumptions

Construction of the project is assumed to begin in year 2019 and last approximately 11 months. The project's construction schedule is based on the default CalEEMod construction timeline. Construction activity will consist of demolition, site preparation, grading, building construction, paving, and architectural coating. Construction phases are not expected to overlap.

The site contains approximately 9,000 square feet of existing structures and approximately 556 cubic yards of paved/concrete surface that we be removed during demolition. Additionally, there is approximately 10,000 sqaure feet of storage containers and 25 salvaged vehicles that will need to be hauled away during demolition. The total tonnage of debris to be removed from the site is estimated to be approximately 2,025 tons. The following assumptions are used to calculate the weight of debris to be demolished and hauled from the site:

- Building debris tonnage = 0.046 tons/square foot.
- Asphalt/concrete tonnage = 1.89 tons/cubic yard
- Salvage vehicle weight = 4 tons/vehicle.

This analysis is conservative in that the storage containers and salvaged vehicles would not actually be demolished on-site, but instead just hauled away without the need for heavy demolition equipment. Therefore, emissions from on-site demolition and accompanying hauling trips are considered conservative estimates.

The CalEEMod default construction equipment list is based on survey data and the size of the site. The parameters used to estimate construction emissions, such as the worker and vendor trips and trip lengths, utilize the CalEEMod defaults. The construction equipment list is shown in Table 11.

The quantity of fugitive dust estimated by CalEEMod is based on the number of equipment used during site preparation and grading. CalEEMod estimates the worst case fugitive dust impacts will occur during the site preparation phase. The maximum daily disturbance footprint would be 2.0 acres per 8 hour day with all equipment in use. The disturbance rate is based on the SCAQMD Fact Sheet for Applying CalEEMod to Localized Significance Thresholds.

Table 11
Construction Equipment Assumptions Phase [1]

Phase	Equipment	Amount	Hours Per Day	Soil Disturbance Rate (Acres/ 8hr-Day)[2]	Equipment Daily Disturbance Footprint (Acres)	Total Phase Daily Disturbance Footprint (Acres)
Demolition	Concrete/Industrial Saws	1	8	0.0	0.0	2.0
	Rubber Tired Dozers	1	8	0.5	0.5	
	Tractors/Loaders/Backhoes	3	8	0.5	1.5	
Site Preparation	Grader	1	8	0.5	0.5	1.9
	Rubber Tired Dozers	1	7	1.0	0.9	
	Tractors/Loaders/Backhoes	1	8	0.5	0.5	
Grading	Grader	1	6	0.5	0.4	1.2
	Rubber Tired Dozers	1	6	0.5	0.4	
	Tractors/Loaders/Backhoes	1	7	0.5	0.4	
Building Construction	Cranes	1	6	0.0	0.0	0.4
	Forklifts	2	6	0.0	0.0	
	Generator Sets	1	8	0.0	0.0	
	Tractors/Loaders/Backhoes	1	6	0.5	0.4	
	Welders	3	8	0.0	0.0	
Paving	Cement and Mortar Mixer	1	6	0.0	0.0	0.5
	Pavers	1	6	0.0	0.0	
	Paving Equipment	1	8	0.0	0.0	
	Rollers	1	7	0.0	0.0	
	Tractors/Loaders/Backhoes	1	8	0.5	0.5	
Architectural Coating	Air Compressors	1	6	0.0	0.0	0.0

[1] CalEEMod Defaults

[2] Soil disturbance rate is based on the SCAQMD Fact Sheet for Applying CalEEMod to Localized Significance Thresholds.

4.2 Localized Construction Analysis Modeling Parameters

CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily disturbance activity possible for each piece of equipment. This report identifies the following parameters in the project design or applicable mitigation measures in order to compare CalEEMod reported emissions against the localized significance threshold lookup tables:

1) The off-road equipment list (including type of equipment, horsepower, and hours of operation) assumed for the day of construction activity with maximum emissions.
2) The maximum number of acres disturbed on the peak day.
3) Any emission control devices added onto off-road equipment.
4) Specific dust suppression techniques used on the day of construction activity with maximum emissions.

4.3 Operational Assumptions

Operational emissions occur over the life of the project and are considered "long-term" sources of emissions. Operational emissions include both direct and indirect sources. This section briefly describes the operational sources of emissions analyzed for the project.

4.3.1 Mobile Source Emissions

Mobile source emissions are the largest source of long-term air pollutants from the operation of the project. Mobile sources are direct sources of project emissions that are primarily attributed to tailpipe exhaust and road dust (tire, brake, clutch, and road surface wear) from motor vehicles traveling to and from the site.

Estimates of mobile source emissions require information on four parameters: trip generation, trip length, vehicle/fleet mix, and emission factors (quantity of emission for each mile traveled or time spent idling by each vehicle).

The trip generation rates for this project are based on the latest version of the ITE Trip Generation Manual, 10th Edition, 2017.

Trip summary information is shown in Table 12.

Table 12
Trip Generation Rates

Land Use	ITE Code	Amount	Units[1]	Daily Trip Rate[2]		
				Weekday	Saturday	Sunday
Multifamily Housing (Low-Rise)	220	38	DU	7.32	8.14	6.28

[1] DU = dwelling units
[2] Source: ITE Trip Generation Manual, 10th Edition, 2017

CalEEMod defaults for trip types, trip lengths, and diverted/pass-by trips are shown in Table 13.

Table 13
Operational Vehicle Trip Assumptions[1]

Land Use	Residential Trips[2]								
	Trip Length (miles)			Trip Percent (%)			Trip Type (%)		
	H-W	H-S	H-O	H-W	H-S	H-O	Prim.	Divert	Pass-By
Condo/Townhouse	14.7	5.9	8.7	40.2	19.2	40.6	86	11	3

[1] CalEEMod Defaults
[2] Residential Trips:
H-W = home-work; H-S = home-shop; H-O = home-other

The operational vehicle mix is shown in Table 14 and is based on CalEEMod defaults of regional averages. The Emission Factors (EMFAC) 2014 model is used to estimate the mobile source emissions are embedded in the CalEEMod emissions model. No adjustments have been made to default emission factors.

Table 14
Vehicle Mix for Trips[1]

Vehicle Class	Vehicle Mix (%)[2]
Light Duty Automobile (LDA)	55.60%
Light Duty Truck (LDTI)	4.38%
Light Duty Truck (LDT2)	21.04%
Medium Duty Truck (MDV)	11.64%
Light Heavy Truck (LHD1)	1.68%
Light Heavy Truck (LHD2)	0.58%
Medium Heavy Truck (MHD)	2.50%
Heavy Heavy Truck (HHD)	1.62%
Other Bus (OBUS)	0.17%
Urban Bus (UBUS)	0.16%
Motorcycle (MCY)	0.49%
School Bus (SBUS)	0.06%
Motor Home (MH)	0.10%
Total	**100.0%**

[1] CalEEMod defaults

4.3.2 Energy Source Emissions

Energy usage includes both direct and indirect sources of emissions. Direct sources of emissions include on-site natural gas usage (non-hearth) for heating, while indirect emissions include electricity generated by offsite power plants. Natural gas use is measured in units of a thousand British Thermal Units (kBTU) per size metric for each land use subtype and electricity use is measured in kilowatt hours (kWh) per size metric for each land use subtype.

CalEEMod, divides building electricity and natural gas use into uses that are subject to Title 24 standards and those that are not. Lighting electricity usage is also calculated as a separate category in CalEEMod. For electricity, Title 24 uses include the major building envelope systems covered by Part 6 (California Energy Code) of Title 24, such as space heating, space cooling, water heating, and ventilation. Non-Title 24 uses include all other end uses, such as appliances, electronics, and other miscellaneous plug-in uses. Because some lighting is not considered as part of the building envelope energy budget, and since a

separate mitigation measure is applicable to this end use, CalEEMod makes lighting a separate category.

For natural gas, uses are likewise categorized as Title 24 or Non-Title 24. Title 24 uses including building heating and hot water end uses. Non-Title 24 natural gas uses include cooking and appliances (including pool/spa heaters).

The baseline values are based on the California Energy Commission (CEC) sponsored California Commercial End Use Survey (CEUS) and Residential Appliance Saturation Survey (RASS) studies.

Table 15 shows the total annual expected electricity and natural gas usage for the proposed project.

Table 15
Electricity and Natural Gas Usage

Land Use	Electricity Usage[1] (KWhr/yr)[2]	Natural Gas Usage[1] (KBTU/yr)[2]
Condo/Townhome	188,803.8	670,534

[1] CalEEMod default estimates.
[2] KWhr/yr = Kilowatt Hours per Year
KBTU/yr = Thousand British Thermal Units per Year

4.3.3 Area Source Emissions

Area source emissions are direct sources of emissions that fall under four categories; hearths, consumer products, architectural coatings, and landscaping equipment. Per SCAQMD rule 445, no wood burning devices are allowed in developments; therefore no wood hearths are included in this project. The analysis does assume each residential unit will have a gas burning fireplace.

Consumer products are various solvents used in non-industrial applications which emit ROGs during their product use. These typically include cleaning supplies, kitchen aerosols, cosmetics and toiletries.

4.3.4 Other Sources of Operational Emissions

Water. Greenhouse gas emissions are generated from the upstream energy required to supply and treat the water used on the project site. Indirect emissions from water usage are counted as part of the project's overall impact. The estimated water usage for the project is reported in Table 16 and recommendations to reduce water usage are discussed in Section 6.0.

Waste. CalEEMod calculates the indirect GHG emissions associated with waste that is disposed of at a landfill. The program uses annual waste disposal rates from the California Department of Resources Recycling and Recovery (CalRecycle) data for individual land uses. The program quantifies the GHG emissions associated with the decomposition of the waste which generates methane based on the total amount of degradable organic carbon. The estimated waste generation by the project is reported in Table 16 and recommendations to reduce waste generation in landfills are discussed in Section 6.0

Table 16
Operational Water Usage and Waste Generation

Land Use	Water Usage (gallons/year)			Waste Generation (tons/year)[1]
	Indoor	Outdoor	Total	
Condo/Townhome	2,475,853	1,560,864	4,036,717	17.48

[1] CalEEMod default estimates.

5.0 Significance Thresholds

5.1 Air Quality Regional Significance Thresholds

The SCAQMD has established air quality emissions thresholds for criteria air pollutants for the purposes of determining whether a project may have a significant effect on the environment per Section 15002(g) of the Guidelines for implementing CEQA. By complying with the thresholds of significance, the project would be in compliance with the SCAQMD Air Quality Management Plan (AQMP) and the federal and state air quality standards.

Table 17 lists the air quality significance thresholds for the six air pollutants analyzed in this report. Lead is not included as part of this analysis as the project is not expected to emit lead in any significant measurable quantity.

Table 17
SCAQMD Regional Significance Thresholds

Pollutant	Construction (lbs/day)	Operation (lbs/day)
NO_X	100	55
VOC	75	55
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_X	150	150
CO	550	550

[1] Source: SCAQMD CEQA Handbook, 1993

5.2 Air Quality Localized Significance Thresholds

The SCAQMD has published the "Fact Sheet for Applying CalEEMod to Localized Significance Thresholds" (SCAQMD 2011b) and air quality emissions were analyzed using the SCAQMD's Mass Rate Localized Significant Threshold (LST) Look-up Tables.

Table 18 lists the Localized Significance Thresholds (LST) used to determine whether a project may generate significant adverse localized air quality impacts. LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard.

LSTs are developed based on the ambient concentrations of four applicable air pollutants for source receptor area (SRA) 18 – North Coastal Orange County. The nearest existing sensitive receptors are located approximately 10 feet (<25 meters) away. The sensitive receptor distance from the site boundary is assumed to be 25 meters and the daily disturbance area is calculated to be 2 acres.

Table 18
SCAQMD Localized Significance Thresholds[1] (LST)

Pollutant	Construction (lbs/day)	Operational (lbs/day)
NO_X	131	131
CO	962	962
PM_{10}	7	2
$PM_{2.5}$	5	2

[1] Source: SCAQMD Mass Rate Localized Significance Thresholds for 2 acre site in SRA-16 at 25 meters

5.3 Microscale CO Concentration Standards

The significance of localized CO impacts depends on whether ambient CO levels in the vicinity of the project are above or below federal or state standards. If ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of the AAQS. If ambient levels already exceed State or federal standards, project emissions are considered significant if they increase 1-hour CO concentrations by 1.0 ppm or more or 8-hour CO concentrations by 0.45 ppm or more.

Current CO levels in the SCAB are in attainment of both federal and state standards, and local air quality monitoring data indicates there have not been any localized exceedances of CO over the past three years. Therefore, the project must not contribute to an exceedance of a federal or state ambient air quality standard.

5.4 GHG Significance Thresholds

In the absence of a formal GHG threshold established by the State, the SCAQMD has published the *Interim CEQA Greenhouse Gas (GHG) Significance Thresholds, December 2008* (GHG Significance Thresholds) to assist local agencies with determining the impact of a project for CEQA. SCAQMD's objective in providing the GHG guidelines is to establish a performance standard that will ultimately contribute to reducing GHG emissions below 1990 levels, and thus achieve the requirements of the California Global Warming Solutions Act (AB 32). The SCAQMD has held several GHG Significance Thresholds Stakeholder

Working Group meetings where staff has presented updated recommendations that serve in addendum to the interim document.

The SCAQMD describes a five-tiered approach for determining GHG Significance Thresholds.

- **Tier 1 -** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.

- **Tier 2 -** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.

For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, SCAQMD requires an assessment based on the following tiers.

- **Tier 3 -** Consists of screening values that are intended to capture 90 percent of the GHG emissions from projects. If a project's emissions are under the screening thresholds, then the project is less than significant. SCAQMD has presented two options that lead agencies could choose for screening values. Option #1 sets the thresholds for residential projects to 3,500 $MTCO_2e$/year, commercial projects to 1,400 $MTCO_2e$/year), and the mixed use to 3,000 $MTCO_2e$/year. Option #2 sets a single numerical threshold for all non-industrial projects of 3,000 $MTCO_2e$/year. The current staff recommendation is to use option #2, but allows lead agencies to choose option #1 if they prefer. Regardless of which option a lead agency chooses to follow, it is recommended that the same option is consistently uses for all projects.

  Table 19 shows the screening levels described in option #2, which has been used previously in the City of Costa Mesa.

Table 19
SCAQMD Tier 3 GHG Screening Values

Land Use	Screening Value
Industrial Projects	10,000 $MTCO_2e$/Yr
Residential/Commercial Projects	3,000 $MTCO_2e$/Yr

- **Tier 4 -** includes three performance standard compliance options to demonstrate the project in significant for GHG emissions.

Compliance Option 1 consists of achieving a target percentage reduction in emission compared to the business as usual (BAU) methodology. The project proponent would need to incorporate design features into the project and/or implement GHG mitigation measures to demonstrate a 30 percent reduction in GHG emissions below BAU that is consistent with the current applicable goals of AB 32 in the State of the California.

Compliance Option 2 consists of early compliance with AB 32 through early implementation of CARB's Scoping Plan Measures. This option is intended for projects in sectors subject to the Scoping Plan Measures.

Compliance Option 3 consists of establishing efficiency-based performance standards at the plan level (program-level projects such as general plans) and project level. Efficiency standards are based on the amount of GHG emissions ($MTCO_2e$/year) per Service Population (SP). SP is defined as the sum of the residential and employment populations provided by a project.

Table 20
SCAQMD Tier 4 Efficiency Thresholds

Project Type	Efficiency Thresholds[1]	
	Target Year 2020	Target Year 2035
Plan (Program) Level	6.6 $MTCO_2e$/yr/SP	4.1 $MTCO_2e$/yr/SP
Project Level	4.8 $MTCO_2e$/yr/SP	3.0 $MTCO_2e$/yr/SP

- **Tier 5 –** involves implementing off-site mitigation or the purchasing of offsets to reduce GHG emissions to less than the proposed screening level. The project proponent would be required to provide offsets for the life of the project, which is defined as 30 years.

By complying with the SCAQMD GHG thresholds of significance, the project is considered to be in compliance with the applicable State GHG legislation.

5.5 City of Costa Mesa General Plan

The City of Costa Mesa has adopted the 2015-2035 General Plan which includes several goals, objectives and policies for addressing Air Quality and GHG Emissions. Specifically, the Conservation Element of the General Plan includes the following related to air quality and GHG.

Goal CON-4: Improved Air Quality

Take steps to improve and maintain air quality for the benefit of the health and vitality of residents and the local economy. In alignment with State emissions reduction goals and in cooperation with the South Coast Air Quality Management District, pursue regional collaboration to reduce emissions from all sources.

Objective CON-4.A: *Pursue the prevention of the significant deterioration of local and regional air quality.*

Air Quality:

Policy CON-4.A.1: Support regional policies and efforts that improve air quality to protect human and environmental health, and minimize disproportionate impacts on sensitive population groups.

Policy CON-4.A.2: Encourage businesses, industries and residents to reduce the impact of direct, indirect, and cumulative impacts of stationary and non-stationary pollution sources.

Policy CON-4.A.3: Require that sensitive uses such as schools, childcare centers, parks and playgrounds, housing, and community gathering places are protected from adverse impacts of emissions.

Policy CON-4.A.4: Continue to participate in regional planning efforts with the Southern California Association of Governments, nearby jurisdictions, and the South Coast Air Quality Management District to meet or exceed air quality standards.

Climate Change:

Policy CON-4.A.5:	Encourage compact development, infill development, and a mix of uses that are in proximity to transit, pedestrian, and bicycling infrastructures.
Policy CON-4.A.6:	Enhance bicycling and walking infrastructure, and support public bus service, pursuant to the Circulation Element's goals, objectives, and policies.
Policy CON-4.A.7:	Encourage installation of renewable energy devices for businesses and facilities and strive to reduce community-wide energy consumption.
Policy CON-4.A.8:	Develop long-term, community-wide strategies and programs that work at the local level to reduce greenhouse gases and Costa Mesa's "carbon footprint".

6.0 Air Quality Impact Analysis

Consistent with CEQA and the State CEQA Guidelines, a significant impact related to air quality would occur if the proposed project is determined to:

a) Conflict with or obstruct implementation of the applicable air quality plan.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

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

d) Expose sensitive receptors to substantial pollutant concentrations.

e) Create objectionable odors affecting a substantial number of people.

6.1 Short Term Air Quality Impacts - Construction

6.1.1 Regional Emissions - Construction

Regional air quality emissions include both on-site and off-site emissions associated with construction of the project. Regional daily emissions of criteria pollutants are compared to the SCAQMD regional thresholds of significance.

As shown in Table 21, regional daily emissions of criteria pollutants are expected to be below the allowable thresholds of significance. The project must follow all standard SCAQMD rules and requirements with regards to fugitive dust control, as described in Section 6.1.3. Compliance with the dust control is considered a standard requirement and included as part of the project's design features, not mitigation.

The project's daily construction emissions will be below the applicable SCAQMD regional air quality standards and thresholds of significance, and the project would not contribute substantially to an existing or projected air quality violation. Furthermore, by complying with the SCAQMD standards, the project would not contribute to a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

The project's short term construction impact to regional air resources is less than significant.

CalEEMod daily emissions outputs are provided in Appendix A.

Table 21
Regional Construction Emissions

Maximum Daily Emissions (lbs/day)[1]						
Activity	**VOC**	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Demolition	2.44	25.72	16.08	0.03	2.45	1.43
Site Preparation	1.75	19.51	8.17	0.02	3.19	1.97
Grading	1.46	16.51	6.89	0.02	2.71	1.67
Building Construction	2.41	16.51	14.57	0.03	1.25	0.98
Paving	0.90	8.49	9.30	0.01	0.62	0.47
Architectural Coating	24.04	1.70	2.00	0.00	0.17	0.13
Maximum[1]	24.04	25.72	16.08	0.03	3.19	1.97
SCAQMD Threshold	75	100	550	150	150	55
Exceeds Threshold (?)	**No**	**No**	**No**	**No**	**No**	**No**

[1] Maximum daily emissions during summer or winter; includes both on-site and off-site project emissions.

6.1.2 Localized Emissions - Construction

Table 22 illustrates the construction related localized emissions and compares the results to SCAQMD LST thresholds. As shown in Table 22, the emissions will be below the SCAQMD thresholds of significance for localized construction emissions. The project must follow all standard SCAQMD rules and requirements with regards to fugitive dust control, as described in Section 6.1.3. Compliance with the dust control is considered a standard requirement and included as part of the project's design features, not mitigation.

The project's short term construction impact to localized air resources is less than significant.

Table 22
Localized Construction Emissions

Maximum Daily Emissions (lbs/day)[1]				
Activity	**NOx**	**CO**	**PM_{10}**	**$PM_{2.5}$**
On-site Emissions	22.68	14.89	3.10	1.94
SCAQMD Construction Threshold[2]	131	962	7	5
Exceeds Threshold (?)	**No**	**No**	**No**	**No**

[1] Maximum daily emissions during summer or winter; includes on-site project emissions only.
[2] Reference 2006-2008 SCAQMD Mass Rate Localized Significant Thresholds for construction and operation. SRA-18, North Coastal Orange County, 2-acre site, receptor distance 25 meters.

6.1.3 Fugitive Dust - Construction

The Project is required to comply with regional rules that assist in reducing short-term air pollutant emissions associated with suspended particulate matter, also known as fugitive dust. Fugitive dust emissions are commonly associated with land clearing activities, cut-and-fill grading operations, and exposure of soils to the air and wind. SCAQMD Rule 403 requires that fugitive dust be controlled with best-available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rules 402 and 403 require implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site.

Applicable suppression techniques are as follows:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for 10 days or more).
- Water active sites at least two times daily.
- Cover all trucks hauling dirt, sand, soil, or other loose materials, and maintain at least 2 feet of freeboard space in accordance with the requirements of California Vehicle Code (CVC) section 23114.
- Pave or gravel construction access roads at least 100 feet onto the site from the main road and use gravel aprons at truck exits.
- Reduce traffic speeds on all unpaved roads to 5 mph or less.
- Replace ground cover of disturbed areas as quickly possible.
- A fugitive dust control plan should be prepared and submitted to SCAQMD prior to the start of construction.

Localized construction emissions, shown in Section 6.1.2, indicate daily construction emissions, with standard control measures, would be below the applicable thresholds

established by the SCAQMD. **The proposed project's short term construction activities would cause less than significant Fugitive Dust impacts.**

6.1.4 Odors - Construction

Heavy-duty equipment in the project area during construction will emit odors; however, the construction activity would cease to occur after individual construction is completed. The project is required to comply with Rule 402 during construction, which states that a person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. No other sources of objectionable odors have been identified for the proposed Project. **Therefore, the project impact from odor emissions is less than significant.**

6.1.5 Asbestos - Construction

Asbestos is a mineral fiber that has been used commonly in a variety of building construction materials for insulation and as a fire-retardant. When asbestos-containing materials are damaged or disturbed by repair, remodeling or demolition activities, microscopic fibers become airborne and can be inhaled into the lungs, where they can cause significant health problems.

The project includes demolition of existing buildings and structures that would be subject to the National Emissions Standards for Asbestos (40CFR Part 61 Subpart M). Prior to demolition of existing structures, an asbestos evaluation must be completed in accordance with the Asbestos National Emission Standard for Hazardous Air Pollutants (NESHAP) regulations. Section 61.145 requires written notification of demolition operations. Asbestos NESHAP Demolition/Renovation Notification Form can be downloaded at http://www.arb.ca.gov/enf/asbestosform.pdf.

This notification should be typewritten and postmarked or delivered no later than ten (10) days prior to the beginning of the asbestos demolition or removal activity.

Naturally occurring asbestos, found in serpentine and ultramafic rock, has not been shown to occur within Orange County. Therefore, the potential risk for naturally occurring asbestos (NOA) during project construction is small. However, in the event NOA is found on the site, the project will be required to comply with the NESHAP standards. An Asbestos NESHAP Notification Form shall be completed and submitted to the CARB immediately upon discovery of the contaminant. The project will be required to follow NESHAP standards for emissions control during site renovation, waste transport and waste disposal. A person certified in asbestos removal procedures will be required to supervise on-site activities.

By following the required asbestos abatement protocols, **the project impact is less than significant**.

6.1.6 Diesel Particulate Matter - Construction

The greatest potential for toxic air contaminant emissions from the project would be related to diesel particulate matter (DPM) emissions associated with heavy diesel equipment usage during construction. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of "individual cancer risk". "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 30-year lifetime will contract cancer, based on the use of standard risk-assessment methodology.

As shown in Tables 21 and 22, construction-based particulate matter (PM) emissions (including diesel exhaust emissions) do not exceed regional or local thresholds. Furthermore, given the relatively small scale size of this construction project and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 30 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. Therefore, potential health risks from the construction of the proposed project to adjacent sensitive land uses would be considered less than significant.

In September 2000, the CARB adopted the Diesel Risk Reduction Plan, which recommends several control measures to reduce the risks associated with diesel particulate matter (DPM). The key elements of the Plan are to clean up existing engines through engine retrofit emission control devices, to adopt stringent standards for new diesel engines, to lower the sulfur content of diesel fuel, and implement advanced technology emission control devices on diesel engines.

In order to ensure the level of DPM exposure is reduced as much as possible, the project should implement best available pollution control strategies to minimize potential health risks. The follow DPM control measures include:

- Utilize low emission "clean diesel" equipment with new or modified engines that include diesel oxidation catalysts, diesel particulate filers or Moyer Program retrofits that meet CARB best available control technology.

- Establish staging areas for the construction equipment that are as distant as possible from adjacent sensitive receptors;

- Establish an electricity supply to the construction site and use electric powered equipment instead of diesel-powered equipment or generators, where feasible;

- Use haul trucks with on-road engines instead of off-road engines for on-site hauling;

6.2 Long Terms Air Quality Impacts - Operation

6.2.1 Regional Emissions - Operation

Long-term operational air pollutant impacts from the project are shown in Table 23. The project is not expected to exceed any the allowable daily emissions thresholds for criteria pollutants at the regional level. CalEEMod daily emissions outputs are provided in Appendix A.

The project's daily operational emissions will be below the applicable SCAQMD regional air quality standards and thresholds of significance, and the project would not contribute substantially to an existing or projected air quality violation. Furthermore, by complying with the SCAQMD standards, the project would not contribute to a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

The project related long-term air quality impacts are less than significant.

Table 23
Regional Operational Emissions

Maximum Daily Emissions (lbs/day)[1]						
Activity	**VOC**	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Mobile Sources	0.53	2.24	7.22	0.03	2.27	0.62
Energy Sources	0.02	0.17	0.07	0.00	0.01	0.01
Area Sources	0.99	0.67	3.41	0.00	0.07	0.07
Total[1]	1.54	3.08	10.71	0.03	2.35	0.71
SCAQMD Threshold[2]	55	55	550	150	150	55
Exceeds Threshold (?)	**No**	**No**	**No**	**No**	**No**	**No**

[1] Maximum daily emissions during summer or winter; includes both on-site and off-site project emissions.

6.2.2 Localized Operational Emissions - Operation

Table 24 shows the localized operational emissions and compares the results to SCAQMD LST thresholds of significance. As shown in Table 24, the emissions will be below the SCAQMD thresholds of significance for localized operational emissions. **The project will result in less than significant localized operational emissions impacts.**

Table 24
Localized Operational Emissions

Maximum Daily Emissions (lbs/day)[1]				
LST Pollutants	NOx (lbs/day)	CO (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)
On-site Emissions[2]	0.95	3.85	0.20	0.11
SCAQMD Operation Threshold[3]	131	962	2	2
Exceeds Threshold (?)	**No**	**No**	**No**	**No**

[1] Maximum daily emissions in summer or winter.
[2] Mobile source emissions include on-site vehicle emissions only. It is estimated that approximately 5% of mobile emissions will occur on the project site.
[3] Reference: 2006-2008 SCAQMD Mass Rate Localized Significant Thresholds for construction and operation Table C-1 through C-6; SRA 18, North Coastal Orange County, disturbance area of 2-acre and receptor distance of 25 meters.

6.2.3 Odors - Operation

Land uses that commonly receive odor complaints include agricultural uses (farming and livestock), chemical plants, composting operations, dairies, fiberglass molding facilities, food processing plants, landfills, refineries, rail yards, and wastewater treatment plants. The proposed project does not contain land uses that would typically be associated with significant odor emissions.

The project will be required to comply with standard building code requirements related to exhaust ventilation, as well as comply with SCAQMD Rule 402. Rule 402 requires that a person may not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. Project related odors are not expected to meet the criteria of being a nuisance. **The project's operation would result in less than significant odor impacts.**

6.2.4 Toxic Air Contaminants - Operations

This residential project does not include sources of toxic air contaminants (TAC) emissions that would result in significant expose of sensitive receptors to substantial pollutant concentrations. However, the project site is located within 500 feet of a Freeway with approximately 100,000 average daily traffic (ADT), and this is within the buffer distance recommended by the CARB for residential uses. As a result, the residential occupants may be exposed to high levels of diesel particulate matter (DPM) and increased health risks as a result of living near a freeway.

As determined in the *California Building Industry Association v. Bay Area Air Quality Management District (2015) 62 Cal. 4th 369* (CBIA) case, the California Supreme Court determined that CEQA does not generally require an impact analysis of the existing environmental conditions on the future residents of a proposed project and generally only requires an analysis of the proposed project's impact on the environment. The CBIA case also stated that when a proposed project brings development and people into an area already subject to specific hazards, and the new development/people exacerbate the existing hazards, then CEQA requires an analysis of the hazards and the proposed project's effect in terms of increasing the risks related to those hazards.

Therefore, if the proposed project would not exacerbate pre-existing TAC exposure and existing health risks to other adjacent sensitive land uses, then an analysis of those hazards and the proposed project's effect on increasing those hazards is not required.

As stated above, the 38 unit residential townhome project does not contain substantial operational uses that emit toxic air contaminants. As shown in Tables 23 and 24, operational-related particulate matter (PM) emissions (including diesel exhaust emissions) do not exceed regional or local thresholds. Therefore, the project would not further exacerbate the existing condition, and **the project impact is considered less than significant.**

The following recommendations are provided to help reduce on-site TAC exposure. These strategies are provided in accordance with the CARB's *Strategies to Reduce Air Pollution Exposure near High-Volume Roadways*.

- Provide a solid barrier wall along Newport Boulevard shielding residential units from the adjacent freeway. The wall shall be as tall as allowed by the City's zoning code.

- Install vegetation, including trees and/or thick foliage along the Newport Boulevard perimeter wall to further shield residents from air pollution exposure. Vegetation should grow to a minimum of 5 meters in height and gaps in the vegetation should be avoided.

- Provide housing ventilation units with upgraded minimum efficiency reporting value (MERV) filers and high efficiency particulate air (HEPA) filters.

- Buildings with units facing the SR-55 Freeway should have their ventilation intakes along opposite side, away from the freeway.

- The project applicant and future homeowners should disclose the potential health risks of living within 1,000 feet of a freeway in any purchasing or leasing agreements.

6.3 CO Hot Spot Emissions

A CO hot spot is a localized concentration of carbon monoxide (CO) that is above the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm. At the time of the publishing of the 1993 CEQA Air Quality Handbook, the SCAB was designated nonattainment, and projects were required to perform hot spot analyses to ensure they did not exacerbate an existing problem. Since this time, the SCAB has achieved attainment status and the potential for hot spots caused by vehicular traffic congestion has been greatly reduced. In fact, the SCAQMD AQMP found that peak CO concentrations were primarily the result of unusual meteorological and topographical conditions, not traffic congestion. Additionally, the 2003 SCAQMD AQMP found that, at four of the busiest intersections in SCAB, there were no CO hot spots concentrations.

The 1957 Newport Boulevard Traffic Impact Analysis, prepared by LSA, January 2018, found that all study area intersections are anticipated to operate at a satisfactory LOS in both a.m. and p.m. peak hours with the addition of project traffic, with the exception of the Harbor Boulevard/Ford Road intersection. In the General Plan buildout horizon, increased traffic volume on Harbor Boulevard is anticipated to increase the delay of the westbound approach to an unsatisfactory level for the minor street left turn movement, however, the majority of the traffic traveling north and south on Harbor Boulevard would remain unimpeded. Furthermore, the traffic volume at this intersection would not meet the warrants for providing a traffic signal and the project would contribute less than 0.01 to the volume to capacity ratio of the intersection and the project would not have a significant impact according to the City's guidelines.

Therefore, it is reasonable to conclude that the project would not significantly increase traffic congestion in the vicinity of the site that would lead to the formation of CO Hot Spots. **The project impact to CO Hot Spots is less than significant.**

6.4 SCAQMD Air Quality Management Plan Consistency

CEQA requires a discussion of any inconsistencies between a proposed project and applicable General Plans and Regional Plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the SCAQMD Air Quality Management Plan (AQMP). Therefore, this section discusses any potential inconsistencies of the proposed project with the AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the proposed project would interfere with the region's ability to comply with Federal and State air quality standards. If the decision-makers determine that the proposed project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended General Plan Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies.

The SCAQMD CEQA Handbook identifies two key indicators of consistency:

(1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.

(2) Whether the project will exceed the assumptions in the AQMP in 2016 or increments based on the year of project buildout and phase.

6.4.1 Criterion 1 - Increase in the Frequency or Severity of Violations

The results of the short-term construction emission levels and long term operational emission levels show that the project would not result in significant impacts based on the SCAQMD regional and local thresholds of significance. Therefore, the proposed project would not contribute to the exceedance of an air pollutant concentration standard and is found to be consistent with the AQMP for the first criterion.

6.4.2 Criterion 2 - Exceed Assumptions in the AQMP

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to insure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The 2016-2040 Regional Transportation/Sustainable Communities Strategy, prepared by SCAG, 2016, includes chapters on: the challenges in a changing region, creating a plan for our future, and the road to greater mobility and sustainable growth. These chapters currently respond directly to federal and state requirements placed on SCAG. Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA.

The project includes a general plan amendment and therefore must demonstrate that the proposed use would not significantly exceed the emissions levels generated from currently allowable uses.

The currently allowable land uses for the site include general commercial uses. Several allowable uses, including retail, restaurants and convenience markets can generate more traffic than the proposed residential project, which in turn would result in higher mobile source emissions, the primary contributor to NOx. Additionally, other currently allowable uses, such as the currently existing RV repair center may include on-site diesel powered equipment and solvents which generate toxic air contaminants.

The proposed residential land use is considered a low generator of on-site emissions and is subject to much more stringent residential title 24 requirements, compared to non-residential requirements. Therefore, the proposed project has the potential to generate less emissions than what is assumed in the latest version of the AQMP and **the impact is less than significant.**

6.5 Costa Mesa General Plan Consistency – Air Quality

The project includes a general plan amendment and therefore must ensure that it is consistent with all applicable policies established by the City. The project shall comply with the following Costa Mesa General Plan policies regarding Air Quality. As described in section 5.5, the project would;

- Support regional policies and efforts that improve air quality to protect human and environmental health, and minimize disproportionate impacts on sensitive population groups by complying with the established SCAQMD rules and thresholds of significance for air quality emissions during construction and operation.

- Encourage businesses, industries and residents to reduce the impact of direct, indirect, and cumulative impacts of stationary and non-stationary pollution sources by following standard best practices during construction and providing a land use change that potentially results in lower on-site operational source of emissions.

- Require that sensitive uses such as schools, childcare centers, parks and playgrounds, housing, and community gathering places are protected from adverse impacts of emissions by implementing project design features described in Section 6.2.4 to reduce residential exposure to TACs from the adjacent freeway.

- Continue to participate in regional planning efforts with the Southern California Association of Governments, nearby jurisdictions, and the South Coast Air Quality Management District to meet or exceed air quality standards by following all established SCAQMD rules and thresholds of significance for air quality emissions during construction and operation.

7.0 Greenhouse Gas Impact Analysis

Consistent with CEQA and the State CEQA Guidelines, a significant impact related to greenhouse gas would occur if the proposed project is determined to:

a) Result in the generation of greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of greenhouse gases.

7.1 Greenhouse Gas Emissions - Construction

Greenhouse gas emissions are estimated for on-site and off-site construction activity using CalEEMod. Table 25 shows the construction greenhouse gas emissions, including equipment and worker vehicle emissions for all phases of construction. Construction emissions are averaged over 30 years and added to the long term operational emissions, pursuant to SCAQMD recommendations.

CalEEMod annual GHG output calculations are provided in Appendix B.

Table 25
Construction Greenhouse Gas Emissions

Activity	Emissions ($MTC0_2e$)[1]		
	On-site	Off-site	Total
Demolition	21.55	9.07	30.62
Site Preparation	1.56	0.08	1.64
Grading	2.55	0.16	2.71
Building Construction	183.55	36.11	219.66
Paving	5.93	0.62	6.55
Architectural Coating	1.28	0.24	1.52
Total	216.42	46.28	262.70
Averaged over 30 years[2]	7.21	1.54	8.76

[1] $MTCO_2e$ = metric tons of carbon dioxide equivalents (includes carbon dioxide, methane, nitrous oxide, and/or hydroflurocarbons).
[2] The emissions are averaged over 30 years and added to the operational emissions, pursuant to SCAQMD recommendations.

7.2 Greenhouse Gas Emissions - Operation

Greenhouse gas emissions are estimated for on-site and off-site operational activity using CalEEMod. Greenhouse gas emissions from mobile sources, area sources and energy sources are shown in Table 26. CalEEMod annual GHG output calculations are provided in Appendix B.

Table 26
Operational Greenhouse Gas Emissions

Emission Source	GHG Emissions ($MTCO_2e$)[1]
Mobile Source	378.99
Energy Source	96.37
Area Source	9.84
Water	19.22
Waste	8.79
Construction (30 year average)	8.76
Total Annual Emissions	**521.97**
SCAQMD Tier 3 Screening Threshold[2]	3,000
Exceed Tier 3 Threshold?	No

[1] $MTCO_2e$ = metric tons of carbon dioxide equivalents

[2] Per South Coast Air Quality Management District (SCAQMD) Draft Guidance Document - Interim CEQA Greenhouse Gas (GHG) Significance Threshold, October 2008

[3] Service population based on average 20 jobs/acre

The analysis compares the project's GHG emissions to the SCAQMD's Tier 3 approach, which limits GHG emissions to 3,000 $MTCO_2e$. As shown in Table 26, project GHG emissions are expected to be below 3,000 $MTCO_2e$ with standard Title 24 building construction.

Based on the thresholds set by the State of California and the SCAQMD, the project's GHG emissions would not result, either directly or indirectly, in a significant impact on the environment. Furthermore, by complying with the SCAQMD thresholds of significance for GHG, the project would not conflict with the adopted State plans, polices and regulation for reducing GHG. The project will comply with the mandatory requirements of Title 24 Part 1 of the California Building Standards Code and Title 24 Part 6 Building and Energy

Efficiency Standards. **The project related long-term GHG impacts are less than significant.**

7.3 Costa Mesa General Plan Consistency - GHG

The proposed project could have the potential to conflict with applicable plans, policies or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. In order to ensure the project impact is less than significant, the project is required to comply with the local, regional and State established GHG plans.

The project shall comply with the following Costa Mesa General Plan policies regarding climate change. As described in section 5.5, the project would;

- Encourage compact development, infill development, and a mix of uses that are in proximity to transit, pedestrian, and bicycling infrastructures by meeting the State's housing needs and providing in-fill residential uses within close proximity to commercial and employment centers. The project provides residents with the opportunity to use multi-modes of transportation to reach other nearby complimentary land uses
- Enhance bicycling and walking infrastructure, and support public bus service, pursuant to the Circulation Element's goals, objectives, and policies by providing pedestrian and bicycle access to Newport Boulevard and siting residential homes adjacent to transit stop.
- Encourage installation of renewable energy devices for businesses and facilities and strive to reduce community-wide energy consumption by integrating solar ready design features.
- Develop long-term, community-wide strategies and programs that work at the local level to reduce greenhouse gases and Costa Mesa's "carbon footprint" by implementing compact and in-fill development constructed with the latest California Green Building code design features.

By complying with the applicable policies in the Costa Mesa General Plan **the project impact is less than significant.**

8.0 References

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U.S Environmental Protection Agency 2010a, Final GHG Tailoring Rule, 40 CFR Parts 51, 52, 70, et al., May 2010.

Exhibits

Exhibit A

Location Map

N

Exhibit B
Site Plan

N

Appendices

Appendix A

Daily Emissions Calculations Output
(CalEEMod)

NEWPORT & FORD RESIDENTIAL

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	38.00	Dwelling Unit	1.86	38,000.00	109

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2020
Utility Company	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 - 38-unit residential townhomes on 1.86 acres.

Demolition -

Vehicle Trips - ITE Trip Generation Rates, 10th Edition, 2017

Woodstoves - Per SCAQMD 445, no wood burning devices in new development.

Energy Use -

Water And Wastewater -

Sequestration -

Construction Off-road Equipment Mitigation - Comply with SCAQMD Rule 403 regarding fugitive dust control.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	25
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	32.30	38.00
tblFireplaces	NumberNoFireplace	3.80	0.00
tblFireplaces	NumberWood	1.90	0.00
tblLandUse	LotAcreage	2.38	1.86
tblVehicleTrips	ST_TR	5.67	8.14
tblVehicleTrips	SU_TR	4.84	6.28
tblVehicleTrips	WD_TR	5.81	7.32
tblWoodstoves	NumberCatalytic	1.90	0.00
tblWoodstoves	NumberNoncatalytic	1.90	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.4317	25.6743	16.0687	0.0333	5.8890	1.2986	6.7720	2.9774	1.2135	3.7897	0.0000	3,369.6906	3,369.6906	0.6948	0.0000	3,387.0595
2020	24.0389	15.2703	14.1819	0.0260	0.3274	0.8001	1.1275	0.0874	0.7728	0.8601	0.0000	2,403.9228	2,403.9228	0.4144	0.0000	2,413.5971
Maximum	**24.0389**	**25.6743**	**16.0687**	**0.0333**	**5.8890**	**1.2986**	**6.7720**	**2.9774**	**1.2135**	**3.7897**	**0.0000**	**3,369.6906**	**3,369.6906**	**0.6948**	**0.0000**	**3,387.0595**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.4317	25.6743	16.0687	0.0333	2.3078	1.2986	3.1907	1.1535	1.2135	1.9658	0.0000	3,369.6906	3,369.6906	0.6948	0.0000	3,387.0595
2020	24.0389	15.2703	14.1819	0.0260	0.3274	0.8001	1.1275	0.0874	0.7728	0.8601	0.0000	2,403.9228	2,403.9228	0.4144	0.0000	2,413.5971
Maximum	**24.0389**	**25.6743**	**16.0687**	**0.0333**	**2.3078**	**1.2986**	**3.1907**	**1.1535**	**1.2135**	**1.9658**	**0.0000**	**3,369.6906**	**3,369.6906**	**0.6948**	**0.0000**	**3,387.0595**

	ROG	**NOx**	**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**	**57.61**	**0.00**	**45.34**	**59.51**	**0.00**	**39.22**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9871	0.6667	3.4137	4.1900e-003		0.0683	0.0683		0.0683	0.0683	0.0000	810.3509	810.3509	0.0209	0.0148	815.2705
Energy	0.0198	0.1693	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137		216.1270	216.1270	4.1400e-003	3.9600e-003	217.4113
Mobile	0.5294	2.1726	7.2210	0.0261	2.2419	0.0255	2.2674	0.5995	0.0239	0.6234		2,648.1683	2,648.1683	0.1103		2,650.9253
Total	**1.5363**	**3.0086**	**10.7068**	**0.0314**	**2.2419**	**0.1074**	**2.3494**	**0.5995**	**0.1059**	**0.7054**	**0.0000**	**3,674.6462**	**3,674.6462**	**0.1354**	**0.0187**	**3,683.6071**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9871	0.6667	3.4137	4.1900e-003		0.0683	0.0683		0.0683	0.0683	0.0000	810.3509	810.3509	0.0209	0.0148	815.2705
Energy	0.0198	0.1693	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137		216.1270	216.1270	4.1400e-003	3.9600e-003	217.4113
Mobile	0.5294	2.1726	7.2210	0.0261	2.2419	0.0255	2.2674	0.5995	0.0239	0.6234		2,648.1683	2,648.1683	0.1103		2,650.9253
Total	**1.5363**	**3.0086**	**10.7068**	**0.0314**	**2.2419**	**0.1074**	**2.3494**	**0.5995**	**0.1059**	**0.7054**	**0.0000**	**3,674.6462**	**3,674.6462**	**0.1354**	**0.0187**	**3,683.6071**

	ROG	NOx	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	5/1/2019	5/28/2019	5	20	
2	Site Preparation	Site Preparation	5/29/2019	5/30/2019	5	2	
3	Grading	Grading	5/31/2019	6/5/2019	5	4	
4	Building Construction	Building Construction	6/6/2019	3/11/2020	5	200	
5	Paving	Paving	3/12/2020	3/25/2020	5	10	
6	Architectural Coating	Architectural Coating	3/26/2020	4/8/2020	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 76,950; Residential Outdoor: 25,650; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

NEWPORT & FORD RESIDENTIAL - 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	6.00	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	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	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	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	200.00	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	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	27.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.1667	0.0000	2.1667	0.3281	0.0000	0.3281			0.0000			0.0000
Off-Road	2.2950	22.6751	14.8943	0.0241		1.2863	1.2863		1.2017	1.2017		2,360.7198	2,360.7198	0.6011		2,375.7475
Total	**2.2950**	**22.6751**	**14.8943**	**0.0241**	**2.1667**	**1.2863**	**3.4529**	**0.3281**	**1.2017**	**1.5298**		**2,360.7198**	**2,360.7198**	**0.6011**		**2,375.7475**

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0831	2.9642	0.7106	7.7600e-003	0.1741	0.0114	0.1855	0.0477	0.0109	0.0586		862.5726	862.5726	0.0901		864.8238
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	0.0536	0.0351	0.4638	1.4700e-003	0.1453	9.7000e-004	0.1463	0.0385	8.9000e-004	0.0394		146.3982	146.3982	3.6000e-003		146.4882
Total	**0.1367**	**2.9993**	**1.1744**	**9.2300e-003**	**0.3194**	**0.0124**	**0.3318**	**0.0862**	**0.0118**	**0.0980**		**1,008.9709**	**1,008.9709**	**0.0937**		**1,011.3120**

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					0.8287	0.0000	0.8287	0.1255	0.0000	0.1255			0.0000			0.0000
Off-Road	2.2950	22.6751	14.8943	0.0241		1.2863	1.2863		1.2017	1.2017	0.0000	2,360.7197	2,360.7197	0.6011		2,375.7475
Total	**2.2950**	**22.6751**	**14.8943**	**0.0241**	**0.8287**	**1.2863**	**2.1150**	**0.1255**	**1.2017**	**1.3272**	**0.0000**	**2,360.7197**	**2,360.7197**	**0.6011**		**2,375.7475**

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0831	2.9642	0.7106	7.7600e-003	0.1741	0.0114	0.1855	0.0477	0.0109	0.0586		862.5726	862.5726	0.0901		864.8238
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	0.0536	0.0351	0.4638	1.4700e-003	0.1453	9.7000e-004	0.1463	0.0385	8.9000e-004	0.0394		146.3982	146.3982	3.6000e-003		146.4882
Total	**0.1367**	**2.9993**	**1.1744**	**9.2300e-003**	**0.3194**	**0.0124**	**0.3318**	**0.0862**	**0.0118**	**0.0980**		**1,008.9709**	**1,008.9709**	**0.0937**		**1,011.3120**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.7123	19.4821	7.8893	0.0172		0.8824	0.8824		0.8118	0.8118		1,704.9189	1,704.9189	0.5394		1,718.4044
Total	**1.7123**	**19.4821**	**7.8893**	**0.0172**	**5.7996**	**0.8824**	**6.6819**	**2.9537**	**0.8118**	**3.7655**		**1,704.9189**	**1,704.9189**	**0.5394**		**1,718.4044**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2183	0.0000	2.2183	1.1298	0.0000	1.1298			0.0000			0.0000
Off-Road	1.7123	19.4821	7.8893	0.0172		0.8824	0.8824		0.8118	0.8118	0.0000	1,704.9189	1,704.9189	0.5394		1,718.4044
Total	**1.7123**	**19.4821**	**7.8893**	**0.0172**	**2.2183**	**0.8824**	**3.1007**	**1.1298**	**0.8118**	**1.9416**	**0.0000**	**1,704.9189**	**1,704.9189**	**0.5394**		**1,718.4044**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

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

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	1.4197	16.0357	6.6065	0.0141		0.7365	0.7365		0.6775	0.6775		1,396.3909	1,396.3909	0.4418		1,407.4359
Total	**1.4197**	**16.0357**	**6.6065**	**0.0141**	**4.9143**	**0.7365**	**5.6507**	**2.5256**	**0.6775**	**3.2032**		**1,396.3909**	**1,396.3909**	**0.4418**		**1,407.4359**

3.4 Grading - 2019

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.8797	0.0000	1.8797	0.9661	0.0000	0.9661			0.0000			0.0000
Off-Road	1.4197	16.0357	6.6065	0.0141		0.7365	0.7365		0.6775	0.6775	0.0000	1,396.3909	1,396.3909	0.4418		1,407.4359
Total	**1.4197**	**16.0357**	**6.6065**	**0.0141**	**1.8797**	**0.7365**	**2.6162**	**0.9661**	**0.6775**	**1.6436**	**0.0000**	**1,396.3909**	**1,396.3909**	**0.4418**		**1,407.4359**

3.4 Grading - 2019

Mitigated Construction Off-Site

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

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846		2,018.0224	2,018.0224	0.3879		2,027.7210
Total	**2.2721**	**15.9802**	**13.4870**	**0.0220**		**0.9158**	**0.9158**		**0.8846**	**0.8846**		**2,018.0224**	**2,018.0224**	**0.3879**		**2,027.7210**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0150	0.4539	0.1200	1.0000e-003	0.0256	3.0700e-003	0.0286	7.3500e-003	2.9300e-003	0.0103		109.1876	109.1876	9.2200e-003		109.4180
Worker	0.1113	0.0730	0.9632	3.0500e-003	0.3018	2.0200e-003	0.3038	0.0800	1.8600e-003	0.0819		304.0579	304.0579	7.4800e-003		304.2448
Total	**0.1263**	**0.5269**	**1.0832**	**4.0500e-003**	**0.3274**	**5.0900e-003**	**0.3324**	**0.0874**	**4.7900e-003**	**0.0922**		**413.2454**	**413.2454**	**0.0167**		**413.6628**

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	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846	0.0000	2,018.0224	2,018.0224	0.3879		2,027.7210
Total	**2.2721**	**15.9802**	**13.4870**	**0.0220**		**0.9158**	**0.9158**		**0.8846**	**0.8846**	**0.0000**	**2,018.0224**	**2,018.0224**	**0.3879**		**2,027.7210**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0150	0.4539	0.1200	1.0000e-003	0.0256	3.0700e-003	0.0286	7.3500e-003	2.9300e-003	0.0103		109.1876	109.1876	9.2200e-003		109.4180
Worker	0.1113	0.0730	0.9632	3.0500e-003	0.3018	2.0200e-003	0.3038	0.0800	1.8600e-003	0.0819		304.0579	304.0579	7.4800e-003		304.2448
Total	**0.1263**	**0.5269**	**1.0832**	**4.0500e-003**	**0.3274**	**5.0900e-003**	**0.3324**	**0.0874**	**4.7900e-003**	**0.0922**		**413.2454**	**413.2454**	**0.0167**		**413.6628**

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	2.0305	14.7882	13.1881	0.0220		0.7960	0.7960		0.7688	0.7688		2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**2.0305**	**14.7882**	**13.1881**	**0.0220**		**0.7960**	**0.7960**		**0.7688**	**0.7688**		**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

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	0.0128	0.4167	0.1100	1.0000e-003	0.0256	2.1700e-003	0.0277	7.3500e-003	2.0800e-003	9.4300e-003		108.4516	108.4516	8.7700e-003		108.6709
Worker	0.1038	0.0654	0.8838	2.9500e-003	0.3018	2.0000e-003	0.3038	0.0800	1.8400e-003	0.0819		294.3118	294.3118	6.7100e-003		294.4795
Total	**0.1165**	**0.4821**	**0.9938**	**3.9500e-003**	**0.3274**	**4.1700e-003**	**0.3315**	**0.0874**	**3.9200e-003**	**0.0913**		**402.7633**	**402.7633**	**0.0155**		**403.1504**

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	2.0305	14.7882	13.1881	0.0220		0.7960	0.7960		0.7688	0.7688	0.0000	2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**2.0305**	**14.7882**	**13.1881**	**0.0220**		**0.7960**	**0.7960**		**0.7688**	**0.7688**	**0.0000**	**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

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	0.0128	0.4167	0.1100	1.0000e-003	0.0256	2.1700e-003	0.0277	7.3500e-003	2.0800e-003	9.4300e-003		108.4516	108.4516	8.7700e-003		108.6709
Worker	0.1038	0.0654	0.8838	2.9500e-003	0.3018	2.0000e-003	0.3038	0.0800	1.8400e-003	0.0819		294.3118	294.3118	6.7100e-003		294.4795
Total	**0.1165**	**0.4821**	**0.9938**	**3.9500e-003**	**0.3274**	**4.1700e-003**	**0.3315**	**0.0874**	**3.9200e-003**	**0.0913**		**402.7633**	**402.7633**	**0.0155**		**403.1504**

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	0.8402	8.4514	8.8758	0.0135		0.4695	0.4695		0.4328	0.4328		1,296.9461	1,296.9461	0.4111		1,307.2246
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8402**	**8.4514**	**8.8758**	**0.0135**		**0.4695**	**0.4695**		**0.4328**	**0.4328**		**1,296.9461**	**1,296.9461**	**0.4111**		**1,307.2246**

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	0.0500	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	0.8402	8.4514	8.8758	0.0135		0.4695	0.4695		0.4328	0.4328	0.0000	1,296.9461	1,296.9461	0.4111		1,307.2246
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8402**	**8.4514**	**8.8758**	**0.0135**		**0.4695**	**0.4695**		**0.4328**	**0.4328**	**0.0000**	**1,296.9461**	**1,296.9461**	**0.4111**		**1,307.2246**

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	0.0500	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**

3.7 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	23.7776					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	**24.0197**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0192	0.0121	0.1637	5.5000e-004	0.0559	3.7000e-004	0.0563	0.0148	3.4000e-004	0.0152		54.5022	54.5022	1.2400e-003		54.5332
Total	**0.0192**	**0.0121**	**0.1637**	**5.5000e-004**	**0.0559**	**3.7000e-004**	**0.0563**	**0.0148**	**3.4000e-004**	**0.0152**		**54.5022**	**54.5022**	**1.2400e-003**		**54.5332**

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	23.7776					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	**24.0197**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0192	0.0121	0.1637	5.5000e-004	0.0559	3.7000e-004	0.0563	0.0148	3.4000e-004	0.0152		54.5022	54.5022	1.2400e-003		54.5332
Total	**0.0192**	**0.0121**	**0.1637**	**5.5000e-004**	**0.0559**	**3.7000e-004**	**0.0563**	**0.0148**	**3.4000e-004**	**0.0152**		**54.5022**	**54.5022**	**1.2400e-003**		**54.5332**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5294	2.1726	7.2210	0.0261	2.2419	0.0255	2.2674	0.5995	0.0239	0.6234		2,648.1683	2,648.1683	0.1103		2,650.9253
Unmitigated	0.5294	2.1726	7.2210	0.0261	2.2419	0.0255	2.2674	0.5995	0.0239	0.6234		2,648.1683	2,648.1683	0.1103		2,650.9253

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	278.16	309.32	238.64	946,434	946,434
Total	278.16	309.32	238.64	946,434	946,434

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	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0198	0.1693	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137		216.1270	216.1270	4.1400e-003	3.9600e-003	217.4113
NaturalGas Unmitigated	0.0198	0.1693	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137		216.1270	216.1270	4.1400e-003	3.9600e-003	217.4113

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	1837.08	0.0198	0.1693	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137		216.1270	216.1270	4.1400e-003	3.9600e-003	217.4113
Total		**0.0198**	**0.1693**	**0.0720**	**1.0800e-003**		**0.0137**	**0.0137**		**0.0137**	**0.0137**		**216.1270**	**216.1270**	**4.1400e-003**	**3.9600e-003**	**217.4113**

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	1.83708	0.0198	0.1693	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137		216.1270	216.1270	4.1400e-003	3.9600e-003	217.4113
Total		**0.0198**	**0.1693**	**0.0720**	**1.0800e-003**		**0.0137**	**0.0137**		**0.0137**	**0.0137**		**216.1270**	**216.1270**	**4.1400e-003**	**3.9600e-003**	**217.4113**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9871	0.6667	3.4137	4.1900e-003		0.0683	0.0683		0.0683	0.0683	0.0000	810.3509	810.3509	0.0209	0.0148	815.2705
Unmitigated	0.9871	0.6667	3.4137	4.1900e-003		0.0683	0.0683		0.0683	0.0683	0.0000	810.3509	810.3509	0.0209	0.0148	815.2705

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	0.0651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7524					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0738	0.6304	0.2682	4.0200e-003		0.0510	0.0510		0.0510	0.0510	0.0000	804.7059	804.7059	0.0154	0.0148	809.4879
Landscaping	0.0958	0.0364	3.1455	1.7000e-004		0.0173	0.0173		0.0173	0.0173		5.6450	5.6450	5.5000e-003		5.7826
Total	**0.9871**	**0.6667**	**3.4137**	**4.1900e-003**		**0.0683**	**0.0683**		**0.0683**	**0.0683**	**0.0000**	**810.3509**	**810.3509**	**0.0209**	**0.0148**	**815.2705**

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	0.0651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7524					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0738	0.6304	0.2682	4.0200e-003		0.0510	0.0510		0.0510	0.0510	0.0000	804.7059	804.7059	0.0154	0.0148	809.4879
Landscaping	0.0958	0.0364	3.1455	1.7000e-004		0.0173	0.0173		0.0173	0.0173		5.6450	5.6450	5.5000e-003		5.7826
Total	**0.9871**	**0.6667**	**3.4137**	**4.1900e-003**		**0.0683**	**0.0683**		**0.0683**	**0.0683**	**0.0000**	**810.3509**	**810.3509**	**0.0209**	**0.0148**	**815.2705**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

NEWPORT & FORD RESIDENTIAL

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	38.00	Dwelling Unit	1.86	38,000.00	109

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2020
Utility Company	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 - 38-unit residential townhomes on 1.86 acres.

Demolition -

Vehicle Trips - ITE Trip Generation Rates, 10th Edition, 2017

Woodstoves - Per SCAQMD 445, no wood burning devices in new development.

