

Exhibit H



4800 Long Beach Boulevard Project

Initial Study – Mitigated Negative Declaration

prepared by

City of Long Beach

411 West Ocean Boulevard, 3rd Floor
Long Beach, California 90802
Contact: Anita Juhola-Garcia, Planner

prepared with the assistance of

Rincon Consultants, Inc.

250 East 1st Street, Suite 1400
Los Angeles, California 90012

May 2020



RINCON CONSULTANTS, INC.

Environmental Scientists | Planners | Engineers

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Appendices

Appendix A	Air Quality/Greenhouse Gas Emissions Modeling Results
Appendix B	Noise Measurement and Analyses Data

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Initial Study

1. Project Title

4800 Long Beach Boulevard Project

2. Lead Agency Name and Address

City of Long Beach
411 West Ocean Boulevard, 3rd Floor
Long Beach, California 90802

3. Contact Person and Phone Number

Anita Juhola-Garcia, Planner
(562) 570-6469

4. Project Sponsor's Name and Address

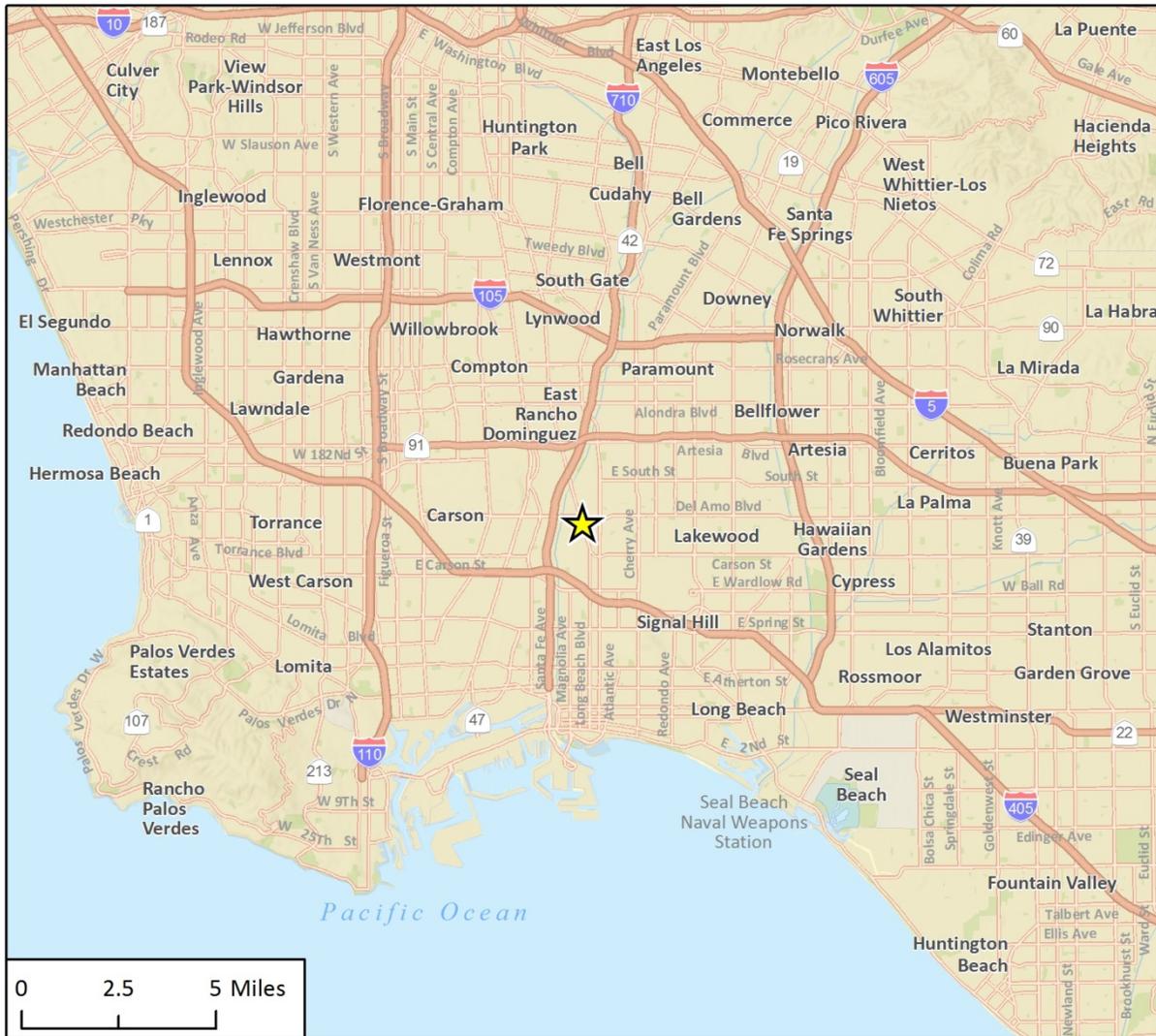
City Ventures
3121 Michelson Drive, Suite 150
Irvine, California 92612

5. Project Location

The project site is located at 4800 Long Beach Boulevard, Long Beach, California. The project site encompasses 1.102 acres (approximately 48,003 square feet [sf]) and includes five parcels that are identified as Assessor Parcel Numbers (APNs) 7133-010-900, -901, -902, -903, and -904. The project site is bordered by 49th Street to the north, residential uses to the east, commercial and residential uses, and the Union Pacific Railroad to the south, and Long Beach Boulevard to the west.

Additionally, the project includes a zone change for two parcels located immediately to the east of the project site, which are identified as APN 7133-010-003 (132 E. 49th Street – Adjacent Lot 1) and APN 7133-010-004 (134 E. 49th Street – Adjacent Lot 2) (“Adjacent Lots 1 and 2”). Figure 1 shows the location of the project site in the region and Figure 2 shows the project site and adjacent Lots 1 and 2 in their neighborhood context.

Figure 1 Regional Location



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★ Project Location N

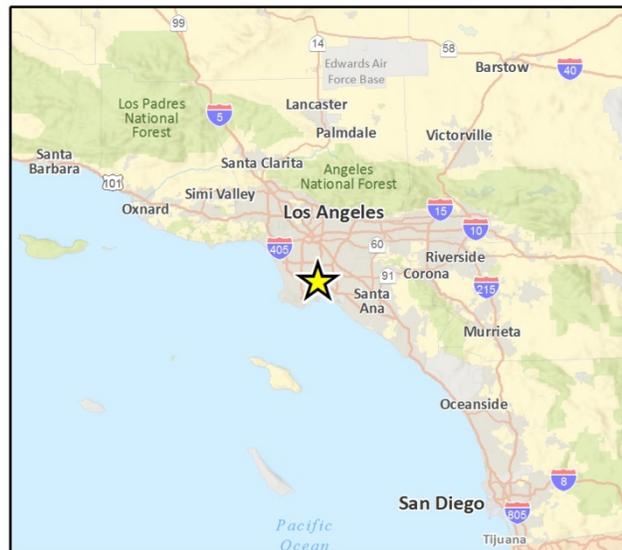