Energy Use -

Water And Wastewater -

Sequestration -

Construction Off-road Equipment Mitigation - Comply with SCAQMD Rule 403 regarding fugitive dust control.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	25
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	32.30	38.00
tblFireplaces	NumberNoFireplace	3.80	0.00
tblFireplaces	NumberWood	1.90	0.00
tblLandUse	LotAcreage	2.38	1.86
tblVehicleTrips	ST_TR	5.67	8.14
tblVehicleTrips	SU_TR	4.84	6.28
tblVehicleTrips	WD_TR	5.81	7.32
tblWoodstoves	NumberCatalytic	1.90	0.00
tblWoodstoves	NumberNoncatalytic	1.90	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.4408	25.7168	16.0760	0.0331	5.8890	1.2989	6.7720	2.9774	1.2138	3.7897	0.0000	3,349.0608	3,349.0608	0.6969	0.0000	3,366.4829
2020	24.0414	15.2766	14.1255	0.0258	0.3274	0.8002	1.1275	0.0874	0.7728	0.8602	0.0000	2,385.4836	2,385.4836	0.4142	0.0000	2,395.1601
Maximum	**24.0414**	**25.7168**	**16.0760**	**0.0331**	**5.8890**	**1.2989**	**6.7720**	**2.9774**	**1.2138**	**3.7897**	**0.0000**	**3,349.0608**	**3,349.0608**	**0.6969**	**0.0000**	**3,366.4829**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.4408	25.7168	16.0760	0.0331	2.3078	1.2989	3.1907	1.1535	1.2138	1.9658	0.0000	3,349.0608	3,349.0608	0.6969	0.0000	3,366.4829
2020	24.0414	15.2766	14.1255	0.0258	0.3274	0.8002	1.1275	0.0874	0.7728	0.8602	0.0000	2,385.4836	2,385.4836	0.4142	0.0000	2,395.1601
Maximum	**24.0414**	**25.7168**	**16.0760**	**0.0331**	**2.3078**	**1.2989**	**3.1907**	**1.1535**	**1.2138**	**1.9658**	**0.0000**	**3,349.0608**	**3,349.0608**	**0.6969**	**0.0000**	**3,366.4829**

	ROG	**NOx**	**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**	**57.61**	**0.00**	**45.34**	**59.51**	**0.00**	**39.22**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9871	0.6667	3.4137	4.1900e-003		0.0683	0.0683		0.0683	0.0683	0.0000	810.3509	810.3509	0.0209	0.0148	815.2705
Energy	0.0198	0.1693	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137		216.1270	216.1270	4.1400e-003	3.9600e-003	217.4113
Mobile	0.5215	2.2420	6.9029	0.0249	2.2419	0.0256	2.2675	0.5995	0.0240	0.6235		2,529.8675	2,529.8675	0.1097		2,532.6095
Total	**1.5284**	**3.0781**	**10.3886**	**0.0302**	**2.2419**	**0.1075**	**2.3495**	**0.5995**	**0.1060**	**0.7055**	**0.0000**	**3,556.3453**	**3,556.3453**	**0.1348**	**0.0187**	**3,565.2913**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9871	0.6667	3.4137	4.1900e-003		0.0683	0.0683		0.0683	0.0683	0.0000	810.3509	810.3509	0.0209	0.0148	815.2705
Energy	0.0198	0.1693	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137		216.1270	216.1270	4.1400e-003	3.9600e-003	217.4113
Mobile	0.5215	2.2420	6.9029	0.0249	2.2419	0.0256	2.2675	0.5995	0.0240	0.6235		2,529.8675	2,529.8675	0.1097		2,532.6095
Total	**1.5284**	**3.0781**	**10.3886**	**0.0302**	**2.2419**	**0.1075**	**2.3495**	**0.5995**	**0.1060**	**0.7055**	**0.0000**	**3,556.3453**	**3,556.3453**	**0.1348**	**0.0187**	**3,565.2913**

	ROG	NOx	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	5/1/2019	5/28/2019	5	20	
2	Site Preparation	Site Preparation	5/29/2019	5/30/2019	5	2	
3	Grading	Grading	5/31/2019	6/5/2019	5	4	
4	Building Construction	Building Construction	6/6/2019	3/11/2020	5	200	
5	Paving	Paving	3/12/2020	3/25/2020	5	10	
6	Architectural Coating	Architectural Coating	3/26/2020	4/8/2020	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 76,950; Residential Outdoor: 25,650; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

NEWPORT & FORD RESIDENTIAL - Orange County, Winter

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	6.00	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	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	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	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	200.00	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	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	27.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.1667	0.0000	2.1667	0.3281	0.0000	0.3281			0.0000			0.0000
Off-Road	2.2950	22.6751	14.8943	0.0241		1.2863	1.2863		1.2017	1.2017		2,360.7198	2,360.7198	0.6011		2,375.7475
Total	**2.2950**	**22.6751**	**14.8943**	**0.0241**	**2.1667**	**1.2863**	**3.4529**	**0.3281**	**1.2017**	**1.5298**		**2,360.7198**	**2,360.7198**	**0.6011**		**2,375.7475**

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0853	3.0031	0.7523	7.6400e-003	0.1741	0.0116	0.1858	0.0477	0.0111	0.0588		849.7905	849.7905	0.0924		852.0995
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	0.0604	0.0386	0.4294	1.3900e-003	0.1453	9.7000e-004	0.1463	0.0385	8.9000e-004	0.0394		138.5506	138.5506	3.4100e-003		138.6359
Total	**0.1457**	**3.0417**	**1.1817**	**9.0300e-003**	**0.3194**	**0.0126**	**0.3320**	**0.0862**	**0.0120**	**0.0982**		**988.3410**	**988.3410**	**0.0958**		**990.7355**

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					0.8287	0.0000	0.8287	0.1255	0.0000	0.1255			0.0000			0.0000
Off-Road	2.2950	22.6751	14.8943	0.0241		1.2863	1.2863		1.2017	1.2017	0.0000	2,360.7197	2,360.7197	0.6011		2,375.7475
Total	**2.2950**	**22.6751**	**14.8943**	**0.0241**	**0.8287**	**1.2863**	**2.1150**	**0.1255**	**1.2017**	**1.3272**	**0.0000**	**2,360.7197**	**2,360.7197**	**0.6011**		**2,375.7475**

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0853	3.0031	0.7523	7.6400e-003	0.1741	0.0116	0.1858	0.0477	0.0111	0.0588		849.7905	849.7905	0.0924		852.0995
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	0.0604	0.0386	0.4294	1.3900e-003	0.1453	9.7000e-004	0.1463	0.0385	8.9000e-004	0.0394		138.5506	138.5506	3.4100e-003		138.6359
Total	**0.1457**	**3.0417**	**1.1817**	**9.0300e-003**	**0.3194**	**0.0126**	**0.3320**	**0.0862**	**0.0120**	**0.0982**		**988.3410**	**988.3410**	**0.0958**		**990.7355**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.7123	19.4821	7.8893	0.0172		0.8824	0.8824		0.8118	0.8118		1,704.9189	1,704.9189	0.5394		1,718.4044
Total	**1.7123**	**19.4821**	**7.8893**	**0.0172**	**5.7996**	**0.8824**	**6.6819**	**2.9537**	**0.8118**	**3.7655**		**1,704.9189**	**1,704.9189**	**0.5394**		**1,718.4044**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2183	0.0000	2.2183	1.1298	0.0000	1.1298			0.0000			0.0000
Off-Road	1.7123	19.4821	7.8893	0.0172		0.8824	0.8824		0.8118	0.8118	0.0000	1,704.9189	1,704.9189	0.5394		1,718.4044
Total	**1.7123**	**19.4821**	**7.8893**	**0.0172**	**2.2183**	**0.8824**	**3.1007**	**1.1298**	**0.8118**	**1.9416**	**0.0000**	**1,704.9189**	**1,704.9189**	**0.5394**		**1,718.4044**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

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

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	1.4197	16.0357	6.6065	0.0141		0.7365	0.7365		0.6775	0.6775		1,396.3909	1,396.3909	0.4418		1,407.4359
Total	**1.4197**	**16.0357**	**6.6065**	**0.0141**	**4.9143**	**0.7365**	**5.6507**	**2.5256**	**0.6775**	**3.2032**		**1,396.3909**	**1,396.3909**	**0.4418**		**1,407.4359**

3.4 Grading - 2019

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.8797	0.0000	1.8797	0.9661	0.0000	0.9661			0.0000			0.0000
Off-Road	1.4197	16.0357	6.6065	0.0141		0.7365	0.7365		0.6775	0.6775	0.0000	1,396.3909	1,396.3909	0.4418		1,407.4359
Total	**1.4197**	**16.0357**	**6.6065**	**0.0141**	**1.8797**	**0.7365**	**2.6162**	**0.9661**	**0.6775**	**1.6436**	**0.0000**	**1,396.3909**	**1,396.3909**	**0.4418**		**1,407.4359**

3.4 Grading - 2019

Mitigated Construction Off-Site

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

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846		2,018.0224	2,018.0224	0.3879		2,027.7210
Total	**2.2721**	**15.9802**	**13.4870**	**0.0220**		**0.9158**	**0.9158**		**0.8846**	**0.8846**		**2,018.0224**	**2,018.0224**	**0.3879**		**2,027.7210**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0156	0.4544	0.1317	9.8000e-004	0.0256	3.1200e-003	0.0287	7.3500e-003	2.9900e-003	0.0103		106.5421	106.5421	9.7000e-003		106.7847
Worker	0.1255	0.0802	0.8918	2.8900e-003	0.3018	2.0200e-003	0.3038	0.0800	1.8600e-003	0.0819		287.7589	287.7589	7.0900e-003		287.9361
Total	**0.1412**	**0.5346**	**1.0235**	**3.8700e-003**	**0.3274**	**5.1400e-003**	**0.3325**	**0.0874**	**4.8500e-003**	**0.0922**		**394.3010**	**394.3010**	**0.0168**		**394.7208**

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	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846	0.0000	2,018.0224	2,018.0224	0.3879		2,027.7210
Total	**2.2721**	**15.9802**	**13.4870**	**0.0220**		**0.9158**	**0.9158**		**0.8846**	**0.8846**	**0.0000**	**2,018.0224**	**2,018.0224**	**0.3879**		**2,027.7210**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0156	0.4544	0.1317	9.8000e-004	0.0256	3.1200e-003	0.0287	7.3500e-003	2.9900e-003	0.0103		106.5421	106.5421	9.7000e-003		106.7847
Worker	0.1255	0.0802	0.8918	2.8900e-003	0.3018	2.0200e-003	0.3038	0.0800	1.8600e-003	0.0819		287.7589	287.7589	7.0900e-003		287.9361
Total	**0.1412**	**0.5346**	**1.0235**	**3.8700e-003**	**0.3274**	**5.1400e-003**	**0.3325**	**0.0874**	**4.8500e-003**	**0.0922**		**394.3010**	**394.3010**	**0.0168**		**394.7208**

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	2.0305	14.7882	13.1881	0.0220		0.7960	0.7960		0.7688	0.7688		2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**2.0305**	**14.7882**	**13.1881**	**0.0220**		**0.7960**	**0.7960**		**0.7688**	**0.7688**		**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

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	0.0133	0.4166	0.1206	9.7000e-004	0.0256	2.2100e-003	0.0278	7.3500e-003	2.1200e-003	9.4700e-003		105.7864	105.7864	9.2100e-003		106.0168
Worker	0.1173	0.0718	0.8169	2.7900e-003	0.3018	2.0000e-003	0.3038	0.0800	1.8400e-003	0.0819		278.5377	278.5377	6.3600e-003		278.6966
Total	**0.1306**	**0.4884**	**0.9374**	**3.7600e-003**	**0.3274**	**4.2100e-003**	**0.3316**	**0.0874**	**3.9600e-003**	**0.0914**		**384.3241**	**384.3241**	**0.0156**		**384.7134**

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	2.0305	14.7882	13.1881	0.0220		0.7960	0.7960		0.7688	0.7688	0.0000	2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**2.0305**	**14.7882**	**13.1881**	**0.0220**		**0.7960**	**0.7960**		**0.7688**	**0.7688**	**0.0000**	**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

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	0.0133	0.4166	0.1206	9.7000e-004	0.0256	2.2100e-003	0.0278	7.3500e-003	2.1200e-003	9.4700e-003		105.7864	105.7864	9.2100e-003		106.0168
Worker	0.1173	0.0718	0.8169	2.7900e-003	0.3018	2.0000e-003	0.3038	0.0800	1.8400e-003	0.0819		278.5377	278.5377	6.3600e-003		278.6966
Total	**0.1306**	**0.4884**	**0.9374**	**3.7600e-003**	**0.3274**	**4.2100e-003**	**0.3316**	**0.0874**	**3.9600e-003**	**0.0914**		**384.3241**	**384.3241**	**0.0156**		**384.7134**

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	0.8402	8.4514	8.8758	0.0135		0.4695	0.4695		0.4328	0.4328		1,296.9461	1,296.9461	0.4111		1,307.2246
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8402**	**8.4514**	**8.8758**	**0.0135**		**0.4695**	**0.4695**		**0.4328**	**0.4328**		**1,296.9461**	**1,296.9461**	**0.4111**		**1,307.2246**

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	0.0565	0.0346	0.3933	1.3400e-003	0.1453	9.6000e-004	0.1463	0.0385	8.8000e-004	0.0394		134.1108	134.1108	3.0600e-003		134.1873
Total	**0.0565**	**0.0346**	**0.3933**	**1.3400e-003**	**0.1453**	**9.6000e-004**	**0.1463**	**0.0385**	**8.8000e-004**	**0.0394**		**134.1108**	**134.1108**	**3.0600e-003**		**134.1873**

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	0.8402	8.4514	8.8758	0.0135		0.4695	0.4695		0.4328	0.4328	0.0000	1,296.9461	1,296.9461	0.4111		1,307.2246
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8402**	**8.4514**	**8.8758**	**0.0135**		**0.4695**	**0.4695**		**0.4328**	**0.4328**	**0.0000**	**1,296.9461**	**1,296.9461**	**0.4111**		**1,307.2246**

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	0.0565	0.0346	0.3933	1.3400e-003	0.1453	9.6000e-004	0.1463	0.0385	8.8000e-004	0.0394		134.1108	134.1108	3.0600e-003		134.1873
Total	**0.0565**	**0.0346**	**0.3933**	**1.3400e-003**	**0.1453**	**9.6000e-004**	**0.1463**	**0.0385**	**8.8000e-004**	**0.0394**		**134.1108**	**134.1108**	**3.0600e-003**		**134.1873**

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	23.7776					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	**24.0197**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0217	0.0133	0.1513	5.2000e-004	0.0559	3.7000e-004	0.0563	0.0148	3.4000e-004	0.0152		51.5811	51.5811	1.1800e-003		51.6105
Total	**0.0217**	**0.0133**	**0.1513**	**5.2000e-004**	**0.0559**	**3.7000e-004**	**0.0563**	**0.0148**	**3.4000e-004**	**0.0152**		**51.5811**	**51.5811**	**1.1800e-003**		**51.6105**

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	23.7776					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	**24.0197**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0217	0.0133	0.1513	5.2000e-004	0.0559	3.7000e-004	0.0563	0.0148	3.4000e-004	0.0152		51.5811	51.5811	1.1800e-003		51.6105
Total	**0.0217**	**0.0133**	**0.1513**	**5.2000e-004**	**0.0559**	**3.7000e-004**	**0.0563**	**0.0148**	**3.4000e-004**	**0.0152**		**51.5811**	**51.5811**	**1.1800e-003**		**51.6105**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5215	2.2420	6.9029	0.0249	2.2419	0.0256	2.2675	0.5995	0.0240	0.6235		2,529.8675	2,529.8675	0.1097		2,532.6095
Unmitigated	0.5215	2.2420	6.9029	0.0249	2.2419	0.0256	2.2675	0.5995	0.0240	0.6235		2,529.8675	2,529.8675	0.1097		2,532.6095

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	278.16	309.32	238.64	946,434	946,434
Total	278.16	309.32	238.64	946,434	946,434

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	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0198	0.1693	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137		216.1270	216.1270	4.1400e-003	3.9600e-003	217.4113
NaturalGas Unmitigated	0.0198	0.1693	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137		216.1270	216.1270	4.1400e-003	3.9600e-003	217.4113

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	1837.08	0.0198	0.1693	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137		216.1270	216.1270	4.1400e-003	3.9600e-003	217.4113
Total		**0.0198**	**0.1693**	**0.0720**	**1.0800e-003**		**0.0137**	**0.0137**		**0.0137**	**0.0137**		**216.1270**	**216.1270**	**4.1400e-003**	**3.9600e-003**	**217.4113**

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	1.83708	0.0198	0.1693	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137		216.1270	216.1270	4.1400e-003	3.9600e-003	217.4113
Total		**0.0198**	**0.1693**	**0.0720**	**1.0800e-003**		**0.0137**	**0.0137**		**0.0137**	**0.0137**		**216.1270**	**216.1270**	**4.1400e-003**	**3.9600e-003**	**217.4113**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9871	0.6667	3.4137	4.1900e-003		0.0683	0.0683		0.0683	0.0683	0.0000	810.3509	810.3509	0.0209	0.0148	815.2705
Unmitigated	0.9871	0.6667	3.4137	4.1900e-003		0.0683	0.0683		0.0683	0.0683	0.0000	810.3509	810.3509	0.0209	0.0148	815.2705

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	0.0651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7524					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0738	0.6304	0.2682	4.0200e-003		0.0510	0.0510		0.0510	0.0510	0.0000	804.7059	804.7059	0.0154	0.0148	809.4879
Landscaping	0.0958	0.0364	3.1455	1.7000e-004		0.0173	0.0173		0.0173	0.0173		5.6450	5.6450	5.5000e-003		5.7826
Total	**0.9871**	**0.6667**	**3.4137**	**4.1900e-003**		**0.0683**	**0.0683**		**0.0683**	**0.0683**	**0.0000**	**810.3509**	**810.3509**	**0.0209**	**0.0148**	**815.2705**

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	0.0651					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.7524					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0738	0.6304	0.2682	4.0200e-003		0.0510	0.0510		0.0510	0.0510	0.0000	804.7059	804.7059	0.0154	0.0148	809.4879
Landscaping	0.0958	0.0364	3.1455	1.7000e-004		0.0173	0.0173		0.0173	0.0173		5.6450	5.6450	5.5000e-003		5.7826
Total	**0.9871**	**0.6667**	**3.4137**	**4.1900e-003**		**0.0683**	**0.0683**		**0.0683**	**0.0683**	**0.0000**	**810.3509**	**810.3509**	**0.0209**	**0.0148**	**815.2705**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B

Annual Emission Calculations Output
(CalEEMod)

NEWPORT & FORD RESIDENTIAL

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	38.00	Dwelling Unit	1.86	38,000.00	109

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2020
Utility Company	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 - 38-unit residential townhomes on 1.86 acres.

Demolition -

Vehicle Trips - ITE Trip Generation Rates, 10th Edition, 2017

Woodstoves - Per SCAQMD 445, no wood burning devices in new development.

Energy Use -

Water And Wastewater -

Sequestration -

Construction Off-road Equipment Mitigation - Comply with SCAQMD Rule 403 regarding fugitive dust control.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	25
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	32.30	38.00
tblFireplaces	NumberNoFireplace	3.80	0.00
tblFireplaces	NumberWood	1.90	0.00
tblLandUse	LotAcreage	2.38	1.86
tblVehicleTrips	ST_TR	5.67	8.14
tblVehicleTrips	SU_TR	4.84	6.28
tblVehicleTrips	WD_TR	5.81	7.32
tblWoodstoves	NumberCatalytic	1.90	0.00
tblWoodstoves	NumberNoncatalytic	1.90	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.2078	1.5405	1.2648	2.3100e-003	0.0647	0.0840	0.1486	0.0186	0.0806	0.0992	0.0000	198.2227	198.2227	0.0350	0.0000	199.0964
2020	0.1794	0.4407	0.4169	7.5000e-004	9.1900e-003	0.0233	0.0325	2.4500e-003	0.0224	0.0249	0.0000	63.3327	63.3327	0.0109	0.0000	63.6060
Maximum	**0.2078**	**1.5405**	**1.2648**	**2.3100e-003**	**0.0647**	**0.0840**	**0.1486**	**0.0186**	**0.0806**	**0.0992**	**0.0000**	**198.2227**	**198.2227**	**0.0350**	**0.0000**	**199.0964**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.2078	1.5405	1.2648	2.3100e-003	0.0416	0.0840	0.1256	0.0116	0.0806	0.0922	0.0000	198.2225	198.2225	0.0350	0.0000	199.0962
2020	0.1794	0.4407	0.4169	7.5000e-004	9.1900e-003	0.0233	0.0325	2.4500e-003	0.0224	0.0249	0.0000	63.3326	63.3326	0.0109	0.0000	63.6059
Maximum	**0.2078**	**1.5405**	**1.2648**	**2.3100e-003**	**0.0416**	**0.0840**	**0.1256**	**0.0116**	**0.0806**	**0.0922**	**0.0000**	**198.2225**	**198.2225**	**0.0350**	**0.0000**	**199.0962**

	ROG	**NOx**	**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**	**31.18**	**0.00**	**12.72**	**33.10**	**0.00**	**5.62**	**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	5-1-2019	7-31-2019	0.7119	0.7119
2	8-1-2019	10-31-2019	0.6214	0.6214
3	11-1-2019	1-31-2020	0.6054	0.6054
4	2-1-2020	4-30-2020	0.4247	0.4247
		Highest	0.7119	0.7119

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	0.1621	0.0124	0.3965	7.0000e-005		2.8000e-003	2.8000e-003		2.8000e-003	2.8000e-003	0.0000	9.7653	9.7653	8.0000e-004	1.7000e-004	9.8352
Energy	3.6200e-003	0.0309	0.0132	2.0000e-004		2.5000e-003	2.5000e-003		2.5000e-003	2.5000e-003	0.0000	95.9392	95.9392	3.1700e-003	1.1700e-003	96.3670
Mobile	0.0826	0.3718	1.1403	4.1100e-003	0.3589	4.1500e-003	0.3631	0.0961	3.9000e-003	0.1000	0.0000	378.5883	378.5883	0.0162	0.0000	378.9928
Waste						0.0000	0.0000		0.0000	0.0000	3.5483	0.0000	3.5483	0.2097	0.0000	8.7907
Water						0.0000	0.0000		0.0000	0.0000	0.7855	15.7970	16.5825	0.0813	2.0400e-003	19.2236
Total	**0.2483**	**0.4152**	**1.5500**	**4.3800e-003**	**0.3589**	**9.4500e-003**	**0.3684**	**0.0961**	**9.2000e-003**	**0.1053**	**4.3338**	**500.0898**	**504.4235**	**0.3112**	**3.3800e-003**	**513.2093**

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	0.1621	0.0124	0.3965	7.0000e-005		2.8000e-003	2.8000e-003		2.8000e-003	2.8000e-003	0.0000	9.7653	9.7653	8.0000e-004	1.7000e-004	9.8352
Energy	3.6200e-003	0.0309	0.0132	2.0000e-004		2.5000e-003	2.5000e-003		2.5000e-003	2.5000e-003	0.0000	95.9392	95.9392	3.1700e-003	1.1700e-003	96.3670
Mobile	0.0826	0.3718	1.1403	4.1100e-003	0.3589	4.1500e-003	0.3631	0.0961	3.9000e-003	0.1000	0.0000	378.5883	378.5883	0.0162	0.0000	378.9928
Waste						0.0000	0.0000		0.0000	0.0000	3.5483	0.0000	3.5483	0.2097	0.0000	8.7907
Water						0.0000	0.0000		0.0000	0.0000	0.7855	15.7970	16.5825	0.0813	2.0400e-003	19.2236
Total	**0.2483**	**0.4152**	**1.5500**	**4.3800e-003**	**0.3589**	**9.4500e-003**	**0.3684**	**0.0961**	**9.2000e-003**	**0.1053**	**4.3338**	**500.0898**	**504.4235**	**0.3112**	**3.3800e-003**	**513.2093**

	ROG	NOx	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

NEWPORT & FORD RESIDENTIAL - Orange County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/1/2019	5/28/2019	5	20	
2	Site Preparation	Site Preparation	5/29/2019	5/30/2019	5	2	
3	Grading	Grading	5/31/2019	6/5/2019	5	4	
4	Building Construction	Building Construction	6/6/2019	3/11/2020	5	200	
5	Paving	Paving	3/12/2020	3/25/2020	5	10	
6	Architectural Coating	Architectural Coating	3/26/2020	4/8/2020	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 76,950; Residential Outdoor: 25,650; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

NEWPORT & FORD RESIDENTIAL - 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	1	6.00	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	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	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	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	200.00	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	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	27.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0217	0.0000	0.0217	3.2800e-003	0.0000	3.2800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0230	0.2268	0.1489	2.4000e-004		0.0129	0.0129		0.0120	0.0120	0.0000	21.4161	21.4161	5.4500e-003	0.0000	21.5524
Total	**0.0230**	**0.2268**	**0.1489**	**2.4000e-004**	**0.0217**	**0.0129**	**0.0345**	**3.2800e-003**	**0.0120**	**0.0153**	**0.0000**	**21.4161**	**21.4161**	**5.4500e-003**	**0.0000**	**21.5524**

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.4000e-004	0.0306	7.2900e-003	8.0000e-005	1.7100e-003	1.1000e-004	1.8300e-003	4.7000e-004	1.1000e-004	5.8000e-004	0.0000	7.7764	7.7764	8.3000e-004	0.0000	7.7971
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	5.4000e-004	4.0000e-004	4.4000e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2761	1.2761	3.0000e-005	0.0000	1.2769
Total	**1.3800e-003**	**0.0310**	**0.0117**	**9.0000e-005**	**3.1400e-003**	**1.2000e-004**	**3.2700e-003**	**8.5000e-004**	**1.2000e-004**	**9.7000e-004**	**0.0000**	**9.0525**	**9.0525**	**8.6000e-004**	**0.0000**	**9.0740**

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					8.2900e-003	0.0000	8.2900e-003	1.2500e-003	0.0000	1.2500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0230	0.2268	0.1489	2.4000e-004		0.0129	0.0129		0.0120	0.0120	0.0000	21.4161	21.4161	5.4500e-003	0.0000	21.5524
Total	**0.0230**	**0.2268**	**0.1489**	**2.4000e-004**	**8.2900e-003**	**0.0129**	**0.0212**	**1.2500e-003**	**0.0120**	**0.0133**	**0.0000**	**21.4161**	**21.4161**	**5.4500e-003**	**0.0000**	**21.5524**

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.4000e-004	0.0306	7.2900e-003	8.0000e-005	1.7100e-003	1.1000e-004	1.8300e-003	4.7000e-004	1.1000e-004	5.8000e-004	0.0000	7.7764	7.7764	8.3000e-004	0.0000	7.7971
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	5.4000e-004	4.0000e-004	4.4000e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2761	1.2761	3.0000e-005	0.0000	1.2769
Total	**1.3800e-003**	**0.0310**	**0.0117**	**9.0000e-005**	**3.1400e-003**	**1.2000e-004**	**3.2700e-003**	**8.5000e-004**	**1.2000e-004**	**9.7000e-004**	**0.0000**	**9.0525**	**9.0525**	**8.6000e-004**	**0.0000**	**9.0740**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0195	7.8900e-003	2.0000e-005		8.8000e-004	8.8000e-004		8.1000e-004	8.1000e-004	0.0000	1.5467	1.5467	4.9000e-004	0.0000	1.5589
Total	**1.7100e-003**	**0.0195**	**7.8900e-003**	**2.0000e-005**	**5.8000e-003**	**8.8000e-004**	**6.6800e-003**	**2.9500e-003**	**8.1000e-004**	**3.7600e-003**	**0.0000**	**1.5467**	**1.5467**	**4.9000e-004**	**0.0000**	**1.5589**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.2200e-003	0.0000	2.2200e-003	1.1300e-003	0.0000	1.1300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0195	7.8900e-003	2.0000e-005		8.8000e-004	8.8000e-004		8.1000e-004	8.1000e-004	0.0000	1.5467	1.5467	4.9000e-004	0.0000	1.5589
Total	**1.7100e-003**	**0.0195**	**7.8900e-003**	**2.0000e-005**	**2.2200e-003**	**8.8000e-004**	**3.1000e-003**	**1.1300e-003**	**8.1000e-004**	**1.9400e-003**	**0.0000**	**1.5467**	**1.5467**	**4.9000e-004**	**0.0000**	**1.5589**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

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

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8400e-003	0.0321	0.0132	3.0000e-005		1.4700e-003	1.4700e-003		1.3600e-003	1.3600e-003	0.0000	2.5336	2.5336	8.0000e-004	0.0000	2.5536
Total	**2.8400e-003**	**0.0321**	**0.0132**	**3.0000e-005**	**9.8300e-003**	**1.4700e-003**	**0.0113**	**5.0500e-003**	**1.3600e-003**	**6.4100e-003**	**0.0000**	**2.5336**	**2.5336**	**8.0000e-004**	**0.0000**	**2.5536**

3.4 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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-005	5.0000e-005	5.4000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1571	0.1571	0.0000	0.0000	0.1572
Total	**7.0000e-005**	**5.0000e-005**	**5.4000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1571**	**0.1571**	**0.0000**	**0.0000**	**0.1572**

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					3.7600e-003	0.0000	3.7600e-003	1.9300e-003	0.0000	1.9300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8400e-003	0.0321	0.0132	3.0000e-005		1.4700e-003	1.4700e-003		1.3600e-003	1.3600e-003	0.0000	2.5336	2.5336	8.0000e-004	0.0000	2.5536
Total	**2.8400e-003**	**0.0321**	**0.0132**	**3.0000e-005**	**3.7600e-003**	**1.4700e-003**	**5.2300e-003**	**1.9300e-003**	**1.3600e-003**	**3.2900e-003**	**0.0000**	**2.5336**	**2.5336**	**8.0000e-004**	**0.0000**	**2.5536**

3.4 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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-005	5.0000e-005	5.4000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1571	0.1571	0.0000	0.0000	0.1572
Total	**7.0000e-005**	**5.0000e-005**	**5.4000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1571**	**0.1571**	**0.0000**	**0.0000**	**0.1572**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1693	1.1905	1.0048	1.6400e-003		0.0682	0.0682		0.0659	0.0659	0.0000	136.3886	136.3886	0.0262	0.0000	137.0441
Total	**0.1693**	**1.1905**	**1.0048**	**1.6400e-003**		**0.0682**	**0.0682**		**0.0659**	**0.0659**	**0.0000**	**136.3886**	**136.3886**	**0.0262**	**0.0000**	**137.0441**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1400e-003	0.0345	9.3800e-003	7.0000e-005	1.8800e-003	2.3000e-004	2.1100e-003	5.4000e-004	2.2000e-004	7.6000e-004	0.0000	7.3044	7.3044	6.4000e-004	0.0000	7.3203
Worker	8.4000e-003	6.1300e-003	0.0681	2.2000e-004	0.0221	1.5000e-004	0.0222	5.8600e-003	1.4000e-004	6.0000e-003	0.0000	19.7453	19.7453	4.9000e-004	0.0000	19.7574
Total	**9.5400e-003**	**0.0406**	**0.0774**	**2.9000e-004**	**0.0240**	**3.8000e-004**	**0.0243**	**6.4000e-003**	**3.6000e-004**	**6.7600e-003**	**0.0000**	**27.0496**	**27.0496**	**1.1300e-003**	**0.0000**	**27.0777**

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	0.1693	1.1905	1.0048	1.6400e-003		0.0682	0.0682		0.0659	0.0659	0.0000	136.3884	136.3884	0.0262	0.0000	137.0439
Total	**0.1693**	**1.1905**	**1.0048**	**1.6400e-003**		**0.0682**	**0.0682**		**0.0659**	**0.0659**	**0.0000**	**136.3884**	**136.3884**	**0.0262**	**0.0000**	**137.0439**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1400e-003	0.0345	9.3800e-003	7.0000e-005	1.8800e-003	2.3000e-004	2.1100e-003	5.4000e-004	2.2000e-004	7.6000e-004	0.0000	7.3044	7.3044	6.4000e-004	0.0000	7.3203
Worker	8.4000e-003	6.1300e-003	0.0681	2.2000e-004	0.0221	1.5000e-004	0.0222	5.8600e-003	1.4000e-004	6.0000e-003	0.0000	19.7453	19.7453	4.9000e-004	0.0000	19.7574
Total	**9.5400e-003**	**0.0406**	**0.0774**	**2.9000e-004**	**0.0240**	**3.8000e-004**	**0.0243**	**6.4000e-003**	**3.6000e-004**	**6.7600e-003**	**0.0000**	**27.0496**	**27.0496**	**1.1300e-003**	**0.0000**	**27.0777**

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	0.0518	0.3771	0.3363	5.6000e-004		0.0203	0.0203		0.0196	0.0196	0.0000	46.2932	46.2932	8.5900e-003	0.0000	46.5081
Total	**0.0518**	**0.3771**	**0.3363**	**5.6000e-004**		**0.0203**	**0.0203**		**0.0196**	**0.0196**	**0.0000**	**46.2932**	**46.2932**	**8.5900e-003**	**0.0000**	**46.5081**

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	3.3000e-004	0.0108	2.9400e-003	3.0000e-005	6.4000e-004	6.0000e-005	7.0000e-004	1.9000e-004	5.0000e-005	2.4000e-004	0.0000	2.4829	2.4829	2.1000e-004	0.0000	2.4881
Worker	2.6800e-003	1.8800e-003	0.0213	7.0000e-005	7.5600e-003	5.0000e-005	7.6100e-003	2.0100e-003	5.0000e-005	2.0500e-003	0.0000	6.5419	6.5419	1.5000e-004	0.0000	6.5456
Total	**3.0100e-003**	**0.0127**	**0.0243**	**1.0000e-004**	**8.2000e-003**	**1.1000e-004**	**8.3100e-003**	**2.2000e-003**	**1.0000e-004**	**2.2900e-003**	**0.0000**	**9.0248**	**9.0248**	**3.6000e-004**	**0.0000**	**9.0337**

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	0.0518	0.3771	0.3363	5.6000e-004		0.0203	0.0203		0.0196	0.0196	0.0000	46.2932	46.2932	8.5900e-003	0.0000	46.5080
Total	**0.0518**	**0.3771**	**0.3363**	**5.6000e-004**		**0.0203**	**0.0203**		**0.0196**	**0.0196**	**0.0000**	**46.2932**	**46.2932**	**8.5900e-003**	**0.0000**	**46.5080**

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	3.3000e-004	0.0108	2.9400e-003	3.0000e-005	6.4000e-004	6.0000e-005	7.0000e-004	1.9000e-004	5.0000e-005	2.4000e-004	0.0000	2.4829	2.4829	2.1000e-004	0.0000	2.4881
Worker	2.6800e-003	1.8800e-003	0.0213	7.0000e-005	7.5600e-003	5.0000e-005	7.6100e-003	2.0100e-003	5.0000e-005	2.0500e-003	0.0000	6.5419	6.5419	1.5000e-004	0.0000	6.5456
Total	**3.0100e-003**	**0.0127**	**0.0243**	**1.0000e-004**	**8.2000e-003**	**1.1000e-004**	**8.3100e-003**	**2.2000e-003**	**1.0000e-004**	**2.2900e-003**	**0.0000**	**9.0248**	**9.0248**	**3.6000e-004**	**0.0000**	**9.0337**

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	4.2000e-003	0.0423	0.0444	7.0000e-005		2.3500e-003	2.3500e-003		2.1600e-003	2.1600e-003	0.0000	5.8829	5.8829	1.8600e-003	0.0000	5.9295
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.2000e-003**	**0.0423**	**0.0444**	**7.0000e-005**		**2.3500e-003**	**2.3500e-003**		**2.1600e-003**	**2.1600e-003**	**0.0000**	**5.8829**	**5.8829**	**1.8600e-003**	**0.0000**	**5.9295**

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	2.5000e-004	1.8000e-004	2.0100e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6176	0.6176	1.0000e-005	0.0000	0.6180
Total	**2.5000e-004**	**1.8000e-004**	**2.0100e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6176**	**0.6176**	**1.0000e-005**	**0.0000**	**0.6180**

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	4.2000e-003	0.0423	0.0444	7.0000e-005		2.3500e-003	2.3500e-003		2.1600e-003	2.1600e-003	0.0000	5.8828	5.8828	1.8600e-003	0.0000	5.9295
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.2000e-003**	**0.0423**	**0.0444**	**7.0000e-005**		**2.3500e-003**	**2.3500e-003**		**2.1600e-003**	**2.1600e-003**	**0.0000**	**5.8828**	**5.8828**	**1.8600e-003**	**0.0000**	**5.9295**

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	2.5000e-004	1.8000e-004	2.0100e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6176	0.6176	1.0000e-005	0.0000	0.6180
Total	**2.5000e-004**	**1.8000e-004**	**2.0100e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6176**	**0.6176**	**1.0000e-005**	**0.0000**	**0.6180**

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	0.1189					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2100e-003	8.4200e-003	9.1600e-003	1.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	1.2766	1.2766	1.0000e-004	0.0000	1.2791
Total	**0.1201**	**8.4200e-003**	**9.1600e-003**	**1.0000e-005**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**1.2766**	**1.2766**	**1.0000e-004**	**0.0000**	**1.2791**

3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	7.0000e-005	7.7000e-004	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2375	0.2375	1.0000e-005	0.0000	0.2377
Total	**1.0000e-004**	**7.0000e-005**	**7.7000e-004**	**0.0000**	**2.7000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2375**	**0.2375**	**1.0000e-005**	**0.0000**	**0.2377**

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	0.1189					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.2100e-003	8.4200e-003	9.1600e-003	1.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	1.2766	1.2766	1.0000e-004	0.0000	1.2791
Total	**0.1201**	**8.4200e-003**	**9.1600e-003**	**1.0000e-005**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**1.2766**	**1.2766**	**1.0000e-004**	**0.0000**	**1.2791**

3.7 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	7.0000e-005	7.7000e-004	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2375	0.2375	1.0000e-005	0.0000	0.2377
Total	**1.0000e-004**	**7.0000e-005**	**7.7000e-004**	**0.0000**	**2.7000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.2375**	**0.2375**	**1.0000e-005**	**0.0000**	**0.2377**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0826	0.3718	1.1403	4.1100e-003	0.3589	4.1500e-003	0.3631	0.0961	3.9000e-003	0.1000	0.0000	378.5883	378.5883	0.0162	0.0000	378.9928
Unmitigated	0.0826	0.3718	1.1403	4.1100e-003	0.3589	4.1500e-003	0.3631	0.0961	3.9000e-003	0.1000	0.0000	378.5883	378.5883	0.0162	0.0000	378.9928

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	278.16	309.32	238.64	946,434	946,434
Total	278.16	309.32	238.64	946,434	946,434

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	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	60.1569	60.1569	2.4800e-003	5.1000e-004	60.3721
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	60.1569	60.1569	2.4800e-003	5.1000e-004	60.3721
NaturalGas Mitigated	3.6200e-003	0.0309	0.0132	2.0000e-004		2.5000e-003	2.5000e-003		2.5000e-003	2.5000e-003	0.0000	35.7822	35.7822	6.9000e-004	6.6000e-004	35.9949
NaturalGas Unmitigated	3.6200e-003	0.0309	0.0132	2.0000e-004		2.5000e-003	2.5000e-003		2.5000e-003	2.5000e-003	0.0000	35.7822	35.7822	6.9000e-004	6.6000e-004	35.9949

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	670534	3.6200e-003	0.0309	0.0132	2.0000e-004		2.5000e-003	2.5000e-003		2.5000e-003	2.5000e-003	0.0000	35.7822	35.7822	6.9000e-004	6.6000e-004	35.9949
Total		**3.6200e-003**	**0.0309**	**0.0132**	**2.0000e-004**		**2.5000e-003**	**2.5000e-003**		**2.5000e-003**	**2.5000e-003**	**0.0000**	**35.7822**	**35.7822**	**6.9000e-004**	**6.6000e-004**	**35.9949**

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	670534	3.6200e-003	0.0309	0.0132	2.0000e-004		2.5000e-003	2.5000e-003		2.5000e-003	2.5000e-003	0.0000	35.7822	35.7822	6.9000e-004	6.6000e-004	35.9949
Total		**3.6200e-003**	**0.0309**	**0.0132**	**2.0000e-004**		**2.5000e-003**	**2.5000e-003**		**2.5000e-003**	**2.5000e-003**	**0.0000**	**35.7822**	**35.7822**	**6.9000e-004**	**6.6000e-004**	**35.9949**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	188804	60.1569	2.4800e-003	5.1000e-004	60.3721
Total		**60.1569**	**2.4800e-003**	**5.1000e-004**	**60.3721**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	188804	60.1569	2.4800e-003	5.1000e-004	60.3721
Total		**60.1569**	**2.4800e-003**	**5.1000e-004**	**60.3721**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1621	0.0124	0.3965	7.0000e-005		2.8000e-003	2.8000e-003		2.8000e-003	2.8000e-003	0.0000	9.7653	9.7653	8.0000e-004	1.7000e-004	9.8352
Unmitigated	0.1621	0.0124	0.3965	7.0000e-005		2.8000e-003	2.8000e-003		2.8000e-003	2.8000e-003	0.0000	9.7653	9.7653	8.0000e-004	1.7000e-004	9.8352

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	0.0119					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1373					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	9.2000e-004	7.8800e-003	3.3500e-003	5.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	9.1252	9.1252	1.7000e-004	1.7000e-004	9.1794
Landscaping	0.0120	4.5500e-003	0.3932	2.0000e-005		2.1600e-003	2.1600e-003		2.1600e-003	2.1600e-003	0.0000	0.6401	0.6401	6.2000e-004	0.0000	0.6557
Total	**0.1621**	**0.0124**	**0.3965**	**7.0000e-005**		**2.8000e-003**	**2.8000e-003**		**2.8000e-003**	**2.8000e-003**	**0.0000**	**9.7653**	**9.7653**	**7.9000e-004**	**1.7000e-004**	**9.8352**

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	0.0119					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1373					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	9.2000e-004	7.8800e-003	3.3500e-003	5.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	9.1252	9.1252	1.7000e-004	1.7000e-004	9.1794
Landscaping	0.0120	4.5500e-003	0.3932	2.0000e-005		2.1600e-003	2.1600e-003		2.1600e-003	2.1600e-003	0.0000	0.6401	0.6401	6.2000e-004	0.0000	0.6557
Total	**0.1621**	**0.0124**	**0.3965**	**7.0000e-005**		**2.8000e-003**	**2.8000e-003**		**2.8000e-003**	**2.8000e-003**	**0.0000**	**9.7653**	**9.7653**	**7.9000e-004**	**1.7000e-004**	**9.8352**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	16.5825	0.0813	2.0400e-003	19.2236
Unmitigated	16.5825	0.0813	2.0400e-003	19.2236

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	2.47585 / 1.56086	16.5825	0.0813	2.0400e-003	19.2236
Total		**16.5825**	**0.0813**	**2.0400e-003**	**19.2236**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	2.47585 / 1.56086	16.5825	0.0813	2.0400e-003	19.2236
Total		**16.5825**	**0.0813**	**2.0400e-003**	**19.2236**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.5483	0.2097	0.0000	8.7907
Unmitigated	3.5483	0.2097	0.0000	8.7907

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	17.48	3.5483	0.2097	0.0000	8.7907
Total		**3.5483**	**0.2097**	**0.0000**	**8.7907**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	17.48	3.5483	0.2097	0.0000	8.7907
Total		**3.5483**	**0.2097**	**0.0000**	**8.7907**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B

Construction and Health Risk Assessment

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

MEMORANDUM

DATE: June 4, 2018

TO: Haggai Mazler, Director of Development, The Olson Company

FROM: Ronald Brugger, LSA Senior Air Quality Specialist

SUBJECT: Construction Health Risk Assessment for the Proposed Newport & Ford Residential Project in Costa Mesa, California

LSA has conducted this construction health risk assessment (HRA) for the proposed Newport & Ford Residential Project (project), a 38-townhome community located at 1957 and 1963 Newport Boulevard in Costa Mesa, California. This HRA was based on the construction information provided to LSA from The Olson Company and information contained in the Draft Initial Study/Mitigated Negative Declaration prepared for the project dated May 1, 2018.

PROJECT DESCRIPTION

The project would construct 38 multifamily residential townhome dwelling units on approximately 1.86 acres located within the jurisdiction of the City of Costa Mesa (City), in the west-central portion of Orange County. Construction of the project is estimated to begin in year 2019 and last approximately 11 months.

Construction activity will consist of demolition, site preparation, grading, building construction, paving, and architectural coating. Construction phases are not expected to overlap.

During the demolition phase, rubber-tired dozers, tractors, loaders, and backhoes would be used. During the site preparation and grading phases, the same equipment, plus graders, would be used. The paving phase would utilize pavers and rollers. It is not expected that any of this large, diesel-powered construction equipment would be used during the building construction and architectural coating phases. The demolition phase is planned to last for 20 days, the site preparation phase for two days, and the grading phase for four days. Towards the end of the construction process, paving would occur for 10 days. Thus, during the 11 months of project construction, there would be approximately 36 days during which a mix of heavy-duty diesel-powered construction equipment would be used on site.

SENSITIVE RECEPTORS

Sensitive receptors are considered land uses or other types of population groups that are sensitive to air pollution exposure. Sensitive population groups include children, the elderly, the acutely and chronically ill, and those with cardio-respiratory diseases. For California Environmental Quality Act (CEQA) purposes, the South Coast Air Quality Management District (SCAQMD) considers a sensitive

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receptor to be a location where a sensitive individual could remain for 24 hours or longer, such as residencies, hospitals, and schools.

Rolling Homes Mobile Park is located directly north of the project site. Hotel and single-family residential uses are located south and west of the site, respectively. Newport Boulevard and State Route (SR) 55 are located east of the project site. This HRA considers the health risk levels to all of these nearby locations. The closest residential receptors are located 25 feet north of the project site.

HEALTH RISK ASSESSMENT METHODOLOGY

An HRA is a process used to estimate the increased health risk for people living near to a construction site based on exposure to toxic air contaminants (TACs). An HRA combines results of studies on the health effects of various animal and human exposures to TACs with results of studies that estimate the exposure level at different distances from the source of pollutants.

The City recommends the preparation of an HRA in accordance with policies and procedures of the State Office of Environmental Health Hazard Assessment (OEHHA) and the SCAQMD. This HRA evaluates the project in compliance with applicable requirements by determining what TACs would be emitted by construction operations, the concentrations of those TACs at the locations of concern, and the nature of the health risk levels from those TACs to the people at those locations.

Under State law, the California Environmental Protection Agency (CalEPA), acting through the California Air Resources Board (CARB), is authorized to identify a substance as a TAC if it determines the substance is an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. To date, the CARB has designated nearly 200 compounds as TACs. Additionally, the CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines (diesel particulate matter [DPM]).

This HRA is based on a very conservative screening level assessment using the Federal Environmental Protection Agency (EPA) model AERSCREEN, version 16216. This model is designed to model the dispersion of pollutants in the atmosphere using terrain and meteorological parameters that are deliberately “worst case,” as a first step to determine if further analysis would be necessary. If the screening level analysis indicates there would be no impact, all concentrations would be considered less-than-significant and further analysis using the AERMOD dispersion model would not be required.

HEALTH RISK ASSESSMENT THRESHOLDS OF SIGNIFICANCE

Both the State and federal governments have established health-based Ambient Air Quality Standards (AAQS) for seven air pollutants. For other air pollutants without defined significance standards, the definition of substantial pollutant concentrations varies. For TACs, “substantial” is taken to mean that the individual health risk exceeds a threshold considered to be a prudent risk management level.

The following limits for maximum individual cancer risk (MICR) and noncancer acute and chronic Hazard Index (HI) from project emissions of TACs are considered appropriate for use in determining the health risk for projects in the SCAQMD jurisdiction:

- **MICR:** MICR is the estimated probability of a maximum exposed individual (MEI) contracting cancer as a result of exposure to TACs over a period of 30 years for adults and 9 years for children in residential locations. The MICR calculations include multi-pathway consideration, when applicable.

  The cumulative increase in MICR that is the sum of the calculated MICR values for all TACs would be considered significant if it would result in an increased MICR greater than 10 in 1 million (1.0×10^{-5}) for any resident.

- **Chronic HI:** Chronic HI is the ratio of the estimated long-term level of exposure to a TAC for a potential MEI to its chronic reference exposure level. The chronic HI calculations include multi-pathway consideration, when applicable.

  The project would be considered significant if the cumulative increase in total chronic HI for any target organ system would exceed 1.0 for any resident.

- **Acute HI:** Acute HI is the ratio of the estimated maximum 1-hour concentration of a TAC for a potential MEI to its acute reference exposure level.

  The project would be considered significant if the cumulative increase in total acute HI for any target organ system would exceed 1.0 for any resident.

CONSTRUCTION HEALTH RISK ASSESSMENT

For the purposes of an HRA, short-term emissions are typically of concern for acute health impacts, and long-term emissions are of concern for chronic and carcinogenic health impacts. Although the duration of the construction period is short relative to the 70-year chronic and carcinogenic assessment duration, a screening-level assessment has been conducted for the project, following the recommendations contained in the OEHHA *Air Toxic Hot Spots Program Risk Assessment Guidelines*.[1]

The OEHHA has determined that long-term exposure to diesel exhaust particulates poses the highest cancer risk of any TAC it has evaluated. Exposure to diesel exhaust can also have immediate health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, diesel exhaust particles made people with allergies more susceptible to the materials to which they are allergic, such as dust and pollen. Exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. For risk assessment procedures, the OEHHA specifies that the surrogate for whole diesel exhaust is DPM.

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[1] Office of Environmental Health and Hazard Assessment, 2015. *Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments.* February. Website: oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf, accessed May 2018.

Fortunately, improvements to diesel fuel and diesel engines have already reduced emissions of some of these contaminants. These improvements have already resulted in a 75 percent reduction in particle emissions from diesel-powered trucks and other equipment (as compared to 2000 levels), and by 2020, when fully implemented, they will result in an 85 percent reduction.[1] These improvements are anticipated to continue into the foreseeable future.

As described in the project description, various heavy duty diesel-powered construction equipment pieces would be used on the project site during project construction. There would also be diesel trucks hauling materials to and from the site, however, these trucks would be primarily operating on roads away from the project site. Therefore, these emissions would not contribute to the TAC concentrations at the nearby residences and have not been included in this HRA.

The construction equipment was modeled in AERSCREEN as if all equipment operating on the peak day were all positioned together at the point on site closest to the nearby residents, approximately 25 feet (7.6 meters) away. AERSCREEN model output is attached to this memorandum. The health risk levels were then modeled as if all equipment operated at the peak daily rate for the duration of the demolition, site preparation, grading, and paving phases. The resulting carcinogenic health risk exposure to the maximum exposed resident would be 0.006 in a million, which would is less than the threshold of 10 in a million. The chronic and acute health risk hazard indices would be less than 0.03 which is also less than the threshold of 1.0. Thus, the health risk levels from the construction of the proposed project would be less than significant.

ATTACHMENTS

Emissions worksheets
AERSCREEN files

[1] California Environmental Protection Agency (CalEPA), Office of Environmental Health Hazard Assessment (OEHHA), and American Lung Association of California. 2001. *Health Effects of Diesel Exhaust*. May 21, 2001. Website: oehha.ca.gov/air/health-effects-diesel-exhaust, accessed May 2018.

HRA Worksheet

Construction Parameters			
36	days duration	(20 days demo, 2 days site prep, 4 days grading, 10 days paving)	
8	hrs/day		
3.19	PM10 emissions	lbs/day	(peak daily construction emissions from Air Quality study)
2.0	PM2.5 emissions	lbs/day	(peak daily construction emissions from Air Quality study)
0.4	1-hr to 24-hr conversion		(from EPA)
0.08	1hr to Annual Conversion		(from EPA)

Distance (meters)	AERSCREEN 1-g/s 1-Hr Concentrations ($\mu g/m^3$)	PM10 1-Hr Cair ($\mu g/m^3$)	PM10 Annual Cair ($\mu g/m^3$)	PM2.5 Annual Cair ($\mu g/m^3$)	Dose: 3rd Trimester	Dose: 0<2 years	Dose: 2<9 years	Dose: 2<16 years	Dose: 16<30 years	Cancer Risk	Chronic
7.62	2867	48.01	0.126	0.078	2.55E-05	8.46E-05	5.66E-05	4.90E-05	3.06E-05	0.0061	0.0252
10	2570	43.05	0.113	0.070	2.28E-05	7.58E-05	5.07E-05	4.39E-05	2.74E-05	0.0055	0.0226
15	1666	27.91	0.073	0.045	1.48E-05	4.92E-05	3.29E-05	2.85E-05	1.78E-05	0.0036	0.015
20	1238	20.74	0.055	0.034	1.10E-05	3.65E-05	2.44E-05	2.11E-05	1.32E-05	0.0027	0.011
25	1014	16.98	0.045	0.03	9.00E-06	2.99E-05	2.00E-05	1.73E-05	1.08E-05	0.0022	0.009
30	1225	20.52	0.054	0.03	1.09E-05	3.61E-05	2.42E-05	2.09E-05	1.31E-05	0.0026	0.011
35	1193	19.97	0.053	0.03	1.06E-05	3.52E-05	2.35E-05	2.04E-05	1.27E-05	0.0026	0.011
40	1126	18.86	0.050	0.03	1.00E-05	3.32E-05	2.22E-05	1.92E-05	1.20E-05	0.0024	0.010
45	1045	17.50	0.046	0.03	9.28E-06	3.08E-05	2.06E-05	1.78E-05	1.11E-05	0.0022	0.009
50	1002	16.78	0.044	0.03	8.90E-06	2.96E-05	1.98E-05	1.71E-05	1.07E-05	0.0021	0.009
55	961	16.10	0.042	0.026	8.54E-06	2.84E-05	1.90E-05	1.64E-05	1.03E-05	0.0021	0.0085

RISKair = (Cair x [BR/BW] x A x EF) x (1 x 10-6) x CPF x ED/AT

Cair = concentration of contaminant in air		(ug/m3)
[BR/BW] = daily breathing rate normalized to body weight		(L/kg BW-day)
A = inhalation absorption factor	1	
EF = exposure frequency (days/365 days)	0.66	(240/365)
AT	25,550	
DPM CPF	1.1	$(mg/kg\text{-}day)^{-1}$
DPM Inhalation Chronic REL	5.0	(ug/m^3)
Exposure Duration (ED)	0.10	(years)

Table 5.6 Point Estimates of Residential Daily Breathing Rates for 3rd trimester, 0<2, 2<9, 2<16, 16<30 and 16-70 years (L/kg BW-day)

	3rd Trimester	0<2 years	2<9 years	2<16 years	16<30 years	16<70 years
	L/kg-day					
Mean	225	658	535	452	210	185
95th Percentile	361	1090	861	745	335	290

Source: OEHHA Hotspots Guidance Manual, 2015

AERSCREEN Input

```
** STACK DATA         Rate    Height     Temp.  Velocity     Diam.     Flow
**              0.1000E+01    3.0480  373.1500   50.0000    0.0508      215.

** BUILDING DATA   BPIP    Height  Max dim.  Min dim.   Orient.   Direct.    Offset
**                   N      0.0000    0.0000    0.0000    0.0000    0.0000    0.0000

** MAKEMET DATA    MinT    MaxT Speed   AnemHt Surf Clim  Albedo   Bowen  Length  SC FILE
**               249.82  310.93   0.5   10.000    7    3   0.3500   2.0000   1.0000  "NA"

** ADJUST U*      N

** TERRAIN DATA   Terrain    UTM East   UTM North  Zone  Nada     Probe     PROFBASE  Use AERMAP elev
**                   N            0.0         0.0     0     0        200.0           0.00         N

** DISCRETE RECEPTORS  Discflag   Receptor file
**                      Y        "discrete_rec.txt"

** UNITS/POPULATION   Units   R/U  Population      Amb. dist.   Flagpole    Flagpole height
**                      M     U        10000.           7.620       N         0.00

** FUMIGATION        Inversion Break-up  Shoreline  Distance    Direct  Run AERSCREEN
**                        N                  N         0.00     -9.0     Y

** DEBUG OPTION      Debug
**                     N

** OUTPUT FILE "AERSCREEN.OUT"

** Temporal sector: Winter, spatial sector:  1

CO STARTING
   TITLEONE CONSTRUCTION HRA
**            REFINE STAGE 3
   MODELOPT CONC SCREEN  FLAT
   AVERTIME 1
   URBANOPT    10000.
   POLLUTID OTHER
   RUNORNOT RUN
CO FINISHED

SO STARTING
   LOCATION SOURCE POINT        0.0     0.0
   SRCPARAM SOURCE   0.1000E+01    3.048  373.150   50.000    0.051

   URBANSRC  SOURCE

   SRCGROUP  ALL

SO FINISHED

RE STARTING
** Fence line receptor
   DISCCART          7.62         0.00
** Refined receptors
   DISCCART          8.00         0.00
   DISCCART          9.00         0.00
   DISCCART         10.00         0.00
   DISCCART         11.00         0.00
   DISCCART         12.00         0.00
   DISCCART         13.00         0.00
   DISCCART         14.00         0.00
   DISCCART         15.00         0.00
   DISCCART         16.00         0.00
   DISCCART         17.00         0.00
   DISCCART         18.00         0.00
   DISCCART         19.00         0.00
   DISCCART         20.00         0.00
   DISCCART         21.00         0.00
   DISCCART         22.00         0.00
   DISCCART         23.00         0.00
   DISCCART         24.00         0.00
   DISCCART         25.00         0.00
   DISCCART         26.00         0.00
   DISCCART         27.00         0.00
   DISCCART         28.00         0.00
```

```
   DISCCART         29.00         0.00
   DISCCART         30.00         0.00
   DISCCART         31.00         0.00
   DISCCART         32.00         0.00
   DISCCART         33.00         0.00
   DISCCART         34.00         0.00
   DISCCART         35.00         0.00
   DISCCART         36.00         0.00
   DISCCART         37.00         0.00
   DISCCART         38.00         0.00
   DISCCART         39.00         0.00
   DISCCART         40.00         0.00
   DISCCART         41.00         0.00
   DISCCART         42.00         0.00
   DISCCART         43.00         0.00
   DISCCART         44.00         0.00
   DISCCART         45.00         0.00
   DISCCART         46.00         0.00
   DISCCART         47.00         0.00
   DISCCART         48.00         0.00
   DISCCART         49.00         0.00
   DISCCART         50.00         0.00
   DISCCART         51.00         0.00
   DISCCART         52.00         0.00
   DISCCART         53.00         0.00
   DISCCART         54.00         0.00
   DISCCART         55.00         0.00
   DISCCART         56.00         0.00
   DISCCART         57.00         0.00

RE FINISHED

ME STARTING
   SURFFILE  aerscreen_01_01.sfc  FREE
   PROFFILE  aerscreen_01_01.pfl  FREE
   SURFDATA  11111   2010  SCREEN
   UAIRDATA  22222   2010  SCREEN
   PROFBASE    0.0 METERS
ME FINISHED

OU STARTING
   RECTABLE 1  FIRST
   MAXTABLE  ALLAVE  50

   FILEFORM  EXP
   RANKFILE  1 10 AERSCREEN.FIL
   PLOTFILE  1 ALL  FIRST  AERSCREEN.PLT
OU FINISHED


  *** Message Summary For AERMOD Model Setup ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            1 Warning Message(s)
 A Total of            0 Informational Message(s)


    ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


    ********   WARNING MESSAGES   ********
 CO W320      36       URBOPT: Input Parameter May Be Out-of-Range for Parameter       URB-POP

 ***********************************
 *** SETUP Finishes Successfully ***
 ***********************************
```

AERSCREEN Output

```
*** AERMOD - VERSION 16216r ***   *** CONSTRUCTION HRA                                                    ***        05/31/18
*** AERMET - VERSION SCREEN ***   ***                                                                     ***        08:53:19
                                                                                                                     PAGE   1
*** MODELOPTs:    NonDFAULT  CONC  FLAT  NOCHKD  SCREEN  URBAN

                                        ***     MODEL SETUP OPTIONS SUMMARY       ***
- - - -
```

*** MODELOPTs: NonDFAULT CONC FLAT NOCHKD SCREEN URBAN

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BLDG EXISTS	URBAN SOURCE	CAP/ HOR	EMIS RATE SCALAR VARY BY
SOURCE	0	0.10000E+01	0.0	0.0	0.0	3.05	373.15	50.00	0.05	NO	YES	NO	

*** MODELOPTs: NonDFAULT CONC FLAT NOCHKD SCREEN URBAN

*** SOURCE IDs DEFINING SOURCE GROUPS ***

SRCGROUP ID	SOURCE IDs
ALL	SOURCE ,

*** MODELOPTs: NonDFAULT CONC FLAT NOCHKD SCREEN URBAN

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
	10000.	SOURCE ,

*** MODELOPTs: NonDFAULT CONC FLAT NOCHKD SCREEN URBAN

*** DISCRETE CARTESIAN RECEPTORS ***
(X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
(METERS)

(7.6,	0.0,	0.0,	0.0,	0.0);	(8.0,	0.0,	0.0,	0.0,	0.0);
(9.0,	0.0,	0.0,	0.0,	0.0);	(10.0,	0.0,	0.0,	0.0,	0.0);
(11.0,	0.0,	0.0,	0.0,	0.0);	(12.0,	0.0,	0.0,	0.0,	0.0);
(13.0,	0.0,	0.0,	0.0,	0.0);	(14.0,	0.0,	0.0,	0.0,	0.0);
(15.0,	0.0,	0.0,	0.0,	0.0);	(16.0,	0.0,	0.0,	0.0,	0.0);
(17.0,	0.0,	0.0,	0.0,	0.0);	(18.0,	0.0,	0.0,	0.0,	0.0);
(19.0,	0.0,	0.0,	0.0,	0.0);	(20.0,	0.0,	0.0,	0.0,	0.0);
(21.0,	0.0,	0.0,	0.0,	0.0);	(22.0,	0.0,	0.0,	0.0,	0.0);
(23.0,	0.0,	0.0,	0.0,	0.0);	(24.0,	0.0,	0.0,	0.0,	0.0);
(25.0,	0.0,	0.0,	0.0,	0.0);	(26.0,	0.0,	0.0,	0.0,	0.0);
(27.0,	0.0,	0.0,	0.0,	0.0);	(28.0,	0.0,	0.0,	0.0,	0.0);
(29.0,	0.0,	0.0,	0.0,	0.0);	(30.0,	0.0,	0.0,	0.0,	0.0);
(31.0,	0.0,	0.0,	0.0,	0.0);	(32.0,	0.0,	0.0,	0.0,	0.0);
(33.0,	0.0,	0.0,	0.0,	0.0);	(34.0,	0.0,	0.0,	0.0,	0.0);
(35.0,	0.0,	0.0,	0.0,	0.0);	(36.0,	0.0,	0.0,	0.0,	0.0);
(37.0,	0.0,	0.0,	0.0,	0.0);	(38.0,	0.0,	0.0,	0.0,	0.0);
(39.0,	0.0,	0.0,	0.0,	0.0);	(40.0,	0.0,	0.0,	0.0,	0.0);
(41.0,	0.0,	0.0,	0.0,	0.0);	(42.0,	0.0,	0.0,	0.0,	0.0);
(43.0,	0.0,	0.0,	0.0,	0.0);	(44.0,	0.0,	0.0,	0.0,	0.0);
(45.0,	0.0,	0.0,	0.0,	0.0);	(46.0,	0.0,	0.0,	0.0,	0.0);
(47.0,	0.0,	0.0,	0.0,	0.0);	(48.0,	0.0,	0.0,	0.0,	0.0);
(49.0,	0.0,	0.0,	0.0,	0.0);	(50.0,	0.0,	0.0,	0.0,	0.0);
(51.0,	0.0,	0.0,	0.0,	0.0);	(52.0,	0.0,	0.0,	0.0,	0.0);
(53.0,	0.0,	0.0,	0.0,	0.0);	(54.0,	0.0,	0.0,	0.0,	0.0);
(55.0,	0.0,	0.0,	0.0,	0.0);	(56.0,	0.0,	0.0,	0.0,	0.0);
(57.0,	0.0,	0.0,	0.0,	0.0);					

*** MODELOPTs: NonDFAULT CONC FLAT NOCHKD SCREEN URBAN

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

```
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
```

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: NonDFAULT CONC FLAT NOCHKD SCREEN URBAN

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: aerscreen_01_01.sfc Met Version: SCREEN
Profile file: aerscreen_01_01.pfl
Surface format: FREE
Profile format: FREE
Surface station no.: 11111 Upper air station no.: 22222
Name: SCREEN Name: SCREEN
Year: 2010 Year: 2010

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
10	01	01	1	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.4	1.00	2.00	0.35	0.50	270.	10.0	249.8	2.0
10	01	02	2	01	-1.2	0.043	-9.000	0.020	-999.	104.	5.4	1.00	2.00	0.35	0.50	270.	10.0	249.8	2.0
10	01	03	3	01	-1.2	0.043	-9.000	0.020	-999.	208.	5.4	1.00	2.00	0.35	0.50	270.	10.0	249.8	2.0
10	01	04	4	01	-1.1	0.043	-9.000	0.020	-999.	21.	5.9	1.00	2.00	0.35	0.50	270.	10.0	249.8	2.0
10	01	05	5	01	-1.1	0.043	-9.000	0.020	-999.	104.	5.9	1.00	2.00	0.35	0.50	270.	10.0	249.8	2.0
10	01	06	6	01	-1.1	0.043	-9.000	0.020	-999.	208.	5.9	1.00	2.00	0.35	0.50	270.	10.0	249.8	2.0
10	01	07	7	01	-0.4	0.043	-9.000	0.020	-999.	21.	17.3	1.00	2.00	0.35	0.50	270.	10.0	249.8	2.0
10	01	08	8	01	-0.4	0.043	-9.000	0.020	-999.	104.	17.3	1.00	2.00	0.35	0.50	270.	10.0	249.8	2.0
10	01	09	9	01	-0.4	0.043	-9.000	0.020	-999.	208.	17.3	1.00	2.00	0.35	0.50	270.	10.0	249.8	2.0
10	01	10	10	01	-1.3	0.043	-9.000	0.020	-999.	21.	6.0	1.00	2.00	0.35	0.50	270.	10.0	310.9	2.0
10	01	11	11	01	-1.3	0.043	-9.000	0.020	-999.	104.	6.0	1.00	2.00	0.35	0.50	270.	10.0	310.9	2.0
10	01	12	12	01	-1.3	0.043	-9.000	0.020	-999.	208.	6.0	1.00	2.00	0.35	0.50	270.	10.0	310.9	2.0
10	01	13	13	01	-1.2	0.043	-9.000	0.020	-999.	21.	6.6	1.00	2.00	0.35	0.50	270.	10.0	310.9	2.0
10	01	14	14	01	-1.2	0.043	-9.000	0.020	-999.	104.	6.6	1.00	2.00	0.35	0.50	270.	10.0	310.9	2.0
10	01	15	15	01	-1.2	0.043	-9.000	0.020	-999.	208.	6.6	1.00	2.00	0.35	0.50	270.	10.0	310.9	2.0
10	01	16	16	01	-0.4	0.043	-9.000	0.020	-999.	21.	19.3	1.00	2.00	0.35	0.50	270.	10.0	310.9	2.0
10	01	17	17	01	-0.4	0.043	-9.000	0.020	-999.	104.	19.3	1.00	2.00	0.35	0.50	270.	10.0	310.9	2.0
10	01	18	18	01	-0.4	0.043	-9.000	0.020	-999.	208.	19.3	1.00	2.00	0.35	0.50	270.	10.0	310.9	2.0
10	01	19	19	01	-0.8	0.043	-9.000	0.020	-999.	21.	7.6	1.00	2.00	0.35	0.50	270.	10.0	249.8	2.0
10	01	20	20	01	-0.8	0.043	-9.000	0.020	-999.	104.	7.6	1.00	2.00	0.35	0.50	270.	10.0	249.8	2.0
10	01	21	21	01	-0.8	0.043	-9.000	0.020	-999.	208.	7.6	1.00	2.00	0.35	0.50	270.	10.0	249.8	2.0
10	01	22	22	01	-0.8	0.043	-9.000	0.020	-999.	21.	8.3	1.00	2.00	0.35	0.50	270.	10.0	249.8	2.0
10	01	23	23	01	-0.8	0.043	-9.000	0.020	-999.	104.	8.3	1.00	2.00	0.35	0.50	270.	10.0	249.8	2.0
10	01	24	24	01	-0.8	0.043	-9.000	0.020	-999.	208.	8.3	1.00	2.00	0.35	0.50	270.	10.0	249.8	2.0

First hour of profile data

YR	MO	DY	HR	HEIGHT	F	WDIR	WSPD	AMB_TMP	sigmaA	sigmaW	sigmaV
10	01	01	01	10.0	1	270.	0.50	249.9	99.0	-99.00	-99.00

F indicates top of profile (=1) or below (=0)

*** MODELOPTs: NonDFAULT CONC FLAT NOCHKD SCREEN URBAN

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): SOURCE ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
7.62	0.00	2866.81625	(10032801)	8.00	0.00	2841.33749	(10031601)
9.00	0.00	2742.76244	(10031601)	10.00	0.00	2570.44798	(10031601)
11.00	0.00	2370.96858	(10031601)	12.00	0.00	2169.18588	(10031601)
13.00	0.00	1977.32339	(10031601)	14.00	0.00	1804.25921	(10032001)
15.00	0.00	1666.36628	(10032001)	16.00	0.00	1576.61558	(10030401)
17.00	0.00	1487.01429	(10030401)	18.00	0.00	1399.91895	(10030401)
19.00	0.00	1316.75155	(10030401)	20.00	0.00	1238.25320	(10030401)
21.00	0.00	1164.72874	(10030401)	22.00	0.00	1096.20956	(10030401)
23.00	0.00	1032.56095	(10030401)	24.00	0.00	973.55232	(10030401)
25.00	0.00	1013.91475	(10030301)	26.00	0.00	1078.79994	(10030301)
27.00	0.00	1132.58510	(10030301)	28.00	0.00	1174.89795	(10030301)
29.00	0.00	1205.72560	(10030301)	30.00	0.00	1225.34225	(10030301)
31.00	0.00	1234.23952	(10030301)	32.00	0.00	1233.06168	(10030301)
33.00	0.00	1222.56182	(10030301)	34.00	0.00	1203.55214	(10030301)
35.00	0.00	1192.73143	(10030301)	36.00	0.00	1181.48936	(10030301)
37.00	0.00	1168.98462	(10030301)	38.00	0.00	1155.44259	(10030301)
39.00	0.00	1141.05964	(10030301)	40.00	0.00	1126.00638	(10030301)
41.00	0.00	1110.43062	(10030301)	42.00	0.00	1094.46010	(10030301)
43.00	0.00	1078.20491	(10030301)	44.00	0.00	1061.75967	(10030301)
45.00	0.00	1045.20547	(10030301)	46.00	0.00	1028.61160	(10030301)
47.00	0.00	1021.04208	(10022101)	48.00	0.00	1015.22437	(10022101)
49.00	0.00	1008.80175	(10022101)	50.00	0.00	1001.84772	(10022101)
51.00	0.00	994.42912	(10022101)	52.00	0.00	986.60664	(10022101)
53.00	0.00	978.43534	(10022101)	54.00	0.00	969.96506	(10022101)
55.00	0.00	961.24091	(10022101)	56.00	0.00	952.30364	(10022101)
57.00	0.00	943.19002	(10022101)				

*** MODELOPTs: NonDFAULT CONC FLAT NOCHKD SCREEN URBAN

*** THE MAXIMUM 50 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): SOURCE ,

** CONC OF OTHER IN MICROGRAMS/M**3 **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)		OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)		OF TYPE
1.	2866.81625	(10032801)	AT (	7.62,	0.00)	DC	26.	2345.06667	(10032001)	AT (	8.00,	0.00)	DC
2.	2844.14821	(10031601)	AT (	7.62,	0.00)	DC	27.	2345.06667	(10032101)	AT (	8.00,	0.00)	DC
3.	2841.33749	(10031601)	AT (	8.00,	0.00)	DC	28.	2345.06667	(10032201)	AT (	8.00,	0.00)	DC
4.	2803.91443	(10032801)	AT (	8.00,	0.00)	DC	29.	2344.40506	(10032001)	AT (	10.00,	0.00)	DC
5.	2742.76244	(10031601)	AT (	9.00,	0.00)	DC	30.	2344.40506	(10032101)	AT (	10.00,	0.00)	DC
6.	2694.64093	(10040101)	AT (	7.62,	0.00)	DC	31.	2344.40506	(10032201)	AT (	10.00,	0.00)	DC
7.	2694.64093	(10040201)	AT (	7.62,	0.00)	DC	32.	2338.30201	(10032601)	AT (	7.62,	0.00)	DC
8.	2694.64093	(10040301)	AT (	7.62,	0.00)	DC	33.	2329.40401	(10033101)	AT (	7.62,	0.00)	DC
9.	2664.52686	(10040101)	AT (	8.00,	0.00)	DC	34.	2327.90478	(10032601)	AT (	9.00,	0.00)	DC
10.	2664.52686	(10040201)	AT (	8.00,	0.00)	DC	35.	2319.06291	(10040101)	AT (	10.00,	0.00)	DC
11.	2664.52686	(10040301)	AT (	8.00,	0.00)	DC	36.	2319.06291	(10040201)	AT (	10.00,	0.00)	DC
12.	2588.12729	(10032801)	AT (	9.00,	0.00)	DC	37.	2319.06291	(10040301)	AT (	10.00,	0.00)	DC
13.	2570.44798	(10031601)	AT (	10.00,	0.00)	DC	38.	2318.99650	(10033101)	AT (	8.00,	0.00)	DC
14.	2516.14326	(10040101)	AT (	9.00,	0.00)	DC	39.	2294.08165	(10032501)	AT (	7.62,	0.00)	DC
15.	2516.14326	(10040201)	AT (	9.00,	0.00)	DC	40.	2288.74014	(10032501)	AT (	8.00,	0.00)	DC
16.	2516.14326	(10040301)	AT (	9.00,	0.00)	DC	41.	2284.26443	(10032001)	AT (	7.62,	0.00)	DC
17.	2476.31503	(10032701)	AT (	8.00,	0.00)	DC	42.	2284.26443	(10032101)	AT (	7.62,	0.00)	DC
18.	2471.76022	(10032701)	AT (	7.62,	0.00)	DC	43.	2284.26443	(10032201)	AT (	7.62,	0.00)	DC
19.	2403.07960	(10032701)	AT (	9.00,	0.00)	DC	44.	2259.43929	(10032701)	AT (	10.00,	0.00)	DC
20.	2397.52657	(10032001)	AT (	9.00,	0.00)	DC	45.	2233.55841	(10032001)	AT (	11.00,	0.00)	DC
21.	2397.52657	(10032101)	AT (	9.00,	0.00)	DC	46.	2233.55841	(10032101)	AT (	11.00,	0.00)	DC
22.	2397.52657	(10032201)	AT (	9.00,	0.00)	DC	47.	2233.55841	(10032201)	AT (	11.00,	0.00)	DC
23.	2370.96858	(10031601)	AT (	11.00,	0.00)	DC	48.	2221.62385	(10033101)	AT (	9.00,	0.00)	DC
24.	2360.66525	(10032601)	AT (	8.00,	0.00)	DC	49.	2214.63120	(10032601)	AT (	10.00,	0.00)	DC
25.	2346.12921	(10032801)	AT (	10.00,	0.00)	DC	50.	2206.70147	(10040901)	AT (	7.62,	0.00)	DC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

*** MODELOPTs: NonDFAULT CONC FLAT NOCHKD SCREEN URBAN

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL HIGH 1ST HIGH VALUE IS	2866.81625	ON 10032801:	AT (7.62, 0.00, 0.00, 0.00, 0.00)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

*** MODELOPTs: NonDFAULT CONC FLAT NOCHKD SCREEN URBAN

*** Message Summary : AERMOD Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 1 Warning Message(s)
A Total of 0 Informational Message(s)

A Total of 532 Hours Were Processed

A Total of 0 Calm Hours Identified

A Total of 0 Missing Hours Identified (0.00 Percent)

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
CO W320 36 URBOPT: Input Parameter May Be Out-of-Range for Parameter URB-POP

****
*** AERMOD Finishes Successfully ***
****

Appendix C
Biological Evaluation

HAMILTON BIOLOGICAL

April 18, 2018

Joann Lombardo
Comprehensive Planning Services
P.O. Box 15592
Newport Beach, CA 92659

SUBJECT: BIOLOGICAL EVALUATION, NEWPORT & FORD PROJECT COSTA MESA, ORANGE COUNTY, CALIFORNIA

Dear Ms. Lombardo,

At your request, Hamilton Biological, Inc., has conducted a biological evaluation of the 1.86-acre "Newport and Ford" project site, located in the City of Newport Beach (Figure 1). The proposed project involves redevelopment of the site, which is fully developed. This report provides the methods and results of my survey, and discusses environmental regulations that may be relevant to implementation of the proposed project.

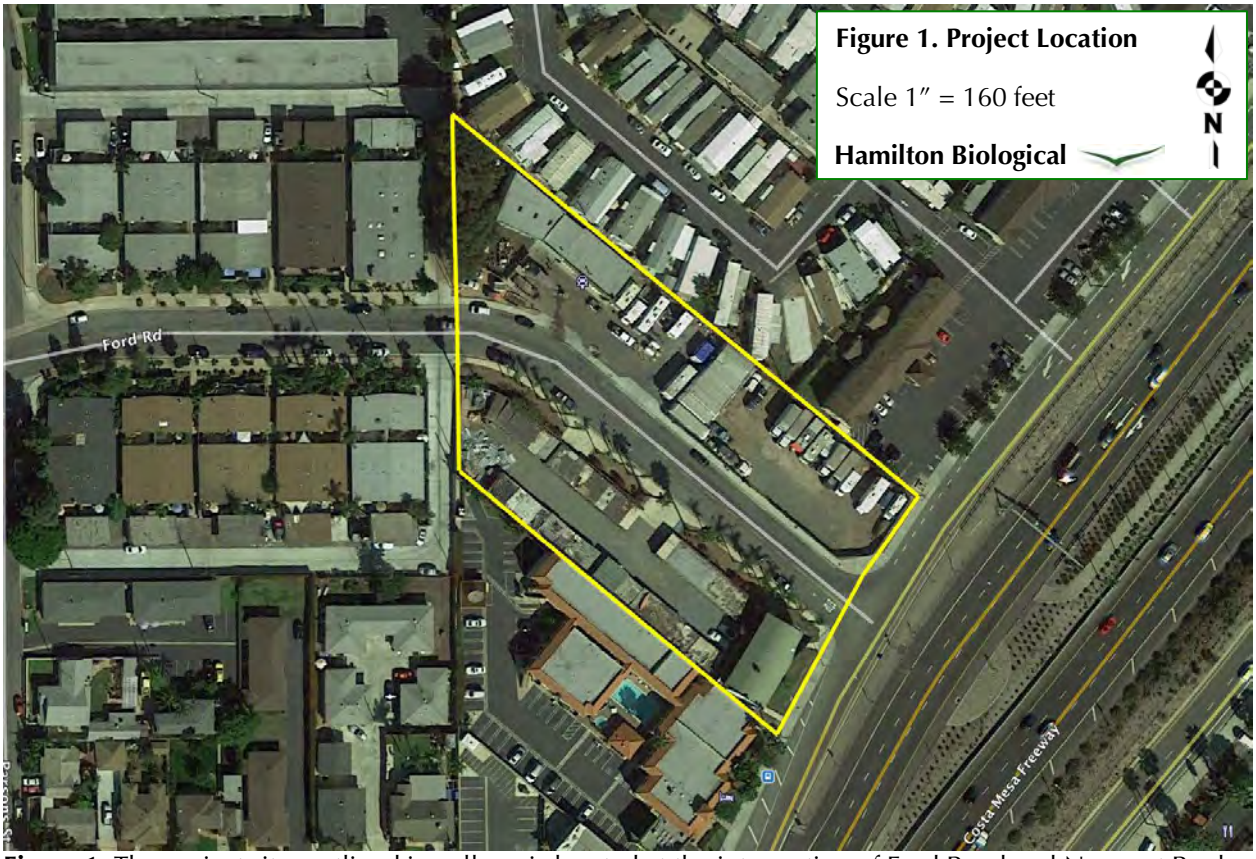

Figure 1. The project site, outlined in yellow, is located at the intersection of Ford Road and Newport Boulevard, just north of the Costa Mesa Freeway (Interstate 55) in Newport Beach. Source: Google Earth.

316 Monrovia Avenue — Long Beach, CA 90803 — 562-477-2181 — robb@hamiltonbiological.com

METHODS

Field Visit

Comprehensive Planning Services provided a map of the project site, which Biologist Robert A. Hamilton used to conduct a field survey on January 27, 2018, from 10:00 to 11:00 a.m. The weather was fair, 61° F, with high, thin clouds and light wind. Mr. Hamilton covered all parts of the project site, searching for all plant and wildlife species present, and searching for any sign of active nesting by birds. The purpose was to evaluate whether any biological resources present in the area might be subject to local, state, or federal resource-protection regulations.

Literature Review

On April 7, 2017, I conducted a search of the California Native Plant Society's Online Inventory of Rare and Endangered Plants (www.rareplants.cnps.org) and the Consortium of California Herbaria web page (www.ucjeps.berkeley.edu/consortium) and searched for sensitive plant species known from the Newport Beach area.

On April 7, 2018, I reviewed the following resources of the California Natural Diversity Data Base:

- California Department of Fish and Wildlife, Natural Diversity Database. October 2017. Special Animals List. Periodic publication. 65 pp.
- California Department of Fish and Wildlife, Natural Diversity Database. January 2018. Special Vascular Plants, Bryophytes, and Lichens List. Quarterly publication. 127 pp.
- California Natural Diversity Data Base. Rarefind data accessed online on April 7, 2018, for the U.S. Geologic Survey's Newport Beach, Irvine, and Laguna Beach 7.5' topographic quadrangles.

On April 7, 2018, I reviewed eBird (www.ebird.org) for records of any special-status bird species with potential to utilize the project site.

The purpose of this review was to determine all sensitive plant and wildlife species recorded in the U.S. Geologic Survey's Newport Beach, Irvine, and Laguna Beach 7.5' topographic quadrangles, and to evaluate the potential for these and other species to occur on the project site.

RESULTS

The entire project site consists of fully developed commercial/industrial properties in a strictly urban setting. See site photos, starting on the next page.

Vegetation

Vegetation on and around the project site consists entirely, or nearly entirely, of non-native species, including plants commonly used in commercial landscaping and typical weedy species found in urban environments in coastal southern California. Plant species observed include trees, such as eucalyptus (*Eucalyptus* sp.), Carrotwood (*Cupaniop-*

sis anacardioides), Mexican Fan Palm (*Washingtonia robusta*), Queen Anne Palm (*Syagrus romanzoffiana*), and Sago Palm (*Cycas revoluta*). Shrubs and vines observed include Common Fig (*Ficus carica*), Bird of Paradise (*Strelitzia reginae*), rose bushes (*Rosa* sp.), Cape Honeysuckle (*Tecoma capensis*), and Virginia Creeper (*Parthenocissus quinquefolia*). Herbaceous weeds observed include Storksbill (*Erodium cicutarium*), Cheeseweed (*Malva parviflora*), Bermuda Buttercup (*Oxalis pes-caprae*), Dandelion (*Taraxacum officinale*), and London Rocket (*Sisymbrium irio*). Exotic grasses observed included Bermuda Grass (*Cynodon dactylon*) and Crab Grass (*Digitaria sanguinalis*).

Wildlife

The wildlife observed, and expected, in this area consists entirely of native and non-native species that are highly adapted to the urban environment in Costa Mesa and surrounding cities. I detected a total of eight bird species, five native and three non-native. The native species observed are Anna's Hummingbird (*Calypte annae*), Allen's Hummingbird (*Selasphorus sasin*), Black Phoebe (*Sayornis nigricans*), Yellow-rumped Warbler (*Setophaga coronata*), and Lesser Goldfinch (*Spinus psaltria*). The non-native species are Japanese White-eye (*Zosterops japonicus*), European Starling (*Sturnus vulgaris*), House Sparrow (*Passer domesticus*).

No amphibians or reptiles were observed, but the common Western Fence Lizard (*Sceloperus occidentalis*) could potentially occur. The only mammal detected was a non-native Eastern Fox Squirrel (*Sciurus niger*). A few native mammals highly adapted to urban settings, such as the Botta Pocket Gopher (*Thomomys bottae*), Raccoon (*Procyon lotor*), Virginia Opossum (*Didelphis virginiana*), and Striped Skunk (*Mephitis mephitis*) could also occur.

Site Photos

Photo 1. View facing south, down Newport Boulevard, from the southeastern terminus of Ford Road. January 27, 2018. *Robert A. Hamilton.*

Photo 2. View facing west from near the southeastern terminus of Ford Road. January 27, 2018. *Robert A. Hamilton.*

Photo 3. View facing northwest, inside an existing commercial yard on the west side of Ford Road. January 27, 2018. *Robert A. Hamilton.*

Photo 4. View facing north, near the northern project boundary, showing a small stand of eucalyptus trees. January 27, 2018. *Robert A. Hamilton.*

Photo 5. View facing east showing an RV storage yard on the north side of Ford Road. January 27, 2018. *Robert A. Hamilton*.

Photo 6. View facing north showing the RV storage yard on the north side of Ford Road. January 27, 2018. *Robert A. Hamilton*.

[SPACE INTENTIONALLY BLANK]

SENSITIVE BIOLOGICAL RESOURCES

The literature review yielded dozens of special-status species that have been recorded within the Newport Beach, Irvine, and Laguna Beach USGS 7.5' topographic quadrangles. Very few of the special-status species identified through the literature search are capable of surviving in fully developed areas like this project site, which supports no natural plant communities. Table A, below provides information on those special-status species that have legitimate potential to occur on the project site.

TABLE A: SPECIAL STATUS SPECIES

Species	Regulatory Status	Potential Status in Study Area
Plants		
Southern Tarplant *Centromadia parryi* ssp. *australis*	CNPS Rank 1B.1, for species that CNPS considers "rare, threatened, or endangered in CA and elsewhere."	Southern Tarplant typically occurs on flat, disturbed ground near the coast that receives intermittent flooding. The species very rarely occurs in disturbed lots (pers. obs.). In the general project vicinity, substantial populations occur around the edges of Upper Newport Bay. Disturbed portions of the project site have marginal potential to support Southern Tarplant, but the species is conspicuous, and I searched specifically for its dead stalks, which would have been visible at the time of the field survey. Based on the lack of observations of this species, and the developed nature of the site, this plant has very low potential to occur on the site.
Invertebrates		
Monarch *Danaus plexippus*	California Special Animal, referring to all of the taxa the CNDDB is interested in tracking, regardless of their legal or protection status. The Department of Fish and Game considers this list to include the taxa of greatest conservation need, although not all are equally at risk.	This butterfly species is of concern due to its limited number of remaining overwintering sites, which are covered by statues of the California Public Resources Code and the California Fish and Game Code. Numbers have been fluctuating over the years, with a downward trend during the recent past. In southern California, Monarchs usually overwinter in groves of eucalyptus in natural areas between a half-mile and one mile from the coast. Based on the small size and urban location of the eucalyptus stand on the site (shown in Photo 4 on page 4), and lack of observation of Monarchs during the site visit, I consider it to have very low potential to provide overwintering habitat for Monarchs.
Birds		
Cooper's Hawk *Accipiter cooperii*	California Special Animal, referring to all of the taxa the CNDDB is interested in tracking, regardless of their legal or protection status. The Department of Fish and Game considers this list to include the taxa of greatest conservation need, although not all are equally at risk.	Once found mainly in natural areas with riparian and oak woodlands (e.g., Hamilton, R. A., and D. R. Willick. 1996. *The Birds of Orange County, California, Status and Distribution*. Sea and Sage Press, Irvine.), this species has experienced "significant population increases and range expansions starting in 1990s, most noticeable in the form of breeders colonizing urban and suburban areas" (Curtis, O. E., R. N. Rosenfield, and J. Bielefeldt. 2006. Cooper's Hawk (Accipiter cooperii), version 2.0 in The Birds of North America; A. F. Poole, Editor. Cornell Lab of Ornithology, Ithaca, NY). Following rapid expansion of the breeding population into urban and suburban southern California during the past two decades, Cooper's Hawk is now a common, widespread resident. Cooper's Hawk was not observed during the field survey, but has moderate potential to breed on or around the site, and high potential to occur there during migration and/or winter.

APPLICABLE ENVIRONMENTAL PROTECTION REGULATIONS

The project site, being fully developed in the existing condition, does not support any plant communities that might be subject to resource-project regulations. The only potentially applicable resource-protection regulations involve (a) requirements to avoid impacts to actively nesting birds, and (b) compliance with the City's tree-removal ordinance.

Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) of 1918 implemented the 1916 Convention between the U.S. and Great Britain (for Canada) for the protection of migratory birds. Later amendments implemented treaties between the U.S. and Mexico, the U.S. and Japan, and the U.S. and the Soviet Union (now Russia). At the heart of the MBTA is this language:

> Establishment of a Federal prohibition, unless permitted by regulations, to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention . . . for the protection of migratory birds . . . or any part, nest, or egg of any such bird." (16 U.S.C. 703)

In a memorandum dated December 22, 2017[1], the U.S. Department of the Interior provided direction that the MBTA's "prohibitions on pursuing, hunting, taking, capturing, killing, or attempting to do the same apply only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs." Thus, at this time, "incidental take" of birds or their active nests that might occur, for example, as an unintended result of construction activity or vegetation removal, would not represent a violation of the MBTA.

Sections 3503 and 3513 of the California Fish and Game Code

Section 3503 of the California Fish and Game Code states, "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." Section 3513 of the Code prohibits any take or possession of birds that are designated by the MBTA as migratory nongame birds except as allowed by federal rules and regulations promulgated pursuant to the MBTA. Thus, in California, it is a State offense to knowingly disrupt an active nest of virtually any native bird species. The term "active nest" is not clearly defined in regulations, however, and in some circumstances may be left to the discretion of the biologist in the field. At present, wardens for the California Department of Fish & Wildlife (CDFW) typically define an active nest as one that is completed and holding at least one egg (Erinn Wilson, CDFW, pers. comm.).

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[1] https://www.doi.gov/sites/doi.gov/files/uploads/m-37050.pdf

Section 13-108(c) of Costa Mesa Municipal Code

Section 13-108(c) in Title 13, Chapter VII of the Costa Mesa Municipal Code states:

> Tree removal: Trees shall not be destroyed or removed without prior city approval. Site plans which identify existing and replacement trees shall be submitted to the planning division for review, along with written request and justification for the removal. Additionally, the planning division may require a report prepared by a California licensed arborist. Where possible, and under the direction of the planning division, replacement trees shall be of a size consistent with that to be removed. Trees may be replaced upon approval of plans by the planning division.

The project site includes several trees that may be regulated under this section of the Costa Mesa Municipal Code.

IMPACT ANALYSIS & RECOMMENDED MITIGATION MEASURES

This section analyzes the expected impacts of the proposed project on biological resources. Thresholds of significance for the anticipated impacts are determined by interpretation of the CEQA Guidelines as presented below. Mitigation measures are recommended to address any impacts considered to be potentially significant.

Pursuant to Appendix G of CEQA Guidelines, a significant impact to biological resources would result if the project would:

- 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.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means.
- 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.
- Conflict with any federal, state, or local policies or ordinances protecting biological resources, such as a tree preservation ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Based upon my review of the relevant literature, and the results of my field visit, I conclude that the one special-status plant species with some potential to occur on the site, Southern Tarplant, is very unlikely to support this special-status plant species. The site does not provide habitat suitable for use by overwintering Monarchs, and so no impacts to potential overwintering habitat for this special-status invertebrate are identified. The one "special-status" wildlife species likely to occur on the site, Cooper's Hawk, is a common and widespread raptor found frequently in urban and suburban areas across southern California. The species is not listed as threatened or endangered, and is not recognized as a California Species of Special Concern. Any potential project impacts to habitats utilized by Cooper's Hawks would be less than significant under CEQA.

Therefore, implementation of the proposed actions would not have any substantial effect, either directly or through habitat modifications, upon 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.

Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The project site lacks riparian habitats or other sensitive natural communities. Therefore, I conclude that implementation of the proposed actions would not have a substantial adverse effect upon any riparian habitat or other sensitive natural community identified in local or regional policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means?

The project site lacks wetland communities, and no off-site wetland areas could be adversely affected by the project. Therefore, I conclude that implementation of the proposed actions would not have a substantial adverse effect upon federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means.

Would the project interfere substantially with the movement of any native resident or migratory fish or wild-life species or with established native resident or migratory wildlife corridors, or impede the use of native wild-life nursery sites?

The project site lies within a fully developed urban area, and does not serve any substantial, identifiable wildlife-movement purpose. Therefore, I conclude that implementation of the proposed actions would not have a substantial adverse effect upon the movement of any native resident or migratory fish or wild-life species or with established native resident or migratory wildlife corridors, or impede the use of native wild-life nursery sites.

Would the project conflict with any federal, state, or local policies or ordinances protecting biological resources, such as a tree preservation ordinance?

Disruption of the active nesting of any bird species represents a potential violation of Sections 3503 and/or 3513 of the California Fish and Game Code. Thus, any impact to actively nesting birds would represent a potentially significant impact.

Recommended Mitigation – Nesting Birds

In order to avoid potentially significant to nesting birds, any and all vegetation removal that takes place during the nesting season (February 15 to August 31) should be monitored by a qualified biologist to ensure that no impacts to actively nesting birds take place. If any active bird nests are found (i.e., containing at least one nestling or potentially viable egg), protection of the nest and contents should be accomplished by setting up appropriate buffers around any active nesting sites until young fledge or the nest fails.

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?

The project site does not lie within the boundaries of any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, I conclude that implementation of the proposed actions would not have a substantial adverse effect upon any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

SIGNIFICANCE OF IMPACTS AFTER MITIGATION

With implementation of the recommended mitigation measure for avoiding impacts to actively nesting birds, it is concluded that no significant impacts to biological resources would occur as a result of project implementation.

CONCLUSION

If any reader of this biological report has any questions, please call me at (562) 477-2181 or send e-mail to robb@hamiltonbiological.com.

Sincerely,

Robert A. Hamilton
President, Hamilton Biological, Inc.
http://hamiltonbiological.com

Appendix D
SCCIC Records Search Results

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

2/8/2018 SCCIC File #: 18555.4567

Joann Lombardo
Comprehensive Planning Services
2916 Clay St
Newport Beach, CA 92663

Re: Records Search Results for the 38 Unit Residential Project – Newport and Ford, City of Costa Mesa

The South Central Coastal Information Center received your records search request for the project area referenced above, located on the Newport Beach, CA USGS 7.5' quadrangle. The following summary reflects the results of the records search for the project area and a ½-mile radius. The search includes a review of all recorded archaeological and built-environment resources as well as a review of cultural resource reports on file. In addition, the California Points of Historical Interest (SPHI), the California Historical Landmarks (SHL), the California Register of Historical Resources (CAL REG), the National Register of Historic Places (NRHP), and the California State Historic Properties Directory (HPD) listings were reviewed for the above referenced project site. Due to the sensitive nature of cultural resources, archaeological site locations are not released.

RECORDS SEARCH RESULTS SUMMARY

Archaeological Resources	Within project area: 0 Within project radius: 0
Built-Environment Resources	Within project area: 0 Within project radius: 1
Reports and Studies	Within project area: 0 Within project radius: 9
OHP Historic Properties Directory (HPD)	Within project area: 0 Within project radius: 40
California Points of Historical Interest (SPHI)	Within project area: 0 Within project radius: 0
California Historical Landmarks (SHL)	Within project area: 0 Within project radius: 0
California Register of Historical Resources (CAL REG)	Within project area: 0 Within project radius: 2
National Register of Historic Places (NRHP)	Within project area: 0 Within project radius: 0

HISTORIC MAP REVIEW – The Santa Ana, CA (1846, 1901) 1:62,500 scale historic maps indicated that in 1846 there were two improved roads present, one of which appeared to run through the project area. The Santa Ana and Newport Branch of the Southern Pacific Railroad also appeared to run through the project area. These features were still present in 1901.

RECOMMENDATIONS

According to our records, the project site has not been subjected to any previous studies and the cultural resource sensitivity of the project site is unknown. Although the project site is currently developed, there is the potential for the discovery of prehistoric and historic cultural resources within the project boundaries. Agricultural remains, foundations, trails, hearths, trash dumps, privies, changes in soil colorations, human or animal bone, pottery, chipped or shaped stone, etc. are all potential indications of an archaeological site. Therefore, customary caution and a halt-work condition should be in place for any ground-disturbing activities. In the event that any evidence of cultural resources is discovered, all work within the vicinity of the find should stop until a qualified archaeological consultant can assess the find and make recommendations. Excavation of potential cultural resources should not be attempted by project personnel.

For your convenience, you may find a professional consultant* at www.chrisinfo.org. Any resulting reports by the qualified consultant should be submitted to the South Central Coastal Information Center as soon as possible.

*The SCCIC does not endorse any particular consultant and makes no claims about the qualifications of any person listed. Each consultant on this list self-reports that they meet current professional standards.

If you have any questions regarding the results presented herein, please contact the office at 657.278.5395 Monday through Thursday 9:00 am to 3:30 pm.

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

Thank you for using the California Historical Resources Information System,

Michelle Galaz
Assistant Coordinator

Enclosures:

(X) Invoice #18555.4567

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records

search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the California Historical Resources Information System (CHRIS) Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

The California Office of Historic Preservation (OHP) contracts with the California Historical Resources Information System's (CHRIS) regional Information Centers (ICs) to maintain information in the CHRIS inventory and make it available to local, state, and federal agencies, cultural resource professionals, Native American tribes, researchers, and the public. Recommendations made by IC coordinators or their staff regarding the interpretation and application of this information are advisory only. Such recommendations do not necessarily represent the evaluation or opinion of the State Historic Preservation Officer in carrying out the OHP's regulatory authority under federal and state law.

Appendix E

Native American Heritage Commission Response

NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710

January 24, 2018

Minoo Ashabi
City of Costa Mesa

Sent via e-mail: minoo.ashabi@costamesaca.gov

RE: The Proposed Ford Road Residential Project, City of Costa Mesa; Newport Beach USGS Quadrangle, Orange County, California

Dear Ms. Ashabi:

Attached is a Consultation List of tribes with traditional lands or cultural places located within the boundaries of the above referenced project.

Government Code §65352.3 (SB-18) **requires local governments** to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of avoiding, protecting, and/or mitigating impacts to cultural places in creating or amending general plans, including specific plans. As of July 1, 2015, Public Resources Code Sections 21080.3.1 and 21080.3.2 (AB-52) require **public agencies to consult** with California Native American tribes identified by the NAHC for the purpose mitigating impacts to tribal cultural resources:

> Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, **the lead agency** shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section. (Public Resources Code Section 21080.1(d))

The law does not preclude agencies from initiating consultation with the tribes that are culturally and traditionally affiliated with their jurisdictions. The NAHC believes that in fact that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

In accordance with Public Resources Code Section 21080.1(d), formal notification must include a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation. The NAHC requests that lead agencies include in their notifications information regarding any cultural resources assessment that has been completed on a potential "area of project affect" (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

   - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE;
   - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
   - If the probability is low, moderate, or high that cultural resources are located in the APE.

- Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the potential APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measurers.

     All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure in accordance with Government Code Section 6254.10.

3. The results of any Sacred Lands File (SFL) check conducted through Native American Heritage Commission. A search of the SFL was completed with negative results however the area is sensitive for potential tribal cultural resources.

4. Any ethnographic studies conducted for any area including all or part of the potential APE; and

5. Any geotechnical reports regarding all or part of the potential APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS is not exhaustive, and a negative response to these searches does not preclude the existence of a cultural place. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the case that they do, having the information beforehand well help to facilitate the consultation process.

Lead agencies or agencies potentially undertaking a project are encouraged to send more than one written notice to tribes that are traditionally and culturally affiliated to a potential APE during the 30-day notification period to ensure that the information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance we are able to assure that our consultation list contains current information.

If you have any questions, please contact me at my email address: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton

Gayle Totton, M.A., PhD.
Associate Government Planning Analyst

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Native American Heritage Commission
Tribal Consultation List
Orange County
1/24/2018

Campo Band of Mission Indians
Ralph Goff, Chairperson
36190 Church Road, Suite 1 — Kumeyaay
Campo, CA, 91906
Phone: (619) 478 - 9046
Fax: (619) 478-5818
rgoff@campo-nsn.gov

Ewiiaapaayp Tribal Office
Michael Garcia, Vice Chairperson
4054 Willows Road — Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
michaelg@leaningrock.net

Ewiiaapaayp Tribal Office
Robert Pinto, Chairperson
4054 Willows Road — Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126

Gabrieleno Band of Mission Indians - Kizh Nation
Andrew Salas, Chariperson
P.O. Box 393 — Gabrieleno
Covina, CA, 91723
Phone: (626) 926 - 4131
gabrielenoindians@yahoo.com

Gabrieleno/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693 — Gabrieleno
San Gabriel, CA, 91778
Phone: (626) 483 - 3564
Fax: (626) 286-1262
GTTribalcouncil@aol.com

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St., #231 — Gabrielino
Los Angeles, CA, 90012
Phone: (951) 807 - 0479
sgoad@gabrielino-tongva.com

Gabrielino Tongva Indians of California Tribal Council
Robert Dorame, Chairperson
P.O. Box 490 — Gabrielino
Bellflower, CA, 90707
Phone: (562) 761 - 6417
Fax: (562) 761-6417
gtongva@gmail.com

Gabrielino-Tongva Tribe
Charles Alvarez,
23454 Vanowen Street — Gabrielino
West Hills, CA, 91307
Phone: (310) 403 - 6048
roadkingcharles@aol.com

Jamul Indian Village
Erica Pinto, Chairperson
P.O. Box 612 — Kumeyaay
Jamul, CA, 91935
Phone: (619) 669 - 4785
Fax: (619) 669-4817

Juaneno Band of Mission Indians
Sonia Johnston, Chairperson
P.O. Box 25628 — Juaneno
Santa Ana, CA, 92799
sonia.johnston@sbcglobal.net

Juaneno Band of Mission Indians Acjachemen Nation - Belardes
Matias Belardes, Chairperson
32161 Avenida Los Amigos — Juaneno
San Juan Capisttrano, CA, 92675
Phone: (949) 293 - 8522

Juaneno Band of Mission Indians Acjachemen Nation - Romero
Teresa Romero, Chairperson
31411-A La Matanza Street — Juaneno
San Juan Capistrano, CA, 92675
Phone: (949) 488 - 3484
Fax: (949) 488-3294
tromero@juaneno.com

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable only for consultation with Native American tribes under Government Code Sections 65352.3, 65362.4 et seq. and Public Resources Code Sections 21080.3.1 for the proposed Ford Road Residential Project, Orange County.

La Posta Band of Mission Indians
Javaughn Miller, Tribal Administrator
8 Crestwood Road — Kumeyaay
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
jmiller@LPtribe.net

La Posta Band of Mission Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road — Kumeyaay
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
LP13boots@aol.com

Manzanita Band of Kumeyaay Nation
Angela Elliott Santos, Chairperson
P.O. Box 1302 — Kumeyaay
Boulevard, CA, 91905
Phone: (619) 766 - 4930
Fax: (619) 766-4957

San Fernando Band of Mission Indians
John Valenzuela, Chairperson
P.O. Box 221838 — Kitanemuk
Newhall, CA, 91322 — Serrano
Phone: (760) 885 - 0955 — Tataviam
tsen2u@hotmail.com

San Pasqual Band of Mission Indians
Allen E. Lawson, Chairperson
P.O. Box 365 — Kumeyaay
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
allenl@sanpasqualtribe.org

Sycuan Band of the Kumeyaay Nation
Cody J. Martinez, Chairperson
1 Kwaaypaay Court — Kumeyaay
El Cajon, CA, 92019
Phone: (619) 445 - 2613
Fax: (619) 445-1927
ssilva@sycuan-nsn.gov

Viejas Band of Kumeyaay Indians
Robert Welch, Chairperson
1 Viejas Grade Road — Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337
jhagen@viejas-nsn.gov

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable only for consultation with Native American tribes under Government Code Sections 65352.3, 65362.4 et seq. and Public Resources Code Sections 21080.3.1 for the proposed Ford Road Residential Project, Orange County.

Appendix F

Natural History Museum Paleontological Records Search Response

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

Vertebrate Paleontology Section
Telephone: (213) 763-3325

e-mail: smcleod@nhm.org

20 February 2018

Comprehensive Planning Services
2916 Clay Street
Newport Beach, CA 92663

Attn: Joann Lombardo, Principal / Owner

re: Paleontological resources for the proposed Newport & Ford Residential Project, in the City of Costa Mesa, Orange County, project area

Dear Joann:

I have conducted a thorough check of our paleontology collection records for the locality and specimen data for the proposed Newport & Ford Residential Project, in the City of Costa Mesa, Orange County, project area as outlined on the portion of the Newport Beach USGS topographic quadrangle map that you sent to me via e-mail on 5 February 2018. We do not have any vertebrate fossil localities that lie directly within the proposed project area boundaries, but we do have localities nearby from the same deposits that may occur either at the surface or at depth in the proposed project area.

According to the geologic mapping, the entire proposed project area has surface exposures of marine younger Quaternary Terrace deposits, although our vertebrate fossil localities in this area almost always contain terrestrial fossil vertebrates. These deposits typically do not contain significant vertebrate fossils in the very uppermost layers, but they are usually underlain by older Quaternary deposits that frequently do contain significant vertebrate fossils. Our closest vertebrate fossil locality from these older Quaternary deposits is LACM 3267, just to the southwest of the proposed project area near the intersection of 19th Street and Anaheim Avenue, that produced a fossil specimen of undetermined elephant, Proboscidea, at unstated depth. Further northeast of the proposed project area, in a roadcut for the Newport Freeway near Santa Isabel Avenue, our vertebrate fossil locality from these deposits, LACM 4219, produced

fossil sea turtle, Cheloniidae, and camel, Camelidae, bones in coarse poorly sorted friable sands about 30 feet below the grade of Newport Boulevard. Further to the south-southwest of the proposed project area, from the Hoag Hospital lower campus parcel near the intersection of Superior Avenue and the Pacific Coast Highway, our older Quaternary vertebrate fossil locality LACM 6370 produced a specimen of a fossil horse, *Equus*. Northwest of the proposed project area, along Adams Avenue near the top of the mesa bluffs east of the Santa Ana River, our locality LACM 1339 produced fossil specimens of mammoth, *Mammuthus*, and camel, Camelidae, bones in sand approximately 15 feet below the top of the mesa that is overlain by shell bearing silts and sands. We further have a large number of localities from the marine and terrestrial Late Pleistocene terraces deposits on the east side of Upper Newport Bay. Those localities have produced an extensive composite fauna.

Surface grading or very shallow excavations in the younger Quaternary Alluvium exposed in the proposed project area probably will not uncover significant vertebrate fossil remains. Deeper excavations that extend down into older Quaternary deposits, however, may well encounter significant fossil vertebrate specimens. Any substantial excavations in the proposed project area, therefore, should be monitored closely to quickly and professionally recover any fossil remains discovered while not impeding development. Also, sediment samples should be collected and processed to determine the small fossil potential in the proposed project area. Any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Sincerely,

Samuel A. McLeod

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice

Appendix G

Geotechnical Comment: Depth to Native Soils

ALBUS-KEEFE & ASSOCIATES, INC.
GEOTECHNICAL CONSULTANTS

June 25, 2018
J.N.: 2660.00

Mr. Haggai Mazler
The Olson Company
3010 Old Ranch Parkway, Suite 100
Seal Beach, California 90740

Subject: Geotechnical Comment, Depth to Native Soils, 1957 Newport Boulevard and 390 Ford Road, Costa Mesa, California.

Dear Mr. Mazler,

As requested, ***Albus-Keefe & Associates, Inc***., is providing a comment to the depth to the native soils onsite. Based on our previous exploration onsite, the native soils consist of Quaternary older alluvial deposits. The average depth to the older alluvial deposits based on our previous exploration is 3 feet below the existing ground surface.

We appreciate this opportunity to be of service to you. If you should have any questions regarding the contents of this report, please do not hesitate to call our office.

Sincerely,

ALBUS-KEEFE & ASSOCIATES, INC.

Paul Hyun Jin Kim
Associate Engineer

REGISTERED PROFESSIONAL ENGINEER
HYUN JIN KIM
C 77214
EXP. 06/30/19
CIVIL
STATE OF CALIFORNIA

Appendix H
Preliminary Hydrology Study

ALAN R. SHORT, P.E.

PRELIMINARY HYDROLOGY STUDY

FOR

CITY OF COSTA MESA

TENTATIVE TRACT NO. 18156
1957 Newport Boulevard

PREPARED FOR:

THE OLSON COMPANY
3010 OLD RANCH PARKWAY, SUITE 100
SEAL BEACH, CA. 92740

PREPARED BY:

ALAN R. SHORT, P.E.
RCE 30873, EXPIRES 3/31/20

REGISTERED PROFESSIONAL ENGINEER
ALAN R. SHORT
C 30873
EXP. 03/31/20
CIVIL
STATE OF CALIFORNIA

Latest Revision: June 20, 2018

25911 Pinewood Lane
Laguna Hills, CA 92653
(949) 586-5200

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25-Year Storm Event
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Post-Development

10-Year Storm Event
25-Year Storm Event
100-Year Storm Event

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4. Detention Volume Calculation

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INTRODUCTION & SUMMARY

This is a preliminary drainage study for a proposed multi-family development (i.e. Tentative Tract No. 18156) in the City of Costa Mesa, County of Orange, as shown on the Vicinity Map. The site is bounded by Newport Boulevard in the east, Ford Road in the west, a mobile home park in the north and a commercial development in the south.

The site is currently being used as a commercial entity. The existing drainage generally consists of surface runoff that is collected within Ford Road and is conveyed in a Westerly direction, ultimately draining into a catch basin at the intersection of Ford Road and Harbor Boulevard. Currently, there are no water quality measures for the site runoff.

In the post-development condition, the proposed drainage pattern is the same. The initial drainage is collected in a proposed area drain system to deliver the required 3,472 ft^3 "Design Capture Volume" to a proposed infiltration trench. Storm flows will then bubble up at the project entry and continue to surface drain Westerly in Ford Road.

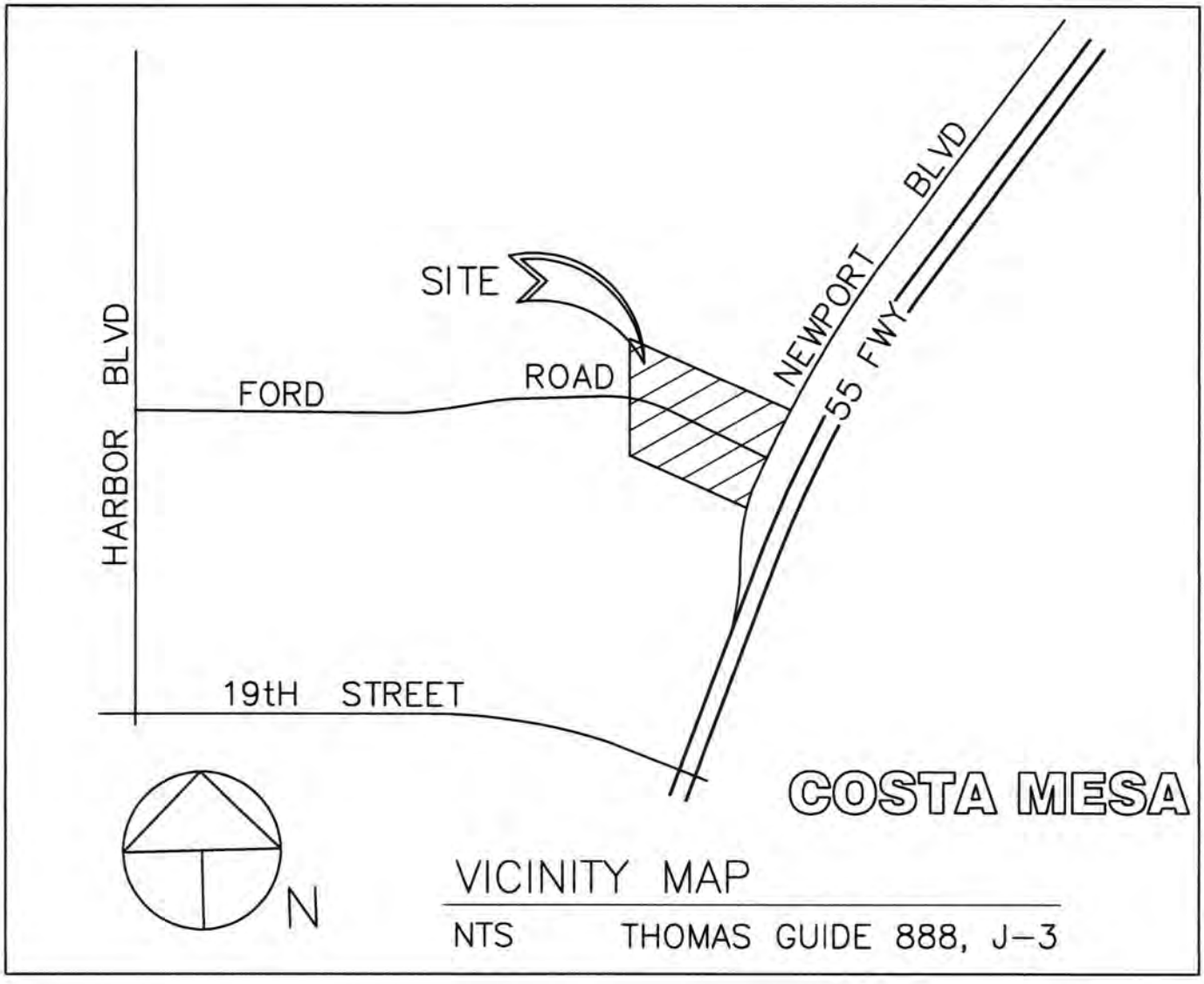
The immediate downstream storm drain facilities consist of reinforced concrete pipes (RCP). The "*Susceptibility Analysis – Santa Ana River" map*, updated February 2013, indicates that this property is not subject to hydromodification. A chambered infiltration trench is proposed for water quality purposes.

Rational Method hydrology, in accordance with the Orange County Hydrology Manual dated 1986 and its latest addendum, was used to calculate the peak flow discharges. Advance Engineering Software (AES), Version 19.0 was utilized for the hydrology calculations. "Orange County Local Drainage Manual" was used as reference for hydraulic parameters. The results are as follows:

	Pre-Development	Post-Development
10-Year	3.90	4.79
25-Year	4.74	5.78
100-Year	6.15	7.43

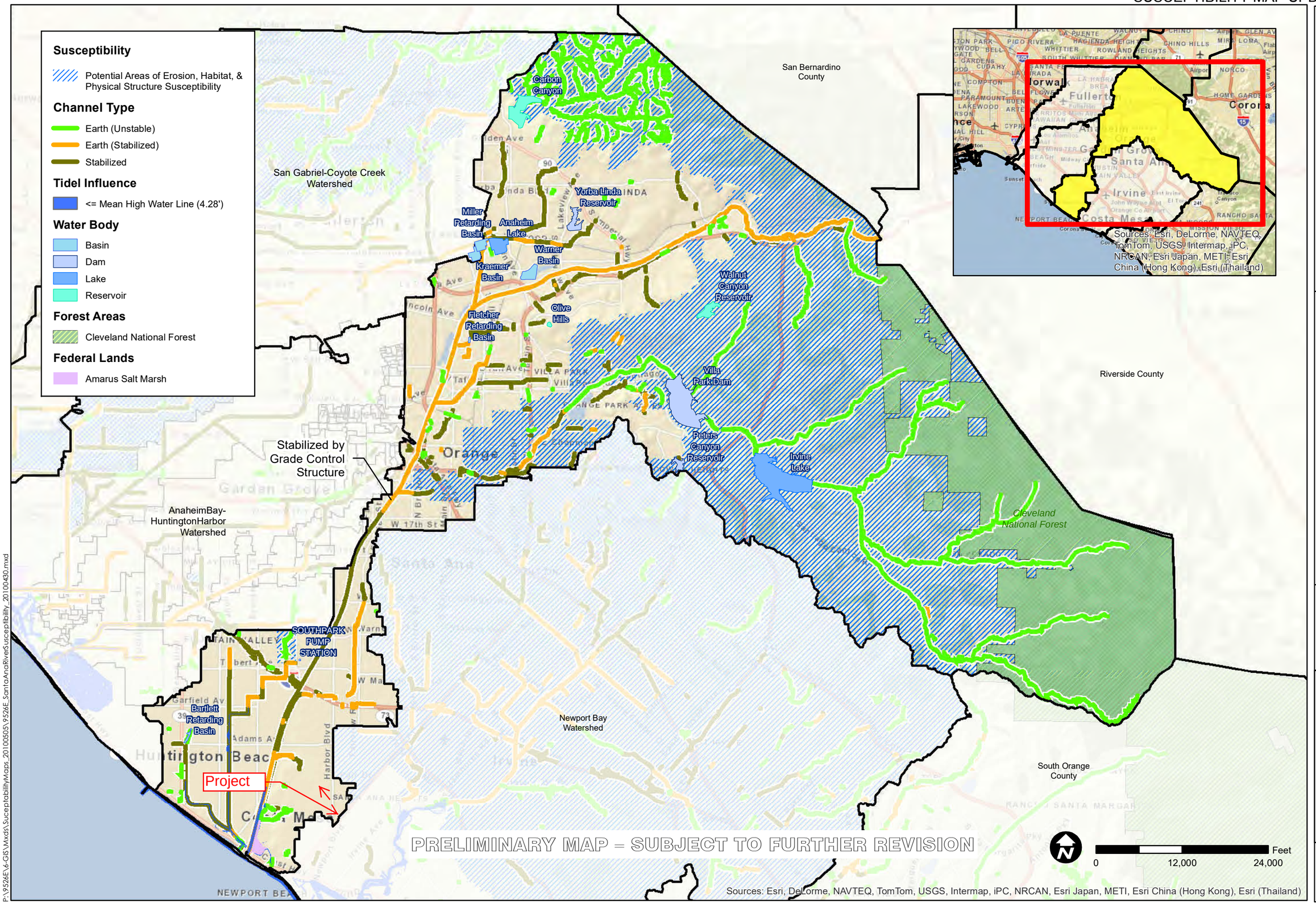
Since the proposed development has increased storm flows after development due to the increased imperviousness of the site, the City has requested the increased runoff to be mitigated on site. An analysis of this 25-year increase indicates that the project would need to store 188 ft^3 of runoff. This volume is significantly less than the infiltration volume of 3,472 ft^3, therefore the infiltration system will offset the increase in storm flow exiting the project. The detention volume calculations are provided in Section 4 of this report.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 06059C0268J, dated December 3, 2007, the site is located within Zone "X" (Area of minimal flood hazard).



VICINITY MAP

NTS THOMAS GUIDE 888, J-3



TITLE
SUSCEPTIBILITY ANALYIS
SANTA ANA RIVER

JOB
ORANGE COUNTY
WATERSHED
MASTER PLANNING
ORANGE CO. CA

SCALE	1" = 12000'
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	04/30/10
JOB NO.	9526-E

PACE
Advanced Water Engineering

FIGURE
3

P:\9526E\6-GIS\Mxds\SusceptibilityMaps_20100505\9526E_SantaAnaRiverSusceptibility_20100430.mxd

2. Rational Method Hydrology

Pre-Development

10-Year Storm Event
25-Year Storm Event
100-Year Storm Event

NEWPORT BEACH

```
****************************************************************************
              RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
             (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
          (c) Copyright 1983-2012 Advanced Engineering Software (aes)
              Ver. 19.0  Release Date: 06/01/2012  License ID 1355

                          Analysis prepared by:

                               Alan Short
                            25911 Pinewood Lane
                           Laguna Hills, CA 92653
                               (949) 586-5200

 ************************** DESCRIPTION OF STUDY **************************
* Costa Mesa, Ford Road                                                    *
* Existing Condition                                                       *
* 10 Year Storm Event                                                      *
 ****************************************************************************

  FILE NAME: CMEX.DAT
  TIME/DATE OF STUDY: 10:06 01/14/2018
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    90.00
  ELEVATION DATA: UPSTREAM(FEET) =     89.60  DOWNSTREAM(FEET) =     88.30

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.819
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.398
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  PUBLIC PARK                B        0.04      0.30     0.850    56    6.82
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.850
  SUBAREA RUNOFF(CFS) =      0.11
  TOTAL AREA(ACRES) =      0.04   PEAK FLOW RATE(CFS) =      0.11

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =     89.60  DOWNSTREAM(FEET) =     86.40

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.445
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.820
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        B        0.60      0.30     0.500    56    9.44
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
  SUBAREA RUNOFF(CFS) =      1.44
  TOTAL AREA(ACRES) =      0.60   PEAK FLOW RATE(CFS) =      1.44

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     14.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =   86.40  DOWNSTREAM ELEVATION(FEET) =   86.30
  STREET LENGTH(FEET) =   125.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  10.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.017
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.017

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.70
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.40
    HALFSTREET FLOOD WIDTH(FEET) =   15.90
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    0.75
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.30
  STREET FLOW TRAVEL TIME(MIN.) =   2.78   Tc(MIN.) =   12.23
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.432
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        B        0.25      0.30     0.500    56
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
  SUBAREA AREA(ACRES) =    0.25      SUBAREA RUNOFF(CFS) =    0.51
```

```
EFFECTIVE AREA(ACRES) =      0.85    AREA-AVERAGED Fm(INCH/HR) =  0.15
AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.50
TOTAL AREA(ACRES) =        0.9        PEAK FLOW RATE(CFS) =       1.75

END OF SUBAREA STREET FLOW HYDRAULICS:
DEPTH(FEET) = 0.40   HALFSTREET FLOOD WIDTH(FEET) =  16.05
FLOW VELOCITY(FEET/SEC.) =  0.75   DEPTH*VELOCITY(FT*FT/SEC.) =   0.30
LONGEST FLOWPATH FROM NODE     12.00 TO NODE     14.00 =     425.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE     15.00 TO NODE     16.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
ELEVATION DATA: UPSTREAM(FEET) =     88.40  DOWNSTREAM(FEET) =     86.30

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.275
*  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.687
SUBAREA Tc AND LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
RESIDENTIAL
"5-7 DWELLINGS/ACRE"        B        0.56      0.30     0.500    56   10.27
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
SUBAREA RUNOFF(CFS) =      1.28
TOTAL AREA(ACRES) =      0.56   PEAK FLOW RATE(CFS) =      1.28

****************************************************************************
FLOW PROCESS FROM NODE     16.00 TO NODE     17.00 IS CODE =  61
----------------------------------------------------------------------------
>>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
UPSTREAM ELEVATION(FEET) =   86.30  DOWNSTREAM ELEVATION(FEET) =   86.10
STREET LENGTH(FEET) =   126.00   CURB HEIGHT(INCHES) =  6.0
STREET HALFWIDTH(FEET) = 20.00

DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  10.00
INSIDE STREET CROSSFALL(DECIMAL) =  0.017
OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.017

SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

  **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.62
  STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
  STREET FLOW DEPTH(FEET) =  0.36
  HALFSTREET FLOOD WIDTH(FEET) =   13.55
  AVERAGE FLOW VELOCITY(FEET/SEC.) =    0.96
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.35
STREET FLOW TRAVEL TIME(MIN.) =   2.18   Tc(MIN.) =   12.45
*  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.407
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
RESIDENTIAL
"5-7 DWELLINGS/ACRE"        B        0.34      0.30     0.500    56
```

```
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
  SUBAREA AREA(ACRES) =     0.34      SUBAREA RUNOFF(CFS) =     0.69
  EFFECTIVE AREA(ACRES) =       0.90    AREA-AVERAGED Fm(INCH/HR) =  0.15
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.50
  TOTAL AREA(ACRES) =         0.9        PEAK FLOW RATE(CFS) =       1.83

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.37   HALFSTREET FLOOD WIDTH(FEET) =  14.26
  FLOW VELOCITY(FEET/SEC.) =  0.99   DEPTH*VELOCITY(FT*FT/SEC.) =   0.37
  LONGEST FLOWPATH FROM NODE     15.00 TO NODE     17.00 =     426.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     18.00 TO NODE     19.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
  ELEVATION DATA: UPSTREAM(FEET) =     87.10  DOWNSTREAM(FEET) =     86.30

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.848
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.711
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        B        0.02      0.30     0.500    56    5.85
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
  SUBAREA RUNOFF(CFS) =       0.06
  TOTAL AREA(ACRES) =       0.02   PEAK FLOW RATE(CFS) =       0.06

****************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   137.00
  ELEVATION DATA: UPSTREAM(FEET) =     88.10  DOWNSTREAM(FEET) =     86.10

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.483
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.498
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        B        0.05      0.30     0.500    56    6.48
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
  SUBAREA RUNOFF(CFS) =       0.15
  TOTAL AREA(ACRES) =       0.05   PEAK FLOW RATE(CFS) =       0.15
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)      =        0.1  TC(MIN.) =       6.48
  EFFECTIVE AREA(ACRES) =       0.05  AREA-AVERAGED Fm(INCH/HR)=  0.15
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 0.500
  PEAK FLOW RATE(CFS)    =       0.15
============================================================================
============================================================================
```

END OF RATIONAL METHOD ANALYSIS

```
****************************************************************************
              RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
             (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
          (c) Copyright 1983-2012 Advanced Engineering Software (aes)
              Ver. 19.0  Release Date: 06/01/2012  License ID 1355

                          Analysis prepared by:

                               Alan Short
                            25911 Pinewood Lane
                           Laguna Hills, CA 92653
                               (949) 586-5200

 ************************** DESCRIPTION OF STUDY **************************
* Costa Mesa, Ford Road                                                    *
* Existing Condition                                                       *
* 25 Year Storm Event                                                      *
 ****************************************************************************

  FILE NAME: CMEX.DAT
  TIME/DATE OF STUDY: 10:09 01/14/2018
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    90.00
  ELEVATION DATA: UPSTREAM(FEET) =     89.60  DOWNSTREAM(FEET) =     88.30

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.819
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  4.047
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  PUBLIC PARK                B        0.04      0.30     0.850    56    6.82
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.850
  SUBAREA RUNOFF(CFS) =      0.14
  TOTAL AREA(ACRES) =      0.04   PEAK FLOW RATE(CFS) =      0.14

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =     89.60  DOWNSTREAM(FEET) =     86.40

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.445
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.365
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        B        0.60      0.30     0.500    56    9.44
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
  SUBAREA RUNOFF(CFS) =      1.74
  TOTAL AREA(ACRES) =      0.60   PEAK FLOW RATE(CFS) =      1.74

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     14.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =   86.40  DOWNSTREAM ELEVATION(FEET) =   86.30
  STREET LENGTH(FEET) =   125.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  10.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.017
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.017

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.05
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.42
    HALFSTREET FLOOD WIDTH(FEET) =   17.07
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    0.79
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.33
  STREET FLOW TRAVEL TIME(MIN.) =   2.64   Tc(MIN.) =   12.09
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.927
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        B        0.25      0.30     0.500    56
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
  SUBAREA AREA(ACRES) =    0.25      SUBAREA RUNOFF(CFS) =    0.62
```

```
EFFECTIVE AREA(ACRES) =      0.85    AREA-AVERAGED Fm(INCH/HR) =  0.15
AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.50
TOTAL AREA(ACRES) =        0.9        PEAK FLOW RATE(CFS) =       2.12

END OF SUBAREA STREET FLOW HYDRAULICS:
DEPTH(FEET) = 0.43   HALFSTREET FLOOD WIDTH(FEET) =  17.38
FLOW VELOCITY(FEET/SEC.) =  0.79   DEPTH*VELOCITY(FT*FT/SEC.) =   0.34
LONGEST FLOWPATH FROM NODE     12.00 TO NODE     14.00 =     425.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE     15.00 TO NODE     16.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
ELEVATION DATA: UPSTREAM(FEET) =     88.40  DOWNSTREAM(FEET) =     86.30

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.275
*  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.209
SUBAREA Tc AND LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
RESIDENTIAL
"5-7 DWELLINGS/ACRE"        B        0.56      0.30     0.500    56   10.27
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
SUBAREA RUNOFF(CFS) =       1.54
TOTAL AREA(ACRES) =       0.56   PEAK FLOW RATE(CFS) =      1.54

****************************************************************************
FLOW PROCESS FROM NODE     16.00 TO NODE     17.00 IS CODE =  61
----------------------------------------------------------------------------
>>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
UPSTREAM ELEVATION(FEET) =   86.30  DOWNSTREAM ELEVATION(FEET) =   86.10
STREET LENGTH(FEET) =   126.00   CURB HEIGHT(INCHES) =  6.0
STREET HALFWIDTH(FEET) = 20.00

DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  10.00
INSIDE STREET CROSSFALL(DECIMAL) =  0.017
OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.017

SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

  **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.96
  STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
  STREET FLOW DEPTH(FEET) =  0.38
  HALFSTREET FLOOD WIDTH(FEET) =   14.65
  AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.01
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.38
STREET FLOW TRAVEL TIME(MIN.) =   2.08   Tc(MIN.) =   12.36
*  25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.890
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
RESIDENTIAL
"5-7 DWELLINGS/ACRE"        B        0.34      0.30     0.500    56
```

```
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
SUBAREA AREA(ACRES) =    0.34      SUBAREA RUNOFF(CFS) =    0.84
EFFECTIVE AREA(ACRES) =      0.90    AREA-AVERAGED Fm(INCH/HR) =  0.15
AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.50
TOTAL AREA(ACRES) =        0.9        PEAK FLOW RATE(CFS) =       2.22

END OF SUBAREA STREET FLOW HYDRAULICS:
DEPTH(FEET) = 0.39   HALFSTREET FLOOD WIDTH(FEET) =  15.43
FLOW VELOCITY(FEET/SEC.) =  1.03   DEPTH*VELOCITY(FT*FT/SEC.) =   0.41
LONGEST FLOWPATH FROM NODE     15.00 TO NODE     17.00 =     426.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE     18.00 TO NODE     19.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
ELEVATION DATA: UPSTREAM(FEET) =     87.10  DOWNSTREAM(FEET) =     86.30

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.848
*  25 YEAR RAINFALL INTENSITY(INCH/HR) =  4.415
SUBAREA Tc AND LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
RESIDENTIAL
"5-7 DWELLINGS/ACRE"        B        0.02      0.30     0.500    56    5.85
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
SUBAREA RUNOFF(CFS) =       0.08
TOTAL AREA(ACRES) =       0.02   PEAK FLOW RATE(CFS) =       0.08

****************************************************************************
FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =   137.00
ELEVATION DATA: UPSTREAM(FEET) =     88.10  DOWNSTREAM(FEET) =     86.10

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.483
*  25 YEAR RAINFALL INTENSITY(INCH/HR) =  4.164
SUBAREA Tc AND LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
RESIDENTIAL
"5-7 DWELLINGS/ACRE"        B        0.05      0.30     0.500    56    6.48
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
SUBAREA RUNOFF(CFS) =       0.18
TOTAL AREA(ACRES) =       0.05   PEAK FLOW RATE(CFS) =       0.18
============================================================================
END OF STUDY SUMMARY:
TOTAL AREA(ACRES)      =        0.1  TC(MIN.) =       6.48
EFFECTIVE AREA(ACRES) =       0.05  AREA-AVERAGED Fm(INCH/HR)=  0.15
AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 0.500
PEAK FLOW RATE(CFS)    =       0.18
============================================================================
============================================================================
```

END OF RATIONAL METHOD ANALYSIS

```
****************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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            Ver. 19.0  Release Date: 06/01/2012  License ID 1355

                          Analysis prepared by:

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                               (949) 586-5200

 ************************** DESCRIPTION OF STUDY **************************
* Costa Mesa, Ford Road                                                    *
* Existing Condition                                                       *
* 100 Year Storm Event                                                     *
 ***************************************************************************

  FILE NAME: CMEX.DAT
  TIME/DATE OF STUDY: 10:12 01/14/2018
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    90.00
  ELEVATION DATA: UPSTREAM(FEET) =     89.60  DOWNSTREAM(FEET) =     88.30

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.819
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.180
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  PUBLIC PARK                B        0.04      0.30     0.850    76    6.82
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.850
  SUBAREA RUNOFF(CFS) =      0.18
  TOTAL AREA(ACRES) =      0.04   PEAK FLOW RATE(CFS) =      0.18

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =     89.60  DOWNSTREAM(FEET) =     86.40

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.445
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.298
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        B        0.60      0.30     0.500    76    9.44
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
  SUBAREA RUNOFF(CFS) =      2.24
  TOTAL AREA(ACRES) =      0.60   PEAK FLOW RATE(CFS) =      2.24

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     14.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =   86.40  DOWNSTREAM ELEVATION(FEET) =   86.30
  STREET LENGTH(FEET) =   125.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  10.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.017
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.017

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.65
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.45
    HALFSTREET FLOOD WIDTH(FEET) =   18.95
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    0.83
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.38
  STREET FLOW TRAVEL TIME(MIN.) =   2.50   Tc(MIN.) =   11.94
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.757
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        B        0.25      0.30     0.500    76
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
  SUBAREA AREA(ACRES) =    0.25      SUBAREA RUNOFF(CFS) =    0.81
```

```
EFFECTIVE AREA(ACRES) =      0.85    AREA-AVERAGED Fm(INCH/HR) =  0.15
AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.50
TOTAL AREA(ACRES) =        0.9        PEAK FLOW RATE(CFS) =       2.76

END OF SUBAREA STREET FLOW HYDRAULICS:
DEPTH(FEET) = 0.46   HALFSTREET FLOOD WIDTH(FEET) =  19.26
FLOW VELOCITY(FEET/SEC.) =  0.84   DEPTH*VELOCITY(FT*FT/SEC.) =   0.39
LONGEST FLOWPATH FROM NODE     12.00 TO NODE     14.00 =     425.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE     15.00 TO NODE     16.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
ELEVATION DATA: UPSTREAM(FEET) =     88.40  DOWNSTREAM(FEET) =     86.30

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.275
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.095
SUBAREA Tc AND LOSS RATE DATA(AMC III):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
RESIDENTIAL
"5-7 DWELLINGS/ACRE"        B        0.56      0.30     0.500    76   10.27
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
SUBAREA RUNOFF(CFS) =       1.99
TOTAL AREA(ACRES) =       0.56   PEAK FLOW RATE(CFS) =      1.99

****************************************************************************
FLOW PROCESS FROM NODE     16.00 TO NODE     17.00 IS CODE =  61
----------------------------------------------------------------------------
>>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
UPSTREAM ELEVATION(FEET) =   86.30  DOWNSTREAM ELEVATION(FEET) =   86.10
STREET LENGTH(FEET) =   126.00   CURB HEIGHT(INCHES) =  6.0
STREET HALFWIDTH(FEET) = 20.00

DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  10.00
INSIDE STREET CROSSFALL(DECIMAL) =  0.017
OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.017

SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

  **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.53
  STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
  STREET FLOW DEPTH(FEET) =  0.41
  HALFSTREET FLOOD WIDTH(FEET) =   16.21
  AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.08
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.44
STREET FLOW TRAVEL TIME(MIN.) =   1.95   Tc(MIN.) =   12.23
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.706
SUBAREA LOSS RATE DATA(AMC III):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
RESIDENTIAL
"5-7 DWELLINGS/ACRE"        B        0.34      0.30     0.500    76
```

```
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
  SUBAREA AREA(ACRES) =    0.34      SUBAREA RUNOFF(CFS) =    1.09
  EFFECTIVE AREA(ACRES) =      0.90    AREA-AVERAGED Fm(INCH/HR) =  0.15
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.50
  TOTAL AREA(ACRES) =        0.9        PEAK FLOW RATE(CFS) =       2.88

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.42   HALFSTREET FLOOD WIDTH(FEET) =  17.07
  FLOW VELOCITY(FEET/SEC.) =  1.11   DEPTH*VELOCITY(FT*FT/SEC.) =   0.47
  LONGEST FLOWPATH FROM NODE     15.00 TO NODE     17.00 =     426.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     18.00 TO NODE     19.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
  ELEVATION DATA: UPSTREAM(FEET) =     87.10  DOWNSTREAM(FEET) =     86.30

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.848
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.656
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA       Fp          Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        B        0.02      0.30      0.500    76    5.85
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
  SUBAREA RUNOFF(CFS) =       0.10
  TOTAL AREA(ACRES) =       0.02   PEAK FLOW RATE(CFS) =       0.10

****************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   137.00
  ELEVATION DATA: UPSTREAM(FEET) =     88.10  DOWNSTREAM(FEET) =     86.10

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.483
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.332
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA       Fp          Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"        B        0.05      0.30      0.500    76    6.48
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
  SUBAREA RUNOFF(CFS) =       0.23
  TOTAL AREA(ACRES) =       0.05   PEAK FLOW RATE(CFS) =       0.23
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)      =        0.1  TC(MIN.) =       6.48
  EFFECTIVE AREA(ACRES) =       0.05  AREA-AVERAGED Fm(INCH/HR)=  0.15
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 0.500
  PEAK FLOW RATE(CFS)    =       0.23
============================================================================
============================================================================
```

END OF RATIONAL METHOD ANALYSIS

2. Rational Method Hydrology

Post-Development

10-Year Storm Event
25-Year Storm Event
100-Year Storm Event

```
****************************************************************************
              RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
             (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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              Ver. 21.0  Release Date: 06/01/2014  License ID 1355

                          Analysis prepared by:

                            Alan R. Short, PE
                           25911 Pinewood Lane
                         Laguna Hills, CA  92653
                              (949) 586-5200

 ************************** DESCRIPTION OF STUDY **************************
* Ford Road, Costa Mesa                                                    *
* Proposed Condition                                                       *
* 10-Year Storm Event                                                      *
 ****************************************************************************

  FILE NAME: CM.DAT
  TIME/DATE OF STUDY: 10:43 01/14/2018
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   185.00
  ELEVATION DATA: UPSTREAM(FEET) =     91.00  DOWNSTREAM(FEET) =     87.30

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.929
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.682
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK            B        0.30      0.30     0.250    56    5.93
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      0.97
  TOTAL AREA(ACRES) =      0.30   PEAK FLOW RATE(CFS) =      0.97

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =   87.30  DOWNSTREAM ELEVATION(FEET) =   85.90
  STREET LENGTH(FEET) =   262.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   5.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.017
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.017

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.73
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.31
    HALFSTREET FLOOD WIDTH(FEET) =   10.79
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.56
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.49
  STREET FLOW TRAVEL TIME(MIN.) =   2.81   Tc(MIN.) =    8.74
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.948
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  MOBILE HOME PARK            B        0.58      0.30     0.250    56
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA AREA(ACRES) =    0.58      SUBAREA RUNOFF(CFS) =    1.50
  EFFECTIVE AREA(ACRES) =      0.88    AREA-AVERAGED Fm(INCH/HR) =  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.25
  TOTAL AREA(ACRES) =        0.9        PEAK FLOW RATE(CFS) =       2.28

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.33   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  1.65   DEPTH*VELOCITY(FT*FT/SEC.) =   0.55
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     447.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   155.00
  ELEVATION DATA: UPSTREAM(FEET) =     90.50  DOWNSTREAM(FEET) =     87.20

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.456
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.862
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
```

```
     LAND USE              GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  MOBILE HOME PARK           B        0.24       0.30      0.250    56    5.46
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      0.82
  TOTAL AREA(ACRES) =      0.24   PEAK FLOW RATE(CFS) =      0.82

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    105.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =   87.20  DOWNSTREAM ELEVATION(FEET) =   85.90
  STREET LENGTH(FEET) =   269.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   5.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.017
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.017

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.76
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.32
    HALFSTREET FLOOD WIDTH(FEET) =   11.10
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.51
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.48
  STREET FLOW TRAVEL TIME(MIN.) =   2.98   Tc(MIN.) =    8.43
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.009
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE              GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  MOBILE HOME PARK           B        0.71       0.30      0.250    56
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA AREA(ACRES) =    0.71      SUBAREA RUNOFF(CFS) =    1.87
  EFFECTIVE AREA(ACRES) =      0.95    AREA-AVERAGED Fm(INCH/HR) =  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.25
  TOTAL AREA(ACRES) =        0.9        PEAK FLOW RATE(CFS) =       2.51

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.33   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  1.57   DEPTH*VELOCITY(FT*FT/SEC.) =   0.53
  LONGEST FLOWPATH FROM NODE    103.00 TO NODE    105.00 =     424.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)      =        0.9  TC(MIN.) =      8.43
  EFFECTIVE AREA(ACRES) =      0.95  AREA-AVERAGED Fm(INCH/HR)=  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)    =       2.51
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
****************************************************************************
              RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
             (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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                          Analysis prepared by:

                            Alan R. Short, PE
                           25911 Pinewood Lane
                         Laguna Hills, CA  92653
                              (949) 586-5200

 ************************** DESCRIPTION OF STUDY **************************
* Ford Road, Costa Mesa                                                    *
* Proposed Condition                                                       *
* 25-Year Storm Event                                                      *
 ****************************************************************************

  FILE NAME: CM.DAT
  TIME/DATE OF STUDY: 10:45 01/14/2018
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   185.00
  ELEVATION DATA: UPSTREAM(FEET) =     91.00  DOWNSTREAM(FEET) =     87.30

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.929
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  4.380
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK            B        0.30      0.30     0.250    56    5.93
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      1.16
  TOTAL AREA(ACRES) =      0.30   PEAK FLOW RATE(CFS) =      1.16

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =   87.30  DOWNSTREAM ELEVATION(FEET) =   85.90
  STREET LENGTH(FEET) =   262.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   5.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.017
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.017

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.07
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.33
    HALFSTREET FLOOD WIDTH(FEET) =   11.65
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.62
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.53
  STREET FLOW TRAVEL TIME(MIN.) =   2.69   Tc(MIN.) =    8.62
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.545
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  MOBILE HOME PARK            B        0.58      0.30     0.250    56
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA AREA(ACRES) =    0.58      SUBAREA RUNOFF(CFS) =    1.81
  EFFECTIVE AREA(ACRES) =      0.88    AREA-AVERAGED Fm(INCH/HR) =  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.25
  TOTAL AREA(ACRES) =        0.9        PEAK FLOW RATE(CFS) =       2.75

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.33   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  1.65   DEPTH*VELOCITY(FT*FT/SEC.) =   0.55
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     447.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   155.00
  ELEVATION DATA: UPSTREAM(FEET) =     90.50  DOWNSTREAM(FEET) =     87.20

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.456
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  4.591
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
```

```
     LAND USE              GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  MOBILE HOME PARK           B        0.24      0.30      0.250    56    5.46
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      0.98
  TOTAL AREA(ACRES) =      0.24   PEAK FLOW RATE(CFS) =      0.98

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    105.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =   87.20  DOWNSTREAM ELEVATION(FEET) =   85.90
  STREET LENGTH(FEET) =   269.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   5.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.017
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.017

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.11
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.33
    HALFSTREET FLOOD WIDTH(FEET) =   11.96
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.58
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.53
  STREET FLOW TRAVEL TIME(MIN.) =   2.85   Tc(MIN.) =    8.30
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.621
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE              GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  MOBILE HOME PARK           B        0.71      0.30      0.250    56
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA AREA(ACRES) =    0.71      SUBAREA RUNOFF(CFS) =    2.27
  EFFECTIVE AREA(ACRES) =      0.95    AREA-AVERAGED Fm(INCH/HR) =  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.25
  TOTAL AREA(ACRES) =        0.9        PEAK FLOW RATE(CFS) =       3.03

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.33   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  1.57   DEPTH*VELOCITY(FT*FT/SEC.) =   0.53
  LONGEST FLOWPATH FROM NODE    103.00 TO NODE    105.00 =     424.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)      =        0.9  TC(MIN.) =      8.30
  EFFECTIVE AREA(ACRES) =      0.95  AREA-AVERAGED Fm(INCH/HR)=  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)    =       3.03
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
****************************************************************************
              RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
             (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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              Ver. 21.0  Release Date: 06/01/2014  License ID 1355

                          Analysis prepared by:

                            Alan R. Short, PE
                           25911 Pinewood Lane
                         Laguna Hills, CA  92653
                              (949) 586-5200

 ************************** DESCRIPTION OF STUDY **************************
* Ford Road, Costa Mesa                                                    *
* Proposed Condition                                                       *
* 100-Year Storm Event                                                     *
 ****************************************************************************

  FILE NAME: CM.DAT
  TIME/DATE OF STUDY: 10:47 01/14/2018
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   185.00
  ELEVATION DATA: UPSTREAM(FEET) =     91.00  DOWNSTREAM(FEET) =     87.30

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.929
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.612
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK            B        0.30      0.30     0.250    76    5.93
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      1.49
  TOTAL AREA(ACRES) =      0.30   PEAK FLOW RATE(CFS) =      1.49

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =   87.30  DOWNSTREAM ELEVATION(FEET) =   85.90
  STREET LENGTH(FEET) =   262.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 12.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   5.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.017
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.017

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.66
    ***STREET FLOW SPLITS OVER STREET-CROWN***
    FULL DEPTH(FEET) =    0.33   FLOOD WIDTH(FEET) =   12.00
    FULL HALF-STREET VELOCITY(FEET/SEC.) =    1.65
    SPLIT DEPTH(FEET) =    0.22   SPLIT FLOOD WIDTH(FEET) =    5.50
    SPLIT FLOW(CFS) =    0.44   SPLIT VELOCITY(FEET/SEC.) =    1.17
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.33
    HALFSTREET FLOOD WIDTH(FEET) =   12.00
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.65
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.55
  STREET FLOW TRAVEL TIME(MIN.) =   2.65   Tc(MIN.) =    8.58
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.542
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  MOBILE HOME PARK            B        0.58      0.30     0.250    76
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA AREA(ACRES) =    0.58      SUBAREA RUNOFF(CFS) =    2.33
  EFFECTIVE AREA(ACRES) =      0.88    AREA-AVERAGED Fm(INCH/HR) =  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.25
  TOTAL AREA(ACRES) =        0.9        PEAK FLOW RATE(CFS) =       3.54

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.33   HALFSTREET FLOOD WIDTH(FEET) =  12.00
  FLOW VELOCITY(FEET/SEC.) =  1.65   DEPTH*VELOCITY(FT*FT/SEC.) =   0.55
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     447.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   155.00
  ELEVATION DATA: UPSTREAM(FEET) =     90.50  DOWNSTREAM(FEET) =     87.20
```

```
Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.456
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.886
SUBAREA Tc AND LOSS RATE DATA(AMC III):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
MOBILE HOME PARK            B        0.24      0.30     0.250    76    5.46
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
SUBAREA RUNOFF(CFS) =       1.26
TOTAL AREA(ACRES) =       0.24   PEAK FLOW RATE(CFS) =       1.26

****************************************************************************
FLOW PROCESS FROM NODE    104.00 TO NODE    105.00 IS CODE =  61
----------------------------------------------------------------------------
>>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
UPSTREAM ELEVATION(FEET) =   87.20  DOWNSTREAM ELEVATION(FEET) =   85.90
STREET LENGTH(FEET) =   269.00   CURB HEIGHT(INCHES) =  6.0
STREET HALFWIDTH(FEET) = 12.00

DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =   5.00
INSIDE STREET CROSSFALL(DECIMAL) =  0.017
OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.017

SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

  **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.71
  ***STREET FLOW SPLITS OVER STREET-CROWN***
  FULL DEPTH(FEET) =    0.33   FLOOD WIDTH(FEET) =   12.00
  FULL HALF-STREET VELOCITY(FEET/SEC.) =    1.57
  SPLIT DEPTH(FEET) =    0.24   SPLIT FLOOD WIDTH(FEET) =    6.70
  SPLIT FLOW(CFS) =    0.60   SPLIT VELOCITY(FEET/SEC.) =    1.19
  STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
  STREET FLOW DEPTH(FEET) =  0.33
  HALFSTREET FLOOD WIDTH(FEET) =   12.00
  AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.57
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.53
STREET FLOW TRAVEL TIME(MIN.) =   2.86   Tc(MIN.) =    8.31
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.624
SUBAREA LOSS RATE DATA(AMC III):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
MOBILE HOME PARK            B        0.71      0.30     0.250    76
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
SUBAREA AREA(ACRES) =    0.71      SUBAREA RUNOFF(CFS) =    2.91
EFFECTIVE AREA(ACRES) =      0.95    AREA-AVERAGED Fm(INCH/HR) =  0.08
AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.25
TOTAL AREA(ACRES) =        0.9        PEAK FLOW RATE(CFS) =       3.89

END OF SUBAREA STREET FLOW HYDRAULICS:
DEPTH(FEET) = 0.33   HALFSTREET FLOOD WIDTH(FEET) =  12.00
FLOW VELOCITY(FEET/SEC.) =  1.57   DEPTH*VELOCITY(FT*FT/SEC.) =   0.53
LONGEST FLOWPATH FROM NODE    103.00 TO NODE    105.00 =     424.00 FEET.
============================================================================
END OF STUDY SUMMARY:
TOTAL AREA(ACRES)      =        0.9  TC(MIN.) =      8.31
EFFECTIVE AREA(ACRES) =      0.95  AREA-AVERAGED Fm(INCH/HR)=  0.08
```

```
AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 0.250
PEAK FLOW RATE(CFS)   =       3.89
==============================================================================
==============================================================================
END OF RATIONAL METHOD ANALYSIS
```

3. Stormwater Quality Design Flow Calculations

Worksheet D: Capture Efficiency Method for Flow-Based BMPs AREA: NODE (100) TO (102)

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=	9.12	Min.
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=	0.23	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}=	0.23	in/hr
Step 2: Calculate the design flowrate				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	0.88	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.74	
3	Calculate runoff coefficient, $C= (0.75 \times imp) + 0.15$	C=	0.71	
4	Calculate design flowrate, $Q_{design}= (C \times i_{design} \times A)$	Q_{design}=	0.14	cfs
Supporting Calculations				
Describe system:				
Provide time of concentration assumptions: OC Hydrology Manual is used for Tc. (2-Yr. Storm Event)				

Worksheet D: Capture Efficiency Method for Flow-Based BMPs

AREA: NODE 103 to 105

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=	8.39	Min
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=	0.23	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}=	0.23	
Step 2: Calculate the design flowrate				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	0.95	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.74	
3	Calculate runoff coefficient, $C= (0.75 \times imp) + 0.15$	C=	0.71	
4	Calculate design flowrate, $Q_{design}= (C \times i_{design} \times A)$	Q_{design}=	0.16	cfs
Supporting Calculations				
Describe system:				
Provide time of concentration assumptions: OC Hydrology Manual is used for TC (2-Yr Storm Event)				

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25911 Pinewood Lane
Laguna Hills, CA 92653
(714) 586-5200
FAX (714) 586-5200

Project: _____
By: _____ Date: _____

USING SIMPLE METHOD RUNOFF COEFF.
FOR VOLUME BASED BMP SIZING

$V = C \times d \times A \times 43560 \times 1/12$ (ft.^{3})
$C = (0.75 \times IMP + 0.15)$

AREA: NODE 100 to 102

IMP. = 73.6%
$C = (0.75 \times 0.74 + 0.15) = 0.71$
A = 0.88 Ac.
USING EXHIBIT XVI.1 => d = 0.73
$V = 0.71 \times 0.73 \times 0.88 \times 43560 \times 1/12$

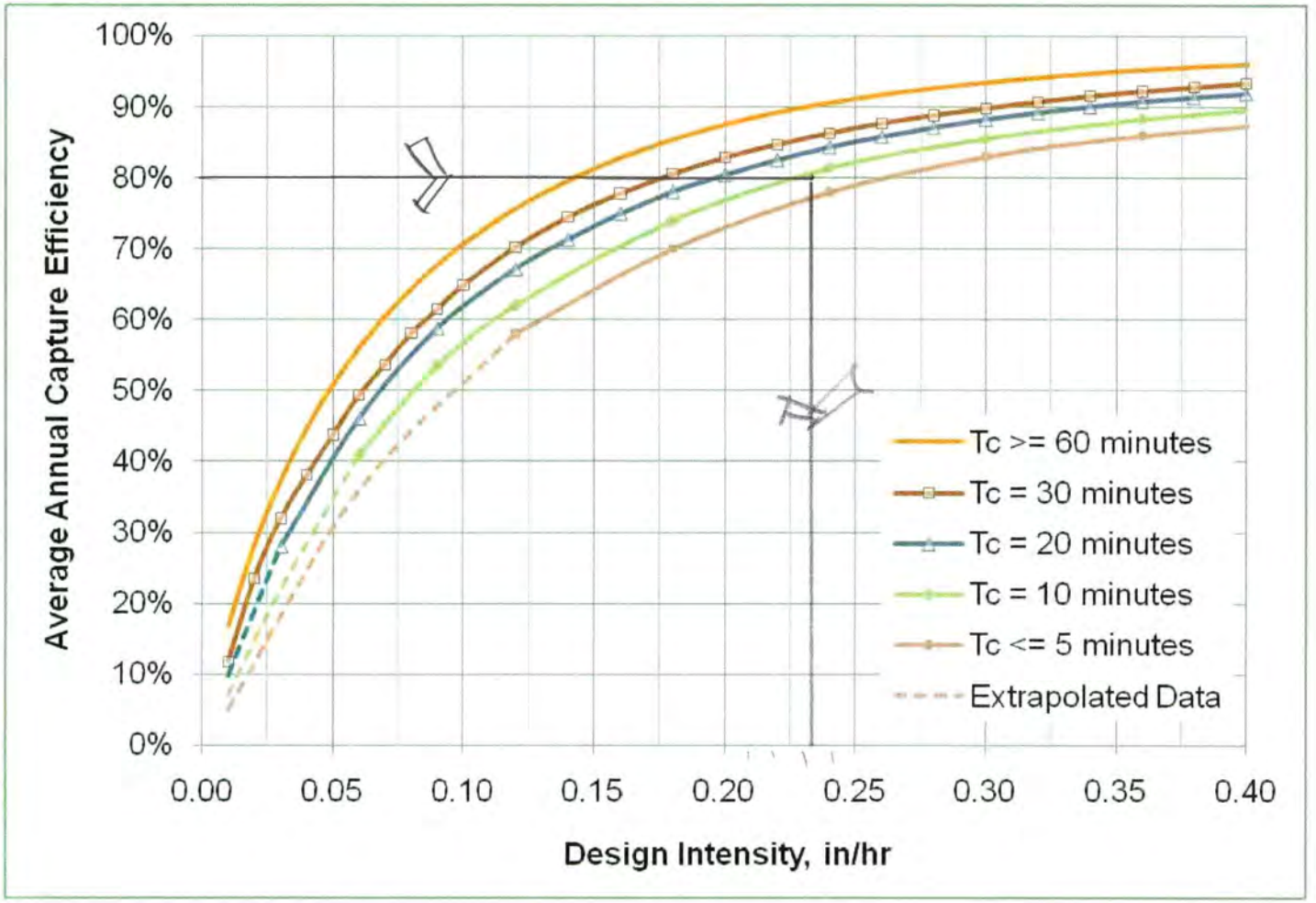
V = 1,656 ft.^{3}

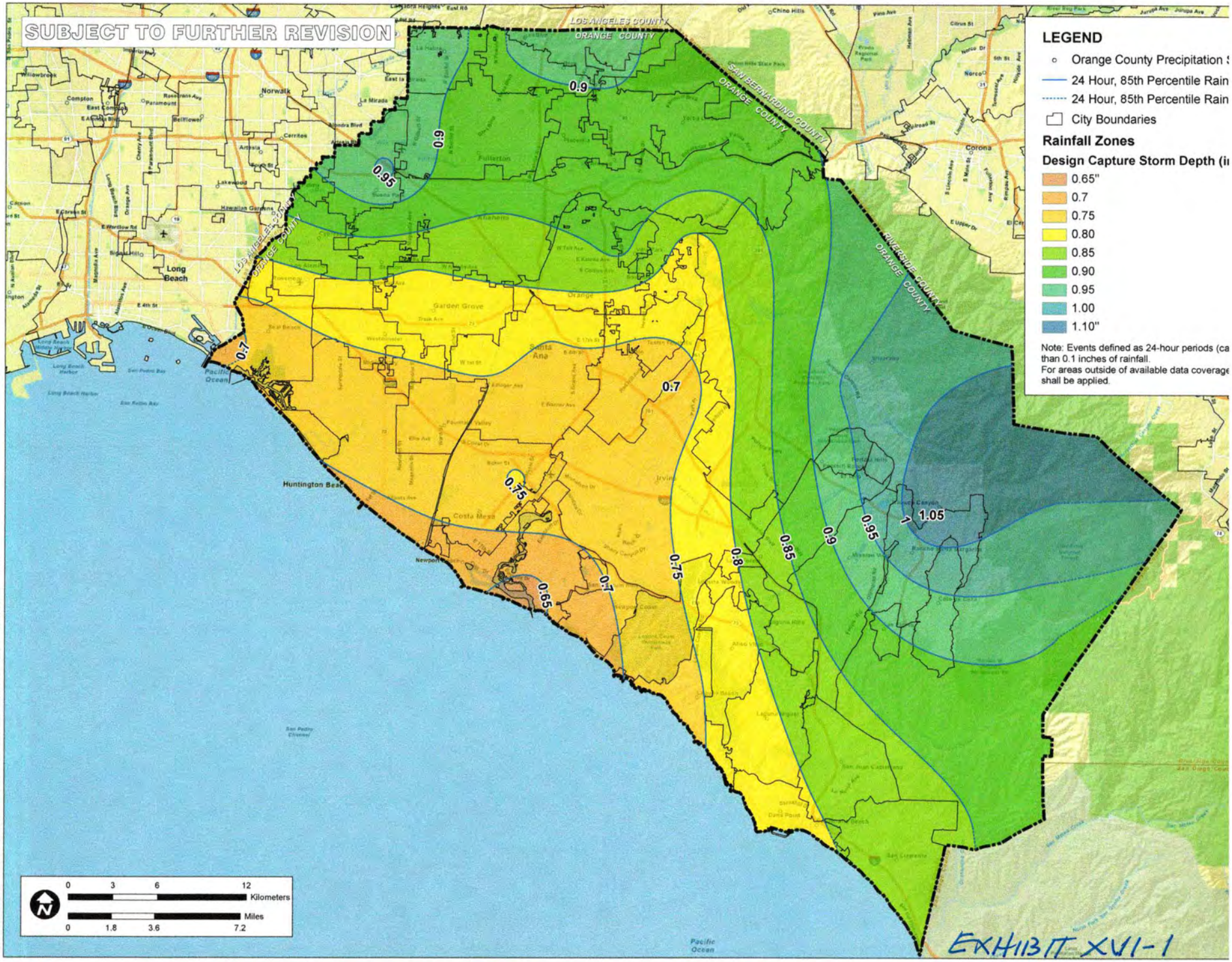
AREA: NODE 103 to 105

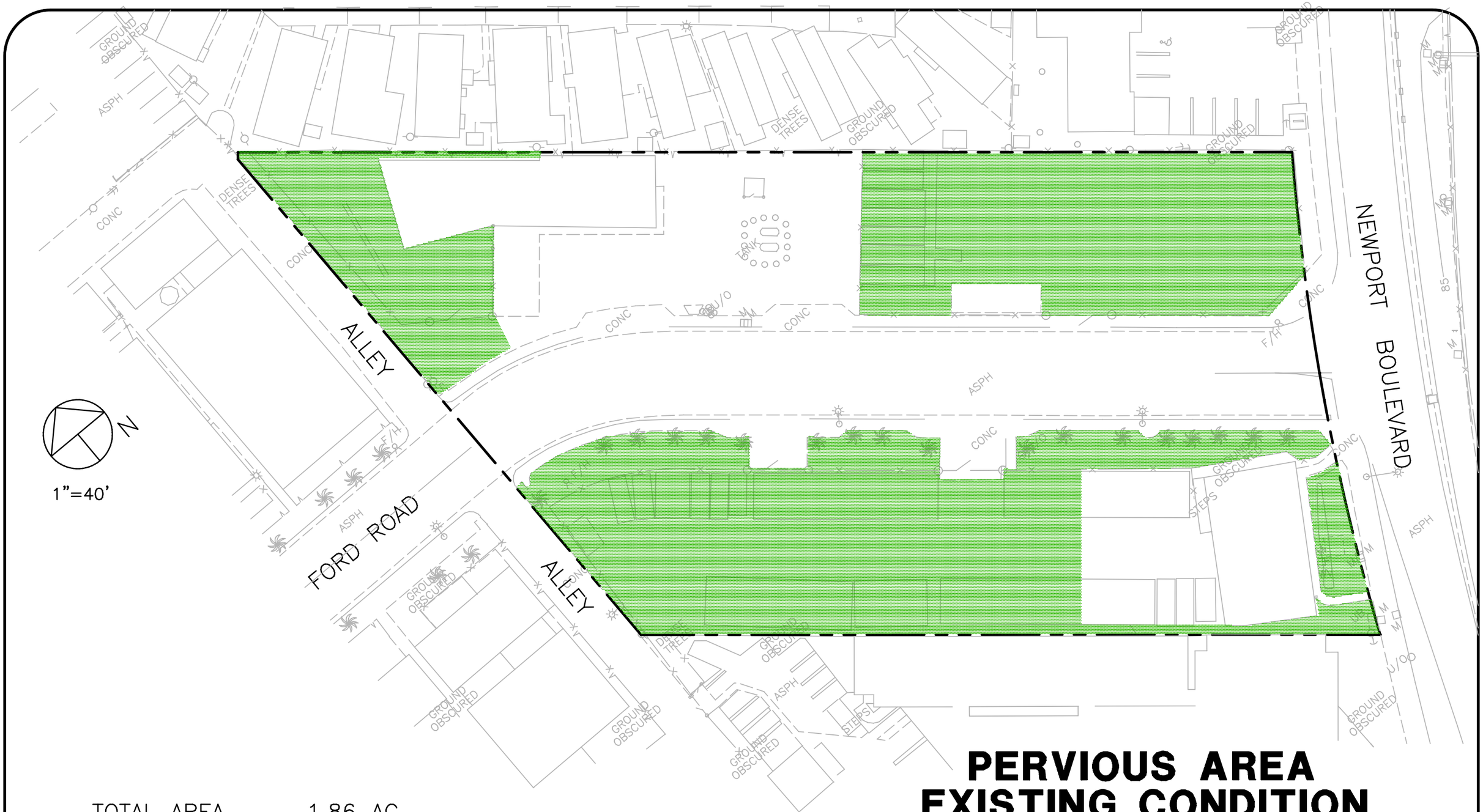
IMP. = 73.6%
$C = (0.75 \times 0.74) + 0.15 = 0.71$
A = 0.95 Ac.
USING EXHIBIT XVI.1 => d = 0.73
$V = 0.71 \times 0.73 \times 0.95 \times 43560 \times 1/12$

V = 1,787 ft.^{3}

Figure III.4. Capture Efficiency Nomograph for Off-line Flow-based Systems in Orange County



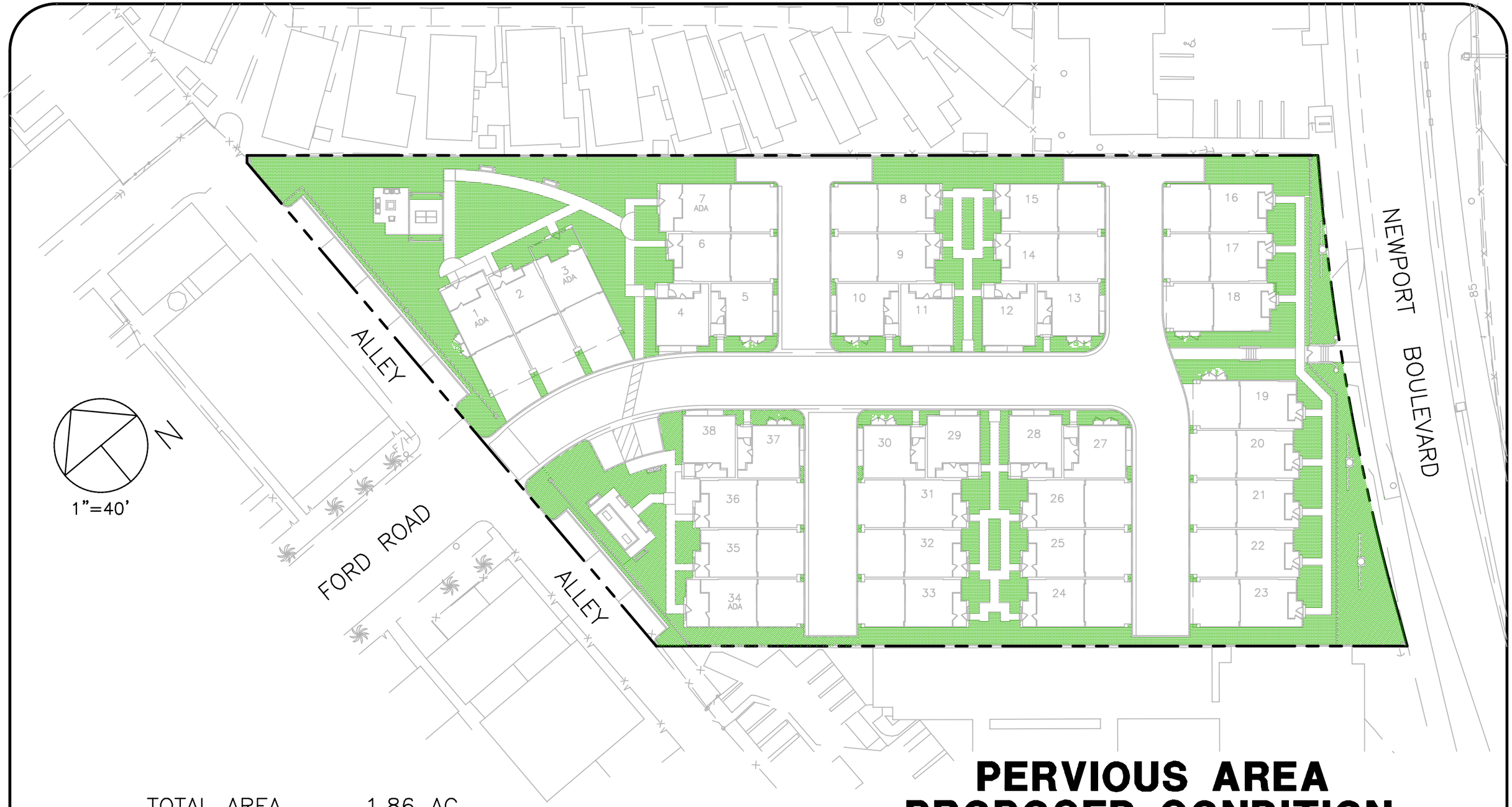

SUBJECT TO FURTHER REVISION
LEGEND
Orange County Precipitation S
24 Hour, 85th Percentile Rain
24 Hour, 85th Percentile Rain
City Boundaries
Rainfall Zones
Design Capture Storm Depth (i
0.65"
0.7
0.75
0.80
0.85
0.90
0.95
1.00
1.10"
Note: Events defined as 24-hour periods (ca
than 0.1 inches of rainfall.
For areas outside of available data coverage
shall be applied.
LOS ANGELES COUNTY
ORANGE COUNTY
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
Pacific Ocean
Huntington Beac
Newport
Long Beach
Norwalk
Fullerton
Garden Grove
Santa Ana
Irvine
Costa Mesa
Corona
Norco
0.9
0.95
0.7
0.75
0.65
0.8
0.85
1
1.05
0
3
6
12
Kilometers
Miles
1.8
3.6
7.2
EXHIBIT XVI-1
P:\9526E\6-GIS\Maps\Reports\InfiltrationFeasibility_20110215\9526E_FigureXVI-1_RainfallZones_20110215.mxd



TOTAL AREA	1.86	AC
PERVIOUS AREA	0.82	AC
% PERVIOUS	46.0	%
% IMPERVIOUS	54.0	%

PERVIOUS AREA
EXISTING CONDITION
TENTATIVE TRACT NO. 18156
COSTA MESA

LATEST REVISION: 1/22/18



TOTAL AREA	1.86	AC
PERVIOUS AREA	0.49	AC
% PERVIOUS	26.4	%
% IMPERVIOUS	73.6	%

PERVIOUS AREA
PROPOSED CONDITION
TENTATIVE TRACT NO. 18156
COSTA MESA

LATEST REVISION: 1/22/18

4. Detention Volume Calculatoins

****

NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS

==========

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Analysis prepared by:

Alan Short
25911 Pinewood Lane
Laguna Hills, CA 92653
(949) 586-5200

****

Problem Descriptions:
Low Loss Rate Calculations for Proposed Condition
25-Year Storm Event

==========

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
AND LOW LOSS FRACTION ESTIMATIONS FOR AMC II:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 4.49 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	1.86	26.40	56.	0.300	0.744

TOTAL AREA (Acres) = 1.86

AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.079

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.256

==========

```
****************************************************************************
                 SMALL AREA UNIT HYDROGRAPH MODEL
============================================================================
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        Ver. 19.0  Release Date: 06/01/2012  License ID 1355

                    Analysis prepared by:

                        Alan Short
                    25911 Pinewood Lane
                   Laguna Hills, CA 92653
                      (949) 586-5200

****************************************************************************
----------------------------------------------------------------------

 Problem Descriptions:
  Post-Development Small Unite Hydrograph Method
  25-Year Storm Event

----------------------------------------------------------------------


   RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
   TOTAL CATCHMENT AREA(ACRES) =    1.86
   SOIL-LOSS RATE, Fm,(INCH/HR) =  0.079
   LOW LOSS FRACTION = 0.256
   TIME OF CONCENTRATION(MIN.) =  8.30
   SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
   ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED
   RETURN FREQUENCY(YEARS) =  25
     5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.40
    30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.87
     1-HOUR   POINT RAINFALL VALUE(INCHES) =  1.15
     3-HOUR   POINT RAINFALL VALUE(INCHES) =  1.94
     6-HOUR   POINT RAINFALL VALUE(INCHES) =  2.71
    24-HOUR   POINT RAINFALL VALUE(INCHES) =  4.49

----------------------------------------------------------------------

   TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.50
   TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.20

****************************************************************************
  TIME    VOLUME      Q  0.      2.5      5.0      7.5      10.0
 (HOURS)   (AF)     (CFS)
----------------------------------------------------------------------
  0.09    0.0003    0.08 Q      .        .        .        .
  0.23    0.0013    0.09 Q      .        .        .        .
  0.37    0.0023    0.09 Q      .        .        .        .
  0.51    0.0033    0.09 Q      .        .        .        .
  0.64    0.0042    0.09 Q      .        .        .        .
  0.78    0.0052    0.09 Q      .        .        .        .
  0.92    0.0062    0.09 Q      .        .        .        .
  1.06    0.0072    0.09 Q      .        .        .        .
  1.20    0.0083    0.09 Q      .        .        .        .
```

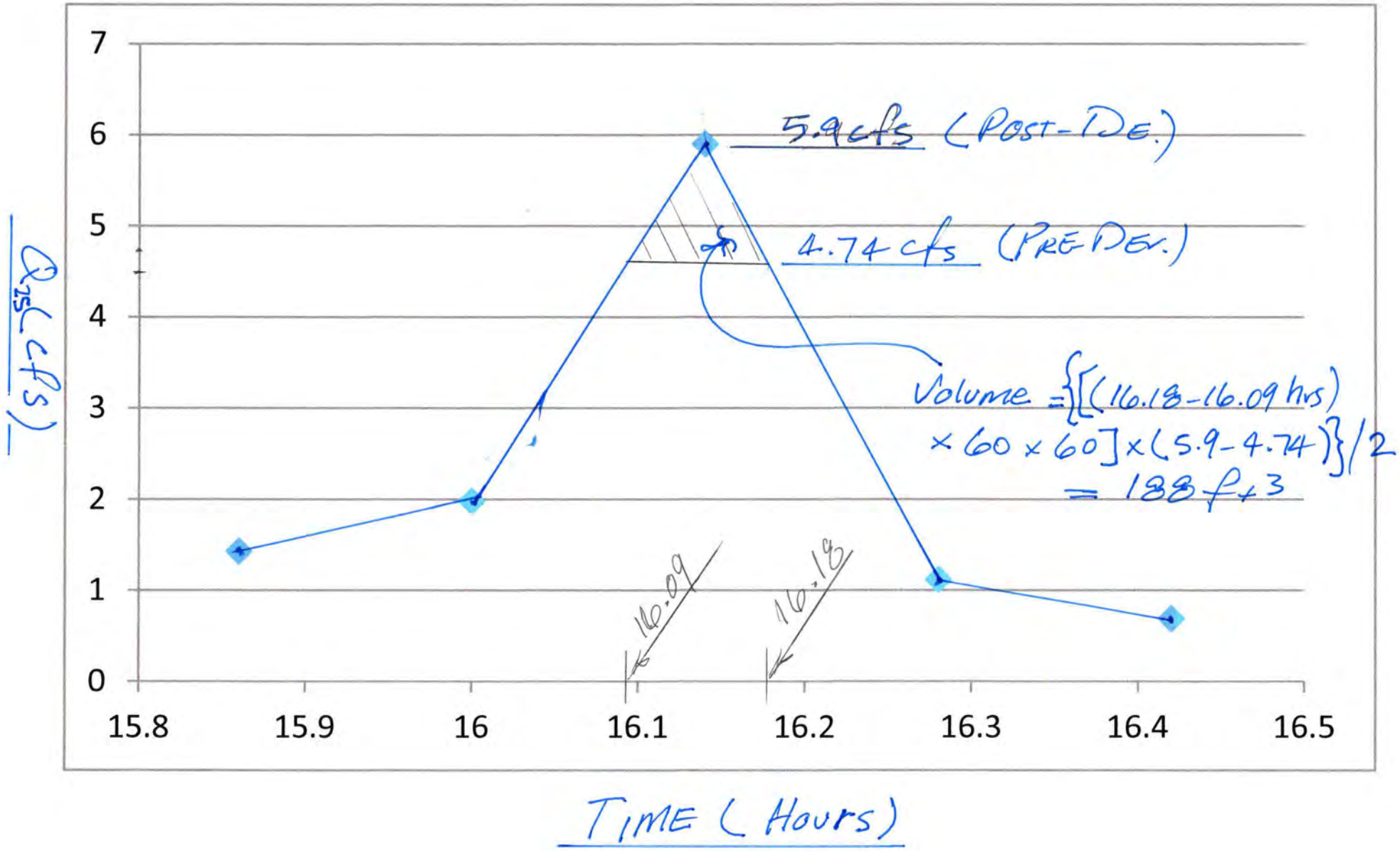
1.34	0.0093	0.09	Q	.	.	.	.
1.47	0.0103	0.09	Q	.	.	.	.
1.61	0.0113	0.09	Q	.	.	.	.
1.75	0.0124	0.09	Q	.	.	.	.
1.89	0.0134	0.09	Q	.	.	.	.
2.03	0.0145	0.09	Q	.	.	.	.
2.17	0.0155	0.09	Q	.	.	.	.
2.30	0.0166	0.09	Q	.	.	.	.
2.44	0.0176	0.09	Q	.	.	.	.
2.58	0.0187	0.09	Q	.	.	.	.
2.72	0.0198	0.09	Q	.	.	.	.
2.86	0.0209	0.10	Q	.	.	.	.
3.00	0.0220	0.10	Q	.	.	.	.
3.13	0.0231	0.10	Q	.	.	.	.
3.27	0.0242	0.10	Q	.	.	.	.
3.41	0.0253	0.10	Q	.	.	.	.
3.55	0.0264	0.10	Q	.	.	.	.
3.69	0.0276	0.10	Q	.	.	.	.
3.83	0.0287	0.10	Q	.	.	.	.
3.96	0.0299	0.10	Q	.	.	.	.
4.10	0.0310	0.10	Q	.	.	.	.
4.24	0.0322	0.10	Q	.	.	.	.
4.38	0.0334	0.10	Q	.	.	.	.
4.52	0.0346	0.10	Q	.	.	.	.
4.66	0.0358	0.10	Q	.	.	.	.
4.79	0.0370	0.11	Q	.	.	.	.
4.93	0.0382	0.11	Q	.	.	.	.
5.07	0.0394	0.11	Q	.	.	.	.
5.21	0.0406	0.11	Q	.	.	.	.
5.35	0.0419	0.11	Q	.	.	.	.
5.49	0.0431	0.11	Q	.	.	.	.
5.62	0.0444	0.11	Q	.	.	.	.
5.76	0.0457	0.11	Q	.	.	.	.
5.90	0.0470	0.11	Q	.	.	.	.
6.04	0.0483	0.11	Q	.	.	.	.
6.18	0.0496	0.12	Q	.	.	.	.
6.32	0.0509	0.12	Q	.	.	.	.
6.45	0.0522	0.12	Q	.	.	.	.
6.59	0.0536	0.12	Q	.	.	.	.
6.73	0.0549	0.12	Q	.	.	.	.
6.87	0.0563	0.12	Q	.	.	.	.
7.01	0.0577	0.12	Q	.	.	.	.
7.15	0.0591	0.12	Q	.	.	.	.
7.28	0.0605	0.12	Q	.	.	.	.
7.42	0.0619	0.12	Q	.	.	.	.
7.56	0.0633	0.13	Q	.	.	.	.
7.70	0.0648	0.13	Q	.	.	.	.
7.84	0.0662	0.13	Q	.	.	.	.
7.98	0.0677	0.13	Q	.	.	.	.
8.11	0.0692	0.13	Q	.	.	.	.
8.25	0.0707	0.13	Q	.	.	.	.
8.39	0.0723	0.14	Q	.	.	.	.
8.53	0.0738	0.14	Q	.	.	.	.
8.67	0.0754	0.14	Q	.	.	.	.
8.81	0.0770	0.14	Q	.	.	.	.
8.95	0.0786	0.14	Q	.	.	.	.
9.08	0.0802	0.14	Q	.	.	.	.

9.22	0.0819	0.15	Q
9.36	0.0835	0.15	Q
9.50	0.0852	0.15	Q
9.64	0.0869	0.15	Q
9.77	0.0887	0.15	Q
9.91	0.0904	0.15	Q
10.05	0.0922	0.16	Q
10.19	0.0940	0.16	Q
10.33	0.0959	0.16	Q
10.47	0.0977	0.16	Q
10.60	0.0996	0.17	Q
10.74	0.1015	0.17	Q
10.88	0.1035	0.17	Q
11.02	0.1055	0.18	Q
11.16	0.1075	0.18	Q
11.30	0.1096	0.18	Q
11.43	0.1117	0.19	Q
11.57	0.1138	0.19	Q
11.71	0.1160	0.19	Q
11.85	0.1182	0.20	Q
11.99	0.1205	0.20	Q
12.13	0.1230	0.23	Q
12.27	0.1259	0.28	.Q
12.40	0.1291	0.28	.Q
12.54	0.1323	0.29	.Q
12.68	0.1356	0.29	.Q
12.82	0.1390	0.30	.Q
12.96	0.1425	0.31	.Q
13.10	0.1460	0.32	.Q
13.23	0.1497	0.32	.Q
13.37	0.1534	0.33	.Q
13.51	0.1572	0.34	.Q
13.65	0.1611	0.35	.Q
13.79	0.1652	0.36	.Q
13.93	0.1694	0.37	.Q
14.06	0.1737	0.38	.Q
14.20	0.1781	0.40	.Q
14.34	0.1828	0.41	.Q
14.48	0.1877	0.44	.Q
14.62	0.1928	0.46	.Q
14.76	0.1984	0.50	. Q
14.89	0.2043	0.53	. Q
15.03	0.2106	0.59	. Q
15.17	0.2175	0.62	. Q
15.31	0.2252	0.71	. Q
15.45	0.2334	0.73	. Q
15.59	0.2421	0.78	. Q
15.72	0.2517	0.90	. Q
15.86	0.2650	1.43	. Q
16.00	0.2845	1.98	. Q
16.14	0.3296	5.90	. Q
16.28	0.3697	1.12	. Q
16.42	0.3801	0.69	. Q
16.55	0.3879	0.66	. Q
16.69	0.3948	0.56	. Q
16.83	0.4008	0.48	.Q
16.97	0.4060	0.43	.Q

17.11	0.4106	0.39	.Q
17.24	0.4149	0.36	.Q
17.38	0.4190	0.34	.Q
17.52	0.4228	0.33	.Q
17.66	0.4264	0.31	.Q
17.80	0.4299	0.30	.Q
17.94	0.4332	0.28	.Q
18.08	0.4364	0.27	.Q
18.21	0.4391	0.20	Q
18.35	0.4413	0.19	Q
18.49	0.4435	0.18	Q
18.63	0.4456	0.18	Q
18.77	0.4475	0.17	Q
18.91	0.4495	0.17	Q
19.04	0.4513	0.16	Q
19.18	0.4531	0.16	Q
19.32	0.4549	0.15	Q
19.46	0.4566	0.15	Q
19.60	0.4583	0.14	Q
19.73	0.4599	0.14	Q
19.87	0.4615	0.14	Q
20.01	0.4631	0.13	Q
20.15	0.4646	0.13	Q
20.29	0.4661	0.13	Q
20.43	0.4675	0.13	Q
20.57	0.4689	0.12	Q
20.70	0.4703	0.12	Q
20.84	0.4717	0.12	Q
20.98	0.4730	0.12	Q
21.12	0.4744	0.11	Q
21.26	0.4757	0.11	Q
21.39	0.4769	0.11	Q
21.53	0.4782	0.11	Q
21.67	0.4794	0.11	Q
21.81	0.4806	0.11	Q
21.95	0.4818	0.10	Q
22.09	0.4830	0.10	Q
22.23	0.4842	0.10	Q
22.36	0.4853	0.10	Q
22.50	0.4864	0.10	Q
22.64	0.4875	0.10	Q
22.78	0.4886	0.10	Q
22.92	0.4897	0.09	Q
23.06	0.4908	0.09	Q
23.19	0.4918	0.09	Q
23.33	0.4929	0.09	Q
23.47	0.4939	0.09	Q
23.61	0.4949	0.09	Q
23.75	0.4959	0.09	Q
23.89	0.4969	0.09	Q
24.02	0.4979	0.09	Q
24.16	0.4984	0.00	Q

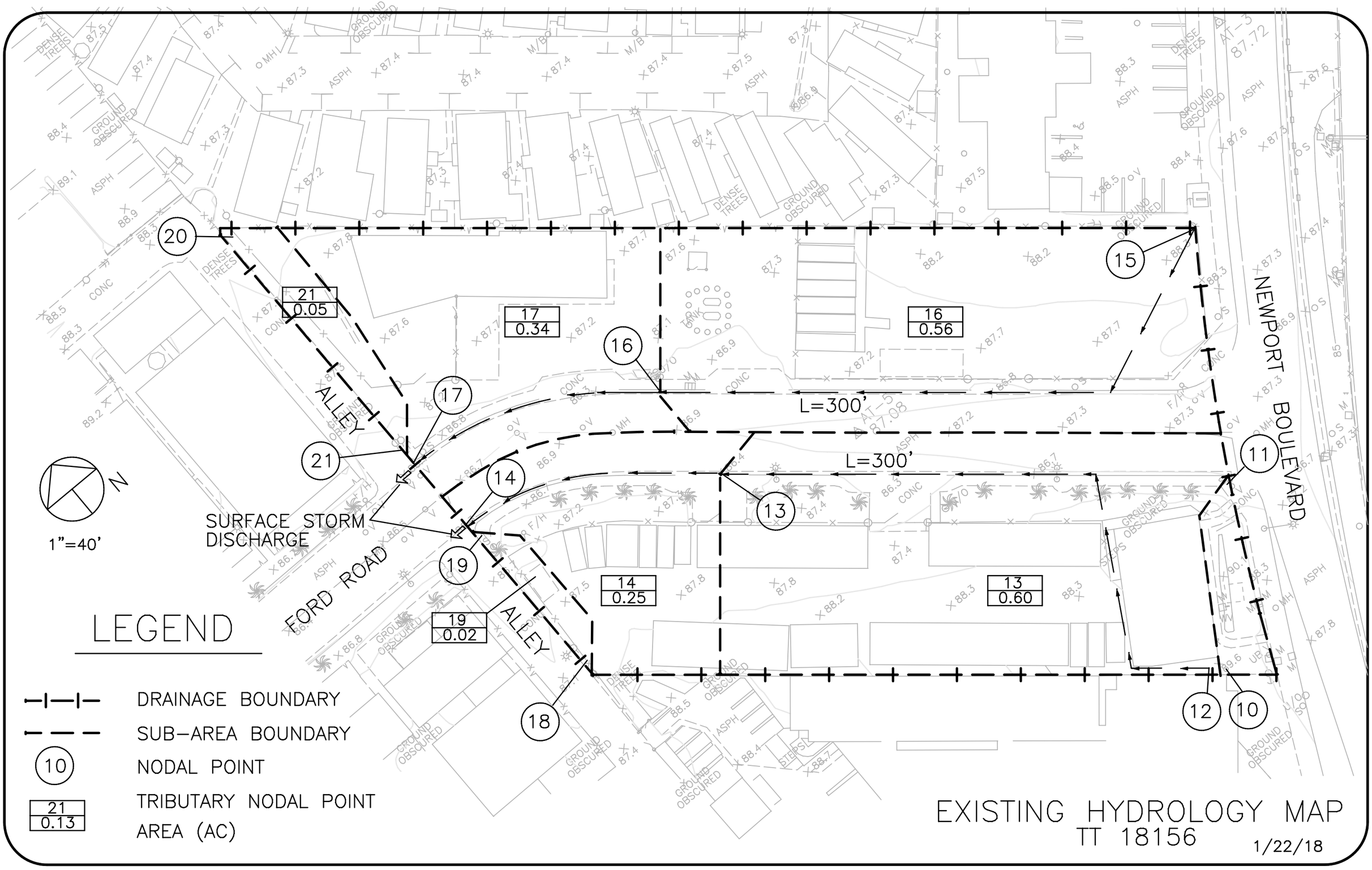
TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

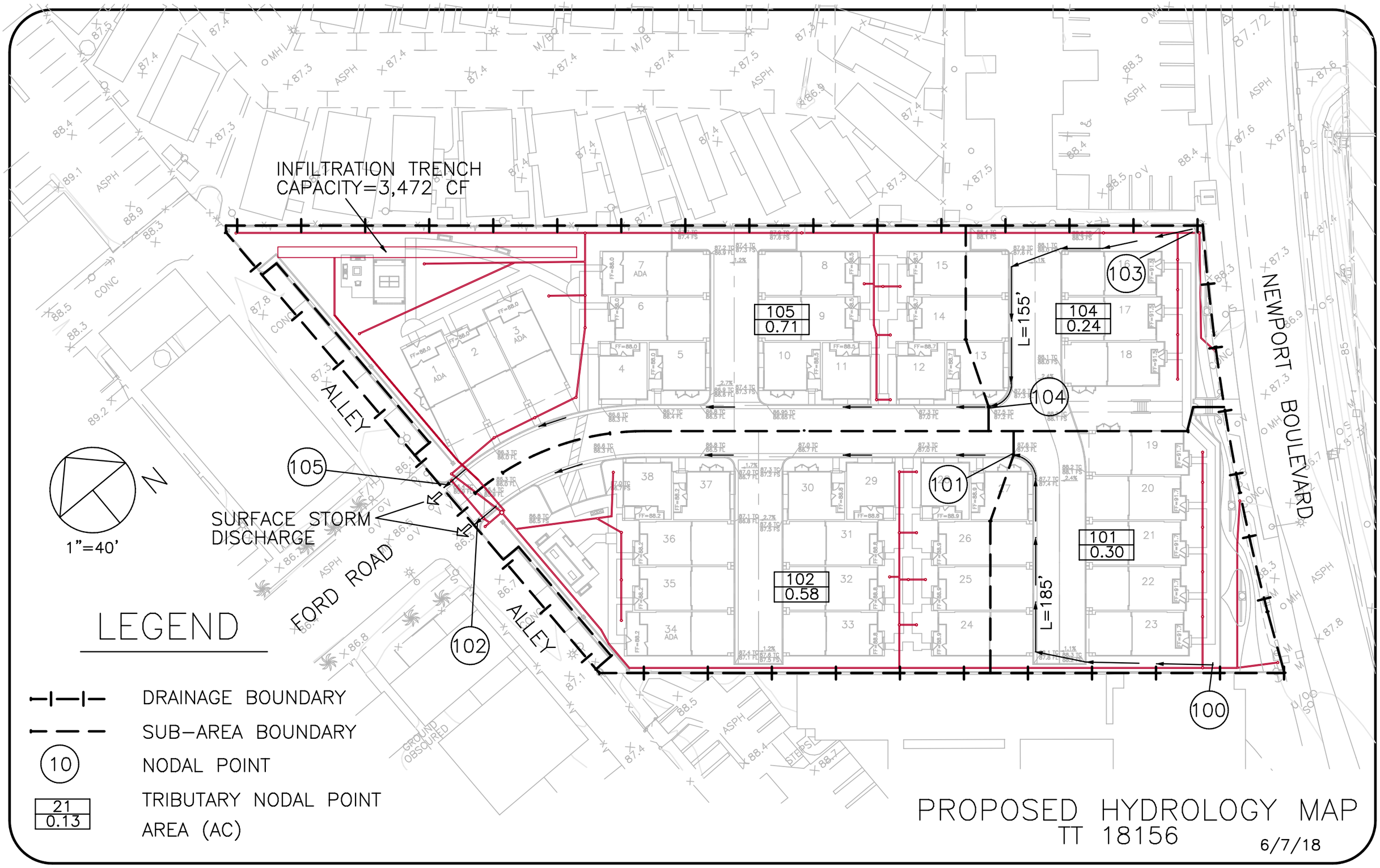
Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1444.2
10%	91.3
20%	24.9
30%	16.6
40%	8.3
50%	8.3
60%	8.3
70%	8.3
80%	8.3
90%	8.3


7
6
5
4
3
2
1
0
15.8
15.9
16
16.1
16.2
16.3
16.4
16.5
5.9 cfs (POST-DEV.)
4.74 cfs (PRE-DEV.)
Volume = {[(16.18-16.09 hrs) × 60 × 60] × (5.9-4.74)}/2
= 188 ft3
16.09
16.18
Q25 (cfs)
TIME (Hours)

5. Appendix

Hydrology Maps


20
15
21
0.05
17
0.34
16
0.56
16
17
L=300'
L=300'
21
14
13
11
SURFACE STORM
DISCHARGE
19
14
0.25
13
0.60
19
0.02
18
12
10
ALLEY
FORD ROAD
ALLEY
NEWPORT BOULEVARD
N
1"=40'
LEGEND
DRAINAGE BOUNDARY
SUB-AREA BOUNDARY
10
NODAL POINT
21
0.13
TRIBUTARY NODAL POINT
AREA (AC)
EXISTING HYDROLOGY MAP
TT 18156
1/22/18


INFILTRATION TRENCH
CAPACITY=3,472 CF
105
0.71
104
0.24
101
0.30
102
0.58
L=155'
L=185'
NEWPORT BOULEVARD
ALLEY
FORD ROAD
SURFACE STORM
DISCHARGE
N
1"=40'
LEGEND
DRAINAGE BOUNDARY
SUB-AREA BOUNDARY
NODAL POINT
TRIBUTARY NODAL POINT
AREA (AC)
PROPOSED HYDROLOGY MAP
TT 18156
6/7/18

Appendix I
Noise Impact Analysis

NOISE IMPACT ANALYSIS

NEWPORT AND FORD RESIDENTIAL

CITY OF COSTA MESA, CA

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Date:

June 22, 2018

Project No.: P17-058 N

NOISE SETTING

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally considered to be unwanted sound. Sound is characterized by various parameters that describe the rate of oscillation of sound waves, the distance between successive troughs or crests, the speed of propagation, and the pressure level or energy content of a given sound. In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level.

Loud or soft, noisy or quiet, high-and-low pitch are all qualitative terms used to describe sound. These terms are relative descriptions. The science of acoustics attempts to quantify the human perception of sound into a quantitative and measurable basis. Amplitude is the measure of the pressure exerted by sound waves. Amplitude may be so small as to be inaudible by humans, or so great as to be painful. Frequency refers to pitch or tone. The unit of measure is in cycles per second called “hertz”. Very low frequency bass tones and ultra-high frequency treble are difficult for humans to detect. Many noise generators in the ambient world are multi-spectral.

The decibel (dB) scale is used to quantify sound pressure levels. Although decibels are most commonly associated with sound, "dB" is a generic descriptor that is equal to ten times the logarithmic ratio of any physical parameter versus some reference quantity. For sound, the reference level is the faintest sound detectable by a young person with good auditory acuity.

Since the human ear is not equally sensitive to all sound frequencies within the entire auditory spectrum, human response is factored into sound descriptions by weighting sounds within the range of maximum human sensitivity more heavily in a process called “A-weighting,” written as dB(A). Any further reference in this discussion to decibels written as "dB" should be understood to be A-weighted.

Leq is a time-averaged sound level; a single-number value that expresses the time-varying sound level for the specified period as though it were a constant sound level with the same total sound energy as the time-varying level. Its unit is the decibel (dB). The most common averaging period for Leq is hourly.

Because community receptors are more sensitive to unwanted noise intrusion during more sensitive evening and nighttime hours, state law requires that an artificial dBA increment be added to quiet time noise levels. The 24-hour noise descriptor with a specified evening and nocturnal penalty is called the Community Noise Equivalent Level (CNEL). CNEL’s are a weighted average of hourly Leq’s.

For “stationary” noise sources operating on private property, the County does have legal authority to establish noise performance standards designed to not adversely impact adjoining uses. These standards are articulated in the Municipal Code.

PLANNING STANDARDS

The State of California has established guidelines for acceptable community noise levels that are based upon the CNEL rating scale to ensure that noise exposure is considered in any development, as shown in Table 1. CNEL-based standards apply to noise sources whose noise generation is preempted from local control (such as from on-road vehicles, trains, airplanes, etc.) and are used to make land use decisions as to the suitability of a given site for its intended use. These CNEL-based standards are articulated in the Noise Element of the General Plan. Local jurisdictions generally regulate the level of non-transportation noise that one use may impose upon another through a Noise Ordinance.

The Costa Mesa General Plan Noise Element provides exterior noise compatibilities for most land uses. As shown in Table 1, a noise exposure of 65 dB CNEL is the exterior noise-land use compatibility guideline for usable space (balconies, patios, etc.), for multi-family dwelling units. Levels of up to 70 dB CNEL are "conditionally acceptable" after an analysis of noise reduction is made.

NOISE ORDINANCE STANDARDS

The City of Costa Mesa Noise Ordinance regulates the allowable noise level crossing a shared property line for exterior areas (Section 13-280) and interior (Section 13-281) for residential uses. Other sensitive receptors for which noise levels are limited by ordinance are schools, hospitals, and churches. The noise ordinance is expressed as a level not to be exceeded for more than 30 minutes per hour with some allowable excursions above the baseline. The basic standards are as follows for single family dwellings:

Time	Exterior*	Interior
7 a.m. to 11 p.m.	55 dB	55 dB
11 p.m. to 7 a.m.	50 dB	45 dB

*private yards or balconies deeper than 6 feet

HOURS FOR CONSTRUCTION ACTIVITIES

Construction activities are exempt from numerical noise standards if they adhere to time of day requirements. According to the City of Costa Mesa Municipal Code, permissible hours of construction are as follows:

7:00 a.m. through 7:00 p.m.	Mondays through Fridays
9:00 a.m. through 6:00 p.m.	Saturdays
Prohibited all hours	Sundays and the following specified federal holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day

Construction noise would be considered to create a significant impact if activities were performed during nocturnal hours when sleep disturbance is possible.

Table 1
Costa Mesa Land Use Compatibility Guidelines for Exterior Community Noise

Land Use Category	Community Noise Exposure Ldn or CNEL, dBA			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential: Low-Density	50-60	60-70	70-75	≥75
Residential: Multiple Family	50-65	65-70	70-75	≥75
Mixed use	50-65	65-70	70-75	≥75
Transient Lodging-Motel, Hotels	50-65	65-70	70-80	≥80
Schools, Libraries, Churches, Hospitals, Nursing Homes	50-60	60-65	65-80	≥80
Auditoriums, Concert Halls, Amphitheaters	NA	50-70	NA	≥80
Sports Arenas, Outdoor Spectator Sports	NA	50-75	NA	≥80
Playgrounds, Neighborhood Parks	50-67.5	NA	67.5-75	≥75
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50-70	NA	70-80	≥80
Office Buildings, Business Commercial and Professional	50-67.5	67.5-77.5	77.5-85	≥85 unless appropriately insulated
Industrial, Manufacturing, Utilities, Agriculture	50-70	70-80	80-85	NA

Normally Acceptable. *Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.*

Conditionally Acceptable. *New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction but with closed windows and fresh air supply systems or air conditioning will normally suffice.*

Normally Unacceptable. *New Construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.*

Clearly Unacceptable. *New construction or development should generally not be undertaken.*

NA: *Not Applicable.*

Source: Modified from U.S. Department of Housing and Urban Development Guidelines and State of California Standards.

BASELINE NOISE LEVELS

Short term on-site noise measurements were made in order to document existing baseline levels in the project area. These help to serve as a basis for determining project compatibility with the existing noise environment. Noise monitoring was conducted on Tuesday, October 24, 2017, from 11:00 a.m. – 11:45 a.m., at two area locations. Measurement locations are shown in Figure 1 and summarized below.

Measured Noise Levels (dBA)

Site No.	Leq	Lmax	Lmin	L10	L33	L50	L90
1	65	75	56	67	65	63	59
2	57	74	48	58	55	54	51

Meter 1 was located on Ford Road near the SR-55. The late morning Leq at this location was 65 dB. Monitoring experience shows that 24-hour weighted CNEL's can be reasonably well estimated from mid-day noise readings. CNEL's are approximately equal to mid-day Leq plus 2-3 dB (Caltrans Technical Noise Supplement, 2013). This would equate to an existing CNEL of 67 or 68 dB.

Meter 2 was also located on Ford Road but farther setback (west) from the freeway. Meter 2 is representative of noise levels towards the rear of the project site and show that CNELs would be about 60 dB.

In the project vicinity, the Newport Freeway carries around 92,000 vehicles per day. The freeway ends just south of the site at 19th Street and turns into a local roadway. The area is often backed up with traffic and vehicular speeds are very low as cars queue up for the traffic light on 19th Street. The freeway is generally recessed from the site, ranging from at grade at the southern site perimeter, -5 feet in the middle and -10 feet at the north end of the shared property line. The northbound lanes of the SR-55 are separated from the southbound lanes by a wide berm. For receivers at the project site, the berm assists in masking traffic noise from the northbound lanes.

Because monitoring was conducted at ground level and since the proposed structures are three stories, upper levels would be exposed to higher noise than ground floor units. To adjust for the difference, an additional +3 dB decibels was added to ground level noise, which in a logarithmic calculation signify a doubling of traffic. Therefore, a 68 dB CNEL ground level and 71 dB CNEL upper level traffic noise loadings were assumed representative for the project.

Figure 1

Noise Meter Locations

,

NOISE SIGNIFICANCE CRITERIA

Noise impacts are considered significant if they result in:

a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

"Substantially" is not defined in any guidelines. The accuracy of sound level meters and of sound propagation computer models is no better than ±1 dB. This is also the human loudness difference discrimination level under ideal laboratory conditions. Most people cannot distinguish a change in the noise environment that differs by less than 3 dB between the pre- and post-project exposure if the change occurs under ambient conditions. For the purposes of this analysis, a traffic noise increase of more than +3 dB that creates or worsens an area of noise/land use incompatibility would be considered a significant degradation of noise quality if it also would expose sensitive residential land uses to exterior noise levels greater than 65 dB CNEL.

SOURCES OF IMPACT

Two characteristic noise sources are typically identified with general development such as the proposed residential development. Construction activities, especially heavy equipment, will create short-term noise increases near the project site. Construction noise would create a significant impact if it caused sleep disturbance at adjacent sensitive uses. Upon completion, vehicular traffic on streets around the proposed project area may create a higher noise exposure. Traffic noise impacts are analyzed to ensure that the project does not adversely impact the acoustic environment of the surrounding community. In already-developed areas, the added land use intensity associated with a single project only increases traffic incrementally on existing roadways. These noise impacts are often masked by the baseline, and often preclude perception of any substantial noise level increase.

CONSTRUCTION NOISE IMPACTS

Although the City of Costa Mesa regulates construction noise by restriction to specified daytime hours a threshold was adopted for use in evaluating this project. There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the

proposed project. However, the Office of Safety and Health Administration (OSHA) regulations safeguard the hearing of workers exposed to occupational noise. The OSHA has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 105 dBA averaged over 1-hour or 90 dBA averaged over 8 hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter. This noise impact assessment estimates noise levels associated with proposed project construction and compares daytime construction noise levels at sensitive receptors against the hearing loss threshold.

In 2006, the Federal Highway Administration (FHWA) published the Roadway Construction Noise Model that includes a national database of construction equipment reference noise emissions levels. In addition, the database provides an acoustical usage factor to estimate the fraction of time each piece of construction equipment is operating at full power during a construction phase. The usage factor is a key input variable that is used to calculate the average Leq noise levels.

Table 2 identifies highest (Lmax) noise levels associated with each type of the probable equipment fleet and the extent of use. Accounting for equipment usage (usage factor) hourly levels are represented as Leq. The table is organized by construction activity and equipment associated with each activity.

Table 2
Construction Equipment Noise Levels

Phase Name	Equipment	Usage Factor[1]	Hours of Operation[2]	Published Noise @ 50 feet (dBA)	Actual Measured Noise @ 50 feet (dBA)	Cumulative Noise Level @ 50 feet (dBA)
Demolition	Dozer	40%	3.2	85	82	78
	Concrete Saw	20%	1.6	90	90	84
	Tractor	40%	3.2	84	84	80
	Excavator	40%	3.2	85	81	78
Grading	Grader	40%	3.2	85	85	81
	Truck Drill Rig	20%	1.6	84	79	73
	Dozer	40%	3.2	85	82	78
	Tractor	40%	3.2	84	84	80
	Excavator	40%	3.2	85	81	78
Building Construction	Forklift	20%	1.6	75	75	68
	Gen Set	50%	4.0	82	81	78
	Loader/Backhoe	37%	3.0	80	78	74
	Crane	16%	1.3	85	81	73
	Welder	46%	3.7	73	74	71
Paving	Paver	50%	4.0	85	77	74
	Paving Equip	40%	3.2	76	76	72
	Roller	38%	3.0	85	80	76

Source: FHWA's Roadway Construction Noise Model, 2006.
[1] Estimates the percentage of time each piece of equipment is operating at full power during a construction operation
[2] Estimates the hours per 8-hour day equipment would be operating at full power.

Quantitatively, the primary noise prediction equation is expressed as follows for the hourly average noise level (Leq), at distance D between the source and receiver (dBA):

Leq = Lmax @ 50' – 20 log (D/50') + 10log (U.F%/100) – I.L.(bar)
Where:
Lmax @ 50' is the published reference noise level at 50 feet,
U.F.% is the usage factor for full power operation per hour, and
I.L.(bar) is the insertion loss for intervening barriers.

Spherically radiating point sources of noise emissions are atmospherically attenuated by a factor of 6 dBA per doubling of distance. The potential for construction-related noise to adversely affect nearby residential receptors would depend on the location and proximity of construction activities to these receptors.

The closest existing sensitive uses to the project site are the single family residential uses to the west and the mobile home park to the north. The mobile home park is as close as 15 feet from the closest project structure. The single-family homes to the west are more than 30 feet from the nearest on-site structure.

These assumptions represent the worst-case noise scenario, because construction activities would typically be spread throughout the site and thus most equipment would be farther away from the affected receptors.

Table 3
Construction Equipment Noise Levels at Adjacent Uses (dBA)

Phase Name	Equipment	Noise at Closest Mobile Homes	Noise at Closest SFR
Demolition	Dozer	88	82
	Concrete Saw	94	88
	Tractor	90	84
	Excavator	88	82
Grading	Grader	91	85
	Truck Mounted Drill Rig	83	77
	Dozer	88	82
	Tractor	90	84
	Excavator	88	82
Building Construction	Forklift	78	72
	Gen Set	88	82
	Loader/Backhoe	84	78
	Crane	83	77
	Welder	81	75
Paving	Paver	84	78
	Paving Equip	82	76
	Roller	86	80

For this analysis, it is the interior noise levels that are considered. Based on the EPA's Protective Noise Levels (EPA 550/9-79- 100, November 1978), with a combination of walls, doors and windows, standard construction for California residential buildings would provide approximately 25 dBA in exterior to interior noise reduction with windows closed, and approximately 15 dBA with windows open. In deference to the fact that the closest structures are mobile homes, a less generous 20 dBA exterior to interior noise reduction allowance was assumed with closed windows.

The interior noise level in any adjacent use would be less than the 105 dBA hourly noise threshold or the 90 dBA 8-hour noise threshold adopted for this project. Nevertheless, they can still be disruptive to surrounding uses. Therefore, the following measures are recommended to reduce levels to less-than-significant:

MM NO-1 Prior to the Grading Permit Issuance, the Contractor shall demonstrate to the satisfaction of the City of Costa Mesa Public Works Department that the project complies with the following:

- Construction contracts specify that all construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers and other state required noise attenuation devices.

- Construction haul routes shall be designed to avoid noise sensitive uses (e.g. residences, convalescent homes, etc.)
- The construction contractor shall ensure that unnecessary idling of internal combustion engines (i.e., idling in excess of 5 minutes) is prohibited.
- The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists.
- At all times during project grading and construction, the construction contractor shall ensure that stationary noise-generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from adjacent residences.
- The construction contractor shall ensure that the construction staging areas shall be located to create the greatest feasible distance between the staging area and noise-sensitive receptors nearest the project site.

CONSTRUCTION ACTIVITY VIBRATION

Construction activities generate ground-borne vibration when heavy equipment travels over unpaved surfaces or when it is engaged in soil movement. The effects of ground-borne vibration include discernible movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. Vibration related problems generally occur due to resonances in the structural components of a building because structures amplify groundborne vibration. Within the "soft" sedimentary surfaces of much of Southern California, ground vibration is quickly damped out. Groundborne vibration is almost never annoying to people who are outdoors (FTA 2006).

Groundborne vibrations from construction activities rarely reach levels that can damage structures. Because vibration is typically not an issue, very few jurisdictions have adopted vibration significance thresholds. Vibration thresholds have been adopted for major public works construction projects, but these relate mostly to structural protection (cracking foundations or stucco) rather than to human annoyance.

A vibration descriptor commonly used to determine structural damage is the peak particle velocity (ppv) which is defined as the maximum instantaneous positive or negative peak of the vibration signal, usually measured in in/sec. The range of such vibration is as follows:

Human Response To Transient Vibration

Average Human Response	ppv (in/sec)
Severe	2.00
Strongly perceptible	0.90
Distinctly perceptible	0.24
Barely perceptible	0.03

Source: Caltrans Transportation and Construction Vibration Guidance Manual, 2013.

Over the years, numerous vibration criteria and standards have been suggested by researchers, organizations, and governmental agencies. As shown in **Table 4,** according to Caltrans and the FTA, the threshold for structural vibration damage for modern structures is 0.5 in/sec for intermittent sources, which include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment. Older residential structures have a 0.3 in/sec threshold. Below this level there is virtually no risk of building damage.

Table 4
FTA and Caltrans Guideline Vibration Damage Potential Threshold Criteria

Building Type	**PPV (in/sec)**
FTA Criteria	
Reinforced concrete, steel or timber (no plaster)	0.5
Engineered concrete and masonry (no plaster)	0.3
Non-engineered timber and masonry buildings	0.2
Buildings extremely susceptible to vibration damage	0.12
Caltrans Criteria	
Modern industrial/commercial buildings	0.5
New residential structures	0.5
Older residential structures	0.3
Historic old buildings	0.25
Fragile Buildings	0.1
Extremely fragile ruins, ancient monuments	0.08

To be conservative, the damage threshold of 0.3 in/sec for older residential structures was used in this analysis. The predicted vibration levels generated by construction equipment anticipated for use for this project are shown below in **Table 5**.

Table 5
Estimated Vibration Levels During Project Construction

Equipment	**PPV at 15 ft (in/sec)**	**PPV at 25 ft (in/sec)**	**PPV at 40 ft (in/sec)**	**PPV at 50 ft (in/sec)**	**PPV at 60 ft (in/sec)**	**PPV at 75 ft (in/sec)**
Large Bulldozer	0.191	0.089	0.044	0.031	0.024	0.017
Loaded trucks	0.152	0.076	0.037	0.027	0.020	0.015
Jackhammer	0.070	0.035	0.017	0.012	0.009	0.007
Small Bulldozer	0.006	0.003	0.001	<0.001	<0.001	<0.001

Source: FHWA Transit Noise and Vibration Impact Assessment

The calculation to determine PPV at a given distance is:

PPVdistance = PPVref*(25/D)^1.5

Where:

PPVdistance = the peak particle velocity in inches/second of the equipment adjusted for distance,

PPVref = the reference vibration level in inches/second at 25 feet, and

D = the distance from the equipment to the receiver.

The adjacent residences to the west are primarily bordered by parking areas. The closest use to proposed residential structures are the mobile homes to the north. As seen in **Table 4**, buildings made of steel with no plaster tolerate construction vibration better than other masonry type structures with an FTA damage threshold of 0.5 in/sec. Because mobile homes are manufactured as a single metal unit with some flexibility and anchored with tie-downs, vibration would likely dampen more quickly than for a traditional concrete foundation. Even at a 15-feet distance, vibration levels would not cause structural damage either according to FTA criteria of 0.5 in/sec or the Caltrans threshold of 0.3 in/sec applicable to older residential structures. The closest residential structures to the proposed project site are located well beyond 15 feet from the project boundary. Large bulldozers will not likely operate directly at the shared property line. Vibration levels generated by construction equipment would be below levels that could create structural damage in older structures (i.e., 0.3 in/sec) but could be within the perceptibility range. However, given the project location vibration from heavy vehicles traveling on the adjacent roadways or SR-55 could be more dominant than any construction activities.

PROJECT TRAFFIC LOCAL ROADWAYS

Long-term noise concerns from the proposed residential use at the project site can be derived from vehicular operations on project area roadways. These concerns were addressed using the California specific vehicle noise curves (CALVENO) in the federal roadway noise model (the FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108). The model calculates the Leq noise level for a reference set of input conditions, and then makes a series of adjustments for site-specific traffic volumes, distances, speeds, or noise barriers.

Table 6 summarizes the 24-hour CNEL level at 50 feet from the roadway centerline along 13 area roadway segments. The noise analysis utilizes data from the project traffic analysis, prepared by the traffic consultant, LSA, in 2018, for this project. Six traffic scenarios were evaluated; existing conditions "without project", existing conditions "without project with Ford Road closure" and existing conditions "with project" The same scenarios were run for the future year 2020.

As shown in **Table 6**, project implementation does little to change the traffic noise environment. The largest project related impact is +2.3 dB CNEL at Ford Road east of Parsons Street. This noise impact is less than the significance threshold of +3.0 dB. Furthermore, the existing calculated noise level along this segment is 55.6 dB CNEL. After the Ford Road closure. traffic noise actually decreases to 48.2 dB CNEL and when the project is completed predicted noise will be 50.5 dB CNEL. Therefore, even with the addition of the project, the overall noise level for uses along this segment will experience a large noise decrease as compared to current conditions due to the Ford Road closure. Even the 2020 "with project" noise level is much less than the 65 dB CNEL noise compatibility threshold for sensitive uses. The next largest project impact is +0.5 dB CNEL in the existing time frame. By 2020, when the area is more built-out and ambient roadway usage is

larger, the project impact is diluted so that the next largest impact is reduced to +0.3 dB CNEL. The noise analysis shows no discernable noise impact on area roadways attributed from project implementation.

Table 6
Traffic Noise Impact Analysis
(dBA CNEL at 50 feet from centerline)

Segment		Existing No Project	Existing with Ford Road Closure	Existing with Project	Project Impact*
Harbor/	N of Ford	69.0	69.0	69.0	0.0
	S of Ford	69.1	69.1	69.0	0.0
Ford St/	Harbor-Parsons	55.8	55.6	56.0	0.4
	E of Parsons	55.6	48.2	50.5	2.3
Newport/	N of Bay	66.3	66.5	66.6	0.0
	Bay-Ford	63.9	63.7	64.0	0.2
	S of Ford	63.5	63.4	63.4	0.0
	N of 19th	73.9	73.9	73.9	0.0
	S of 19th	72.6	72.6	72.7	0.1
Parsons/	Bay-Ford	56.0	56.9	57.4	0.5
	S of Ford	52.0	52.1	52.1	0.0
Bay St/	W of Parsons	62.0	62.0	62.0	0.0
	E of Parsons	62.4	63.0	63.4	0.5

Segment		2020 No Project	2020 with Ford Road Closure	2020 with Project	Project Impact*
Harbor/	N of Ford	69.2	69.2	69.2	0.0
	S of Ford	69.2	69.2	69.2	0.0
Ford St/	Harbor-Parsons	55.8	54.9	55.2	0.3
	E of Parsons	55.6	48.2	50.5	2.3
Newport/	N of Bay	66.4	66.7	66.7	0.0
	Bay-Ford	63.9	64.1	64.1	0.0
	S of Ford	63.5	63.6	63.6	0.0
	N of 19th	74.0	74.0	74.0	0.0
	S of 19th	72.7	72.7	72.7	0.0
Parsons/	Bay-Ford	55.2	57.2	57.4	0.2
	S of Ford	52.0	52.2	52.2	0.0
Bay St/	W of Parsons	62.1	62.1	62.2	0.0
	E of Parsons	62.5	63.1	63.1	0.0

*May differ by +/- 0.1 when in excel rounds down to a 10th of a decimal

ON-SITE TRAFFIC EXPOSURE

The City of Costa Mesa guidelines allows exterior noise levels of up to 70 dBA CNEL for multi-family housing with consideration of mitigation. The observed noise level at the end of Ford Road was 68 dB CNEL at ground level and 71 dB CNEL is assumed for upper levels.

Proposed project structures are 3 stories high. Ground level patios or balconies facing the freeway would achieve 70 dB CNEL without the need for additional attenuation. There are planned balconies on the sides of the buildings. Second story balconies are planned directly facing the freeway. However, these balconies are recessed and like balconies on the sides of the buildings would only experience a partial noise exposure from the freeway. This would provide -3 dB of mitigation. The project would include a three-foot masonry patio wall alone the site perimeter with Newport Boulevard for privacy. This wall would also assist in traffic noise attenuation. As shown in the appendix of this report, a noise modeling analysis shows that with the grade differential from the freeway, the proposed 3-foot berm and the 3-foot patio wall, noise at the second story balconies would be mitigated to an approximate 62 dB CNEL noise level. No additional mitigation is required for second story balconies to achieve the desirable 65 dB CNEL noise exposure. Balconies farther setback or facing interior to the site would experience traffic noise levels of 65 dB CNEL or lower with an even greater measure of safety.

There would be an opening in the patio wall to facilitate one-way westbound travel into Ford Road by adjacent uses. Return walls perpendicular to the roadway would be required to compensate for gaps at this opening; the necessary length of the return would be equal to the width of the gap to minimize flanking noise. The wrap around length of the 3-foot wall should extend for at least 16 feet along both sides of Ford Road.

Therefore, the following mitigation measure is required to reduce traffic noise impacts for recreational uses to a less-than-significant noise level:

MM NO- 2 Prior to building occupancy, a 3-foot wall along the project Newport Boulevard perimeter will be constructed to allow for recreational spaces to be less than 65 dB CNEL. Since there would be a break in the barrier along Ford Road, a return should extend at least 16 feet on both sides of the road, or return into a taller structure for at least 16 feet. A 3-foot wall along the project Newport Boulevard perimeter would allow for recreational space to be less than 65 dB CNEL. Since there would be a break in the barrier along Ford Road, the return should extend at least 16 feet on both sides of the road, or return into a taller structure for at least 16 feet.

Recreational use areas at the project site may be considered possible common outdoor space sited in the interior of the complex which would be noise protected by the perimeter structures. Most jurisdictions do not require noise protection for individual recreational space if noise-protected common space is provided, which is the case with this project.

The interior residential noise standard is 45 dB CNEL. For typical wood-framed construction with stucco and gypsum board wall assemblies, the exterior to interior noise level reduction is as follows:

Partly open windows – 12 dB

Closed single-paned windows – 20 dB

Closed dual-paned windows – 30 dB

Use of dual-paned windows is required by the California Building Code (CBC) for energy conservation in new residential construction.

Interior standards will be met as long as residents have the option to close their windows. Where window closure is needed to shut out noise, supplemental ventilation is required by the CBC with some specified gradation of fresh air. Central air conditioning or a fresh air inlet on a whole house fan would meet this requirement.

PROJECT OPERATIONAL NOISE

The proposed use, development of 38 townhome dwelling units, is considered passive. The only source of operational noise would derive from HVAC equipment. Along the northern site perimeter, buildings 2 and 3 will have AC compressors in proximity to the adjacent mobile homes. Noise from this equipment was analyzed to ensure the mobile home residents would not be exposed to noise levels that exceed thresholds.

The proposed equipment is a Goodman Split System Air Conditioner model GSX14 with a sound power noise level of 73 dBA. The distance from Building 2 to the property line is 12 feet, and there will be a 6-foot masonry wall at the property line. The closest mobile home is approximately 6 feet within the shared property line. Therefore, a receiver is modeled at a distance of 18 feet from the condenser and a receiver is assumed to be a standing adult with ear level at 5-foot above ground. Noise from the condenser is assumed to originate at a height of 3-feet above ground level. As seen in the appendix of this report, the resulting noise level at the mobile home park is less than 41 dBA. The exterior noise standard for the City of Costa Mesa is 55 dBA daytime and 50 dBA at night. Noise from the selected HVAC equipment will not exceed thresholds at the closest sensitive uses with construction of the 6-foot tall masonry wall at the shared property line. Regardless, all HVAC equipment would be required to demonstrate compliance with the City of Costa Mesa Noise Ordinance Standard.

PROJECT OPERATIONAL VIBRATION

The only sources of operational vibration would derive from the HVAC equipment which would have vibration attenuation mounts to reduce the vibration transmission.

NOISE IMPACT MITIGATION AND SUMMARY

Short-term construction noise intrusion shall comply with the City of Costa Mesa Noise Ordinance. The allowed hours of construction are from 7 a.m. to 7 p.m. Monday through Friday and 9:00 a.m. to 6:00 p.m. on Saturday. No construction is permitted on Sundays or federal holidays. In addition, the following measures are required to reduce construction impacts to a less-than-significant level:

MM NO-1 Prior to the Grading Permit Issuance, the Contractor shall demonstrate to the satisfaction of the City of Costa Mesa Public Works Department that the project complies with the following:

- Construction contracts specify that all construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers and other state required noise attenuation devices.
- Construction haul routes shall be designed to avoid noise sensitive uses (e.g. residences, convalescent homes, etc.)
- Construction contractor shall ensure that unnecessary idling of internal combustion engines (i.e., idling in excess of 5 minutes) is prohibited.
- Construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists.
- At all times during project grading and construction, the construction contractor shall ensure that stationary noise-generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from adjacent residences.
- Construction contractor shall ensure that the construction staging areas shall be located to create the greatest feasible distance between the staging area and noise-sensitive receptors nearest the project site.

MM NO- 2 Prior to building occupancy, a 3-foot wall along the Newport Boulevard perimeter will be constructed in order to allow for recreational space to be less than 65 dB CNEL. Since there would be a break in the barrier along Ford Road, the return should extend at least 16 feet on both sides of the road, or return into a taller structure for at least 16 feet.

Habitable interior space for units adjacent to the SR-55 will be adequately noise protected to achieve 45 dB with only the ability to close windows. Where window closure is needed for policy compliance, supplemental fresh air ventilation will be provided at rates specified in the California Building Code.

Project-related off-site traffic noise impacts on local streets are low and considered to be less-than-significant.

Proposed HVAC equipment will not cause an exceedance of the City of Costa Mesa noise standards are the closest sensitive use.

Newport and Ford Second Story Balconies

Distance to Receiver	160	160	160
Distance to Wall	140	140	140
Wall Base Height	11	11	11
Receiver Pad Height	10	10	10
Height of Receiver	5	5	5
Hard or Soft Site	Hard		
Height of Wall	3	3	3

	Auto	Med Truck	Hvy Truck
Vehicle Height	0	2.3	8
Net Receiver Height	15	12.7	7
Net Wall Height	14.00	11.70	6.00
Direct LOS Height	13.13	11.11	6.13
Effective Wall Height	14.00	11.70	6.13
Direct Distance (CD)	160.70	160.50	160.15
Indirect Distance (CI)	160.72	160.51	160.15
Difference (D)	0.022	0.010	0.000
Fresnel Adjusted	0.021	0.010	0.000
Reduction (NLR)	5.00	5.00	0.00

Reference SPL

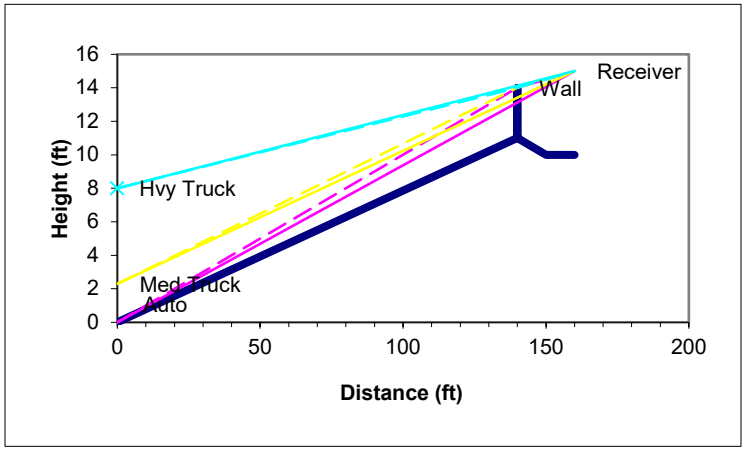
Type	Day	Evening	Night	CNEL
Auto	68.62	66.85	60.79	70.02
Medium Trucks	59.97	53.6	52.07	60.76
Heavy Trucks	60.6	51.6	52.82	61.30
	69.74	67.17	61.91	71.00

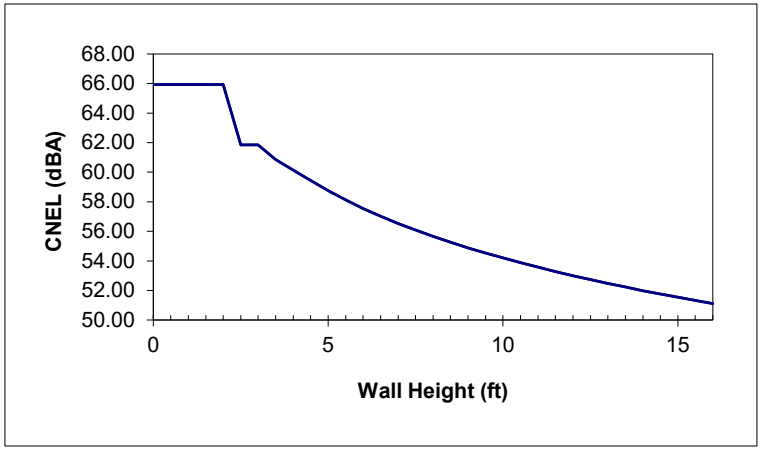
Attenuated SPL

Type	Day	Evening	Night	CNEL
Auto	63.55	61.78	55.72	64.95
Medium Trucks	54.90	48.53	47.00	55.69
Heavy Trucks	55.54	46.54	47.76	56.24
	64.67	62.10	56.84	65.93

Resulting Noise Levels

	Auto	Medium Truck	Heavy Truck	24-hour CNEL
Total Attenuated Noise	59.95	50.69	56.24	61.84

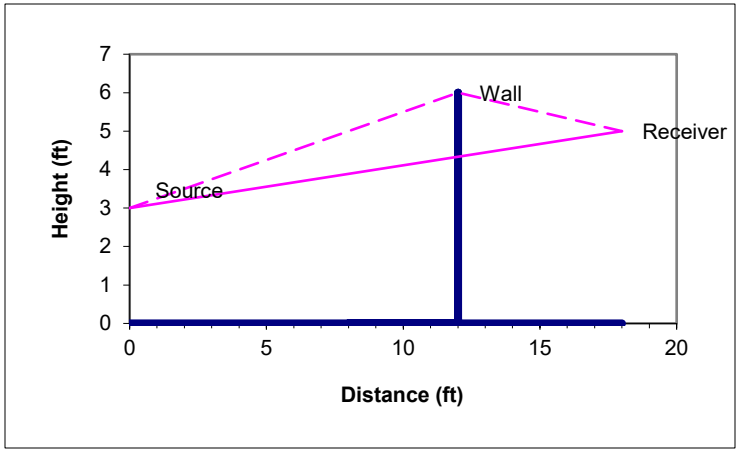




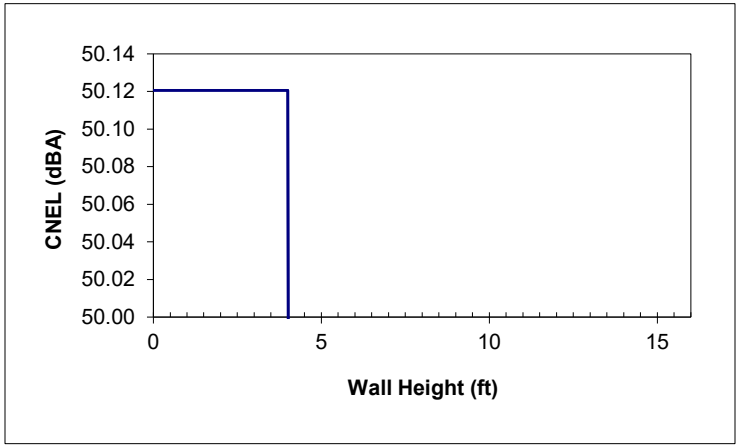
Analyst - Sara Friedman-Gerrick

Newport And Ford AC Compressor Noise at Mobile Home Park

Distance to Receiver	18
Distance to Wall	12
Wall Base Height	0
Receiver Pad Height	0
Height of Receiver	5
Hard or Soft Site	hard
Height of Wall	6
Equipment Height	3
Source Frequency	550
Net Receiver Height	2
Net Wall Height	3.00
Direct LOS Height	1.33
Effective Wall Height	3.00



Direct Distance (CD)	18.11
Indirect Distance (CI)	18.45
Difference (Δ)	0.341
Fresnel Adjusted	0.334
Reduction (NLR)	9.18
50 ft Reference SPL	41.30
Attenuatd SPL	50.12
Resulting Noise Level	40.94



Giroux and Associates
Analyst - Sara Friedman-Gerrick
May 17, 2018

Appendix J
Traffic Impact Analysis

TRAFFIC IMPACT ANALYSIS

1957 NEWPORT BOULEVARD

COSTA MESA, CALIFORNIA

LSA

July 2018

TRAFFIC IMPACT ANALYSIS

1957 NEWPORT BOULEVARD

COSTA MESA, CALIFORNIA

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July 2018

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INTRODUCTION

LSA has prepared the following analysis to identify the potential traffic impacts resulting from the development of 38 townhome dwelling units along Ford Road near its intersection with Newport Boulevard (project) in Costa Mesa. LSA has prepared this analysis consistent with the requirements of the City of Costa Mesa (City) and with applicable provisions of the California Environmental Quality Act.

In the existing condition, Ford Road provides a link between Harbor Boulevard and Newport Boulevard. Concurrent with the proposed project, Ford Road would be abandoned between Newport Boulevard and a residential alley just west of the project limits. A private drive, replacing the public Ford Road, would facilitate one-way westbound travel. This traffic impact analysis provides an analysis of the abandonment of Ford Road and an analysis of the proposed project. The analysis of the abandonment of Ford Road presents a worst case where all current traffic using Ford Road is redistributed to other roadways. Figure 1 shows the location of the project site. The traffic analysis for the proposed project examines six scenarios:

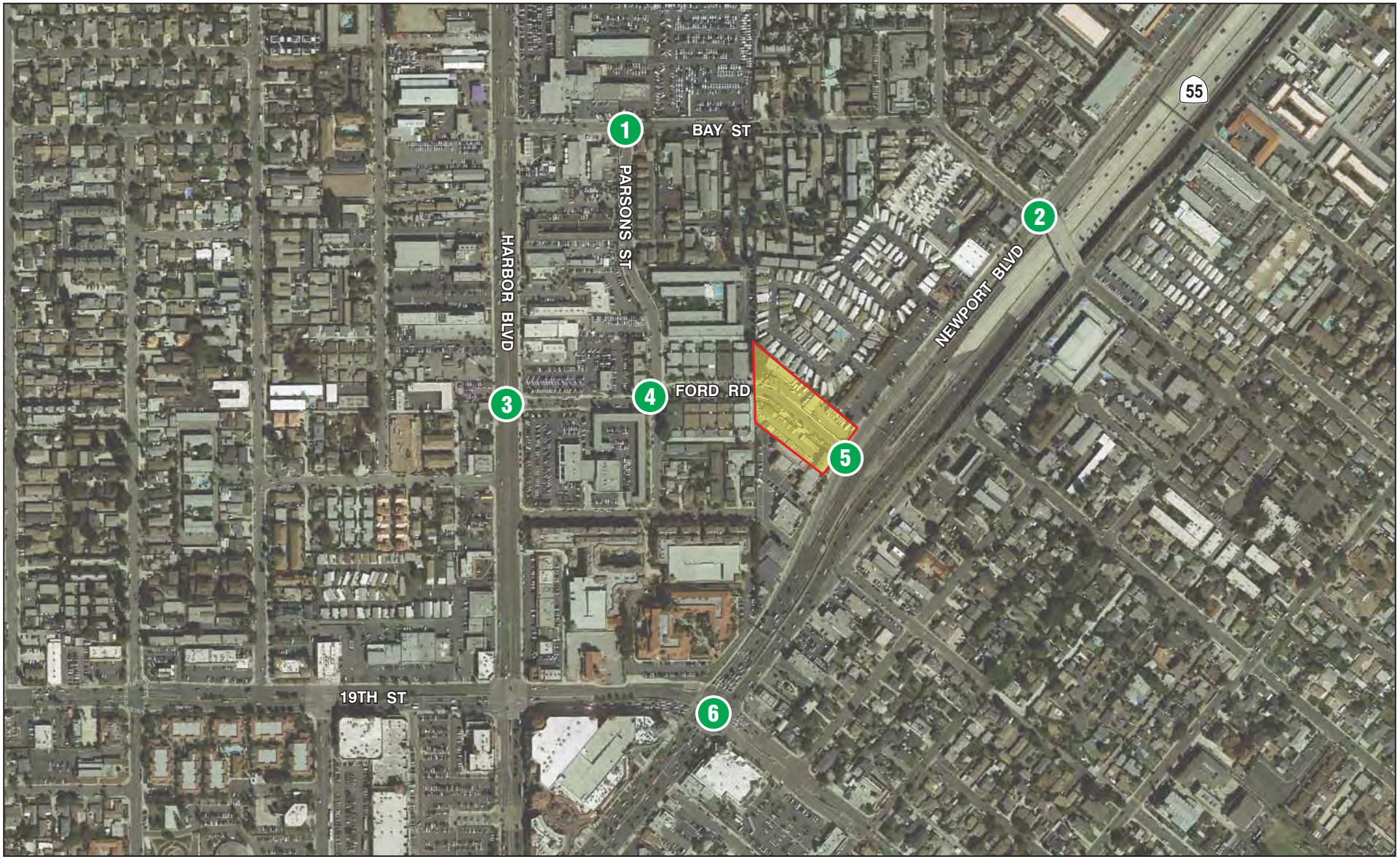
1. Existing conditions
2. Existing plus project conditions
3. Future (2020) baseline conditions
4. Future (2020) plus project conditions
5. General Plan buildout baseline conditions
6. General Plan buildout plus project conditions

PROJECT DESCRIPTION

The existing site is currently occupied by two businesses located at 1957 Newport Boulevard and 390 Ford Road. The business at 1957 Newport Boulevard is a self-storage facility with 54 storage units and one manager's apartment. This business also owns a lot directly across Ford Road, which is used for recreational vehicle storage. The business at 390 Ford Road repairs recreational vehicles and sells parts for recreational vehicles. Both businesses are accessed by separate full-access driveways onto Ford Road.

Ford Road is a two lane roadway with on-street parking. Ford Road is approximately 40 feet wide. Currently, Ford Road has its western terminus at Harbor Boulevard approximately 830 feet west of the project site. The eastern terminus is at Newport Boulevard immediately to the east of the project site. Ford Road provides access to adjacent parcels and intersects with Parsons Street. Immediately west of the project site, an alley intersects with Ford Road and provides access to residential parcels north and south of Ford Road.

The proposed project will demolish the existing uses and abandon Ford Road between the residential alley and Newport Boulevard. The project would then construct 38 townhome dwelling units. Access to the dwelling units would only be possible from the west side of the project only. The intersection of Newport Boulevard/Ford Road would be completely removed. Figure 2 illustrates a site plan of the proposed project.



LSA

FIGURE 1

LEGEND

- Project Location

- Study Area Intersection

N

0 250 500

FEET

SOURCE: Google Earth

1957 Newport Boulevard and 390 Ford Road

Project Location and

Study Area Intersections

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LSA

FIGURE 2

N

0 50 100
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SOURCE: ktgy

1957 Newport Boulevard and 390 Ford Road

Site Plan

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PRELIMINARY TRAFFIC ANALYSIS

The City commissioned a preliminary traffic study for the abandonment of Ford Road and the proposed project (Stantec, October 10, 2017). That study collected average daily traffic volumes along Ford Road over multiple days and considered how the diversion of that traffic onto adjacent roads would affect the surrounding circulation system. The preliminary traffic analysis concluded that a negligible effect on the roadway system was expected due to the abandonment of Ford Road. No significant traffic impacts were anticipated as a result of the Ford Road abandonment. The preliminary analysis also determined that the proposed project would generate fewer-peak hour trips than the threshold established by the City for requiring a traffic impact analysis. However, the preliminary analysis recommended that a more detailed traffic study be prepared at the time a project application is filed with the City. This traffic impact analysis provides that more detailed analysis.

METHODOLOGY

The study area analyzed in this report includes the following intersections, which were selected for analysis in coordination with City staff as the intersections most affected by the proposed abandonment of Ford Road and project traffic:

1. Parsons Street/Bay Street
2. Newport Boulevard/Bay Street
3. Harbor Boulevard/Ford Road
4. Parsons Street/Ford Road
5. Newport Boulevard/Ford Road
6. Newport Boulevard/19th Street

Figure 1 illustrates the locations of the intersections included in the study area. Figure 3 illustrates existing intersection geometrics.

Intersection Level of Service Methodology

Consistent with City standards, the study area intersections were analyzed using Intersection Capacity Utilization (ICU) methodology for signalized intersections and Highway Capacity Manual 6th Edition (HCM) methodology for unsignalized intersections. *Traffix* (Version 8.0) and *Synchro* 9.1 are the software applications utilized to determine the levels of service (LOS) for signalized and unsignalized intersections, respectively. These programs calculate LOS based on traffic volume and intersection geometry inputs.

The ICU methodology compares the amount of traffic an intersection is able to process (capacity) to the level of traffic during peak hours (volume). The resulting volume-to-capacity (v/c) ratio is expressed in terms of LOS. The HCM methodology calculates the delay experienced by all movements through an intersection. At a two-way, stop-controlled intersection (i.e., unsignalized intersections where the main street is uncontrolled and the minor street has to stop before finding a gap to enter the main street), delay is reported for the most delayed approach. LOS criteria for intersections are presented below.

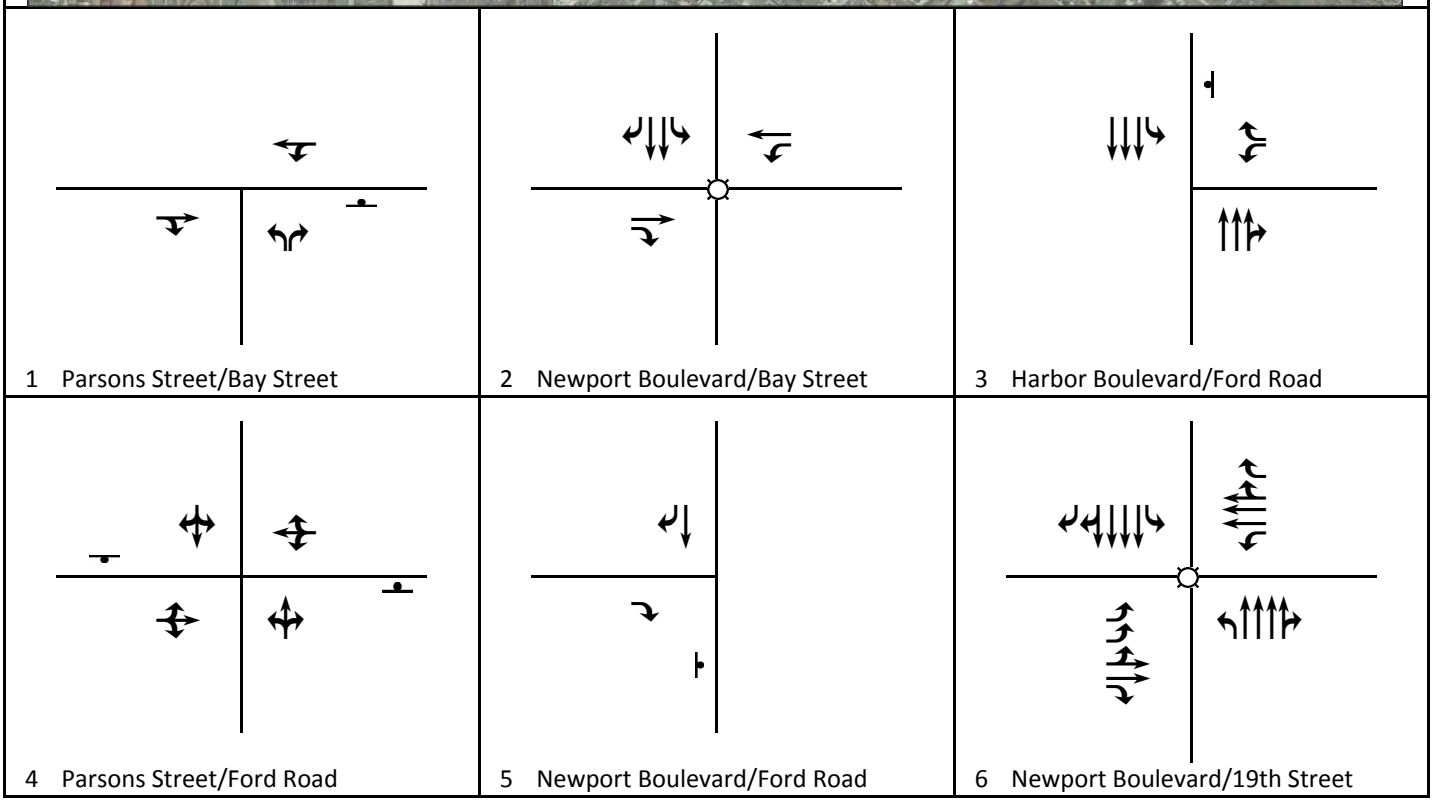

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FIGURE 3

Legend

Signal

Stop Sign

1957 Newport Boulevard

Intersection Geometrics and Traffic Control

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LOS Descriptions

LOS is a qualitative assessment of the quantitative effects of such factors as traffic volume, roadway geometrics, speed, delay, and maneuverability on roadway and intersection operations. LOS is assigned along the following letter gradient where LOS A represents free-flow activity, and LOS F represents overcapacity operation:

- **LOS A:** No approach phase is fully utilized by traffic, and no vehicle waits longer than one red indication. Typically, the approach appears quite open, turns are made easily, and nearly all drivers find freedom of operation.

- **LOS B:** This service level represents stable operation, where an occasional approach phase is fully utilized, and a substantial number are nearing full use. Many drivers begin to feel restricted within platoons of vehicles.

- **LOS C:** This level still represents stable operating conditions. Occasionally, drivers may have to wait through more than one red signal indication, and backups may develop behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so.

- **LOS D:** This level encompasses a zone of increasing restriction approaching instability at the intersection. Delays to approaching vehicles may be substantial during short peaks within the peak period; however, enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive backups.

- **LOS E:** Capacity occurs at the upper end of this service level. It represents the most vehicles that any particular intersection approach can accommodate. Full utilization of every signal cycle is attained no matter how great the demand.

- **LOS F:** This level describes forced-flow operations at low speeds, where volumes exceed capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially, and stoppages may occur for short or long periods of time due to the congestion. In the extreme case, speed can drop to zero.

The relationship between LOS and the delay (in seconds) at unsignalized intersections or v/c ratio at signalized intersections is as follows:

Level of Service	Unsignalized Intersections Delay (seconds) (HCM Methodology)	Signalized Intersections Volume-to-Capacity Ratio (ICU Methodology)
A	≤10.0	< 0.60
B	>10.0 and ≤15.0	0.61–0.70
C	>15.0 and ≤25.0	0.71–0.80
D	>25.0 and ≤35.0	0.81–0.90
E	>35.0 and ≤50.0	0.91–1.00
F	>50.0	> 1.00

HCM = Highway Capacity Manual
ICU = intersection capacity utilization

The City considers intersections with a v/c ratio of 0.90 (LOS D) as the upper limit of satisfactory operations. A project is considered to have a significant impact if the ICU value under the Plus Project conditions exceeds 0.90 (LOS E or F) and the ICU increase attributed to the project is 0.01 or greater.

EXISTING CONDITION

Existing Circulation System

Key roadways in the vicinity of the proposed project are as follows:

- **State Route (SR-55):** SR-55 is a six-lane freeway providing the primary regional circulation to and from the study area. The freeway portion of SR-55 terminates at the intersection of Newport Boulevard/19th Street.

- **Newport Boulevard:** Newport Boulevard is a north-south roadway classified as a Major Arterial by the City's General Plan Circulation Element south of 19th Street. North of 19th Street, SR-55 bifurcates Newport Boulevard. Parallel to SR-55, Newport Boulevard operates as one-way couplets and is classified as a Secondary Arterial. Adjacent to the project site, Newport Boulevard is a one-way southbound street with one travel lane.

- **Harbor Boulevard:** Harbor Boulevard is a north-south roadway located west of the project site and is classified as a Major Arterial by the City's General Plan Circulation Element. Harbor Boulevard is a six-lane roadway divided by a two-way left-turn lane that acts as a median. Harbor Boulevard terminates at Newport Boulevard south of the project site but continues north for more than 20 miles.

- **19th Street:** 19th Street is an east-west roadway located south of the project site and is classified as a Primary Arterial by the City's General Plan Circulation Element. West of Newport Boulevard, it is a six-lane roadway divided by a raised median. As the street at the terminus of the SR-55 freeway, 19th Street plays an important role in distributing regional traffic to and from the freeway.

- **Bay Street:** Bay Street is an east-west roadway located north of the project site and is not classified by the City's General Plan Circulation Element, but functions as a Collector. It is a two-lane, undivided roadway. Bay Street terminates at Harbor Boulevard to the west and provides a bridge over SR-55 to the east.

- **Parsons Street:** Parsons Street is a north-south roadway located west of the project site and is not classified by the City's General Plan Circulation Element, but functions as a Collector. It is a two-lane undivided roadway. Parsons Street provides a connection between Bay Street and Ford Road.

- **Ford Road:** Ford Road is an east-west roadway providing access into the project site and is not classified by the City's General Plan Circulation Element, but functions as a Collector. Ford Road is a two-lane undivided roadway. Ford Road terminates at Harbor Boulevard to the west and

Newport Boulevard to the east. The connection to Newport Boulevard would be closed as a result of the proposed project and replaced with a one-way westbound private drive.

Existing Intersection Level of Service Analysis

Vehicle turning volumes were collected for the study area intersections during the peak morning (7:00 a.m.–9:00 a.m.) and evening (4:00 p.m.–6:00 p.m.) commute periods. Peak-hour intersection turn volumes were surveyed on a typical weekday (Wednesday, November 8, 2017) at the study area intersections. These volumes were taken in 15-minute increments and then totaled as hourly volumes, which is the standard procedure for volume data collection. Figure 4 presents the existing a.m. and p.m. peak-hour turn movement volumes for the study area intersections as determined by this method. Appendix A provides the traffic volume data sheets.

Table A summarizes the results of the existing a.m. and p.m. peak-hour LOS analysis for the study area intersections. Appendix B provides existing LOS analysis worksheets. As Table A indicates, all study area intersections operate at an acceptable LOS (i.e., LOS D or better) in the a.m. and p.m. peak hours.

Table A: Existing Intersection Level of Service Summary

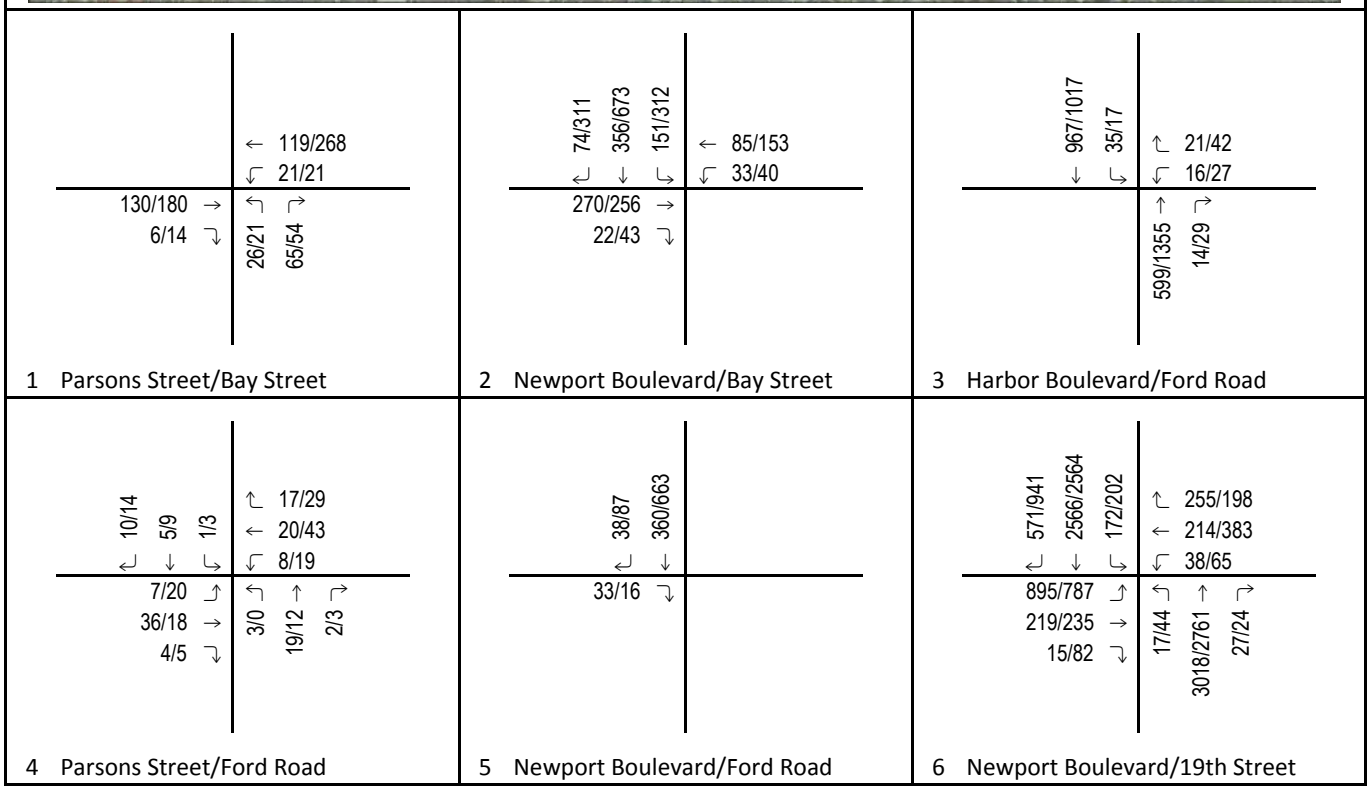
Study Area No.	Intersections	AM Peak Hour		PM Peak Hour	
		V/C ratio / Delay	LOS	V/C ratio / Delay	LOS
1	Parsons St/Bay St (HCM)	10.0 sec	B	10.6 sec	B
2	Newport Blvd/Bay St (ICU)	0.33	A	0.42	A
3	Harbor Blvd/Ford Rd (HCM)	14.9 sec	B	30.7 sec	D
4	Parsons St/Ford Rd (HCM)	9.7 sec	A	10.1 sec	B
5	Newport Blvd/Ford Rd (HCM)	11.5 sec	B	13.6 sec	B
6	Newport Blvd/19th St (ICU)	0.85	D	0.82	D

LOS = level of service
HCM = Highway Capacity Manual methodology
ICU = Intersection Capacity Utilization methodology
sec = seconds
V/C = volume-to-capacity

FUTURE (2020) BASELINE CONDITION

The proposed project is anticipated to be completed by 2020. City staff did not identify any approved or pending projects in the vicinity of the proposed project that would have the potential to add measurable traffic to the study intersections. To account for ambient traffic growth in future year baseline traffic volumes, existing roadway and intersection volumes were escalated 1 percent per year, for a total of 3 percent over the 3 years from the volume data collected in 2017 to 2020.

Intersection geometrics at the study area intersections are not anticipated to change by the project opening year. Figure 5 shows the future a.m. and p.m. peak-hour traffic volumes. Table B summarizes the results of the future a.m. and p.m. peak-hour LOS analysis for study area intersections. LOS worksheets are provided in Appendix C. As this table indicates, all study area intersections operate at an acceptable LOS in the a.m. and p.m. peak hours in the future (2020) baseline condition.

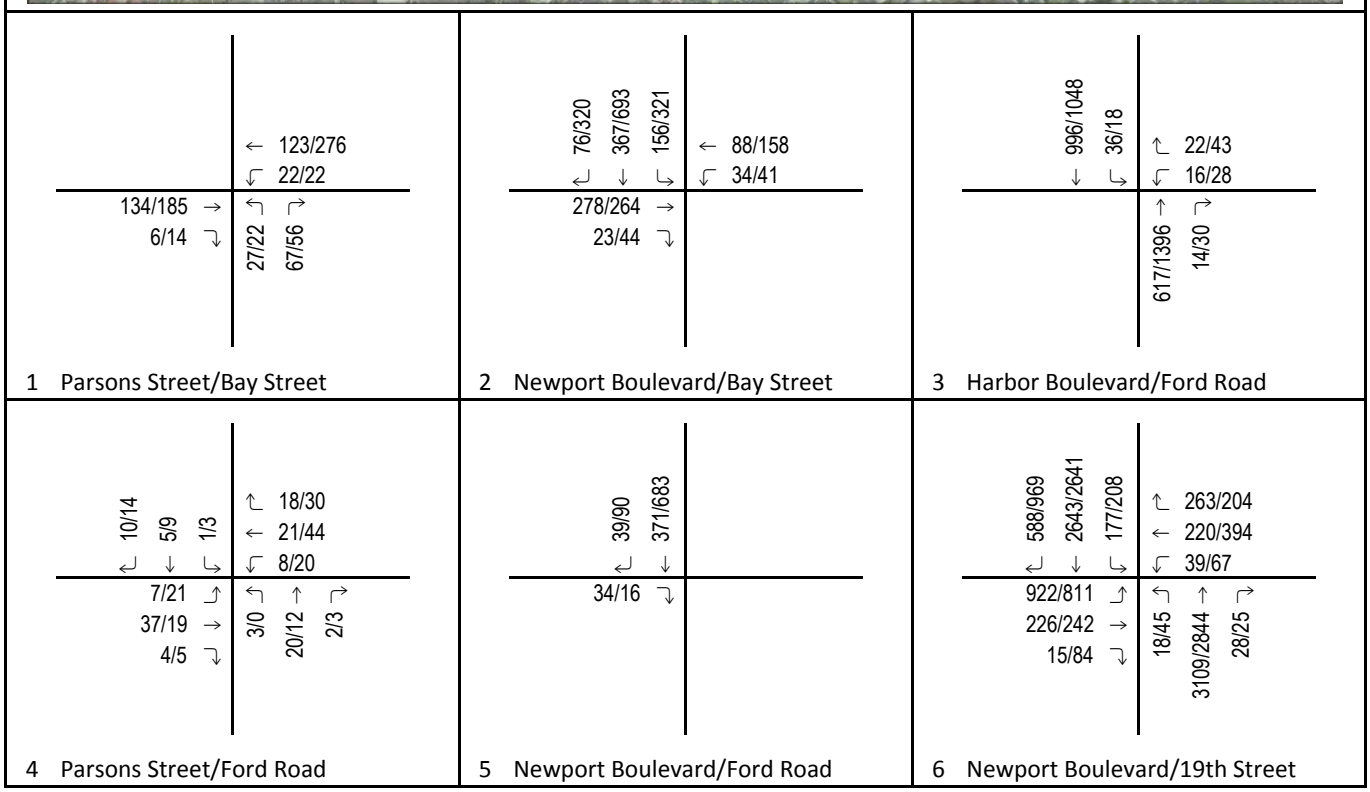


LSA

FIGURE 4

123/456 AM/PM Peak-Hour Volumes

1957 Newport Boulevard
Existing Traffic Volumes



LSA

FIGURE 5

123/456 AM/PM Peak-Hour Volumes

1957 Newport Boulevard
Future (2020) Traffic Volumes

Table B: Future (2020) Intersection Level of Service Summary

Study Area No.	Intersections	AM Peak Hour		PM Peak Hour	
		V/C ratio / Delay	LOS	V/C ratio / Delay	LOS
1	Parsons St/Bay St (HCM)	10.0 sec	B	10.7 sec	B
2	Newport Blvd/Bay St (ICU)	0.34	A	0.43	A
3	Harbor Blvd/Ford Rd (HCM)	15.2 sec	B	33.4 sec	D
4	Parsons St/Ford Rd (HCM)	9.7 sec	A	10.1 sec	B
5	Newport Blvd/Ford Rd (HCM)	11.7 sec	B	13.8 sec	B
6	Newport Blvd/19th St (ICU)	0.87	D	0.84	D

LOS = level of service
HCM = Highway Capacity Manual methodology
ICU = Intersection Capacity Utilization methodology
sec = seconds
V/C = volume-to-capacity

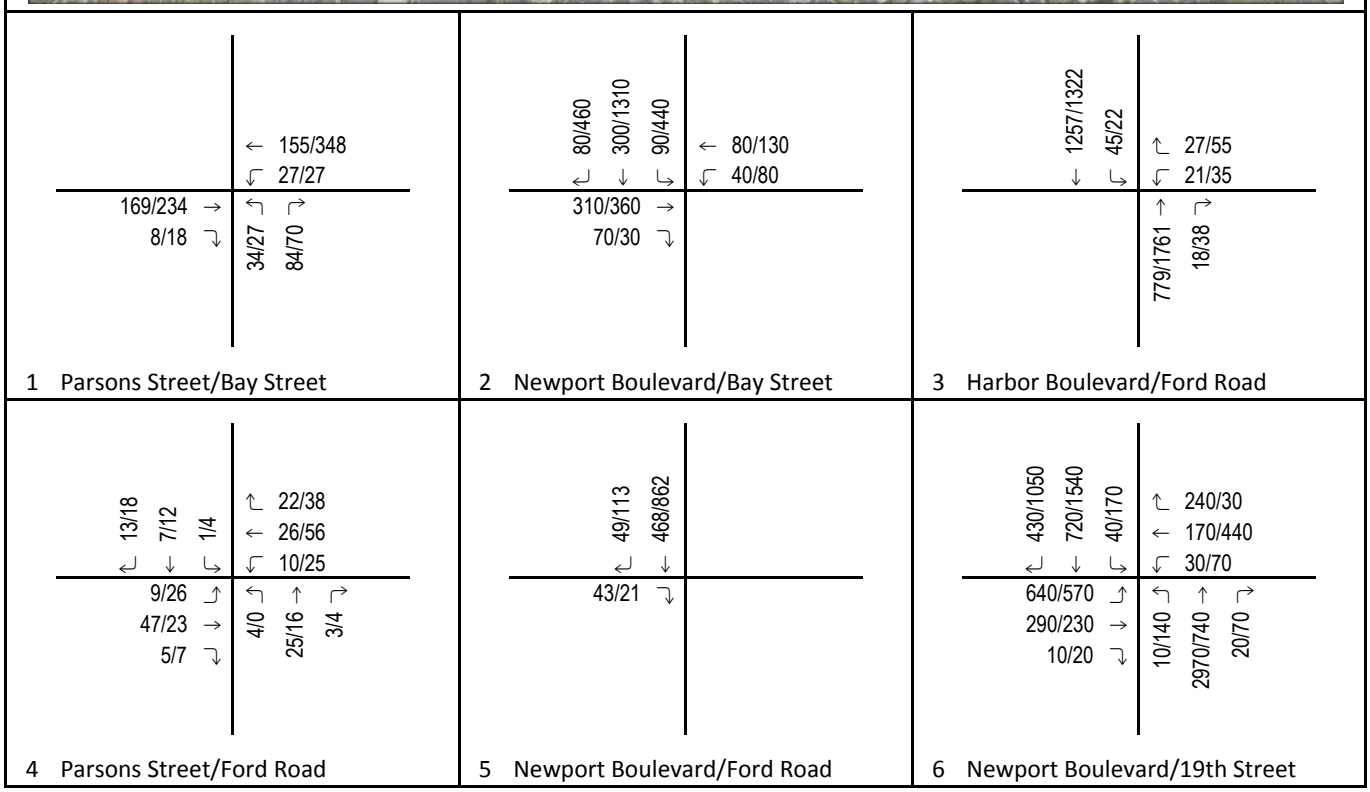
GENERAL PLAN BUILDOUT BASELINE CONDITION

In 2016, the City conducted a traffic analysis of the updated General Plan (Stantec, February 2016). That analysis used the Costa Mesa Traffic Model, which is a subarea model of the Orange County Transportation Analysis Model (Version 3.4), to develop future forecast traffic volumes.
Two intersections within the study area were included in the analysis and had future forecast volumes available (Newport Boulevard/Bay Street and Newport Boulevard/19th Street). To develop future traffic volumes for the remaining study intersections, LSA examined the growth rate between existing traffic volumes and the projected traffic volumes in 2035. LSA calculated the growth rate for four intersections within close proximity of the study area; specifically, Parsons Street/Bay Street, Newport Boulevard/Bay Street, Harbor Boulevard/19th Street, and Newport Boulevard/19th Street.

The traffic growth rate for the two intersections along 19th Street was lower than the traffic growth rate along Bay Street. This is likely due to higher existing traffic volume along 19th Street. Given that the four study intersections for which future traffic volumes needed to be developed have lower existing traffic volume, LSA applied the higher growth rate to these intersections. LSA calculated future intersection turning movements by applying a 30 percent growth factor to total approach volume and applying the existing ratio of left-, through, and right-turn movements. Figure 6 illustrates General Plan horizon traffic volumes at all six study intersections.

At the two intersections included in the City's updated General Plan traffic analysis, LSA used the intersection geometrics from that study. At Newport Boulevard/Bay Street, no changes in intersection geometrics were anticipated in the updated General Plan. At Newport Boulevard/19th Street, the updated General Plan anticipated one additional through lane at the northbound and southbound approaches.

For the remaining four intersections, no change in intersection geometrics is anticipated.
Table C summarizes the results of the future a.m. and p.m. peak-hour LOS analysis for all study area intersections. LOS worksheets are provided in Appendix D. As Table C indicates, all study area intersections operate at an acceptable LOS in the a.m. and p.m. peak hours in the General Plan buildout baseline condition with the exception of the intersection of Harbor Boulevard/Ford Road.



LSA

FIGURE 6

123/456 AM/PM Peak-Hour Volumes

1957 Newport Boulevard

General Plan (2035) Baseline Traffic Volumes

Table C: General Plan Buildout Baseline Intersection Level of Service Summary

Study Area No.	Intersections	AM Peak Hour		PM Peak Hour	
		V/C ratio / Delay	LOS	V/C ratio / Delay	LOS
1	Parsons St/Bay St (HCM)	10.2 sec	B	11.3 sec	B
2	Newport Blvd/Bay St (ICU)	0.34	A	0.69	B
3	Harbor Blvd/Ford Rd (HCM)	17.3 sec	C	82.7 sec	F
4	Parsons St/Ford Rd (HCM)	9.9 sec	A	10.3 sec	B
5	Newport Blvd/Ford Rd (HCM)	11.8 sec	B	16.5 sec	C
6	Newport Blvd/19th St (ICU)	0.87	D	0.72	C

= unsatisfactory LOS
LOS = level of service
HCM = Highway Capacity Manual methodology
ICU = Intersection Capacity Utilization methodology
sec = seconds
V/C = volume-to-capacity

At that intersection, traffic volume increases along Harbor Boulevard by 2035 are anticipated to increase the delay experienced by the westbound approach (particularly westbound left turns) and the resulting delay for the minor street left turn would be considered unsatisfactory by City standards. It should be noted the major street through movements would continue to perform with unimpeded traffic flow.

PROJECT IMPACTS

Trip Generation

As stated previously, the project site is currently occupied by two businesses: a self-storage facility with 54 units and a recreational vehicle repair and parts store. The Institute of Transportation Engineers (ITE) *Trip Generation*, Tenth Edition (2017), the most recent version, provides trip generation rates for self-storage facilities, but the recreational vehicle repair and parts business is not easily placed into an ITE *Trip Generation* category. To calculate existing trip generation, LSA contracted with an independent data collection company to obtain 24-hour driveway volumes on Wednesday, November 1, 2017. For this business, the lack of striped off-street parking spaces may encourage customers to park on Ford Road and walk into the business to purchase parts. For this reason, data collection included vehicle volume into and out of the business's driveways and pedestrian volume from on-street parking spaces. Applying a trip credit for both driveways and walk-ups would result in a lower net new trip generation for the proposed project. However, LSA chose to analyze the conservatively lower trip generation resulting from driveway volume only. Table D displays the trip generation for the two existing businesses.

The trip generation potential of the proposed project was calculated using a trip generation rate for multifamily housing (low rise) found in the ITE *Trip Generation*, Tenth Edition (2017), the most recent version. The trip generation comparison for the proposed project is summarized in Table D. As Table D indicates, the proposed project is anticipated to generate 177 net new daily trips, 9 net new a.m. peak-hour trips (0 inbound and 9 outbound), and 14 net new p.m. peak-hour trips (10 inbound and 4 outbound).

Table D: Trip Generation Comparison

Land Use (ITE Land Use Code)	Size	Unit	ADT	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Trip Rates[1]									
Multifamily Housing (Low Rise) (220)		DU	7.32	0.11	0.35	0.46	0.35	0.21	0.56
Mini-Warehouse (151)		Unit	0.18	0.01	0.00	0.01	0.01	0.01	0.02
Existing Land Uses									
1957 Newport manager's unit	1	DU	7	0	0	0	0	0	0
1957 Newport self-storage	54	Unit	10	1	0	1	1	1	2
Orange Coast Trailer Supply[2]	(surveyed)		84	3	4	7	2	3	5
Total Existing Trip Generation			*101*	*4*	*4*	*8*	*3*	*4*	*7*
Proposed Project Trip Generation									
Townhomes	38	DU	278	4	13	17	13	8	21
Net Trip Generation (Proposed - Existing)			**177**	**0**	**9**	**9**	**10**	**4**	**14**

[1] Trip rates based on the Institute of Transportation Engineers (ITE) *Trip Generation* Manual, 10th Edition (2017).
[2] Trip generation based on the existing driveway volumes from Wednesday, November 1, 2017.
ADT = average daily traffic
DU = dwelling units

Trip Distribution and Assignment

The closure of Ford Road at the intersection with Newport Boulevard (to be replaced with a private drive) could cause redistribution of the traffic volumes that use that intersection. Specifically, the eastbound right-turn movements would no longer be possible and would have to occur elsewhere, and fewer southbound right-turn movements may occur.

The eastbound right-turn movement at Newport Boulevard/Ford Road would no longer be possible with the roadway abandonment. LSA subtracted these volumes from the southbound approach of Newport Boulevard/19th Street proportionate to existing turn movements. The eastbound right-turn traffic volume was added to the intersections of Parsons Street/Ford Road, Harbor Boulevard/Ford Road, and Newport Boulevard/19th Street as necessary to redistribute the previous trips.

LSA examined the estimated trip generation for land uses between Bay Street and Ford Road and found that traffic originating between Bay Street and Ford Road accounts for about 10 percent of southbound traffic between Bay Street and Ford Road. Therefore, those uses may represent about 10 percent of the total southbound right-turning traffic. If no traffic were using the private drive (a worst case analysis that maximizes traffic added to other intersections), 10 percent of southbound right-turning traffic would need to continue to Newport Boulevard/19th Street and turn right, whereas the remainder of the traffic would turn right at Bay Street once Ford Road is closed because it is traffic destined for land uses in the area or destined for Harbor Boulevard. LSA subtracted the southbound right-turn volume from the westbound approach at Parsons Street/Ford Road according to the proportion of existing traffic movements (accounting for traffic destined for existing land uses between Parsons Street and Newport Boulevard). LSA added traffic volume to Newport Boulevard/Bay Street, Parsons Street/Bay Street, and Parsons Street/Ford Road as necessary to redistribute the Newport Boulevard/Ford Road southbound right-turn movement.

These exercises were conducted for the existing traffic volumes and the projected General Plan traffic volumes. Figure 7a illustrates the traffic redistribution of the existing turn volumes at Newport Boulevard/Ford Road. Figure 7b illustrates traffic redistribution of the General Plan turn volumes at Newport Boulevard/Ford Road.

Due to the closure of the Newport Boulevard/Ford Road intersection, project traffic was distributed to Parsons Street and from there according to existing travel patterns. About half of project traffic traveling to or from SR-55 was analyzed using the intersection of Newport Boulevard/19th Street and about half was analyzed using on-ramps and off-ramps north of Bay Street. Figure 8 illustrates the net project trip assignment during the a.m. and p.m. peak hours.

EXISTING PLUS PROJECT CONDITION

The effect of Ford Road redistribution was applied to the existing traffic volumes. Figure 9a shows the resulting existing plus Ford Road closure a.m. and p.m. peak-hour traffic volumes. Levels of service were calculated for the resulting traffic volumes. Then the net project trips were added, as illustrated on Figure 9b. Levels of service were again calculated for the resulting existing plus project traffic volumes. LOS worksheets are available in Appendix E.

Table E summarizes the results of the existing plus Ford Road closure and the existing plus project a.m. and p.m. peak-hour LOS analysis for all study area intersections. As Table E indicates, all study area intersections are anticipated to operate at an acceptable LOS (i.e., LOS D or better) in the a.m. and p.m. peak hours with implementation of the Ford Road closure and with the proposed project volumes.

Based on the City's criteria for determining significant traffic impacts (as described in the Methodology section of this report), the proposed project is not expected to result in a significant impact at any of the study area intersections.

FUTURE (2020) PLUS PROJECT CONDITION

Similar to the growth rate applied to existing traffic volumes, the existing with Ford Road closure traffic volumes were escalated by 3 percent to account for ambient traffic growth. Figure 10a shows the resulting future (2020) with Ford Road closure a.m. and p.m. peak-hour traffic volumes. Levels of service were calculated for the resulting traffic volumes. Then the net project trips were added, which is illustrated on Figure 10b. Levels of service were again calculated for the resulting existing plus project traffic volumes. LOS worksheets are available in Appendix F.

Table F summarizes the results of the future (2020) plus Ford Road closure and future (2020) plus project a.m. and p.m. peak-hour LOS analysis for all study area intersections. As Table F indicates, all study area intersections are anticipated to operate at an acceptable LOS (i.e., LOS D or better) in the a.m. and p.m. peak hours with implementation of the Ford Road closure and with the proposed project volumes.

Based on the City's criteria for determining significant traffic impacts (as described in the Methodology section of this report), the proposed project is not expected to result in a significant impact at any of the study area intersections.

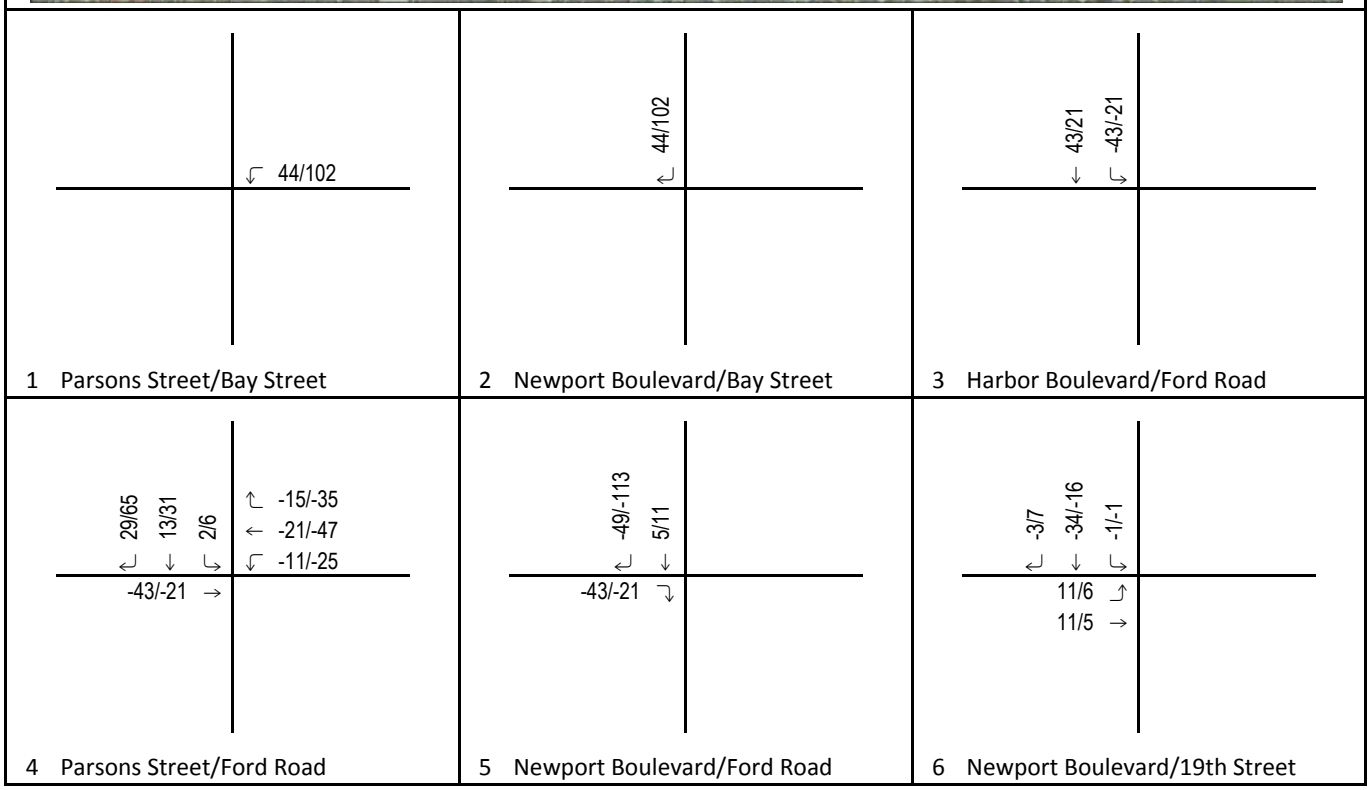
LSA

FIGURE 7a

123/456 AM/PM Peak-Hour Volumes

1957 Newport Boulevard

Ford Road Closure Existing Trip Redistribution



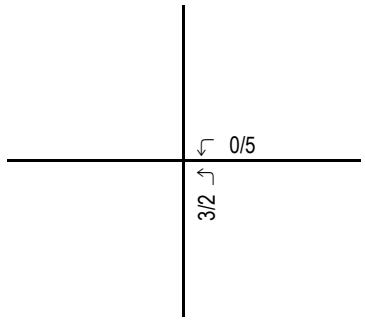
LSA

FIGURE 7b

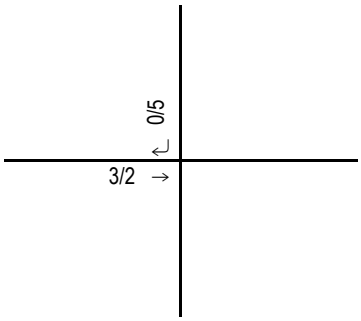
123/456 AM/PM Peak-Hour Volumes

1957 Newport Boulevard

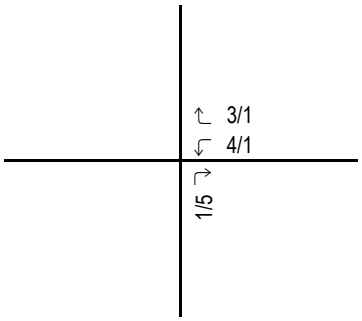
Ford Road Closure General Plan Trip Redistribution



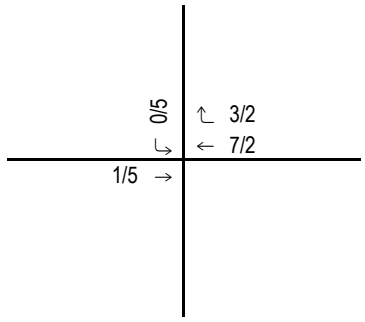
1 Parsons Street/Bay Street



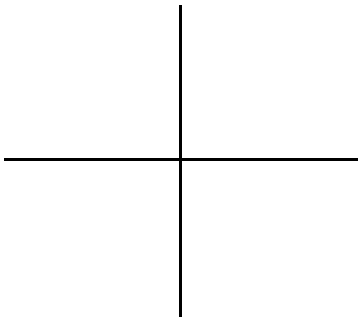
2 Newport Boulevard/Bay Street



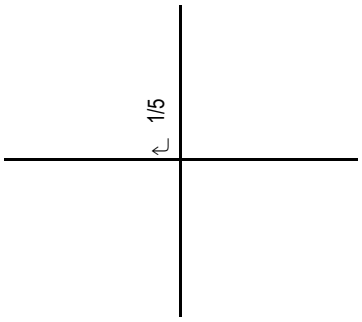
3 Harbor Boulevard/Ford Road



4 Parsons Street/Ford Road



5 Newport Boulevard/Ford Road



6 Newport Boulevard/19th Street

LSA

FIGURE 8

123/456 AM/PM Peak-Hour Volumes

1957 Newport Boulevard
Project Trip Assignment

1 Parsons Street/Bay Street

	←	119/268
	↰	55/99
130/180	→	
6/14	↳	
	↰	26/21
	↱	65/54

2 Newport Boulevard/Bay Street

108/389	↲	
356/673	↓	
151/312	↳	
	←	85/153
	↰	33/40
270/256	→	
22/43	↳	

3 Harbor Boulevard/Ford Road

1000/1033	↓	
2/1	↳	
	↱	21/42
	↰	16/27
	↑	599/1355
	↱	14/29

4 Parsons Street/Ford Road

25/51	↲	
12/27	↓	
3/7	↳	
	↱	4/3
	←	4/3
	↰	1/2
7/20	↳	
3/2	→	
4/5	↳	
	↰	3/0
	↑	19/12
	↱	2/3

5 Newport Boulevard/Ford Road

364/672	↓	

6 Newport Boulevard/19th Street

569/946	↲	
2540/2553	↓	
171/201	↳	
	↱	255/198
	←	214/383
	↰	38/65
903/791	↳	
228/239	→	
15/82	↳	
	↰	17/44
	↑	3018/2761
	↱	27/24

LSA

FIGURE 9a

123/456 AM/PM Peak-Hour Volumes

1957 Newport Boulevard

Existing Plus Ford Road Closure Traffic Volumes

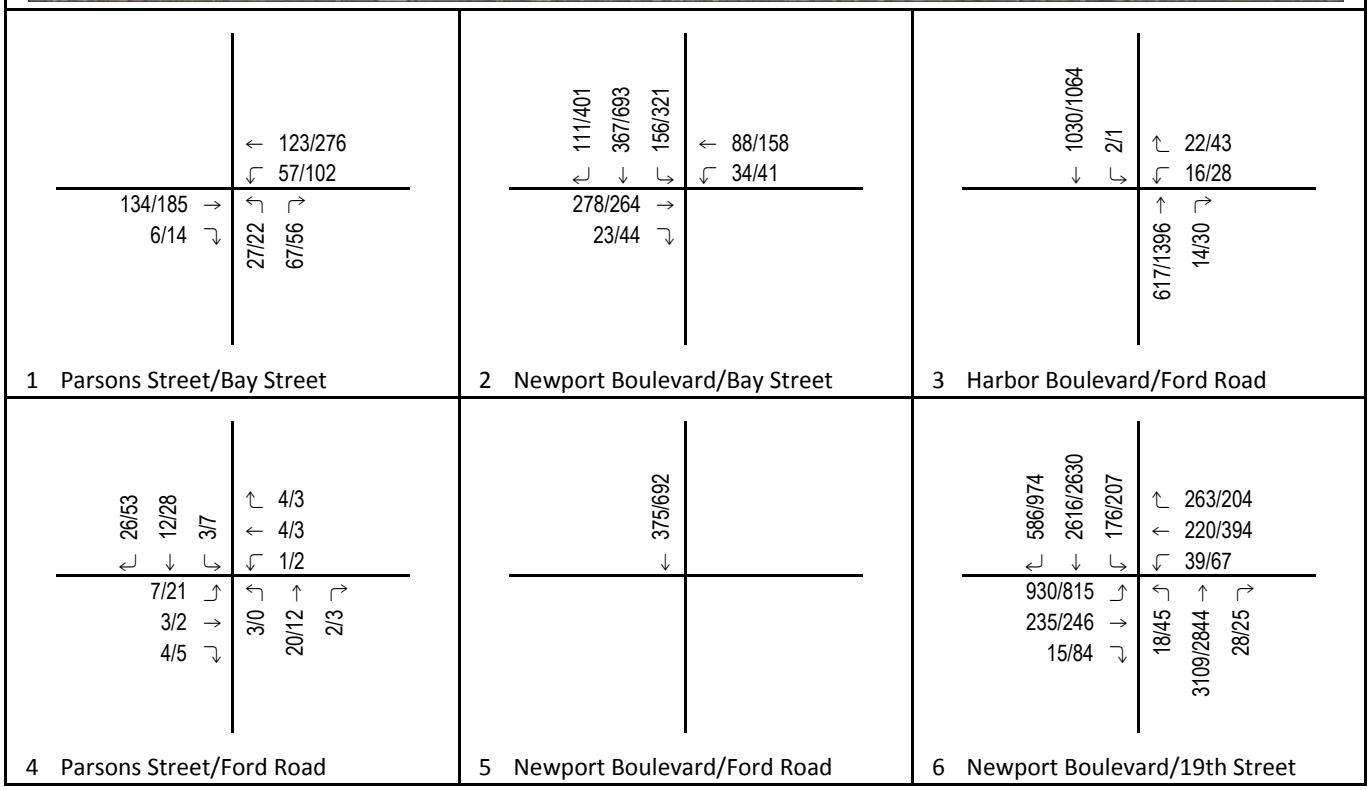
← 119/268 ↰ 55/104 130/180 → 6/14 ↳ ↰ 29/23 ↱ 65/54	↲ 108/394 ↓ 356/673 ↳ 151/312 ← 85/153 ↰ 33/40 273/258 → 22/43 ↳	↓ 1000/1033 ↳ 2/1 ↱ 25/43 ↰ 19/28 599/1355 ↑ 15/34 ↱
1 Parsons Street/Bay Street	2 Newport Boulevard/Bay Street	3 Harbor Boulevard/Ford Road
↲ 25/51 ↓ 12/27 ↳ 3/12 ↱ 7/5 ← 11/5 ↰ 1/2 7/20 ↳ 4/7 → 4/5 ↳ ↰ 3/0 ↑ 19/12 ↱ 2/3	↓ 364/672	↲ 570/951 ↓ 2540/2553 ↳ 171/201 ↱ 255/198 ← 214/383 ↰ 38/65 903/791 ↳ 228/239 → 15/82 ↳ ↰ 17/44 ↑ 3018/2761 ↱ 27/24
4 Parsons Street/Ford Road	5 Newport Boulevard/Ford Road	6 Newport Boulevard/19th Street

LSA

FIGURE 9b

123/456 AM/PM Peak-Hour Volumes

1957 Newport Boulevard
Existing Plus Project Traffic Volumes



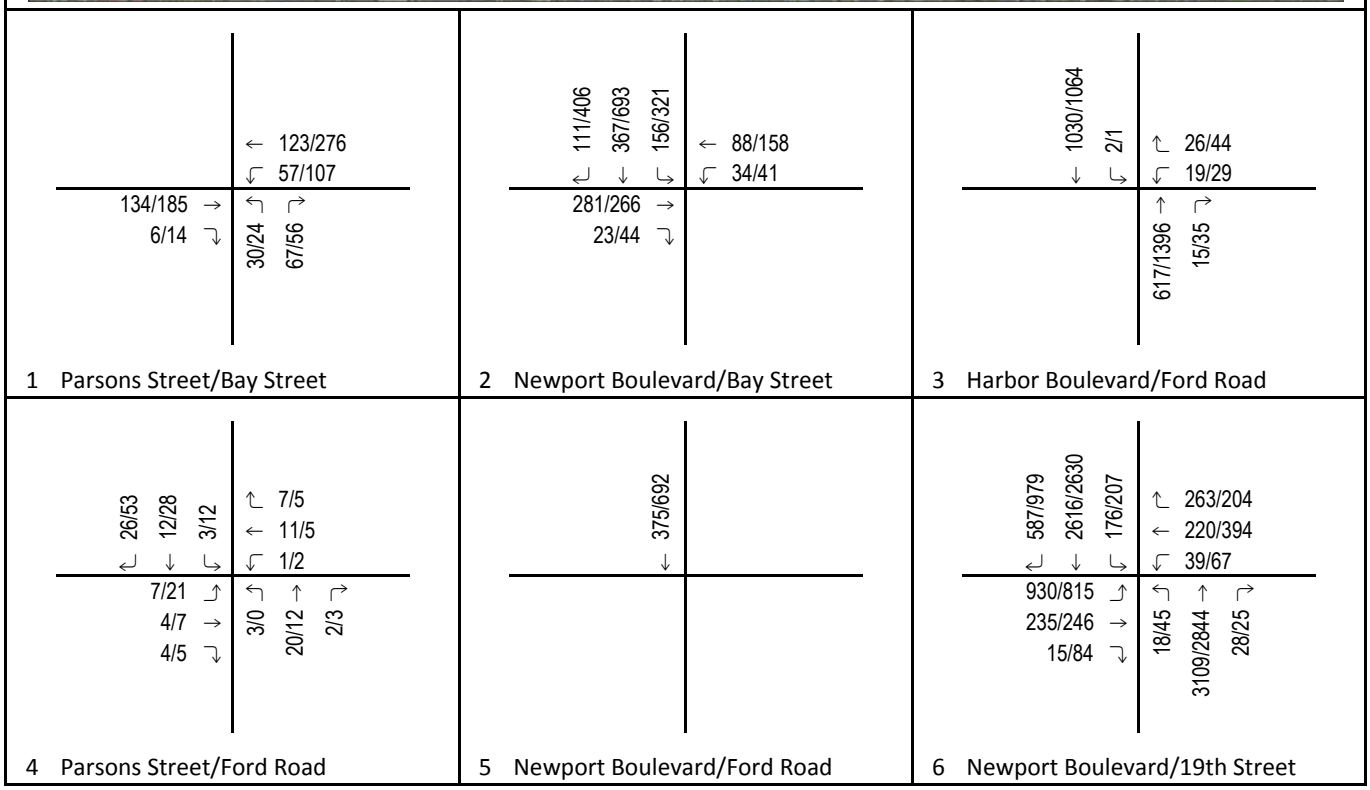
LSA

FIGURE 10a

123/456 AM/PM Peak-Hour Volumes

1957 Newport Boulevard

Future (2020) Plus Ford Road Closure Traffic Volumes



LSA

FIGURE 10b

123/456 AM/PM Peak-Hour Volumes

1957 Newport Boulevard

Future (2020) Plus Project Traffic Volumes

Table E: Existing and Existing Plus Project Level of Service Comparison

Intersection	Existing				Existing without Ford Road				Existing Plus Project				Change With Project	
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	AM	PM
1. Parsons St/Bay St (HCM)	10.0 sec	B	10.6 sec	B	10.2 sec	B	11.5 sec	B	10.3 sec	B	11.8 sec	B	0.3 sec	1.2 sec
2. Newport Blvd/Bay St (ICU)	0.33	A	0.42	A	0.33	A	0.45	A	0.34	A	0.46	A	0.00	0.04
3. Harbor Blvd/Ford Rd (HCM)	14.9 sec	B	30.7 sec	D	14.3 sec	B	29.1 sec	D	14.4 sec	B	29.7 sec	D	(0.5) sec	(1.0) sec
4. Parsons St/Ford Rd (HCM)	9.7 sec	A	10.1 sec	B	9.2 sec	A	9.3 sec	A	9.3 sec	A	9.3 sec	A	(0.4) sec	(0.8) sec
5. Newport Blvd/Ford Rd (HCM)	11.5 sec	B	13.6 sec	B	n/a		n/a		n/a		n/a		(11.5) sec	(13.6) sec
6. Newport Blvd/19th St (ICU)	0.85	D	0.82	D	0.85	D	0.82	D	0.85	D	0.82	D	0.00	0.00

LOS = level of service
HCM = Highway Capacity Manual methodology
ICU = Intersection Capacity Utilization methodology
n/a = not applicable
sec = seconds
V/C = volume-to-capacity

Table F: Future (2020) and Future (2020) Plus Project Level of Service Comparison

Intersection	Future No Project				Future without Ford Road				Future Plus Project				Change With Project	
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	AM	PM
1. Parsons St/Bay St (HCM)	10.0 sec	B	10.7 sec	B	10.3 sec	B	11.7 sec	B	10.4 sec	B	11.9 sec	B	0.4 sec	1.2 sec
2. Newport Blvd/Bay St (ICU)	0.34	A	0.43	A	0.34	A	0.47	A	0.34	A	0.47	A	0.00	0.04
3. Harbor Blvd/Ford Rd (HCM)	15.2 sec	B	33.4 sec	D	14.5 sec	B	30.9 sec	D	14.6 sec	B	31.8 sec	D	(0.6) sec	(1.6) sec
4. Parsons St/Ford Rd (HCM)	9.7 sec	A	10.1 sec	B	9.2 sec	A	9.3 sec	A	9.3 sec	A	9.4 sec	A	(0.4) sec	(0.7) sec
5. Newport Blvd/Ford Rd (HCM)	11.7 sec	B	13.8 sec	B	n/a		n/a		n/a		n/a		(11.7) sec	(13.8) sec
6. Newport Blvd/19th St (ICU)	0.87	D	0.84	D	0.88	D	0.84	D	0.88	D	0.84	D	0.00	0.00

LOS = level of service
HCM = Highway Capacity Manual methodology
ICU = Intersection Capacity Utilization methodology
n/a = not applicable
sec = seconds
V/C = volume-to-capacity

GENERAL PLAN BUILDOUT PLUS PROJECT CONDITION

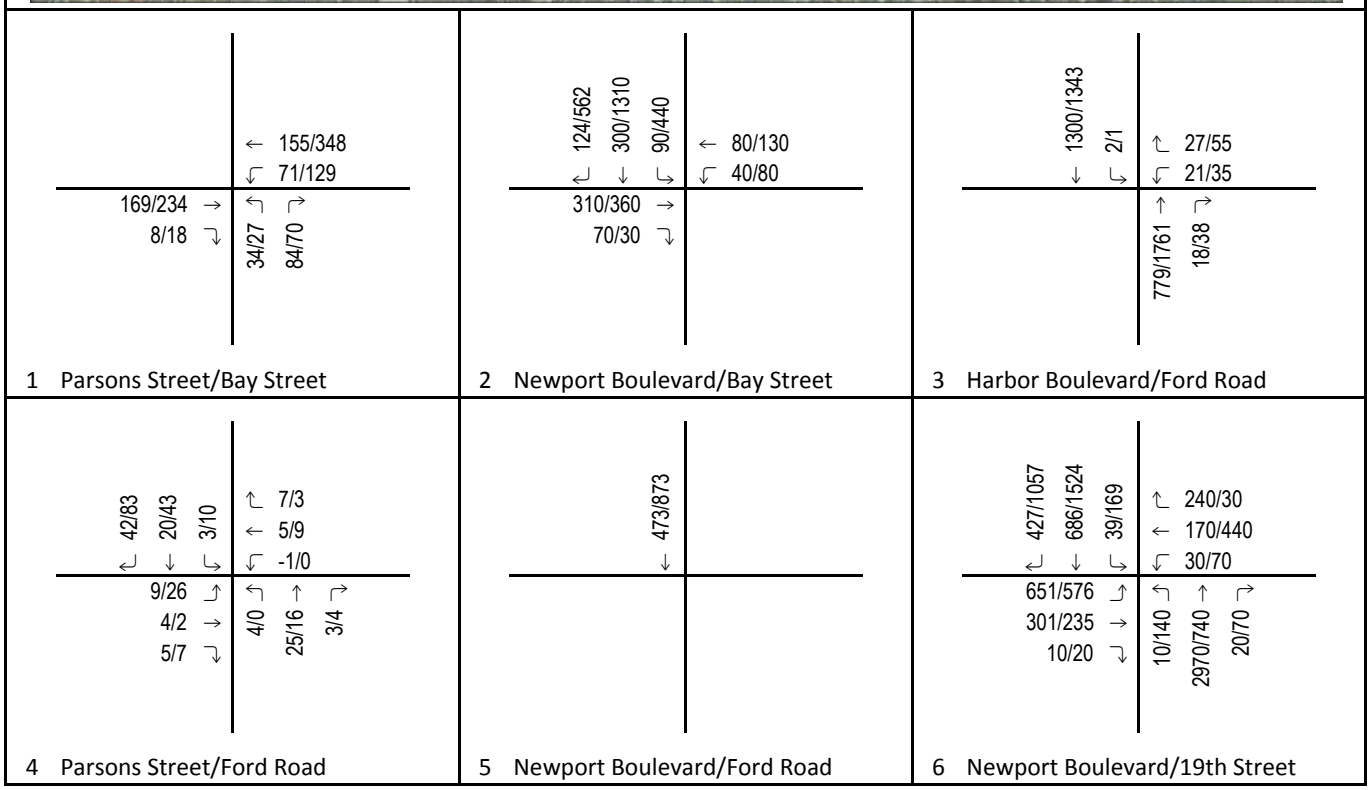
The effect of Ford Road redistribution was applied to the General Plan traffic volumes. Figure 11a shows the resulting General Plan plus Ford Road closure a.m. and p.m. peak-hour traffic volumes. Levels of service were calculated for the resulting traffic volumes. Then the net project trips were added, which is illustrated on Figure 11b. Levels of service were again calculated for the resulting General Plan plus project traffic volumes. LOS worksheets are available in Appendix G.

Table G summarizes the results of the General Plan plus Ford Road closure and General Plan plus project a.m. and p.m. peak-hour LOS analysis for all study area intersections. As Table G indicates, all study area intersections are anticipated to operate at an acceptable LOS (i.e., LOS D or better) in the a.m. and p.m. peak hours with implementation of the Ford Road closure and with the proposed project volumes, with the exception of the intersection of Harbor Boulevard/Ford Road. The Harbor Boulevard/Ford Road intersection was found to operate at an unsatisfactory LOS in the General Plan no project condition due to delay making westbound left turns. Closure of the Newport Boulevard/Ford Road intersection would redistribute traffic at this intersection but would not increase traffic volume. The project is estimated to add one right-turn and one left-turn to the westbound approach in the p.m. peak hour.

The City does not have a threshold determining when a project impact occurs to an unsignalized intersection operating at an unsatisfactory level of delay. In the absence of a stated threshold, LSA examined whether the intersection would warrant a traffic signal, and whether the project impact would meet the significance threshold for a signalized intersection.

The *California Manual on Uniform Traffic Control Devices* (CAMUTCD), 2014 Edition, provides nine warrants for traffic signals. Warrant 3 is based on traffic volume during the peak commute hours. This warrant provides different thresholds for rural and urban settings. A traffic volume that would not meet the signal warrant in an urban setting could meet the signal warrant in a rural setting. The urban setting is the default value, but the rural setting may be used in the built-up area of an isolated community with a population of less than 10,000, or where the speed limit on a major street is greater than 40 miles per hour (mph). Although the City is an urban setting, the speed limit on Harbor Boulevard is 40 mph; therefore, the rural thresholds were considered for Warrant 3, Peak Hour Volume. The thresholds shown in Figure 4C-4 and Figure 4C-101 of the CAMUTCD have been compared to the General Plan traffic volumes. Only one of the necessary three elements of Warrant 3 Part A (i.e., entering volume) is satisfied by the General Plan plus Project volume. Part B compares traffic volumes of both approaches to plotted curves. In a rural setting, if the major approach volume exceeds 1,300 vehicles per hour (vph), the warrant is met if the minor approach (with two lanes) exceeds 100 vph. The major approach volume at the intersection of Harbor Boulevard/Ford Road exceeds 1,300 vph but the minor approach volume is 92, which does not meet the threshold. Therefore, the intersection does not meet the peak hour traffic signal warrant.

As stated previously, according to the City's standards, a project would have a significant impact if the ICU increase attributed to the project is 0.01 or greater. LSA calculated the ICU for the intersection of Harbor Boulevard/Ford Road in the p.m. peak hour in the General Plan no project condition. The ICU would be 0.398. For the p.m. peak hour in the General Plan plus project condition, the ICU would be 0.387. Because the intersection would not warrant a traffic signal and



LSA

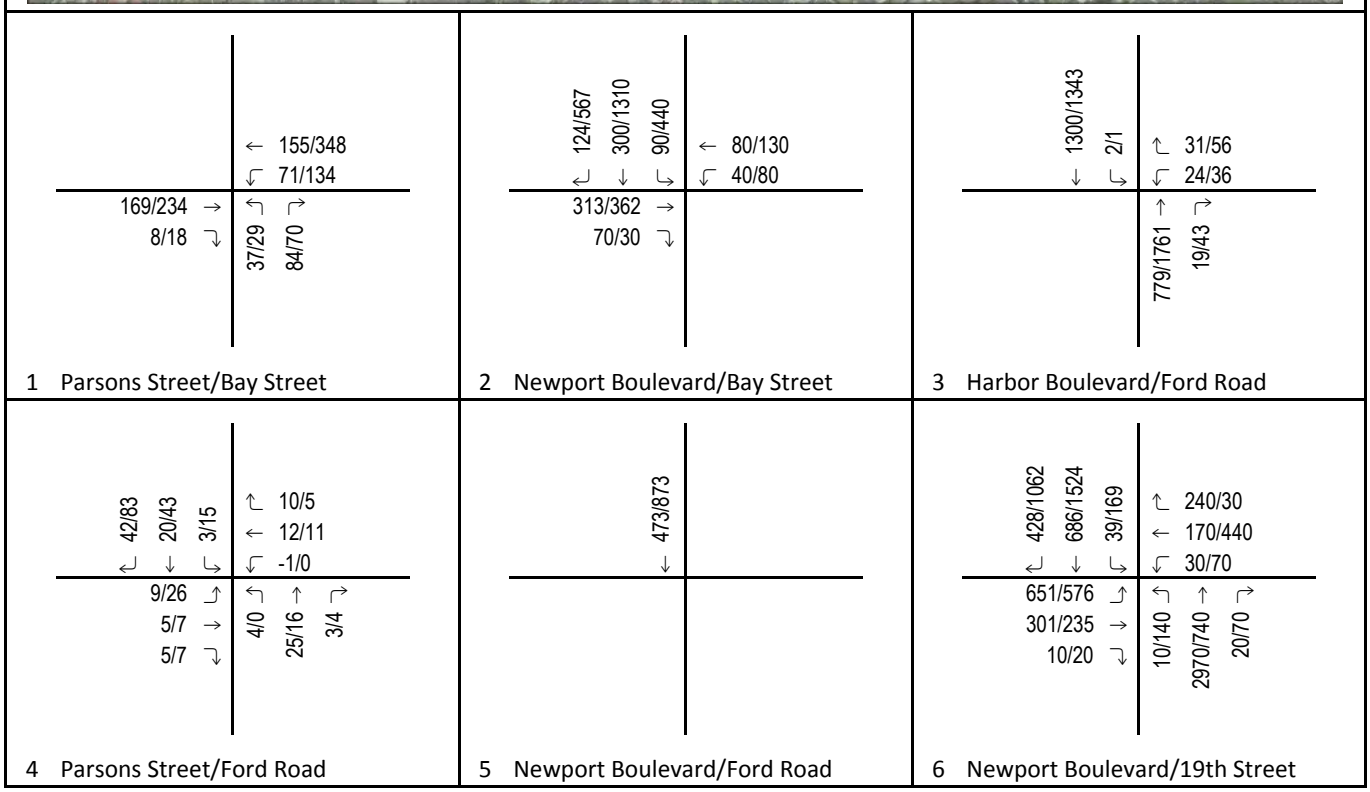
FIGURE 11a

123/456 AM/PM Peak-Hour Volumes

1957 Newport Boulevard

General Plan (2035) Plus Ford Road Closure Traffic Volumes

P:\OLC1707\Figures\Fig 11a-2035 wo Ford volume.xls (4/13/2018)



LSA

FIGURE 11b

123/456 AM/PM Peak-Hour Volumes

1957 Newport Boulevard

General Plan (2035) Plus Project Traffic Volumes

Table G: General Plan and General Plan Plus Project Level of Service Comparison

Intersection	General Plan No Project				General Plan without Ford Road				General Plan Plus Project				Change With Project	
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	V/C / Delay	LOS	AM	PM
1. Parsons St/Bay St (HCM)	10.2 sec	B	11.3 sec	B	10.6 sec	B	12.8 sec	B	10.6 sec	B	13.1 sec	B	0.4 sec	1.8 sec
2. Newport Blvd/Bay St (ICU)	0.34	A	0.69	B	0.34	A	0.69	B	0.35	A	0.70	B	0.00	0.00
3. Harbor Blvd/Ford Rd (HCM)	17.3 sec	C	82.7 sec	F	16.2 sec	C	65.3 sec	F	16.3 sec	C	66.8 sec	F	(1.0) sec	(15.9) sec
4. Parsons St/Ford Rd (HCM)	9.9 sec	A	10.3 sec	B	9.3 sec	A	9.4 sec	A	9.4 sec	A	9.5 sec	A	(0.5) sec	(0.8) sec
5. Newport Blvd/Ford Rd (HCM)	11.8 sec	B	16.5 sec	C	n/a		n/a		n/a		n/a		(11.8) sec	(16.5) sec
6. Newport Blvd/19th St (ICU)	0.87	D	0.72	C	0.87	D	0.72	C	0.87	D	0.72	C	0.00	0.00

= unsatisfactory LOS

LOS = level of service
HCM = Highway Capacity Manual methodology
ICU = Intersection Capacity Utilization methodology
n/a = not applicable
sec = seconds
V/C = volume-to-capacity

the ICU increase attributed to the project is less than 0.01, the project would not have a significant impact.

CONCLUSION

Based on the results of this traffic impact analysis, the proposed closure of the Newport Boulevard/ Ford Road intersection (to be replaced with a private drive allowing one-way westbound travel) and the proposed construction of 38 townhome dwelling units can be implemented without significantly impacting the circulation system. All study area intersections are anticipated to operate at a satisfactory LOS in both a.m. and p.m. peak hours with the addition of project traffic, with the exception of the Harbor Boulevard/Ford Road intersection. In the General Plan buildout horizon, increased traffic volume on Harbor Boulevard is anticipated to increase the delay of the westbound approach to an unsatisfactory level for the minor street left-turn movement. The majority of the traffic traveling north and south on Harbor Boulevard would remain unimpeded. However, traffic volume at this intersection would not meet the warrants for providing a traffic signal. Closure of the Newport Boulevard/Ford Road intersection would redistribute traffic at this intersection but would not increase traffic volume. In addition, the project would contribute less than 0.01 to the volume to capacity ratio of the intersection. Therefore, the project would not have a significant impact according to the City's guidelines.

APPENDIX A
EXISTING TRAFFIC VOLUMES

National Data & Surveying Services

Intersection Turning Movement Count

Location: Parsons St & Ford Rd
City: Costa Mesa
Control: 2-Way Stop (NB/SB)

Project ID: 17-1231-001
Date: 11/8/2017

Total

NS/EW Streets:	Parsons St				Parsons St				Ford Rd				Ford Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	7	2	0	0	1	0	0	0	3	0	0	1	5	4	0	24
7:15 AM	0	5	1	0	1	1	2	1	2	4	1	0	1	11	7	0	37
7:30 AM	2	7	0	1	1	0	2	0	0	6	1	0	2	7	2	0	31
7:45 AM	1	6	0	0	1	0	3	0	3	2	1	0	3	3	5	0	28
8:00 AM	1	8	0	0	0	0	4	0	2	5	1	1	2	5	5	0	34
8:15 AM	1	5	1	0	0	3	1	1	1	10	0	1	1	2	4	0	31
8:30 AM	0	4	1	0	0	1	4	0	0	7	1	0	4	5	4	0	31
8:45 AM	1	2	0	0	0	1	1	0	2	14	2	0	1	8	4	0	36
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	44	5	1	3	7	17	2	10	51	7	2	15	46	35	0	252
APPROACH %'s :	12.28%	77.19%	8.77%	1.75%	10.34%	24.14%	58.62%	6.90%	14.29%	72.86%	10.00%	2.86%	15.63%	47.92%	36.46%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	3	19	2	0	0	5	10	1	5	36	4	2	8	20	17	0	132
PEAK HR FACTOR :	0.750	0.594	0.500	0.000	0.000	0.417	0.625	0.250	0.625	0.643	0.500	0.500	0.500	0.625	0.850	0.000	0.917
	0.667				0.800				0.653				0.865				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	3	1	0	0	3	4	0	5	2	4	0	4	10	6	0	43
4:15 PM	0	2	1	0	1	1	6	1	1	5	0	0	2	9	4	1	34
4:30 PM	1	1	0	0	2	1	5	0	3	5	0	0	3	4	4	0	29
4:45 PM	0	2	0	0	0	4	3	0	6	6	1	0	3	12	4	0	41
5:00 PM	0	3	0	0	2	1	3	1	7	3	0	0	4	15	12	0	51
5:15 PM	0	3	2	0	0	4	5	0	4	3	4	0	6	7	9	1	48
5:30 PM	0	2	1	0	0	2	4	0	4	5	0	0	3	5	3	0	29
5:45 PM	0	4	0	0	0	2	2	0	5	7	1	0	5	16	5	0	47
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	20	5	0	5	18	32	2	35	36	10	0	30	78	47	2	322
APPROACH %'s :	7.41%	74.07%	18.52%	0.00%	8.77%	31.58%	56.14%	3.51%	43.21%	44.44%	12.35%	0.00%	19.11%	49.68%	29.94%	1.27%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	12	3	0	2	9	14	1	20	18	5	0	18	43	29	1	175
PEAK HR FACTOR :	0.000	0.750	0.375	0.000	0.250	0.563	0.700	0.250	0.714	0.643	0.313	0.000	0.750	0.672	0.604	0.250	0.858
	0.750				0.722				0.827				0.734				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Newport Blvd & Ford Rd
City: Costa Mesa
Control: 1-Way Stop (EB)

Project ID: 17-1231-002
Date: 11/8/2017

Total

NS/EW Streets:	Newport Blvd				Newport Blvd				Ford Rd				Ford Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	42	10	0	0	0	2	0	0	0	0	0	54
7:15 AM	0	0	0	0	0	54	17	0	0	0	5	0	0	0	0	0	76
7:30 AM	0	0	0	0	0	52	11	0	0	0	9	0	0	0	0	0	72
7:45 AM	0	0	0	0	0	70	8	0	0	0	2	0	0	0	0	0	80
8:00 AM	0	0	0	0	0	72	10	0	0	0	3	0	0	0	0	0	85
8:15 AM	0	0	0	0	0	78	5	0	0	0	11	0	0	0	0	0	94
8:30 AM	0	0	0	0	0	95	12	0	0	0	5	0	0	0	0	0	112
8:45 AM	0	0	0	0	0	115	11	0	0	0	14	0	0	0	0	0	140
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	578	84	0	0	0	51	0	0	0	0	0	713
APPROACH %'s :					0.00%	87.31%	12.69%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	**08:00 AM - 09:00 AM**																TOTAL
PEAK HR VOL :	0	0	0	0	0	360	38	0	0	0	33	0	0	0	0	0	431
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.783	0.792	0.000	0.000	0.000	0.589	0.000	0.000	0.000	0.000	0.000	0.770
						0.790				0.589							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	103	17	0	0	0	2	0	0	0	0	0	122
4:15 PM	0	0	0	0	0	125	13	0	0	0	5	0	0	0	0	0	143
4:30 PM	0	0	0	0	0	153	14	0	0	0	8	0	0	0	0	0	175
4:45 PM	0	0	0	0	0	144	21	0	0	0	8	0	0	0	0	0	173
5:00 PM	0	0	0	0	0	169	29	0	0	0	5	0	0	0	0	0	203
5:15 PM	0	0	0	0	0	170	22	0	0	0	3	0	0	0	0	0	195
5:30 PM	0	0	0	0	0	161	11	0	0	0	5	0	0	0	0	0	177
5:45 PM	0	0	0	0	0	163	25	0	0	0	3	0	0	0	0	0	191
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	1188	152	0	0	0	39	0	0	0	0	0	1379
APPROACH %'s :					0.00%	88.66%	11.34%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	**05:00 PM - 06:00 PM**																TOTAL
PEAK HR VOL :	0	0	0	0	0	663	87	0	0	0	16	0	0	0	0	0	766
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.975	0.750	0.000	0.000	0.000	0.800	0.000	0.000	0.000	0.000	0.000	0.943
						0.947				0.800							

National Data & Surveying Services

Intersection Turning Movement Count

Location: Parsons St & Bay St
City: Costa Mesa
Control: 1-Way Stop (NB)

Project ID: 17-1231-003
Date: 11/8/2017

Total

NS/EW Streets:	Parsons St				Parsons St				Bay St				Bay St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	19	0	1	0	0	0	0	21	2	0	2	22	0	0	68
7:15 AM	9	0	18	0	0	0	0	0	0	28	3	0	1	25	0	0	84
7:30 AM	3	0	10	0	0	0	0	0	0	27	1	0	0	18	0	0	59
7:45 AM	10	0	19	0	0	1	1	0	0	46	2	0	4	34	0	0	117
8:00 AM	8	0	16	0	0	0	2	0	0	26	2	0	5	29	0	1	89
8:15 AM	5	0	18	0	0	0	1	0	0	34	0	0	6	27	1	0	92
8:30 AM	3	0	12	0	0	0	2	0	0	24	2	0	5	29	2	0	79
8:45 AM	2	0	9	0	0	0	2	0	0	41	2	0	1	33	0	0	90
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	41	0	121	0	1	1	8	0	0	247	14	0	24	217	3	1	678
APPROACH %'s :	25.31%	0.00%	74.69%	0.00%	10.00%	10.00%	80.00%	0.00%	0.00%	94.64%	5.36%	0.00%	9.80%	88.57%	1.22%	0.41%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	26	0	65	0	0	1	6	0	0	130	6	0	20	119	3	1	377
PEAK HR FACTOR :	0.650	0.000	0.855	0.000	0.000	0.250	0.750	0.000	0.000	0.707	0.750	0.000	0.833	0.875	0.375	0.250	0.806
	0.784				0.875				0.708				0.941				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	0	10	0	0	0	4	0	0	40	2	0	4	47	0	0	109
4:15 PM	3	0	8	0	0	0	2	0	0	25	3	0	11	55	0	0	107
4:30 PM	3	0	6	0	1	0	1	0	0	23	4	0	6	47	1	0	92
4:45 PM	7	0	9	0	0	0	1	0	2	28	3	1	7	50	0	0	108
5:00 PM	9	0	15	0	0	0	0	0	0	52	5	1	6	71	1	0	160
5:15 PM	2	0	16	0	2	0	0	0	0	54	4	0	5	60	0	0	143
5:30 PM	0	0	11	0	1	0	1	0	0	41	0	0	6	72	0	0	132
5:45 PM	10	0	12	0	0	0	0	0	0	33	5	0	4	65	0	0	129
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	36	0	87	0	4	0	9	0	2	296	26	2	49	467	2	0	980
APPROACH %'s :	29.27%	0.00%	70.73%	0.00%	30.77%	0.00%	69.23%	0.00%	0.61%	90.80%	7.98%	0.61%	9.46%	90.15%	0.39%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	21	0	54	0	3	0	1	0	0	180	14	1	21	268	1	0	564
PEAK HR FACTOR :	0.525	0.000	0.844	0.000	0.375	0.000	0.250	0.000	0.000	0.833	0.700	0.250	0.875	0.931	0.250	0.000	0.881
	0.781				0.500				0.841				0.929				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Newport Blvd & Bay St
City: Costa Mesa
Control: Signalized

Project ID: 17-1231-004
Date: 11/8/2017

Total

NS/EW Streets:	Newport Blvd				Newport Blvd				Bay St				Bay St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1	2	1	0	0	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	19	40	16	0	0	65	6	0	2	8	0	0	156
7:15 AM	0	0	0	0	24	55	11	0	0	105	8	0	5	12	0	0	220
7:30 AM	0	0	0	0	38	53	7	0	0	118	5	0	3	12	0	0	236
7:45 AM	0	0	0	0	42	61	17	0	0	99	9	0	4	24	0	0	256
8:00 AM	0	0	0	0	42	76	12	0	0	66	5	0	7	27	0	0	235
8:15 AM	0	0	0	0	40	75	17	0	0	81	2	0	6	24	0	0	245
8:30 AM	0	0	0	0	33	91	21	0	0	64	7	0	11	18	0	0	245
8:45 AM	0	0	0	0	36	114	24	0	0	59	8	0	9	16	0	0	266
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	274	565	125	0	0	657	50	0	47	141	0	0	1859
APPROACH %'s :					28.42%	58.61%	12.97%	0.00%	0.00%	92.93%	7.07%	0.00%	25.00%	75.00%	0.00%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	0	0	0	151	356	74	0	0	270	22	0	33	85	0	0	991
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.899	0.781	0.771	0.000	0.000	0.833	0.688	0.000	0.750	0.787	0.000	0.000	0.931
					0.835				0.880				0.868				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1	2	1	0	0	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	62	117	51	0	0	53	11	0	9	28	0	0	331
4:15 PM	0	0	0	0	76	126	64	0	0	48	11	0	9	27	0	0	361
4:30 PM	0	0	0	0	69	147	59	0	0	36	7	0	13	29	0	0	360
4:45 PM	0	0	0	0	88	160	75	0	0	62	10	0	11	33	0	0	439
5:00 PM	0	0	0	0	64	173	75	0	0	70	11	0	10	33	0	0	436
5:15 PM	0	0	0	0	90	176	68	0	0	69	13	0	12	47	0	0	475
5:30 PM	0	0	0	0	70	164	93	0	0	55	9	0	7	40	0	0	438
5:45 PM	0	0	0	0	81	177	69	0	0	57	12	0	8	27	0	0	431
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	600	1240	554	0	0	450	84	0	79	264	0	0	3271
APPROACH %'s :					25.06%	51.80%	23.14%	0.00%	0.00%	84.27%	15.73%	0.00%	23.03%	76.97%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	312	673	311	0	0	256	43	0	40	153	0	0	1788
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.867	0.956	0.836	0.000	0.000	0.914	0.827	0.000	0.833	0.814	0.000	0.000	0.941
					0.970				0.912				0.818				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Harbor Blvd & Ford Rd
City: Costa Mesa
Control: 1-Way Stop (WB)

Project ID: 17-1231-005
Date: 11/8/2017

Total

NS/EW Streets:	Harbor Blvd				Harbor Blvd				Ford Rd				Ford Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	1	3	0	0	0	1	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	98	1	0	2	145	0	0	0	0	0	0	1	0	1	0	249
7:15 AM	1	109	2	0	7	196	0	0	0	0	0	0	2	0	3	0	320
7:30 AM	0	130	1	0	5	230	0	0	0	0	0	0	4	0	3	0	373
7:45 AM	1	125	2	0	13	266	0	0	0	0	0	0	4	0	5	0	416
8:00 AM	0	136	2	0	8	211	0	0	0	0	0	0	5	0	2	0	364
8:15 AM	2	132	2	0	10	230	1	0	0	0	0	0	3	0	3	0	383
8:30 AM	0	152	5	0	10	257	0	1	0	0	0	0	4	0	4	0	433
8:45 AM	2	179	5	0	6	269	1	0	0	0	0	0	4	0	12	0	478
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	1061	20	0	61	1804	2	1	0	0	0	0	27	0	33	0	3016
APPROACH %'s :	0.64%	97.52%	1.84%	0.00%	3.27%	96.57%	0.11%	0.05%					45.00%	0.00%	55.00%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	4	599	14	0	34	967	2	1	0	0	0	0	16	0	21	0	1658
PEAK HR FACTOR :	0.500	0.837	0.700	0.000	0.850	0.899	0.500	0.250	0.000	0.000	0.000	0.000	0.800	0.000	0.438	0.000	0.867
	0.829				0.909								0.578				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	1	3	0	0	0	1	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	243	2	0	6	259	0	0	0	0	2	0	7	0	11	0	531
4:15 PM	0	273	9	0	5	271	0	1	0	0	0	0	5	0	10	0	574
4:30 PM	0	254	2	0	4	291	0	0	0	0	0	0	6	0	9	0	566
4:45 PM	0	355	8	0	3	257	1	0	0	0	0	0	8	0	11	0	643
5:00 PM	0	310	8	0	4	241	0	0	0	0	0	0	6	0	10	0	579
5:15 PM	1	320	7	1	7	255	1	0	0	0	0	0	8	0	11	0	611
5:30 PM	0	370	6	0	2	264	0	1	1	0	0	0	5	0	10	0	659
5:45 PM	0	271	4	0	3	260	2	0	0	0	0	0	12	0	12	0	564
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	2396	46	1	34	2098	4	2	1	0	2	0	57	0	84	0	4727
APPROACH %'s :	0.08%	98.00%	1.88%	0.04%	1.59%	98.13%	0.19%	0.09%	33.33%	0.00%	66.67%	0.00%	40.43%	0.00%	59.57%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	1	1355	29	1	16	1017	2	1	1	0	0	0	27	0	42	0	2492
PEAK HR FACTOR :	0.250	0.916	0.906	0.250	0.571	0.963	0.500	0.250	0.250	0.000	0.000	0.000	0.844	0.000	0.955	0.000	0.945
	0.922				0.970				0.250				0.908				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Newport Blvd & 19th St
City: Costa Mesa
Control: Signalized

Project ID: 17-1231-006
Date: 11/8/2017

Total

NS/EW Streets:	Newport Blvd				Newport Blvd				19th St				19th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	4	0	0	1	3.5	1.5	0	2.5	1.5	1	0	1	2.5	1.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	617	2	0	35	550	137	3	259	49	6	1	5	20	51	1	1736
7:15 AM	3	801	5	0	35	570	130	6	228	36	4	0	13	29	59	0	1919
7:30 AM	2	815	5	1	29	630	135	4	236	60	3	0	3	36	74	0	2033
7:45 AM	1	822	10	0	37	744	144	7	207	57	3	0	9	44	63	0	2148
8:00 AM	6	657	7	0	45	595	138	4	229	59	4	0	14	70	63	2	1893
8:15 AM	7	724	5	0	37	597	154	9	222	43	5	1	9	64	55	1	1933
8:30 AM	5	704	3	1	47	677	180	4	172	42	4	0	12	51	57	0	1959
8:45 AM	8	638	6	0	51	656	194	8	227	55	5	0	17	55	68	0	1988
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	32	5778	43	2	316	5019	1212	45	1780	401	34	2	82	369	490	4	15609
APPROACH %'s :	0.55%	98.68%	0.73%	0.03%	4.79%	76.14%	18.39%	0.68%	80.29%	18.09%	1.53%	0.09%	8.68%	39.05%	51.85%	0.42%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	16	3018	27	1	148	2566	571	24	894	219	15	1	35	214	255	3	8007
PEAK HR FACTOR :	0.571	0.918	0.675	0.250	0.822	0.862	0.927	0.667	0.947	0.913	0.750	0.250	0.625	0.764	0.861	0.375	0.932
	0.919				0.888				0.944				0.851				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	4	0	0	1	3.5	1.5	0	2.5	1.5	1	0	1	2.5	1.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	13	611	7	0	47	582	228	4	202	56	18	0	14	103	54	1	1940
4:15 PM	18	655	2	0	35	591	219	7	165	47	18	3	15	97	47	0	1919
4:30 PM	4	618	3	1	42	669	260	10	204	56	21	1	10	79	44	0	2022
4:45 PM	13	632	6	0	45	624	212	5	205	75	26	2	13	101	47	2	2008
5:00 PM	8	738	3	0	47	673	266	1	187	48	17	1	19	80	47	0	2135
5:15 PM	5	695	8	0	54	650	249	2	210	51	21	2	13	107	52	0	2119
5:30 PM	18	696	7	0	46	617	214	2	179	61	18	1	18	95	52	0	2024
5:45 PM	17	552	9	2	52	687	259	4	173	43	19	2	12	68	38	0	1937
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	96	5197	45	3	368	5093	1907	35	1525	437	158	12	114	730	381	3	16104
APPROACH %'s :	1.80%	97.30%	0.84%	0.06%	4.97%	68.80%	25.76%	0.47%	71.53%	20.50%	7.41%	0.56%	9.28%	59.45%	31.03%	0.24%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	44	2761	24	0	192	2564	941	10	781	235	82	6	63	383	198	2	8286
PEAK HR FACTOR :	0.611	0.935	0.750	0.000	0.889	0.952	0.884	0.500	0.930	0.783	0.788	0.750	0.829	0.895	0.952	0.250	0.970
	0.944				0.939				0.896				0.939				

Prepared by NDS/ATD

VOLUME

Dwy 1 (Western Dwy) & Ford Rd

vehicle volume

Day: Wednesday
Date: 11/1/2017

City: Costa Mesa
Project #: CA17_1229_001

DAILY TOTALS	IN	OUT			Total
	18	29	0	0	47

AM Period	IN		OUT		TOTAL		PM Period	IN		OUT		TOTAL	
0:00	0		0		0		12:00	0		1		1	
0:15	0		0		0		12:15	0		0		0	
0:30	0		0		0		12:30	3		3		6	
0:45	0		0		0		12:45	0	3	2	6	2	9
1:00	0		0		0		13:00	3		3		6	
1:15	0		0		0		13:15	0		0		0	
1:30	0		0		0		13:30	0		1		1	
1:45	0		0		0		13:45	0	3	1	5	1	8
2:00	0		0		0		14:00	1		0		1	
2:15	0		0		0		14:15	0		0		0	
2:30	0		0		0		14:30	0		0		0	
2:45	0		0		0		14:45	0	1	0		0	1
3:00	0		0		0		15:00	0		0		0	
3:15	0		0		0		15:15	0		1		1	
3:30	0		0		0		15:30	0		0		0	
3:45	0		0		0		15:45	0		0	1	0	1
4:00	0		0		0		16:00	0		1		1	
4:15	0		0		0		16:15	0		0		0	
4:30	0		0		0		16:30	0		0		0	
4:45	0		0		0		16:45	0		2	3	2	3
5:00	0		0		0		17:00	0		0		0	
5:15	0		0		0		17:15	0		0		0	
5:30	0		0		0		17:30	0		0		0	
5:45	0		0		0		17:45	0		0		0	
6:00	0		0		0		18:00	0		0		0	
6:15	0		0		0		18:15	0		0		0	
6:30	0		0		0		18:30	1		0		1	
6:45	0		0		0		18:45	0	1	0		0	1
7:00	0		0		0		19:00	0		0		0	
7:15	0		1		1		19:15	1		2		3	
7:30	0		1		1		19:30	0		0		0	
7:45	1	1	0	2	1	3	19:45	0	1	0	2	0	3
8:00	0		0		0		20:00	0		0		0	
8:15	1		1		2		20:15	0		0		0	
8:30	0		0		0		20:30	0		0		0	
8:45	0	1	0	1	0	2	20:45	0		0		0	
9:00	0		1		1		21:00	0		0		0	
9:15	1		0		1		21:15	0		0		0	
9:30	0		0		0		21:30	0		0		0	
9:45	0	1	0	1	0	2	21:45	0		0		0	
10:00	1		1		2		22:00	0		1		1	
10:15	0		1		1		22:15	0		0		0	
10:30	1		2		3		22:30	0		0		0	
10:45	0	2	1	5	1	7	22:45	0		0	1	0	1
11:00	1		0		1		23:00	0		0		0	
11:15	0		1		1		23:15	0		0		0	
11:30	1		1		2		23:30	0		0		0	
11:45	2	4	0	2	2	6	23:45	0		0		0	
TOTALS		9		11		**20**	**TOTALS**		9		18		**27**
SPLIT %		45.0%		55.0%		**42.6%**	**SPLIT %**		33.3%		66.7%		**57.4%**

DAILY TOTALS	NB	SB	EB	WB	Total
	18	29	0	0	47

AM Peak Hour	11:45	10:00			**11:45**	**PM Peak Hour**	12:15	12:15			**12:15**
AM Pk Volume	5	5			**9**	**PM Pk Volume**	6	8			**14**
Pk Hr Factor	0.417	0.625			**0.375**	**Pk Hr Factor**	0.500	0.667			**0.583**
7 - 9 Volume	2	3	0	0	**5**	**4 - 6 Volume**	0	3	0	0	**3**
7 - 9 Peak Hour	7:30	7:00			**7:30**	**4 - 6 Peak Hour**		16:00			**16:00**
7 - 9 Pk Volume	2	2	0	0	**4**	**4 - 6 Pk Volume**	0	3	0	0	**3**
Pk Hr Factor	0.500	0.500	0.000	0.000	**0.500**	**Pk Hr Factor**	0.000	0.375	0.000	0.000	**0.375**

Prepared by NDS/ATD

VOLUME

Dwy 2 (Eastern Dwy) & Ford Rd

Day: Wednesday
Date: 11/1/2017

vehicles

City: Costa Mesa
Project #: CA17_1229_002

DAILY TOTALS	IN	OUT			Total
	25	12	0	0	37

AM Period	IN		OUT		TOTAL		PM Period	IN		OUT		TOTAL	
0:00	0		0		0		12:00	2		1		3	
0:15	0		0		0		12:15	0		0		0	
0:30	0		0		0		12:30	1		2		3	
0:45	0		0		0		12:45	2	5	1	4	3	9
1:00	0		0		0		13:00	0		0		0	
1:15	0		0		0		13:15	1		1		2	
1:30	0		0		0		13:30	1		1		2	
1:45	0		0		0		13:45	1	3	0	2	1	5
2:00	0		0		0		14:00	0		0		0	
2:15	0		0		0		14:15	0		0		0	
2:30	0		0		0		14:30	0		1		1	
2:45	0		0		0		14:45	0		0	1	0	1
3:00	0		0		0		15:00	0		0		0	
3:15	0		0		0		15:15	1		0		1	
3:30	0		0		0		15:30	0		0		0	
3:45	0		0		0		15:45	1	2	0		1	2
4:00	0		0		0		16:00	0		0		0	
4:15	0		0		0		16:15	0		0		0	
4:30	0		0		0		16:30	1		0		1	
4:45	0		0		0		16:45	1	2	0		1	2
5:00	0		0		0		17:00	0		0		0	
5:15	0		0		0		17:15	0		0		0	
5:30	0		0		0		17:30	0		0		0	
5:45	0		0		0		17:45	0		0		0	
6:00	0		0		0		18:00	0		0		0	
6:15	0		0		0		18:15	0		0		0	
6:30	0		0		0		18:30	0		0		0	
6:45	1	1	0		1	1	18:45	0		0		0	
7:00	0		0		0		19:00	1		0		1	
7:15	1		1		2		19:15	1		0		1	
7:30	0		0		0		19:30	0		0		0	
7:45	0	1	1	2	1	3	19:45	0	2	0		0	2
8:00	0		0		0		20:00	1		0		1	
8:15	0		0		0		20:15	1		0		1	
8:30	0		0		0		20:30	0		0		0	
8:45	0		0		0		20:45	0	2	0		0	2
9:00	1		0		1		21:00	0		0		0	
9:15	0		0		0		21:15	0		0		0	
9:30	0		1		1		21:30	0		0		0	
9:45	0	1	0	1	0	2	21:45	0		0		0	
10:00	2		0		2		22:00	0		0		0	
10:15	1		0		1		22:15	0		0		0	
10:30	0		0		0		22:30	0		0		0	
10:45	1	4	0		1	4	22:45	0		0		0	
11:00	0		1		1		23:00	0		0		0	
11:15	0		0		0		23:15	0		0		0	
11:30	1		0		1		23:30	0		0		0	
11:45	1	2	1	2	2	4	23:45	0		0		0	
TOTALS		9		5		**14**	**TOTALS**		16		7		**23**
SPLIT %		64.3%		35.7%		**37.8%**	**SPLIT %**		69.6%		30.4%		**62.2%**

DAILY TOTALS	IN	OUT			Total
	25	12			37

AM Peak Hour	10:00	11:45			**11:45**	**PM Peak Hour**	12:00	12:00			**12:00**
AM Pk Volume	4	4			**8**	**PM Pk Volume**	5	4			**9**
Pk Hr Factor	0.500	0.500			**0.667**	**Pk Hr Factor**	0.625	0.500			**0.750**
7 - 9 Volume	1	2	0	0	**3**	**4 - 6 Volume**	2	0	0	0	**2**
7 - 9 Peak Hour	7:00	7:00			**7:00**	**4 - 6 Peak Hour**	16:00				**16:00**
7 - 9 Pk Volume	1	2	0	0	**3**	**4 - 6 Pk Volume**	2	0	0	0	**2**
Pk Hr Factor	0.250	0.500	0.000	0.000	**0.375**	**Pk Hr Factor**	0.500	0.000	0.000	0.000	**0.500**

Prepared by NDS/ATD

VOLUME

Dwy 1 (Western Dwy) & Ford Rd

Day: Wednesday
Date: 11/1/2017

pedestrians

City: Costa Mesa
Project #: CA17_1229_001

DAILY TOTALS	IN	OUT	Total
	41	35	76

AM Period	IN		OUT		TOTAL		PM Period	IN		OUT		TOTAL	
0:00	0		0		0		12:00	0		0		0	
0:15	0		0		0		12:15	0		0		0	
0:30	0		0		0		12:30	1		5		6	
0:45	0		0		0		12:45	2	3	1	6	3	9
1:00	0		0		0		13:00	0		1		1	
1:15	0		0		0		13:15	1		1		2	
1:30	0		0		0		13:30	3		1		4	
1:45	0		0		0		13:45	1	5	2	5	3	10
2:00	0		0		0		14:00	2		1		3	
2:15	0		0		0		14:15	3		1		4	
2:30	0		0		0		14:30	0		1		1	
2:45	0		0		0		14:45	2	7	1	4	3	11
3:00	0		0		0		15:00	0		2		2	
3:15	0		0		0		15:15	2		1		3	
3:30	0		0		0		15:30	1		2		3	
3:45	0		0		0		15:45	1	4	0	5	1	9
4:00	0		0		0		16:00	2		0		2	
4:15	0		0		0		16:15	1		2		3	
4:30	0		0		0		16:30	3		1		4	
4:45	0		0		0		16:45	4	10	1	4	5	14
5:00	0		0		0		17:00	0		0		0	
5:15	0		0		0		17:15	1		1		2	
5:30	0		0		0		17:30	0		0		0	
5:45	0		0		0		17:45	0	1	0	1	0	2
6:00	0		0		0		18:00	0		0		0	
6:15	0		0		0		18:15	0		0		0	
6:30	0		0		0		18:30	0		0		0	
6:45	0		0		0		18:45	0		0		0	
7:00	0		0		0		19:00	0		0		0	
7:15	0		0		0		19:15	0		0		0	
7:30	0		0		0		19:30	0		0		0	
7:45	0		1	1	1	1	19:45	0		0		0	
8:00	1		0		1		20:00	0		0		0	
8:15	1		1		2		20:15	0		0		0	
8:30	0		0		0		20:30	0		0		0	
8:45	0	2	0	1	0	3	20:45	0		0		0	
9:00	1		0		1		21:00	0		0		0	
9:15	3		0		3		21:15	0		0		0	
9:30	1		2		3		21:30	0		0		0	
9:45	1	6	2	4	3	10	21:45	0		0		0	
10:00	0		1		1		22:00	0		0		0	
10:15	1		0		1		22:15	0		0		0	
10:30	0		0		0		22:30	0		0		0	
10:45	0	1	0	1	0	2	22:45	0		0		0	
11:00	2		2		4		23:00	0		0		0	
11:15	0		0		0		23:15	0		0		0	
11:30	0		0		0		23:30	0		0		0	
11:45	0	2	1	3	1	5	23:45	0		0		0	
TOTALS		11		10		**21**	**TOTALS**		30		25		**55**
SPLIT %		52.4%		47.6%		**27.6%**	**SPLIT %**		54.5%		45.5%		**72.4%**

DAILY TOTALS	IN	OUT	Total
	41	35	76

AM Peak Hour	9:00	11:45			**9:00**	**PM Peak Hour**	16:00	12:30			**13:30**
AM Pk Volume	6	6			**10**	**PM Pk Volume**	10	8			**14**
Pk Hr Factor	0.500	0.300			**0.833**	**Pk Hr Factor**	0.625	0.400			**0.875**
7 - 9 Volume	2	2	0	0	**4**	**4 - 6 Volume**	11	5	0	0	**16**
7 - 9 Peak Hour	7:30	7:30			**7:30**	**4 - 6 Peak Hour**	16:00	16:00			**16:00**
7 - 9 Pk Volume	2	2	0	0	**4**	**4 - 6 Pk Volume**	10	4	0	0	**14**
Pk Hr Factor	0.500	0.500	0.000	0.000	**0.500**	**Pk Hr Factor**	0.625	0.500	0.000	0.000	**0.700**

Prepared by NDS/ATD

VOLUME

Dwy 2 (Eastern Dwy) & Ford Rd

Day: Wednesday
Date: 11/1/2017

pedestrians

City: Costa Mesa
Project #: CA17_1229_002

DAILY TOTALS	IN	OUT			Total
	8	8			16

AM Period	IN		OUT			TOTAL		PM Period	IN		OUT			TOTAL	
0:00	0		0			0		12:00	0		0			0	
0:15	0		0			0		12:15	2		0			2	
0:30	0		0			0		12:30	1		0			1	
0:45	0		0			0		12:45	0	3	1	1		1	4
1:00	0		0			0		13:00	0		0			0	
1:15	0		0			0		13:15	0		1			1	
1:30	1		0			1		13:30	1		1			2	
1:45	0	1	0			0	1	13:45	0	1	0	2		0	3
2:00	0		0			0		14:00	0		0			0	
2:15	0		0			0		14:15	0		0			0	
2:30	0		0			0		14:30	0		0			0	
2:45	0		0			0		14:45	0		0			0	
3:00	0		0			0		15:00	0		0			0	
3:15	0		1			1		15:15	0		0			0	
3:30	0		0			0		15:30	0		0			0	
3:45	0		0	1		0	1	15:45	0		0			0	
4:00	0		0			0		16:00	0		0			0	
4:15	0		0			0		16:15	0		0			0	
4:30	0		0			0		16:30	0		0			0	
4:45	0		0			0		16:45	0		0			0	
5:00	0		0			0		17:00	0		0			0	
5:15	0		0			0		17:15	0		0			0	
5:30	0		0			0		17:30	0		0			0	
5:45	0		0			0		17:45	0		0			0	
6:00	0		0			0		18:00	0		1			1	
6:15	0		0			0		18:15	0		0			0	
6:30	0		0			0		18:30	0		0			0	
6:45	0		0			0		18:45	0		0	1		0	1
7:00	0		0			0		19:00	0		0			0	
7:15	0		0			0		19:15	0		0			0	
7:30	0		0			0		19:30	0		0			0	
7:45	0		0			0		19:45	0		1	1		1	1
8:00	0		0			0		20:00	0		0			0	
8:15	0		0			0		20:15	0		0			0	
8:30	0		0			0		20:30	0		0			0	
8:45	0		0			0		20:45	0		0			0	
9:00	0		0			0		21:00	0		0			0	
9:15	0		0			0		21:15	0		0			0	
9:30	0		0			0		21:30	0		0			0	
9:45	0		0			0		21:45	0		0			0	
10:00	0		0			0		22:00	0		0			0	
10:15	0		0			0		22:15	0		0			0	
10:30	0		0			0		22:30	0		0			0	
10:45	0		0			0		22:45	0		0			0	
11:00	2		1			3		23:00	0		0			0	
11:15	0		0			0		23:15	0		0			0	
11:30	1		1			2		23:30	0		0			0	
11:45	0	3	0	2		0	5	23:45	0		0			0	
TOTALS		4		3			**7**	**TOTALS**		4		5			**9**
SPLIT %		57.1%		42.9%			**43.8%**	**SPLIT %**		44.4%		55.6%			**56.3%**

DAILY TOTALS	IN	OUT			Total
	8	8			16

AM Peak Hour	10:45	10:45			**10:45**	**PM Peak Hour**	12:00	12:45			**12:00**
AM Pk Volume	3	2			**5**	**PM Pk Volume**	3	3			**4**
Pk Hr Factor	0.375	0.500			**0.417**	**Pk Hr Factor**	0.375	0.750			**0.500**
7 - 9 Volume	0	0	0	0	0	**4 - 6 Volume**	0	0	0	0	0
7 - 9 Peak Hour						**4 - 6 Peak Hour**					
7 - 9 Pk Volume	0	0	0	0	0	**4 - 6 Pk Volume**	0	0	0	0	0
Pk Hr Factor	0.000	0.000	0.000	0.000	0.000	**Pk Hr Factor**	0.000	0.000	0.000	0.000	0.000

APPENDIX B
EXISTING LEVEL OF SERVICE WORKSHEETS

Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	130	6	21	119	26	65
Future Vol, veh/h	130	6	21	119	26	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	160	7	26	147	32	80

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	167	0	363	164
Stage 1	-	-	-	-	164	-
Stage 2	-	-	-	-	199	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1411	-	636	881
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	835	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1411	-	623	881
Mov Cap-2 Maneuver	-	-	-	-	623	-
Stage 1	-	-	-	-	848	-
Stage 2	-	-	-	-	835	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	623	881	-	-	1411	-
HCM Lane V/C Ratio	0.052	0.091	-	-	0.018	-
HCM Control Delay (s)	11.1	9.5	-	-	7.6	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	21	599	14	35	967
Future Vol, veh/h	16	21	599	14	35	967
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	24	689	16	40	1111

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1221	353	0	0	705	0
Stage 1	697	-	-	-	-	-
Stage 2	524	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	240	549	-	-	542	-
Stage 1	369	-	-	-	-	-
Stage 2	510	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	222	549	-	-	542	-
Mov Cap-2 Maneuver	277	-	-	-	-	-
Stage 1	342	-	-	-	-	-
Stage 2	510	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.9	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	277	549	542	-
HCM Lane V/C Ratio	-	-	0.066	0.044	0.074	-
HCM Control Delay (s)	-	-	18.9	11.9	12.2	-
HCM Lane LOS	-	-	C	B	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0.2	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	36	4	8	20	17	3	19	2	1	5	10
Future Vol, veh/h	7	36	4	8	20	17	3	19	2	1	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	39	4	9	22	18	3	21	2	1	5	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	40	0	0	43	0	0	114	115	41	118	108	31
Stage 1	-	-	-	-	-	-	57	57	-	49	49	-
Stage 2	-	-	-	-	-	-	57	58	-	69	59	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1570	-	-	1566	-	-	863	775	1030	858	782	1043
Stage 1	-	-	-	-	-	-	955	847	-	964	854	-
Stage 2	-	-	-	-	-	-	955	847	-	941	846	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1570	-	-	1566	-	-	842	766	1030	831	773	1043
Mov Cap-2 Maneuver	-	-	-	-	-	-	842	766	-	831	773	-
Stage 1	-	-	-	-	-	-	950	843	-	959	849	-
Stage 2	-	-	-	-	-	-	933	842	-	911	842	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	1.3	9.7	9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	792	1570	-	-	1566	-	-	927
HCM Lane V/C Ratio	0.033	0.005	-	-	0.006	-	-	0.019
HCM Control Delay (s)	9.7	7.3	0	-	7.3	0	-	9
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑	↱
Traffic Vol, veh/h	0	33	0	0	360	38
Future Vol, veh/h	0	33	0	0	360	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	50
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	43	0	0	468	49

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	468	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	595	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	595	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	11.5	0
HCM LOS	B	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	595	-	-
HCM Lane V/C Ratio	0.072	-	-
HCM Control Delay (s)	11.5	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-

1957 Newport Boulevard and 390 Ford Road
OLC1707
01 Existing Baseline AM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Newport Blvd/Bay St, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.333
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	18	Level Of Service:	A

Street Name:	Newport Boulevard						Bay Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0 0	0	1 0	2 0	1	0 0	1 0	1	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	151	356	74	0	270	22	33	85	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	151	356	74	0	270	22	33	85	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	151	356	74	0	270	22	33	85	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	151	356	74	0	270	22	33	85	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	151	356	74	0	270	22	33	85	0
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	3400	1700	0	1700	1700	1700	1700	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.09	0.10	0.04	0.00	0.16	0.01	0.02	0.05	0.00
Crit Moves:					****			****		****		

1957 Newport Boulevard and 390 Ford Road
OLC1707
01 Existing Baseline AM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Newport Blvd/19th Street, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.849
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	65	Level Of Service:	D

Street Name:	Newport Boulevard						19th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	3 1	0	1 0	3 1	1	2 1	1 0	1	1 0	2 1	1
Volume Module:												
Base Vol:	17	3018	27	172	2566	571	895	219	15	38	214	255
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	17	3018	27	172	2566	571	895	219	15	38	214	255
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	17	3018	27	172	2566	571	895	219	15	38	214	255
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	3018	27	172	2566	571	895	219	15	38	214	255
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	17	3018	27	172	2566	571	895	219	15	38	214	255
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	3.96	0.04	1.00	4.00	1.00	3.00	1.00	1.00	1.00	2.00	2.00
Final Sat.:	1700	6740	60	1700	6800	1700	5100	1700	1700	1700	3400	3400
Capacity Analysis Module:												
Vol/Sat:	0.01	0.45	0.45	0.10	0.38	0.34	0.18	0.13	0.01	0.02	0.06	0.08
Crit Moves:		****		****			****					****

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	180	14	21	268	21	54
Future Vol, veh/h	180	14	21	268	21	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	205	16	24	305	24	61

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	221	0	566	213
Stage 1	-	-	-	-	213	-
Stage 2	-	-	-	-	353	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1348	-	486	827
Stage 1	-	-	-	-	823	-
Stage 2	-	-	-	-	711	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1348	-	476	827
Mov Cap-2 Maneuver	-	-	-	-	476	-
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	711	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	476	827	-	-	1348	-
HCM Lane V/C Ratio	0.05	0.074	-	-	0.018	-
HCM Control Delay (s)	13	9.7	-	-	7.7	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	42	1355	29	17	1017
Future Vol, veh/h	27	42	1355	29	17	1017
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	44	1426	31	18	1071

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1906	729	0	0	1457	0
Stage 1	1442	-	-	-	-	-
Stage 2	464	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	105	313	-	-	234	-
Stage 1	129	-	-	-	-	-
Stage 2	548	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	97	313	-	-	234	-
Mov Cap-2 Maneuver	108	-	-	-	-	-
Stage 1	119	-	-	-	-	-
Stage 2	548	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.7	0	0.4
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	108	313	234	-
HCM Lane V/C Ratio	-	-	0.263	0.141	0.076	-
HCM Control Delay (s)	-	-	49.8	18.4	21.7	-
HCM Lane LOS	-	-	E	C	C	-
HCM 95th %tile Q(veh)	-	-	1	0.5	0.2	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	18	5	19	43	29	0	12	3	3	9	14
Future Vol, veh/h	20	18	5	19	43	29	0	12	3	3	9	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	21	6	22	50	34	0	14	3	3	10	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	84	0	0	27	0	0	194	198	24	190	184	67
Stage 1	-	-	-	-	-	-	70	70	-	111	111	-
Stage 2	-	-	-	-	-	-	124	128	-	79	73	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1513	-	-	1587	-	-	765	698	1052	770	710	997
Stage 1	-	-	-	-	-	-	940	837	-	894	804	-
Stage 2	-	-	-	-	-	-	880	790	-	930	834	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1513	-	-	1587	-	-	727	677	1052	738	689	997
Mov Cap-2 Maneuver	-	-	-	-	-	-	727	677	-	738	689	-
Stage 1	-	-	-	-	-	-	926	824	-	881	792	-
Stage 2	-	-	-	-	-	-	841	778	-	898	821	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.4	1.5	10.1	9.5
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	729	1513	-	-	1587	-	-	834
HCM Lane V/C Ratio	0.024	0.015	-	-	0.014	-	-	0.036
HCM Control Delay (s)	10.1	7.4	0	-	7.3	0	-	9.5
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑	↱
Traffic Vol, veh/h	0	16	0	0	663	87
Future Vol, veh/h	0	16	0	0	663	87
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	50
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	17	0	0	705	93

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	705	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	436	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	436	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	13.6	0
HCM LOS	B	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	436	-	-
HCM Lane V/C Ratio	0.039	-	-
HCM Control Delay (s)	13.6	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-

1957 Newport Boulevard and 390 Ford Road
OLC1707
01 Existing Baseline PM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Newport Blvd/Bay St, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.422
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	21	Level Of Service:	A

Street Name:	Newport Boulevard						Bay Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0 0	0	1 0	2 0	1	0 0	1 0	1	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	312	673	311	0	256	43	40	153	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	312	673	311	0	256	43	40	153	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	312	673	311	0	256	43	40	153	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	312	673	311	0	256	43	40	153	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	312	673	311	0	256	43	40	153	0
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	3400	1700	0	1700	1700	1700	1700	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.18	0.20	0.18	0.00	0.15	0.03	0.02	0.09	0.00
Crit Moves:					****			****		****		

1957 Newport Boulevard and 390 Ford Road
OLC1707
01 Existing Baseline PM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Newport Blvd/19th Street, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.818
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	56	Level Of Service:	D

Street Name:	Newport Boulevard						19th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	3 1	0	1 0	3 1	1	2 1	1 0	1	1 0	2 1	1
Volume Module:												
Base Vol:	44	2761	24	202	2564	941	787	235	82	65	383	198
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	44	2761	24	202	2564	941	787	235	82	65	383	198
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	44	2761	24	202	2564	941	787	235	82	65	383	198
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	44	2761	24	202	2564	941	787	235	82	65	383	198
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	44	2761	24	202	2564	941	787	235	82	65	383	198
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	3.97	0.03	1.00	3.66	1.34	3.00	1.00	1.00	1.00	2.64	1.36
Final Sat.:	1700	6741	59	1700	6218	2282	5100	1700	1700	1700	4483	2317
Capacity Analysis Module:												
Vol/Sat:	0.03	0.41	0.41	0.12	0.41	0.41	0.15	0.14	0.05	0.04	0.09	0.09
Crit Moves:		****			****			****			****	

APPENDIX C
FUTURE (2020) LEVEL OF SERVICE WORKSHEETS

Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	134	6	22	123	27	67
Future Vol, veh/h	134	6	22	123	27	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	165	7	27	152	33	83

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	172	0	375	169
Stage 1	-	-	-	-	169	-
Stage 2	-	-	-	-	206	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1405	-	626	875
Stage 1	-	-	-	-	861	-
Stage 2	-	-	-	-	829	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1405	-	613	875
Mov Cap-2 Maneuver	-	-	-	-	613	-
Stage 1	-	-	-	-	843	-
Stage 2	-	-	-	-	829	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	613	875	-	-	1405	-
HCM Lane V/C Ratio	0.054	0.095	-	-	0.019	-
HCM Control Delay (s)	11.2	9.5	-	-	7.6	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	22	617	14	36	996
Future Vol, veh/h	16	22	617	14	36	996
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	25	709	16	41	1145

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1257	363	0	0	725	0
Stage 1	717	-	-	-	-	-
Stage 2	540	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	230	541	-	-	530	-
Stage 1	359	-	-	-	-	-
Stage 2	500	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	212	541	-	-	530	-
Mov Cap-2 Maneuver	267	-	-	-	-	-
Stage 1	331	-	-	-	-	-
Stage 2	500	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.2	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	267	541	530	-
HCM Lane V/C Ratio	-	-	0.069	0.047	0.078	-
HCM Control Delay (s)	-	-	19.5	12	12.4	-
HCM Lane LOS	-	-	C	B	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0.3	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	37	4	8	21	18	3	20	2	1	5	10
Future Vol, veh/h	7	37	4	8	21	18	3	20	2	1	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	40	4	9	23	20	3	22	2	1	5	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	43	0	0	44	0	0	117	119	42	121	111	33
Stage 1	-	-	-	-	-	-	58	58	-	51	51	-
Stage 2	-	-	-	-	-	-	59	61	-	70	60	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1566	-	-	1564	-	-	859	771	1029	854	779	1041
Stage 1	-	-	-	-	-	-	954	847	-	962	852	-
Stage 2	-	-	-	-	-	-	953	844	-	940	845	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1566	-	-	1564	-	-	838	763	1029	827	770	1041
Mov Cap-2 Maneuver	-	-	-	-	-	-	838	763	-	827	770	-
Stage 1	-	-	-	-	-	-	949	843	-	957	847	-
Stage 2	-	-	-	-	-	-	931	839	-	909	841	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	1.2	9.7	9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	788	1566	-	-	1564	-	-	924
HCM Lane V/C Ratio	0.034	0.005	-	-	0.006	-	-	0.019
HCM Control Delay (s)	9.7	7.3	0	-	7.3	0	-	9
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑	↱
Traffic Vol, veh/h	0	34	0	0	371	39
Future Vol, veh/h	0	34	0	0	371	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	50
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	44	0	0	482	51

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	482	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	584	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	584	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	11.7	0
HCM LOS	B	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	584	-	-
HCM Lane V/C Ratio	0.076	-	-
HCM Control Delay (s)	11.7	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-

1957 Newport Boulevard and 390 Ford Road
OLC1707
04 Cumulative AM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Newport Blvd/Bay St, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.341
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	18	Level Of Service:	A

Street Name:	Newport Boulevard						Bay Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0 0	0	1 0	2 0	1	0 0	1 0	1	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	156	367	76	0	278	23	34	88	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	156	367	76	0	278	23	34	88	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	156	367	76	0	278	23	34	88	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	156	367	76	0	278	23	34	88	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	156	367	76	0	278	23	34	88	0
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	3400	1700	0	1700	1700	1700	1700	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.09	0.11	0.04	0.00	0.16	0.01	0.02	0.05	0.00
Crit Moves:					****			****		****		

1957 Newport Boulevard and 390 Ford Road
OLC1707
04 Cumulative AM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Newport Blvd/19th Street, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.874
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	74	Level Of Service:	D

Street Name:	Newport Boulevard						19th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	3 1	0	1 0	3 1	1	2 1	1 0	1	1 0	2 1	1
Volume Module:												
Base Vol:	18	3109	28	177	2643	588	922	226	15	39	220	263
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	18	3109	28	177	2643	588	922	226	15	39	220	263
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	18	3109	28	177	2643	588	922	226	15	39	220	263
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	3109	28	177	2643	588	922	226	15	39	220	263
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	18	3109	28	177	2643	588	922	226	15	39	220	263
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	3.96	0.04	1.00	4.00	1.00	3.00	1.00	1.00	1.00	2.00	2.00
Final Sat.:	1700	6739	61	1700	6800	1700	5100	1700	1700	1700	3400	3400
Capacity Analysis Module:												
Vol/Sat:	0.01	0.46	0.46	0.10	0.39	0.35	0.18	0.13	0.01	0.02	0.06	0.08
Crit Moves:		****		****			****					****

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	185	14	22	276	22	56
Future Vol, veh/h	185	14	22	276	22	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	210	16	25	314	25	64

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	226	0	582	218
Stage 1	-	-	-	-	218	-
Stage 2	-	-	-	-	364	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1342	-	475	822
Stage 1	-	-	-	-	818	-
Stage 2	-	-	-	-	703	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1342	-	464	822
Mov Cap-2 Maneuver	-	-	-	-	464	-
Stage 1	-	-	-	-	799	-
Stage 2	-	-	-	-	703	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	464	822	-	-	1342	-
HCM Lane V/C Ratio	0.054	0.077	-	-	0.019	-
HCM Control Delay (s)	13.2	9.7	-	-	7.7	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	43	1396	30	18	1048
Future Vol, veh/h	28	43	1396	30	18	1048
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	45	1469	32	19	1103

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1964	751	0	0	1501	0
Stage 1	1485	-	-	-	-	-
Stage 2	479	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	98	303	-	-	223	-
Stage 1	121	-	-	-	-	-
Stage 2	538	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	90	303	-	-	223	-
Mov Cap-2 Maneuver	100	-	-	-	-	-
Stage 1	111	-	-	-	-	-
Stage 2	538	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	33.4	0	0.4
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	100	303	223	-
HCM Lane V/C Ratio	-	-	0.295	0.149	0.085	-
HCM Control Delay (s)	-	-	55.4	19	22.6	-
HCM Lane LOS	-	-	F	C	C	-
HCM 95th %tile Q(veh)	-	-	1.1	0.5	0.3	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	19	5	20	44	30	0	12	3	3	9	14
Future Vol, veh/h	21	19	5	20	44	30	0	12	3	3	9	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	22	6	23	51	35	0	14	3	3	10	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	86	0	0	28	0	0	201	205	25	197	191	69
Stage 1	-	-	-	-	-	-	73	73	-	115	115	-
Stage 2	-	-	-	-	-	-	128	132	-	82	76	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1510	-	-	1585	-	-	757	691	1051	762	704	994
Stage 1	-	-	-	-	-	-	937	834	-	890	800	-
Stage 2	-	-	-	-	-	-	876	787	-	926	832	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1510	-	-	1585	-	-	718	670	1051	730	682	994
Mov Cap-2 Maneuver	-	-	-	-	-	-	718	670	-	730	682	-
Stage 1	-	-	-	-	-	-	922	821	-	876	788	-
Stage 2	-	-	-	-	-	-	837	775	-	893	819	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.5	1.6	10.1	9.5
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	722	1510	-	-	1585	-	-	828
HCM Lane V/C Ratio	0.024	0.016	-	-	0.015	-	-	0.037
HCM Control Delay (s)	10.1	7.4	0	-	7.3	0	-	9.5
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑	↱
Traffic Vol, veh/h	0	16	0	0	683	90
Future Vol, veh/h	0	16	0	0	683	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	50
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	17	0	0	727	96

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	727	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	424	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	424	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	13.8	0
HCM LOS	B	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	424	-	-
HCM Lane V/C Ratio	0.04	-	-
HCM Control Delay (s)	13.8	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-

1957 Newport Boulevard and 390 Ford Road
OLC1707
04 Cumulative PM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Newport Blvd/Bay St, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.433
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	21	Level Of Service:	A

Street Name:	Newport Boulevard						Bay Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0 0	0	1 0	2 0	1	0 0	1 0	1	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	321	693	320	0	264	44	41	158	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	321	693	320	0	264	44	41	158	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	321	693	320	0	264	44	41	158	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	321	693	320	0	264	44	41	158	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	321	693	320	0	264	44	41	158	0
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	3400	1700	0	1700	1700	1700	1700	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.19	0.20	0.19	0.00	0.16	0.03	0.02	0.09	0.00
Crit Moves:					****			****		****		

1957 Newport Boulevard and 390 Ford Road
OLC1707
04 Cumulative PM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Newport Blvd/19th Street, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.841
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	62	Level Of Service:	D

Street Name:	Newport Boulevard						19th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	3 1	0	1 0	3 1	1	2 1	1 0	1	1 0	2 1	1
Volume Module:												
Base Vol:	45	2844	25	208	2641	969	811	242	84	67	394	204
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	45	2844	25	208	2641	969	811	242	84	67	394	204
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	45	2844	25	208	2641	969	811	242	84	67	394	204
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	45	2844	25	208	2641	969	811	242	84	67	394	204
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	45	2844	25	208	2641	969	811	242	84	67	394	204
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	3.97	0.03	1.00	3.66	1.34	3.00	1.00	1.00	1.00	2.64	1.36
Final Sat.:	1700	6741	59	1700	6218	2282	5100	1700	1700	1700	4480	2320
Capacity Analysis Module:												
Vol/Sat:	0.03	0.42	0.42	0.12	0.42	0.42	0.16	0.14	0.05	0.04	0.09	0.09
Crit Moves:		****		****			****				****	

APPENDIX D
GENERAL PLAN LEVEL OF SERVICE WORKSHEETS

Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	169	8	27	155	34	84
Future Vol, veh/h	169	8	27	155	34	84
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	178	8	28	163	36	88

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	186	0	401	182
Stage 1	-	-	-	-	182	-
Stage 2	-	-	-	-	219	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1388	-	605	861
Stage 1	-	-	-	-	849	-
Stage 2	-	-	-	-	817	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1388	-	592	861
Mov Cap-2 Maneuver	-	-	-	-	592	-
Stage 1	-	-	-	-	830	-
Stage 2	-	-	-	-	817	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	592	861	-	-	1388	-
HCM Lane V/C Ratio	0.06	0.103	-	-	0.02	-
HCM Control Delay (s)	11.5	9.7	-	-	7.6	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	27	779	18	45	1257
Future Vol, veh/h	21	27	779	18	45	1257
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	28	820	19	47	1323

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1453	420	0	0	839	0
Stage 1	830	-	-	-	-	-
Stage 2	623	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	182	497	-	-	468	-
Stage 1	307	-	-	-	-	-
Stage 2	453	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	164	497	-	-	468	-
Mov Cap-2 Maneuver	220	-	-	-	-	-
Stage 1	276	-	-	-	-	-
Stage 2	453	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.3	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	220	497	468	-
HCM Lane V/C Ratio	-	-	0.1	0.057	0.101	-
HCM Control Delay (s)	-	-	23.2	12.7	13.6	-
HCM Lane LOS	-	-	C	B	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	0.3	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	47	5	10	26	22	4	25	3	1	7	13
Future Vol, veh/h	9	47	5	10	26	22	4	25	3	1	7	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	49	5	11	27	23	4	26	3	1	7	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	50	0	0	54	0	0	141	142	52	145	133	39
Stage 1	-	-	-	-	-	-	70	70	-	61	61	-
Stage 2	-	-	-	-	-	-	71	72	-	84	72	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1557	-	-	1551	-	-	829	749	1016	824	758	1033
Stage 1	-	-	-	-	-	-	940	837	-	950	844	-
Stage 2	-	-	-	-	-	-	939	835	-	924	835	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1557	-	-	1551	-	-	804	739	1016	791	748	1033
Mov Cap-2 Maneuver	-	-	-	-	-	-	804	739	-	791	748	-
Stage 1	-	-	-	-	-	-	934	832	-	944	838	-
Stage 2	-	-	-	-	-	-	912	829	-	887	830	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	1.3	9.9	9.1
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	766	1557	-	-	1551	-	-	905
HCM Lane V/C Ratio	0.044	0.006	-	-	0.007	-	-	0.024
HCM Control Delay (s)	9.9	7.3	0	-	7.3	0	-	9.1
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑	↱
Traffic Vol, veh/h	0	43	0	0	468	49
Future Vol, veh/h	0	43	0	0	468	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	50
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	45	0	0	493	52

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	493	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	576	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	576	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	11.8	0
HCM LOS	B	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	576	-	-
HCM Lane V/C Ratio	0.079	-	-
HCM Control Delay (s)	11.8	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.3	-	-

1957 Newport Boulevard and 390 Ford Road
OLC1707
07 2035 Buildout AM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Newport Blvd/Bay St, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.344
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	18	Level Of Service:	A

Street Name:	Newport Boulevard						Bay Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0 0	0	1 0	2 0	1	0 0	1 0	1	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	90	300	80	0	310	70	40	80	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	90	300	80	0	310	70	40	80	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	90	300	80	0	310	70	40	80	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	90	300	80	0	310	70	40	80	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	90	300	80	0	310	70	40	80	0
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	3400	1700	0	1700	1700	1700	1700	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.05	0.09	0.05	0.00	0.18	0.04	0.02	0.05	0.00
Crit Moves:					****			****		****		

1957 Newport Boulevard and 390 Ford Road
OLC1707
07 2035 Buildout AM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Newport Blvd/19th Street, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.867
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	71	Level Of Service:	D

Street Name:	Newport Boulevard						19th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 1	0	1 0	2 1	1	2 1	1 0	1	1 0	2 1	1
Volume Module:												
Base Vol:	10	2970	20	40	720	430	640	290	10	30	170	240
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	2970	20	40	720	430	640	290	10	30	170	240
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	10	2970	20	40	720	430	640	290	10	30	170	240
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	10	2970	20	40	720	430	640	290	10	30	170	240
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	10	2970	20	40	720	430	640	290	10	30	170	240
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.98	0.02	1.00	2.50	1.50	2.75	1.25	1.00	1.00	2.00	2.00
Final Sat.:	1700	5066	34	1700	4257	2543	4680	2120	1700	1700	3400	3400
Capacity Analysis Module:												
Vol/Sat:	0.01	0.59	0.59	0.02	0.17	0.17	0.14	0.14	0.01	0.02	0.05	0.07
Crit Moves:		****		****			****					****

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	234	18	27	348	27	70
Future Vol, veh/h	234	18	27	348	27	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	246	19	28	366	28	74

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	265	0	678	256
Stage 1	-	-	-	-	256	-
Stage 2	-	-	-	-	422	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1299	-	418	783
Stage 1	-	-	-	-	787	-
Stage 2	-	-	-	-	662	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1299	-	407	783
Mov Cap-2 Maneuver	-	-	-	-	407	-
Stage 1	-	-	-	-	766	-
Stage 2	-	-	-	-	662	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	11.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	407	783	-	-	1299	-
HCM Lane V/C Ratio	0.07	0.094	-	-	0.022	-
HCM Control Delay (s)	14.5	10.1	-	-	7.8	0
HCM Lane LOS	B	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	55	1761	38	22	1322
Future Vol, veh/h	35	55	1761	38	22	1322
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	58	1854	40	23	1392

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2477	947	0	0	1894	0
Stage 1	1874	-	-	-	-	-
Stage 2	603	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	51	225	-	-	142	-
Stage 1	68	-	-	-	-	-
Stage 2	464	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	43	225	-	-	142	-
Mov Cap-2 Maneuver	52	-	-	-	-	-
Stage 1	57	-	-	-	-	-
Stage 2	464	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	82.7	0	0.6
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	52	225	142	-
HCM Lane V/C Ratio	-	-	0.709	0.257	0.163	-
HCM Control Delay (s)	-	-	171	26.5	35.2	-
HCM Lane LOS	-	-	F	D	E	-
HCM 95th %tile Q(veh)	-	-	2.9	1	0.6	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	23	7	25	56	38	0	16	4	4	12	18
Future Vol, veh/h	26	23	7	25	56	38	0	16	4	4	12	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	24	7	26	59	40	0	17	4	4	13	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	99	0	0	31	0	0	229	233	28	223	216	79
Stage 1	-	-	-	-	-	-	82	82	-	131	131	-
Stage 2	-	-	-	-	-	-	147	151	-	92	85	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1494	-	-	1582	-	-	726	667	1047	733	682	981
Stage 1	-	-	-	-	-	-	926	827	-	873	788	-
Stage 2	-	-	-	-	-	-	856	772	-	915	824	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1494	-	-	1582	-	-	683	644	1047	696	658	981
Mov Cap-2 Maneuver	-	-	-	-	-	-	683	644	-	696	658	-
Stage 1	-	-	-	-	-	-	909	812	-	857	775	-
Stage 2	-	-	-	-	-	-	812	759	-	876	809	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.5	1.5	10.3	9.7
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	698	1494	-	-	1582	-	-	803
HCM Lane V/C Ratio	0.03	0.018	-	-	0.017	-	-	0.045
HCM Control Delay (s)	10.3	7.5	0	-	7.3	0	-	9.7
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑	↱
Traffic Vol, veh/h	0	21	0	0	862	113
Future Vol, veh/h	0	21	0	0	862	113
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	50
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	22	0	0	907	119

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	907	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	334	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	334	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	16.5	0
HCM LOS	C	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	334	-	-
HCM Lane V/C Ratio	0.066	-	-
HCM Control Delay (s)	16.5	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.2	-	-

1957 Newport Boulevard and 390 Ford Road
OLC1707
07 2035 Buildout PM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Newport Blvd/Bay St, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.694
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	37	Level Of Service:	B

Street Name:	Newport Boulevard						Bay Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0 0	0	1 0	2 0	1	0 0	1 0	1	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	440	1310	460	0	360	30	80	130	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	440	1310	460	0	360	30	80	130	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	440	1310	460	0	360	30	80	130	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	440	1310	460	0	360	30	80	130	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	440	1310	460	0	360	30	80	130	0
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	3400	1700	0	1700	1700	1700	1700	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.26	0.39	0.27	0.00	0.21	0.02	0.05	0.08	0.00
Crit Moves:					****			****		****		

1957 Newport Boulevard and 390 Ford Road
OLC1707
07 2035 Buildout PM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Newport Blvd/19th Street, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.717
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	39	Level Of Service:	C

Street Name:	Newport Boulevard						19th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2	1 0	1 0	2	1 1	2 1	1	0 1	1 0	2	1 1
Volume Module:												
Base Vol:	140	740	70	170	1540	1050	570	230	20	70	440	30
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	140	740	70	170	1540	1050	570	230	20	70	440	30
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	140	740	70	170	1540	1050	570	230	20	70	440	30
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	140	740	70	170	1540	1050	570	230	20	70	440	30
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	140	740	70	170	1540	1050	570	230	20	70	440	30
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.74	0.26	1.00	2.38	1.62	2.85	1.15	1.00	1.00	3.00	1.00
Final Sat.:	1700	4659	441	1700	4043	2757	4845	1955	1700	1700	5100	1700
Capacity Analysis Module:												
Vol/Sat:	0.08	0.16	0.16	0.10	0.38	0.38	0.12	0.12	0.01	0.04	0.09	0.02
Crit Moves:	****				****		****				****	

APPENDIX E
EXISTING PLUS PROJECT LEVEL OF SERVICE WORKSHEETS

Intersection	
Int Delay, s/veh	3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	130	6	55	119	26	65
Future Vol, veh/h	130	6	55	119	26	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	160	7	68	147	32	80

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	167	0	447	164
Stage 1	-	-	-	-	164	-
Stage 2	-	-	-	-	283	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1411	-	569	881
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	765	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1411	-	539	881
Mov Cap-2 Maneuver	-	-	-	-	539	-
Stage 1	-	-	-	-	820	-
Stage 2	-	-	-	-	765	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	539	881	-	-	1411	-
HCM Lane V/C Ratio	0.06	0.091	-	-	0.048	-
HCM Control Delay (s)	12.1	9.5	-	-	7.7	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	21	599	14	2	1000
Future Vol, veh/h	16	21	599	14	2	1000
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	24	689	16	2	1149

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1161	353	0	0	705	0
Stage 1	697	-	-	-	-	-
Stage 2	464	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	257	549	-	-	542	-
Stage 1	369	-	-	-	-	-
Stage 2	548	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	256	549	-	-	542	-
Mov Cap-2 Maneuver	307	-	-	-	-	-
Stage 1	368	-	-	-	-	-
Stage 2	548	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	307	549	542	-
HCM Lane V/C Ratio	-	-	0.06	0.044	0.004	-
HCM Control Delay (s)	-	-	17.5	11.9	11.7	-
HCM Lane LOS	-	-	C	B	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0	-

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	3	4	1	4	4	3	19	2	3	12	25
Future Vol, veh/h	7	3	4	1	4	4	3	19	2	3	12	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	3	4	1	4	4	3	21	2	3	13	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	8	0	0	7	0	0	49	31	5	41	31	6
Stage 1	-	-	-	-	-	-	21	21	-	8	8	-
Stage 2	-	-	-	-	-	-	28	10	-	33	23	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1612	-	-	1614	-	-	951	862	1078	963	862	1077
Stage 1	-	-	-	-	-	-	998	878	-	1013	889	-
Stage 2	-	-	-	-	-	-	989	887	-	983	876	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1612	-	-	1614	-	-	912	857	1078	939	857	1077
Mov Cap-2 Maneuver	-	-	-	-	-	-	912	857	-	939	857	-
Stage 1	-	-	-	-	-	-	993	874	-	1008	888	-
Stage 2	-	-	-	-	-	-	949	886	-	953	872	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.6	0.8	9.2	8.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	879	1612	-	-	1614	-	-	990
HCM Lane V/C Ratio	0.03	0.005	-	-	0.001	-	-	0.044
HCM Control Delay (s)	9.2	7.2	0	-	7.2	0	-	8.8
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑	↱
Traffic Vol, veh/h	0	0	0	0	364	0
Future Vol, veh/h	0	0	0	0	364	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	50
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	473	0

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	473	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	591	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	591	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	0	0
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

1957 Newport Boulevard and 390 Ford Road
OLC1707
02 Existing w/o Ford AM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Newport Blvd/Bay St, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.333
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	18	Level Of Service:	A

Street Name:	Newport Boulevard						Bay Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0 0	0	1 0	2 0	1	0 0	1 0	1	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	151	356	108	0	270	22	33	85	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	151	356	108	0	270	22	33	85	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	151	356	108	0	270	22	33	85	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	151	356	108	0	270	22	33	85	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	151	356	108	0	270	22	33	85	0
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	3400	1700	0	1700	1700	1700	1700	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.09	0.10	0.06	0.00	0.16	0.01	0.02	0.05	0.00
Crit Moves:					****			****		****		

1957 Newport Boulevard and 390 Ford Road
OLC1707
02 Existing w/o Ford AM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Newport Blvd/19th Street, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.850
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	65	Level Of Service:	D

Street Name:	Newport Boulevard						19th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	3 1	0	1 0	3 1	1	2 1	1 0	1	1 0	2 1	1
Volume Module:												
Base Vol:	17	3018	27	171	2540	569	903	228	15	38	214	255
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	17	3018	27	171	2540	569	903	228	15	38	214	255
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	17	3018	27	171	2540	569	903	228	15	38	214	255
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	3018	27	171	2540	569	903	228	15	38	214	255
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	17	3018	27	171	2540	569	903	228	15	38	214	255
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	3.96	0.04	1.00	4.00	1.00	3.00	1.00	1.00	1.00	2.00	2.00
Final Sat.:	1700	6740	60	1700	6800	1700	5100	1700	1700	1700	3400	3400
Capacity Analysis Module:												
Vol/Sat:	0.01	0.45	0.45	0.10	0.37	0.33	0.18	0.13	0.01	0.02	0.06	0.08
Crit Moves:		****		****			****					****

Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	180	14	99	268	21	54
Future Vol, veh/h	180	14	99	268	21	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	205	16	113	305	24	61

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	221	0	744	213
Stage 1	-	-	-	-	213	-
Stage 2	-	-	-	-	531	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1348	-	382	827
Stage 1	-	-	-	-	823	-
Stage 2	-	-	-	-	590	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1348	-	343	827
Mov Cap-2 Maneuver	-	-	-	-	343	-
Stage 1	-	-	-	-	740	-
Stage 2	-	-	-	-	590	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	343	827	-	-	1348	-
HCM Lane V/C Ratio	0.07	0.074	-	-	0.083	-
HCM Control Delay (s)	16.3	9.7	-	-	7.9	0
HCM Lane LOS	C	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0.3	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	42	1355	29	1	1033
Future Vol, veh/h	27	42	1355	29	1	1033
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	44	1426	31	1	1087

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1879	729	0	0	1457	0
Stage 1	1442	-	-	-	-	-
Stage 2	437	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	109	313	-	-	234	-
Stage 1	129	-	-	-	-	-
Stage 2	566	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	109	313	-	-	234	-
Mov Cap-2 Maneuver	116	-	-	-	-	-
Stage 1	128	-	-	-	-	-
Stage 2	566	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29.1	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	116	313	234	-
HCM Lane V/C Ratio	-	-	0.245	0.141	0.004	-
HCM Control Delay (s)	-	-	45.8	18.4	20.5	-
HCM Lane LOS	-	-	E	C	C	-
HCM 95th %tile Q(veh)	-	-	0.9	0.5	0	-

Intersection	
Int Delay, s/veh	8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	2	5	2	3	3	0	12	3	7	27	51
Future Vol, veh/h	20	2	5	2	3	3	0	12	3	7	27	51
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	2	6	2	3	3	0	14	3	8	31	59

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	6	0	0	8	0	0	105	61	5	69	63	5
Stage 1	-	-	-	-	-	-	51	51	-	9	9	-
Stage 2	-	-	-	-	-	-	54	10	-	60	54	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1615	-	-	1612	-	-	875	830	1078	923	828	1078
Stage 1	-	-	-	-	-	-	962	852	-	1012	888	-
Stage 2	-	-	-	-	-	-	958	887	-	951	850	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1615	-	-	1612	-	-	794	818	1078	898	816	1078
Mov Cap-2 Maneuver	-	-	-	-	-	-	794	818	-	898	816	-
Stage 1	-	-	-	-	-	-	949	840	-	998	887	-
Stage 2	-	-	-	-	-	-	872	886	-	919	838	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.4	1.8	9.3	9.2
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	859	1615	-	-	1612	-	-	964
HCM Lane V/C Ratio	0.02	0.014	-	-	0.001	-	-	0.103
HCM Control Delay (s)	9.3	7.3	0	-	7.2	0	-	9.2
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑	↱
Traffic Vol, veh/h	0	0	0	0	672	0
Future Vol, veh/h	0	0	0	0	672	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	50
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	715	0

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	715	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	431	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	431	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	0	0
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

1957 Newport Boulevard and 390 Ford Road
OLC1707
02 Existing w/o Ford PM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Newport Blvd/Bay St, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.453
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	22	Level Of Service:	A

Street Name:	Newport Boulevard						Bay Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0 0	0	1 0	2 0	1	0 0	1 0	1	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	312	673	389	0	256	43	40	153	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	312	673	389	0	256	43	40	153	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	312	673	389	0	256	43	40	153	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	312	673	389	0	256	43	40	153	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	312	673	389	0	256	43	40	153	0
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	3400	1700	0	1700	1700	1700	1700	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.18	0.20	0.23	0.00	0.15	0.03	0.02	0.09	0.00
Crit Moves:						****		****		****		

1957 Newport Boulevard and 390 Ford Road
OLC1707
02 Existing w/o Ford PM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Newport Blvd/19th Street, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.818
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	56	Level Of Service:	D

Street Name:	Newport Boulevard						19th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	3 1	0	1 0	3 1	1	2 1	1 0	1	1 0	2 1	1
Volume Module:												
Base Vol:	44	2761	24	201	2553	946	791	239	82	65	383	198
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	44	2761	24	201	2553	946	791	239	82	65	383	198
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	44	2761	24	201	2553	946	791	239	82	65	383	198
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	44	2761	24	201	2553	946	791	239	82	65	383	198
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	44	2761	24	201	2553	946	791	239	82	65	383	198
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	3.97	0.03	1.00	3.65	1.35	3.00	1.00	1.00	1.00	2.64	1.36
Final Sat.:	1700	6741	59	1700	6202	2298	5100	1700	1700	1700	4483	2317
Capacity Analysis Module:												
Vol/Sat:	0.03	0.41	0.41	0.12	0.41	0.41	0.16	0.14	0.05	0.04	0.09	0.09
Crit Moves:		****			****			****			****	

Intersection	
Int Delay, s/veh	3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	130	6	55	119	29	65
Future Vol, veh/h	130	6	55	119	29	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	160	7	68	147	36	80

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	167	0	447	164
Stage 1	-	-	-	-	164	-
Stage 2	-	-	-	-	283	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1411	-	569	881
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	765	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1411	-	539	881
Mov Cap-2 Maneuver	-	-	-	-	539	-
Stage 1	-	-	-	-	820	-
Stage 2	-	-	-	-	765	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	539	881	-	-	1411	-
HCM Lane V/C Ratio	0.066	0.091	-	-	0.048	-
HCM Control Delay (s)	12.2	9.5	-	-	7.7	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	24	599	15	2	1000
Future Vol, veh/h	19	24	599	15	2	1000
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	28	689	17	2	1149

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1162	353	0	0	706	0
Stage 1	698	-	-	-	-	-
Stage 2	464	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	257	549	-	-	541	-
Stage 1	368	-	-	-	-	-
Stage 2	548	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	256	549	-	-	541	-
Mov Cap-2 Maneuver	307	-	-	-	-	-
Stage 1	367	-	-	-	-	-
Stage 2	548	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	307	549	541	-
HCM Lane V/C Ratio	-	-	0.071	0.05	0.004	-
HCM Control Delay (s)	-	-	17.6	11.9	11.7	-
HCM Lane LOS	-	-	C	B	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.2	0	-

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	4	4	1	10	7	3	19	2	3	12	25
Future Vol, veh/h	7	4	4	1	10	7	3	19	2	3	12	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	4	4	1	11	8	3	21	2	3	13	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	19	0	0	8	0	0	59	43	6	51	41	15
Stage 1	-	-	-	-	-	-	22	22	-	17	17	-
Stage 2	-	-	-	-	-	-	37	21	-	34	24	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1597	-	-	1612	-	-	937	849	1077	948	851	1065
Stage 1	-	-	-	-	-	-	996	877	-	1002	881	-
Stage 2	-	-	-	-	-	-	978	878	-	982	875	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1597	-	-	1612	-	-	899	844	1077	924	846	1065
Mov Cap-2 Maneuver	-	-	-	-	-	-	899	844	-	924	846	-
Stage 1	-	-	-	-	-	-	991	873	-	997	880	-
Stage 2	-	-	-	-	-	-	938	877	-	952	871	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.4	0.4	9.3	8.9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	866	1597	-	-	1612	-	-	978
HCM Lane V/C Ratio	0.03	0.005	-	-	0.001	-	-	0.044
HCM Control Delay (s)	9.3	7.3	0	-	7.2	0	-	8.9
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑	↱
Traffic Vol, veh/h	0	0	0	0	364	0
Future Vol, veh/h	0	0	0	0	364	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	50
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	473	0

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	473	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	591	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	591	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	0	0
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

1957 Newport Boulevard and 390 Ford Road
OLC1707
03 Existing Plus Project AM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Newport Blvd/Bay St, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.335
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	18	Level Of Service:	A

Street Name:	Newport Boulevard						Bay Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0 0	0	1 0	2 0	1	0 0	1 0	1	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	151	356	108	0	273	22	33	85	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	151	356	108	0	273	22	33	85	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	151	356	108	0	273	22	33	85	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	151	356	108	0	273	22	33	85	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	151	356	108	0	273	22	33	85	0
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	3400	1700	0	1700	1700	1700	1700	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.09	0.10	0.06	0.00	0.16	0.01	0.02	0.05	0.00
Crit Moves:					****			****		****		

1957 Newport Boulevard and 390 Ford Road
OLC1707
03 Existing Plus Project AM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Newport Blvd/19th Street, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.850
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	65	Level Of Service:	D

Street Name:	Newport Boulevard						19th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	3 1	0	1 0	3 1	1	2 1	1 0	1	1 0	2 1	1
Volume Module:												
Base Vol:	17	3018	27	171	2540	569	903	228	15	38	214	255
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	17	3018	27	171	2540	569	903	228	15	38	214	255
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	17	3018	27	171	2540	569	903	228	15	38	214	255
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	3018	27	171	2540	569	903	228	15	38	214	255
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	17	3018	27	171	2540	569	903	228	15	38	214	255
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	3.96	0.04	1.00	4.00	1.00	3.00	1.00	1.00	1.00	2.00	2.00
Final Sat.:	1700	6740	60	1700	6800	1700	5100	1700	1700	1700	3400	3400
Capacity Analysis Module:												
Vol/Sat:	0.01	0.45	0.45	0.10	0.37	0.33	0.18	0.13	0.01	0.02	0.06	0.08
Crit Moves:		****		****			****					****

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	180	14	104	268	23	54
Future Vol, veh/h	180	14	104	268	23	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	205	16	118	305	26	61

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	221	0	754	213
Stage 1	-	-	-	-	213	-
Stage 2	-	-	-	-	541	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1348	-	377	827
Stage 1	-	-	-	-	823	-
Stage 2	-	-	-	-	583	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1348	-	337	827
Mov Cap-2 Maneuver	-	-	-	-	337	-
Stage 1	-	-	-	-	737	-
Stage 2	-	-	-	-	583	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	337	827	-	-	1348	-
HCM Lane V/C Ratio	0.078	0.074	-	-	0.088	-
HCM Control Delay (s)	16.6	9.7	-	-	7.9	0
HCM Lane LOS	C	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	0.2	-	-	0.3	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	43	1355	34	1	1033
Future Vol, veh/h	28	43	1355	34	1	1033
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	45	1426	36	1	1087

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1881	731	0	0	1462	0
Stage 1	1444	-	-	-	-	-
Stage 2	437	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	108	312	-	-	233	-
Stage 1	128	-	-	-	-	-
Stage 2	566	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	108	312	-	-	233	-
Mov Cap-2 Maneuver	115	-	-	-	-	-
Stage 1	127	-	-	-	-	-
Stage 2	566	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29.7	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	115	312	233	-
HCM Lane V/C Ratio	-	-	0.256	0.145	0.005	-
HCM Control Delay (s)	-	-	46.8	18.5	20.5	-
HCM Lane LOS	-	-	E	C	C	-
HCM 95th %tile Q(veh)	-	-	1	0.5	0	-

Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	7	5	2	5	5	0	12	3	12	27	51
Future Vol, veh/h	20	7	5	2	5	5	0	12	3	12	27	51
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	8	6	2	6	6	0	14	3	14	31	59

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	12	0	0	14	0	0	115	73	11	79	73	9
Stage 1	-	-	-	-	-	-	57	57	-	13	13	-
Stage 2	-	-	-	-	-	-	58	16	-	66	60	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1607	-	-	1604	-	-	862	817	1070	910	817	1073
Stage 1	-	-	-	-	-	-	955	847	-	1007	885	-
Stage 2	-	-	-	-	-	-	954	882	-	945	845	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1607	-	-	1604	-	-	781	805	1070	885	805	1073
Mov Cap-2 Maneuver	-	-	-	-	-	-	781	805	-	885	805	-
Stage 1	-	-	-	-	-	-	942	835	-	993	884	-
Stage 2	-	-	-	-	-	-	868	881	-	913	833	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.5	1.2	9.3	9.3
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	847	1607	-	-	1604	-	-	951
HCM Lane V/C Ratio	0.021	0.014	-	-	0.001	-	-	0.11
HCM Control Delay (s)	9.3	7.3	0	-	7.2	0	-	9.3
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.4

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑	↱
Traffic Vol, veh/h	0	0	0	0	672	0
Future Vol, veh/h	0	0	0	0	672	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	50
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	715	0

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	715	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	431	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	431	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	0	0
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

1957 Newport Boulevard and 390 Ford Road
OLC1707
03 Existing Plus Project PM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Newport Blvd/Bay St, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.457
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	22	Level Of Service:	A

Street Name:	Newport Boulevard						Bay Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	0 0	1 0	2 0	1	0 0	1 0	1	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	312	673	394	0	258	43	40	153	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	312	673	394	0	258	43	40	153	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	312	673	394	0	258	43	40	153	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	312	673	394	0	258	43	40	153	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	312	673	394	0	258	43	40	153	0
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	3400	1700	0	1700	1700	1700	1700	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.18	0.20	0.23	0.00	0.15	0.03	0.02	0.09	0.00
Crit Moves:						****		****		****		

1957 Newport Boulevard and 390 Ford Road
OLC1707
03 Existing Plus Project PM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Newport Blvd/19th Street, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.821
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	57	Level Of Service:	D

Street Name:	Newport Boulevard						19th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	3 1	0	1 0	3 1	1	2 1	1 0	1	1 0	2 1	1
Volume Module:												
Base Vol:	44	2761	24	206	2553	946	791	239	82	65	383	198
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	44	2761	24	206	2553	946	791	239	82	65	383	198
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	44	2761	24	206	2553	946	791	239	82	65	383	198
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	44	2761	24	206	2553	946	791	239	82	65	383	198
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	44	2761	24	206	2553	946	791	239	82	65	383	198
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	3.97	0.03	1.00	3.65	1.35	3.00	1.00	1.00	1.00	2.64	1.36
Final Sat.:	1700	6741	59	1700	6202	2298	5100	1700	1700	1700	4483	2317
Capacity Analysis Module:												
Vol/Sat:	0.03	0.41	0.41	0.12	0.41	0.41	0.16	0.14	0.05	0.04	0.09	0.09
Crit Moves:		****			****			****			****	

APPENDIX F
FUTURE (2020) PLUS PROJECT LEVEL OF SERVICE WORKSHEETS

Intersection	
Int Delay, s/veh	3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	134	6	57	123	27	67
Future Vol, veh/h	134	6	57	123	27	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	165	7	70	152	33	83

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	172	0	461	169
Stage 1	-	-	-	-	169	-
Stage 2	-	-	-	-	292	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1405	-	559	875
Stage 1	-	-	-	-	861	-
Stage 2	-	-	-	-	758	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1405	-	529	875
Mov Cap-2 Maneuver	-	-	-	-	529	-
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	758	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	529	875	-	-	1405	-
HCM Lane V/C Ratio	0.063	0.095	-	-	0.05	-
HCM Control Delay (s)	12.3	9.5	-	-	7.7	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	22	617	14	2	1030
Future Vol, veh/h	16	22	617	14	2	1030
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	25	709	16	2	1184

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1195	363	0	0	725	0
Stage 1	717	-	-	-	-	-
Stage 2	478	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	247	541	-	-	530	-
Stage 1	359	-	-	-	-	-
Stage 2	539	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	246	541	-	-	530	-
Mov Cap-2 Maneuver	298	-	-	-	-	-
Stage 1	358	-	-	-	-	-
Stage 2	539	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	298	541	530	-
HCM Lane V/C Ratio	-	-	0.062	0.047	0.004	-
HCM Control Delay (s)	-	-	17.9	12	11.8	-
HCM Lane LOS	-	-	C	B	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0	-

Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	3	4	1	4	4	3	20	2	3	12	26
Future Vol, veh/h	7	3	4	1	4	4	3	20	2	3	12	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	3	4	1	4	4	3	22	2	3	13	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	8	0	0	7	0	0	50	31	5	41	31	6
Stage 1	-	-	-	-	-	-	21	21	-	8	8	-
Stage 2	-	-	-	-	-	-	29	10	-	33	23	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1612	-	-	1614	-	-	950	862	1078	963	862	1077
Stage 1	-	-	-	-	-	-	998	878	-	1013	889	-
Stage 2	-	-	-	-	-	-	988	887	-	983	876	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1612	-	-	1614	-	-	910	857	1078	938	857	1077
Mov Cap-2 Maneuver	-	-	-	-	-	-	910	857	-	938	857	-
Stage 1	-	-	-	-	-	-	993	874	-	1008	888	-
Stage 2	-	-	-	-	-	-	947	886	-	952	872	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.6	0.8	9.2	8.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	878	1612	-	-	1614	-	-	992
HCM Lane V/C Ratio	0.031	0.005	-	-	0.001	-	-	0.045
HCM Control Delay (s)	9.2	7.2	0	-	7.2	0	-	8.8
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑	↱
Traffic Vol, veh/h	0	0	0	0	375	0
Future Vol, veh/h	0	0	0	0	375	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	50
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	487	0

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	487	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	581	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	581	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	0	0
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

1957 Newport Boulevard and 390 Ford Road
OLC1707
05 Cumulative w/o Ford AM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Newport Blvd/Bay St, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.341
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	18	Level Of Service:	A

Street Name:	Newport Boulevard						Bay Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	0	1 0	2 0	1	0 0	1 0	1	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	156	367	111	0	278	23	34	88	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	156	367	111	0	278	23	34	88	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	156	367	111	0	278	23	34	88	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	156	367	111	0	278	23	34	88	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	156	367	111	0	278	23	34	88	0
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	3400	1700	0	1700	1700	1700	1700	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.09	0.11	0.07	0.00	0.16	0.01	0.02	0.05	0.00
Crit Moves:					****			****		****		

1957 Newport Boulevard and 390 Ford Road
OLC1707
05 Cumulative w/o Ford AM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Newport Blvd/19th Street, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.875
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	74	Level Of Service:	D

Street Name:	Newport Boulevard						19th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	3 1	0	1 0	3 1	1	2 1	1 0	1	1 0	2 1	1
Volume Module:												
Base Vol:	18	3109	28	176	2616	586	930	235	15	39	220	263
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	18	3109	28	176	2616	586	930	235	15	39	220	263
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	18	3109	28	176	2616	586	930	235	15	39	220	263
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	3109	28	176	2616	586	930	235	15	39	220	263
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	18	3109	28	176	2616	586	930	235	15	39	220	263
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	3.96	0.04	1.00	4.00	1.00	3.00	1.00	1.00	1.00	2.00	2.00
Final Sat.:	1700	6739	61	1700	6800	1700	5100	1700	1700	1700	3400	3400
Capacity Analysis Module:												
Vol/Sat:	0.01	0.46	0.46	0.10	0.38	0.34	0.18	0.14	0.01	0.02	0.06	0.08
Crit Moves:		****		****			****					****

Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	185	14	102	276	22	56
Future Vol, veh/h	185	14	102	276	22	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	210	16	116	314	25	64

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	226	0	764	218
Stage 1	-	-	-	-	218	-
Stage 2	-	-	-	-	546	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1342	-	372	822
Stage 1	-	-	-	-	818	-
Stage 2	-	-	-	-	580	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1342	-	333	822
Mov Cap-2 Maneuver	-	-	-	-	333	-
Stage 1	-	-	-	-	732	-
Stage 2	-	-	-	-	580	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	11.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	333	822	-	-	1342	-
HCM Lane V/C Ratio	0.075	0.077	-	-	0.086	-
HCM Control Delay (s)	16.7	9.7	-	-	7.9	0
HCM Lane LOS	C	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.3	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	43	1396	30	1	1064
Future Vol, veh/h	28	43	1396	30	1	1064
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	45	1469	32	1	1120

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1935	751	0	0	1501	0
Stage 1	1485	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	101	303	-	-	223	-
Stage 1	121	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	101	303	-	-	223	-
Mov Cap-2 Maneuver	110	-	-	-	-	-
Stage 1	121	-	-	-	-	-
Stage 2	557	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.9	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	110	303	223	-
HCM Lane V/C Ratio	-	-	0.268	0.149	0.005	-
HCM Control Delay (s)	-	-	49.3	19	21.2	-
HCM Lane LOS	-	-	E	C	C	-
HCM 95th %tile Q(veh)	-	-	1	0.5	0	-

Intersection	
Int Delay, s/veh	8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	2	5	2	3	3	0	12	3	7	28	53
Future Vol, veh/h	21	2	5	2	3	3	0	12	3	7	28	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	2	6	2	3	3	0	14	3	8	33	62

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	6	0	0	8	0	0	109	63	5	71	65	5
Stage 1	-	-	-	-	-	-	53	53	-	9	9	-
Stage 2	-	-	-	-	-	-	56	10	-	62	56	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1615	-	-	1612	-	-	870	828	1078	920	826	1078
Stage 1	-	-	-	-	-	-	960	851	-	1012	888	-
Stage 2	-	-	-	-	-	-	956	887	-	949	848	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1615	-	-	1612	-	-	786	815	1078	894	813	1078
Mov Cap-2 Maneuver	-	-	-	-	-	-	786	815	-	894	813	-
Stage 1	-	-	-	-	-	-	946	838	-	997	887	-
Stage 2	-	-	-	-	-	-	867	886	-	916	835	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.4	1.8	9.3	9.2
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	857	1615	-	-	1612	-	-	962
HCM Lane V/C Ratio	0.02	0.015	-	-	0.001	-	-	0.106
HCM Control Delay (s)	9.3	7.3	0	-	7.2	0	-	9.2
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.4

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑	↱
Traffic Vol, veh/h	0	0	0	0	692	0
Future Vol, veh/h	0	0	0	0	692	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	50
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	736	0

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	736	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	419	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	419	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	0	0
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

1957 Newport Boulevard and 390 Ford Road
OLC1707
05 Cumulative w/o Ford PM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Newport Blvd/Bay St, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.465
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	22	Level Of Service:	A

Street Name:	Newport Boulevard						Bay Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	0	1 0	2 0	1	0 0	1 0	1	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	321	693	401	0	264	44	41	158	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	321	693	401	0	264	44	41	158	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	321	693	401	0	264	44	41	158	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	321	693	401	0	264	44	41	158	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	321	693	401	0	264	44	41	158	0
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	3400	1700	0	1700	1700	1700	1700	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.19	0.20	0.24	0.00	0.16	0.03	0.02	0.09	0.00
Crit Moves:						****		****		****		

1957 Newport Boulevard and 390 Ford Road
OLC1707
05 Cumulative w/o Ford PM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Newport Blvd/19th Street, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.841
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	62	Level Of Service:	D

Street Name:	Newport Boulevard						19th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	3 1	0	1 0	3 1	1	2 1	1 0	1	1 0	2 1	1
Volume Module:												
Base Vol:	45	2844	25	207	2630	974	815	246	84	67	394	204
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	45	2844	25	207	2630	974	815	246	84	67	394	204
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	45	2844	25	207	2630	974	815	246	84	67	394	204
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	45	2844	25	207	2630	974	815	246	84	67	394	204
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	45	2844	25	207	2630	974	815	246	84	67	394	204
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	3.97	0.03	1.00	3.65	1.35	3.00	1.00	1.00	1.00	2.64	1.36
Final Sat.:	1700	6741	59	1700	6203	2297	5100	1700	1700	1700	4480	2320
Capacity Analysis Module:												
Vol/Sat:	0.03	0.42	0.42	0.12	0.42	0.42	0.16	0.14	0.05	0.04	0.09	0.09
Crit Moves:		****			****			****			****	

Intersection	
Int Delay, s/veh	3.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	134	6	57	123	30	67
Future Vol, veh/h	134	6	57	123	30	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	165	7	70	152	37	83

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	172	0	461	169
Stage 1	-	-	-	-	169	-
Stage 2	-	-	-	-	292	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1405	-	559	875
Stage 1	-	-	-	-	861	-
Stage 2	-	-	-	-	758	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1405	-	529	875
Mov Cap-2 Maneuver	-	-	-	-	529	-
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	758	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	529	875	-	-	1405	-
HCM Lane V/C Ratio	0.07	0.095	-	-	0.05	-
HCM Control Delay (s)	12.3	9.5	-	-	7.7	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	25	617	15	2	1030
Future Vol, veh/h	19	25	617	15	2	1030
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	29	709	17	2	1184

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1196	363	0	0	726	0
Stage 1	718	-	-	-	-	-
Stage 2	478	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	247	541	-	-	530	-
Stage 1	358	-	-	-	-	-
Stage 2	539	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	246	541	-	-	530	-
Mov Cap-2 Maneuver	298	-	-	-	-	-
Stage 1	357	-	-	-	-	-
Stage 2	539	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	298	541	530	-
HCM Lane V/C Ratio	-	-	0.073	0.053	0.004	-
HCM Control Delay (s)	-	-	18	12	11.8	-
HCM Lane LOS	-	-	C	B	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.2	0	-

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	4	4	1	10	7	3	20	2	3	12	26
Future Vol, veh/h	7	4	4	1	10	7	3	20	2	3	12	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	4	4	1	11	8	3	22	2	3	13	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	19	0	0	8	0	0	60	43	6	51	41	15
Stage 1	-	-	-	-	-	-	22	22	-	17	17	-
Stage 2	-	-	-	-	-	-	38	21	-	34	24	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1597	-	-	1612	-	-	936	849	1077	948	851	1065
Stage 1	-	-	-	-	-	-	996	877	-	1002	881	-
Stage 2	-	-	-	-	-	-	977	878	-	982	875	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1597	-	-	1612	-	-	897	844	1077	923	846	1065
Mov Cap-2 Maneuver	-	-	-	-	-	-	897	844	-	923	846	-
Stage 1	-	-	-	-	-	-	991	873	-	997	880	-
Stage 2	-	-	-	-	-	-	936	877	-	951	871	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.4	0.4	9.3	8.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	865	1597	-	-	1612	-	-	980
HCM Lane V/C Ratio	0.031	0.005	-	-	0.001	-	-	0.045
HCM Control Delay (s)	9.3	7.3	0	-	7.2	0	-	8.8
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑	↱
Traffic Vol, veh/h	0	0	0	0	375	0
Future Vol, veh/h	0	0	0	0	375	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	50
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	487	0

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	487	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	581	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	581	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	0	0
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

1957 Newport Boulevard and 390 Ford Road
OLC1707
06 Cumulative Plus Project AM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Newport Blvd/Bay St, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.343
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	18	Level Of Service:	A

Street Name:	Newport Boulevard						Bay Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0 0	0	1 0	2 0	1	0 0	1 0	1	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	156	367	111	0	281	23	34	88	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	156	367	111	0	281	23	34	88	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	156	367	111	0	281	23	34	88	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	156	367	111	0	281	23	34	88	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	156	367	111	0	281	23	34	88	0
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	3400	1700	0	1700	1700	1700	1700	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.09	0.11	0.07	0.00	0.17	0.01	0.02	0.05	0.00
Crit Moves:					****			****		****		

1957 Newport Boulevard and 390 Ford Road
OLC1707
06 Cumulative Plus Project AM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Newport Blvd/19th Street, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.875
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	74	Level Of Service:	D

Street Name:	Newport Boulevard						19th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	3 1	0	1 0	3 1	1	2 1	1 0	1	1 0	2 1	1
Volume Module:												
Base Vol:	18	3109	28	176	2616	587	930	235	15	39	220	263
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	18	3109	28	176	2616	587	930	235	15	39	220	263
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	18	3109	28	176	2616	587	930	235	15	39	220	263
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	3109	28	176	2616	587	930	235	15	39	220	263
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	18	3109	28	176	2616	587	930	235	15	39	220	263
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	3.96	0.04	1.00	4.00	1.00	3.00	1.00	1.00	1.00	2.00	2.00
Final Sat.:	1700	6739	61	1700	6800	1700	5100	1700	1700	1700	3400	3400
Capacity Analysis Module:												
Vol/Sat:	0.01	0.46	0.46	0.10	0.38	0.35	0.18	0.14	0.01	0.02	0.06	0.08
Crit Moves:		****		****			****					****

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	185	14	107	276	24	56
Future Vol, veh/h	185	14	107	276	24	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	210	16	122	314	27	64

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	226	0	776	218
Stage 1	-	-	-	-	218	-
Stage 2	-	-	-	-	558	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1342	-	366	822
Stage 1	-	-	-	-	818	-
Stage 2	-	-	-	-	573	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1342	-	326	822
Mov Cap-2 Maneuver	-	-	-	-	326	-
Stage 1	-	-	-	-	728	-
Stage 2	-	-	-	-	573	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	326	822	-	-	1342	-
HCM Lane V/C Ratio	0.084	0.077	-	-	0.091	-
HCM Control Delay (s)	17	9.7	-	-	8	0
HCM Lane LOS	C	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	0.3	-	-	0.3	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	44	1396	35	1	1064
Future Vol, veh/h	29	44	1396	35	1	1064
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	46	1469	37	1	1120

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1938	753	0	0	1506	0
Stage 1	1488	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	101	302	-	-	221	-
Stage 1	120	-	-	-	-	-
Stage 2	557	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	100	302	-	-	221	-
Mov Cap-2 Maneuver	108	-	-	-	-	-
Stage 1	119	-	-	-	-	-
Stage 2	557	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	31.8	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	108	302	221	-
HCM Lane V/C Ratio	-	-	0.283	0.153	0.005	-
HCM Control Delay (s)	-	-	51	19.1	21.4	-
HCM Lane LOS	-	-	F	C	C	-
HCM 95th %tile Q(veh)	-	-	1.1	0.5	0	-

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	7	5	2	5	5	0	12	3	12	28	53
Future Vol, veh/h	21	7	5	2	5	5	0	12	3	12	28	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	8	6	2	6	6	0	14	3	14	33	62

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	12	0	0	14	0	0	120	75	11	81	75	9
Stage 1	-	-	-	-	-	-	59	59	-	13	13	-
Stage 2	-	-	-	-	-	-	61	16	-	68	62	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1607	-	-	1604	-	-	855	815	1070	907	815	1073
Stage 1	-	-	-	-	-	-	953	846	-	1007	885	-
Stage 2	-	-	-	-	-	-	950	882	-	942	843	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1607	-	-	1604	-	-	771	802	1070	882	802	1073
Mov Cap-2 Maneuver	-	-	-	-	-	-	771	802	-	882	802	-
Stage 1	-	-	-	-	-	-	939	833	-	992	884	-
Stage 2	-	-	-	-	-	-	862	881	-	909	830	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.6	1.2	9.4	9.3
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	844	1607	-	-	1604	-	-	950
HCM Lane V/C Ratio	0.021	0.015	-	-	0.001	-	-	0.114
HCM Control Delay (s)	9.4	7.3	0	-	7.2	0	-	9.3
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.4

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑	↱
Traffic Vol, veh/h	0	0	0	0	692	0
Future Vol, veh/h	0	0	0	0	692	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	50
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	736	0

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	736	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	419	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	419	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	0	0
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

1957 Newport Boulevard and 390 Ford Road
OLC1707
06 Cumulative Plus Project PM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Newport Blvd/Bay St, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.469
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	22	Level Of Service:	A

Street Name:	Newport Boulevard						Bay Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0 0	0	1 0	2 0	1	0 0	1 0	1	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	321	693	406	0	266	44	41	158	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	321	693	406	0	266	44	41	158	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	321	693	406	0	266	44	41	158	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	321	693	406	0	266	44	41	158	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	321	693	406	0	266	44	41	158	0
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	3400	1700	0	1700	1700	1700	1700	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.19	0.20	0.24	0.00	0.16	0.03	0.02	0.09	0.00
Crit Moves:						****		****		****		

1957 Newport Boulevard and 390 Ford Road
OLC1707
06 Cumulative Plus Project PM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Newport Blvd/19th Street, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.841
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	62	Level Of Service:	D

Street Name:	Newport Boulevard						19th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	3 1	0	1 0	3 1	1	2 1	1 0	1	1 0	2 1	1
Volume Module:												
Base Vol:	45	2844	25	207	2630	979	815	246	84	67	394	204
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	45	2844	25	207	2630	979	815	246	84	67	394	204
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	45	2844	25	207	2630	979	815	246	84	67	394	204
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	45	2844	25	207	2630	979	815	246	84	67	394	204
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	45	2844	25	207	2630	979	815	246	84	67	394	204
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	3.97	0.03	1.00	3.64	1.36	3.00	1.00	1.00	1.00	2.64	1.36
Final Sat.:	1700	6741	59	1700	6194	2306	5100	1700	1700	1700	4480	2320
Capacity Analysis Module:												
Vol/Sat:	0.03	0.42	0.42	0.12	0.42	0.42	0.16	0.14	0.05	0.04	0.09	0.09
Crit Moves:		****		****			****				****	

APPENDIX G
GENERAL PLAN PLUS PROJECT LEVEL OF SERVICE WORKSHEETS

Intersection	
Int Delay, s/veh	3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	169	8	71	155	34	84
Future Vol, veh/h	169	8	71	155	34	84
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	178	8	75	163	36	88

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	186	0	495	182
Stage 1	-	-	-	-	182	-
Stage 2	-	-	-	-	313	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1388	-	534	861
Stage 1	-	-	-	-	849	-
Stage 2	-	-	-	-	741	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1388	-	502	861
Mov Cap-2 Maneuver	-	-	-	-	502	-
Stage 1	-	-	-	-	799	-
Stage 2	-	-	-	-	741	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	502	861	-	-	1388	-
HCM Lane V/C Ratio	0.071	0.103	-	-	0.054	-
HCM Control Delay (s)	12.7	9.7	-	-	7.7	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	27	779	18	2	1300
Future Vol, veh/h	21	27	779	18	2	1300
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	28	820	19	2	1368

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1381	420	0	0	839	0
Stage 1	830	-	-	-	-	-
Stage 2	551	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	199	497	-	-	468	-
Stage 1	307	-	-	-	-	-
Stage 2	494	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	198	497	-	-	468	-
Mov Cap-2 Maneuver	253	-	-	-	-	-
Stage 1	306	-	-	-	-	-
Stage 2	494	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	253	497	468	-
HCM Lane V/C Ratio	-	-	0.087	0.057	0.004	-
HCM Control Delay (s)	-	-	20.6	12.7	12.7	-
HCM Lane LOS	-	-	C	B	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	0	-

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	4	5	0	5	7	4	25	3	3	20	42
Future Vol, veh/h	9	4	5	0	5	7	4	25	3	3	20	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	4	5	0	5	7	4	26	3	3	21	44

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	12	0	0	9	0	0	66	37	7	48	36	9
Stage 1	-	-	-	-	-	-	25	25	-	9	9	-
Stage 2	-	-	-	-	-	-	41	12	-	39	27	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1607	-	-	1611	-	-	927	855	1075	953	856	1073
Stage 1	-	-	-	-	-	-	993	874	-	1012	888	-
Stage 2	-	-	-	-	-	-	974	886	-	976	873	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1607	-	-	1611	-	-	868	850	1075	923	851	1073
Mov Cap-2 Maneuver	-	-	-	-	-	-	868	850	-	923	851	-
Stage 1	-	-	-	-	-	-	987	869	-	1006	888	-
Stage 2	-	-	-	-	-	-	912	886	-	938	868	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.6	0	9.3	8.9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	869	1607	-	-	1611	-	-	986
HCM Lane V/C Ratio	0.039	0.006	-	-	-	-	-	0.069
HCM Control Delay (s)	9.3	7.3	0	-	0	-	-	8.9
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑	↱
Traffic Vol, veh/h	0	0	0	0	473	0
Future Vol, veh/h	0	0	0	0	473	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	50
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	498	0

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	498	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	572	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	572	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	0	0
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

1957 Newport Boulevard and 390 Ford Road
OLC1707
08 2035 Buildout w/o Ford AM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Newport Blvd/Bay St, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.344
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	18	Level Of Service:	A

Street Name:	Newport Boulevard						Bay Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0 0	0	1 0	2 0	1	0 0	1 0	1	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	90	300	124	0	310	70	40	80	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	90	300	124	0	310	70	40	80	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	90	300	124	0	310	70	40	80	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	90	300	124	0	310	70	40	80	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	90	300	124	0	310	70	40	80	0
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	3400	1700	0	1700	1700	1700	1700	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.05	0.09	0.07	0.00	0.18	0.04	0.02	0.05	0.00
Crit Moves:					****			****		****		

1957 Newport Boulevard and 390 Ford Road
OLC1707
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Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Newport Blvd/19th Street, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.870
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	72	Level Of Service:	D

Street Name:	Newport Boulevard						19th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 1	0	1 0	2 1	1	2 1	1 0	1	1 0	2 1	1
Volume Module:												
Base Vol:	10	2970	20	39	686	427	651	301	10	30	170	240
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	2970	20	39	686	427	651	301	10	30	170	240
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	10	2970	20	39	686	427	651	301	10	30	170	240
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	10	2970	20	39	686	427	651	301	10	30	170	240
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	10	2970	20	39	686	427	651	301	10	30	170	240
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.98	0.02	1.00	2.47	1.53	2.74	1.26	1.00	1.00	2.00	2.00
Final Sat.:	1700	5066	34	1700	4191	2609	4650	2150	1700	1700	3400	3400
Capacity Analysis Module:												
Vol/Sat:	0.01	0.59	0.59	0.02	0.16	0.16	0.14	0.14	0.01	0.02	0.05	0.07
Crit Moves:		****		****			****					****

Intersection	
Int Delay, s/veh	2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	234	18	129	348	27	70
Future Vol, veh/h	234	18	129	348	27	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	246	19	136	366	28	74

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	265	0	894	256
Stage 1	-	-	-	-	256	-
Stage 2	-	-	-	-	638	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1299	-	312	783
Stage 1	-	-	-	-	787	-
Stage 2	-	-	-	-	526	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1299	-	271	783
Mov Cap-2 Maneuver	-	-	-	-	271	-
Stage 1	-	-	-	-	684	-
Stage 2	-	-	-	-	526	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	271	783	-	-	1299	-
HCM Lane V/C Ratio	0.105	0.094	-	-	0.105	-
HCM Control Delay (s)	19.8	10.1	-	-	8.1	0
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	0.3	-	-	0.3	-

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	55	1761	38	1	1343
Future Vol, veh/h	35	55	1761	38	1	1343
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	58	1854	40	1	1414

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2442	947	0	0	1894	0
Stage 1	1874	-	-	-	-	-
Stage 2	568	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	54	225	-	-	142	-
Stage 1	68	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	54	225	-	-	142	-
Mov Cap-2 Maneuver	62	-	-	-	-	-
Stage 1	68	-	-	-	-	-
Stage 2	484	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	65.3	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	62	225	142	-
HCM Lane V/C Ratio	-	-	0.594	0.257	0.007	-
HCM Control Delay (s)	-	-	126.2	26.5	30.5	-
HCM Lane LOS	-	-	F	D	D	-
HCM 95th %tile Q(veh)	-	-	2.5	1	0	-

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	2	7	0	9	3	0	16	4	10	43	83
Future Vol, veh/h	26	2	7	0	9	3	0	16	4	10	43	83
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	2	7	0	9	3	0	17	4	11	45	87

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	12	0	0	9	0	0	137	72	6	81	74	11
Stage 1	-	-	-	-	-	-	60	60	-	11	11	-
Stage 2	-	-	-	-	-	-	77	12	-	70	63	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1607	-	-	1611	-	-	834	818	1077	907	816	1070
Stage 1	-	-	-	-	-	-	951	845	-	1010	886	-
Stage 2	-	-	-	-	-	-	932	886	-	940	842	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1607	-	-	1611	-	-	723	804	1077	877	802	1070
Mov Cap-2 Maneuver	-	-	-	-	-	-	723	804	-	877	802	-
Stage 1	-	-	-	-	-	-	935	831	-	993	886	-
Stage 2	-	-	-	-	-	-	812	886	-	902	828	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	5.4	0	9.4	9.4
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	847	1607	-	-	1611	-	-	954
HCM Lane V/C Ratio	0.025	0.017	-	-	-	-	-	0.15
HCM Control Delay (s)	9.4	7.3	0	-	0	-	-	9.4
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.5

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑	↱
Traffic Vol, veh/h	0	0	0	0	873	0
Future Vol, veh/h	0	0	0	0	873	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	50
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	919	0

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	919	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	329	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	329	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	0	0
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

1957 Newport Boulevard and 390 Ford Road
OLC1707
08 2035 Buildout w/o Ford PM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Newport Blvd/Bay St, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.694
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	37	Level Of Service:	B

Street Name:	Newport Boulevard						Bay Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0 0	0	1 0	2 0	1	0 0	1 0	1	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	440	1310	562	0	360	30	80	130	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	440	1310	562	0	360	30	80	130	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	440	1310	562	0	360	30	80	130	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	440	1310	562	0	360	30	80	130	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	440	1310	562	0	360	30	80	130	0
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	3400	1700	0	1700	1700	1700	1700	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.26	0.39	0.33	0.00	0.21	0.02	0.05	0.08	0.00
Crit Moves:					****			****		****		

1957 Newport Boulevard and 390 Ford Road
OLC1707
08 2035 Buildout w/o Ford PM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Newport Blvd/19th Street, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.717
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	39	Level Of Service:	C

Street Name:	Newport Boulevard						19th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2	1 0	1 0	2	1 1	2 1	1	0 1	1 0	2	1 1
Volume Module:												
Base Vol:	140	740	70	169	1524	1057	576	235	20	70	440	30
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	140	740	70	169	1524	1057	576	235	20	70	440	30
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	140	740	70	169	1524	1057	576	235	20	70	440	30
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	140	740	70	169	1524	1057	576	235	20	70	440	30
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	140	740	70	169	1524	1057	576	235	20	70	440	30
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.74	0.26	1.00	2.36	1.64	2.84	1.16	1.00	1.00	3.00	1.00
Final Sat.:	1700	4659	441	1700	4015	2785	4830	1970	1700	1700	5100	1700
Capacity Analysis Module:												
Vol/Sat:	0.08	0.16	0.16	0.10	0.38	0.38	0.12	0.12	0.01	0.04	0.09	0.02
Crit Moves:	****				****		****				****	

Intersection	
Int Delay, s/veh	3.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	169	8	71	155	37	84
Future Vol, veh/h	169	8	71	155	37	84
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	178	8	75	163	39	88

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	186	0	495	182
Stage 1	-	-	-	-	182	-
Stage 2	-	-	-	-	313	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1388	-	534	861
Stage 1	-	-	-	-	849	-
Stage 2	-	-	-	-	741	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1388	-	502	861
Mov Cap-2 Maneuver	-	-	-	-	502	-
Stage 1	-	-	-	-	799	-
Stage 2	-	-	-	-	741	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	502	861	-	-	1388	-
HCM Lane V/C Ratio	0.078	0.103	-	-	0.054	-
HCM Control Delay (s)	12.8	9.7	-	-	7.7	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	0.3	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	30	779	19	2	1300
Future Vol, veh/h	24	30	779	19	2	1300
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	32	820	20	2	1368

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1381	420	0	0	840	0
Stage 1	830	-	-	-	-	-
Stage 2	551	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	199	497	-	-	467	-
Stage 1	307	-	-	-	-	-
Stage 2	494	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	198	497	-	-	467	-
Mov Cap-2 Maneuver	253	-	-	-	-	-
Stage 1	306	-	-	-	-	-
Stage 2	494	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	253	497	467	-
HCM Lane V/C Ratio	-	-	0.1	0.064	0.005	-
HCM Control Delay (s)	-	-	20.8	12.7	12.7	-
HCM Lane LOS	-	-	C	B	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	0	-

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	5	5	0	11	10	4	25	3	3	20	42
Future Vol, veh/h	9	5	5	0	11	10	4	25	3	3	20	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	5	5	0	12	11	4	26	3	3	21	44

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	23	0	0	10	0	0	76	49	8	58	46	18
Stage 1	-	-	-	-	-	-	26	26	-	18	18	-
Stage 2	-	-	-	-	-	-	50	23	-	40	28	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1592	-	-	1610	-	-	914	843	1074	939	846	1061
Stage 1	-	-	-	-	-	-	992	874	-	1001	880	-
Stage 2	-	-	-	-	-	-	963	876	-	975	872	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1592	-	-	1610	-	-	856	838	1074	910	841	1061
Mov Cap-2 Maneuver	-	-	-	-	-	-	856	838	-	910	841	-
Stage 1	-	-	-	-	-	-	986	869	-	995	880	-
Stage 2	-	-	-	-	-	-	901	876	-	937	867	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.4	0	9.4	9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	858	1592	-	-	1610	-	-	975
HCM Lane V/C Ratio	0.039	0.006	-	-	-	-	-	0.07
HCM Control Delay (s)	9.4	7.3	0	-	0	-	-	9
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑	↱
Traffic Vol, veh/h	0	0	0	0	473	0
Future Vol, veh/h	0	0	0	0	473	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	50
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	498	0

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	498	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	572	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	572	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	0	0
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

1957 Newport Boulevard and 390 Ford Road
OLC1707
09 2035 Buildout Plus Project AM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Newport Blvd/Bay St, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.346
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	18	Level Of Service:	A

Street Name:	Newport Boulevard						Bay Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0 0	0	1 0	2 0	1	0 0	1 0	1	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	90	300	124	0	313	70	40	80	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	90	300	124	0	313	70	40	80	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	90	300	124	0	313	70	40	80	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	90	300	124	0	313	70	40	80	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	90	300	124	0	313	70	40	80	0
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	3400	1700	0	1700	1700	1700	1700	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.05	0.09	0.07	0.00	0.18	0.04	0.02	0.05	0.00
Crit Moves:					****			****		****		

1957 Newport Boulevard and 390 Ford Road
OLC1707
09 2035 Buildout Plus Project AM

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Newport Blvd/19th Street, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.870
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	72	Level Of Service:	D

Street Name:	Newport Boulevard						19th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 1	0	1 0	2 1	1	2 1	1 0	1	1 0	2 1	1
Volume Module:												
Base Vol:	10	2970	20	39	686	428	651	301	10	30	170	240
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	2970	20	39	686	428	651	301	10	30	170	240
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	10	2970	20	39	686	428	651	301	10	30	170	240
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	10	2970	20	39	686	428	651	301	10	30	170	240
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	10	2970	20	39	686	428	651	301	10	30	170	240
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.98	0.02	1.00	2.46	1.54	2.74	1.26	1.00	1.00	2.00	2.00
Final Sat.:	1700	5066	34	1700	4187	2613	4650	2150	1700	1700	3400	3400
Capacity Analysis Module:												
Vol/Sat:	0.01	0.59	0.59	0.02	0.16	0.16	0.14	0.14	0.01	0.02	0.05	0.07
Crit Moves:		****		****			****					****

Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	234	18	134	348	29	70
Future Vol, veh/h	234	18	134	348	29	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	246	19	141	366	31	74

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	265	0	904	256
Stage 1	-	-	-	-	256	-
Stage 2	-	-	-	-	648	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1299	-	307	783
Stage 1	-	-	-	-	787	-
Stage 2	-	-	-	-	521	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1299	-	265	783
Mov Cap-2 Maneuver	-	-	-	-	265	-
Stage 1	-	-	-	-	680	-
Stage 2	-	-	-	-	521	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	13.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	265	783	-	-	1299	-
HCM Lane V/C Ratio	0.115	0.094	-	-	0.109	-
HCM Control Delay (s)	20.3	10.1	-	-	8.1	0
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	0.3	-	-	0.4	-

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	36	56	1761	43	1	1343
Future Vol, veh/h	36	56	1761	43	1	1343
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	59	1854	45	1	1414

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2445	950	0	0	1899	0
Stage 1	1877	-	-	-	-	-
Stage 2	568	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	54	224	-	-	141	-
Stage 1	68	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	54	224	-	-	141	-
Mov Cap-2 Maneuver	62	-	-	-	-	-
Stage 1	68	-	-	-	-	-
Stage 2	484	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	66.8	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	62	224	141	-
HCM Lane V/C Ratio	-	-	0.611	0.263	0.007	-
HCM Control Delay (s)	-	-	129.3	26.7	30.7	-
HCM Lane LOS	-	-	F	D	D	-
HCM 95th %tile Q(veh)	-	-	2.6	1	0	-

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	7	7	0	11	5	0	16	4	15	43	83
Future Vol, veh/h	26	7	7	0	11	5	0	16	4	15	43	83
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	7	7	0	12	5	0	17	4	16	45	87

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	17	0	0	14	0	0	146	82	11	90	83	15
Stage 1	-	-	-	-	-	-	65	65	-	15	15	-
Stage 2	-	-	-	-	-	-	81	17	-	75	68	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1600	-	-	1604	-	-	823	808	1070	895	807	1065
Stage 1	-	-	-	-	-	-	946	841	-	1005	883	-
Stage 2	-	-	-	-	-	-	927	881	-	934	838	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1600	-	-	1604	-	-	714	794	1070	865	793	1065
Mov Cap-2 Maneuver	-	-	-	-	-	-	714	794	-	865	793	-
Stage 1	-	-	-	-	-	-	930	827	-	988	883	-
Stage 2	-	-	-	-	-	-	807	881	-	896	824	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.7	0	9.4	9.5
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	837	1600	-	-	1604	-	-	943
HCM Lane V/C Ratio	0.025	0.017	-	-	-	-	-	0.157
HCM Control Delay (s)	9.4	7.3	0	-	0	-	-	9.5
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.6

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↱			↑	↱
Traffic Vol, veh/h	0	0	0	0	873	0
Future Vol, veh/h	0	0	0	0	873	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	50
Veh in Median Storage, #	0	-	-	16974	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	919	0

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	919	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.22	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.318	-	-
Pot Cap-1 Maneuver	0	329	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	329	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	0	0
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☐ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More					Hour
Both Approaches - Major Street							
Higher Approach - Minor Street							

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☐	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☐ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☒**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☒	62.9 sec x 92 veh / 3,600 sec/hr = 1.6 veh-hr
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☒	92
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☒	No ☐	3,240

PART B **SATISFIED YES ☐ NO ☒**

APPROACH LANES	One	2 or More		Hour
Both Approaches - Major Street		3,105		
Higher Approach - Minor Street		92		

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☐	No ☒

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

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Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #2 Newport Blvd/Bay St, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.695
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	37	Level Of Service:	B

Street Name:	Newport Boulevard						Bay Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Split Phase			Split Phase			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0 0	0	1 0	2 0	1	0 0	1 0	1	1 0	1 0	0
Volume Module:												
Base Vol:	0	0	0	440	1310	567	0	362	30	80	130	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	440	1310	567	0	362	30	80	130	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	440	1310	567	0	362	30	80	130	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	440	1310	567	0	362	30	80	130	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	440	1310	567	0	362	30	80	130	0
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	2.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Final Sat.:	0	0	0	1700	3400	1700	0	1700	1700	1700	1700	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.26	0.39	0.33	0.00	0.21	0.02	0.05	0.08	0.00
Crit Moves:					****			****		****		

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Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #6 Newport Blvd/19th Street, Costa Mesa

Cycle (sec):	100	Critical Vol./Cap.(X):	0.718
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	39	Level Of Service:	C

Street Name:	Newport Boulevard						19th Street					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	2 1	0	1 0	2 1	1	2 1	1 0	1	1 0	2 1	1
Volume Module:												
Base Vol:	140	740	70	169	1524	1062	576	235	20	70	440	30
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	140	740	70	169	1524	1062	576	235	20	70	440	30
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	140	740	70	169	1524	1062	576	235	20	70	440	30
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	140	740	70	169	1524	1062	576	235	20	70	440	30
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	140	740	70	169	1524	1062	576	235	20	70	440	30
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.74	0.26	1.00	2.36	1.64	2.84	1.16	1.00	1.00	3.00	1.00
Final Sat.:	1700	4659	441	1700	4007	2793	4830	1970	1700	1700	5100	1700
Capacity Analysis Module:												
Vol/Sat:	0.08	0.16	0.16	0.10	0.38	0.38	0.12	0.12	0.01	0.04	0.09	0.02
Crit Moves:	****				****		****				****	

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Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #7 Harbor/Ford

Cycle (sec):	100	Critical Vol./Cap.(X):	0.398
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	38	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	2	1 0	1 0	2	1 0	0 0	0	0 0	1 0	0	0 1
Volume Module:												
Base Vol:	0	1761	38	22	1322	0	0	0	0	35	0	55
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1761	38	22	1322	0	0	0	0	35	0	55
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	1761	38	22	1322	0	0	0	0	35	0	55
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	1761	38	22	1322	0	0	0	0	35	0	55
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1761	38	22	1322	0	0	0	0	35	0	55
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	1761	38	22	1322	0	0	0	0	35	0	55
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	2.94	0.06	1.00	3.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	4992	108	1700	5100	0	0	0	0	1700	0	1700
Capacity Analysis Module:												
Vol/Sat:	0.00	0.35	0.35	0.01	0.26	0.00	0.00	0.00	0.00	0.02	0.00	0.03
Crit Moves:		****		****								****

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Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #7 Harbor/Ford

Cycle (sec):	100	Critical Vol./Cap.(X):	0.387
Loss Time (sec):	0	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	37	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	2 1	0	1 0	2 1	0	0 0	0 0	0	1 0	0 0	1
Volume Module:												
Base Vol:	0	1761	43	1	1343	0	0	0	0	36	0	56
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1761	43	1	1343	0	0	0	0	36	0	56
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	1761	43	1	1343	0	0	0	0	36	0	56
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	1761	43	1	1343	0	0	0	0	36	0	56
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	1761	43	1	1343	0	0	0	0	36	0	56
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	1761	43	1	1343	0	0	0	0	36	0	56
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	2.93	0.07	1.00	3.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	4978	122	1700	5100	0	0	0	0	1700	0	1700
Capacity Analysis Module:												
Vol/Sat:	0.00	0.35	0.35	0.00	0.26	0.00	0.00	0.00	0.00	0.02	0.00	0.03
Crit Moves:		****		****								****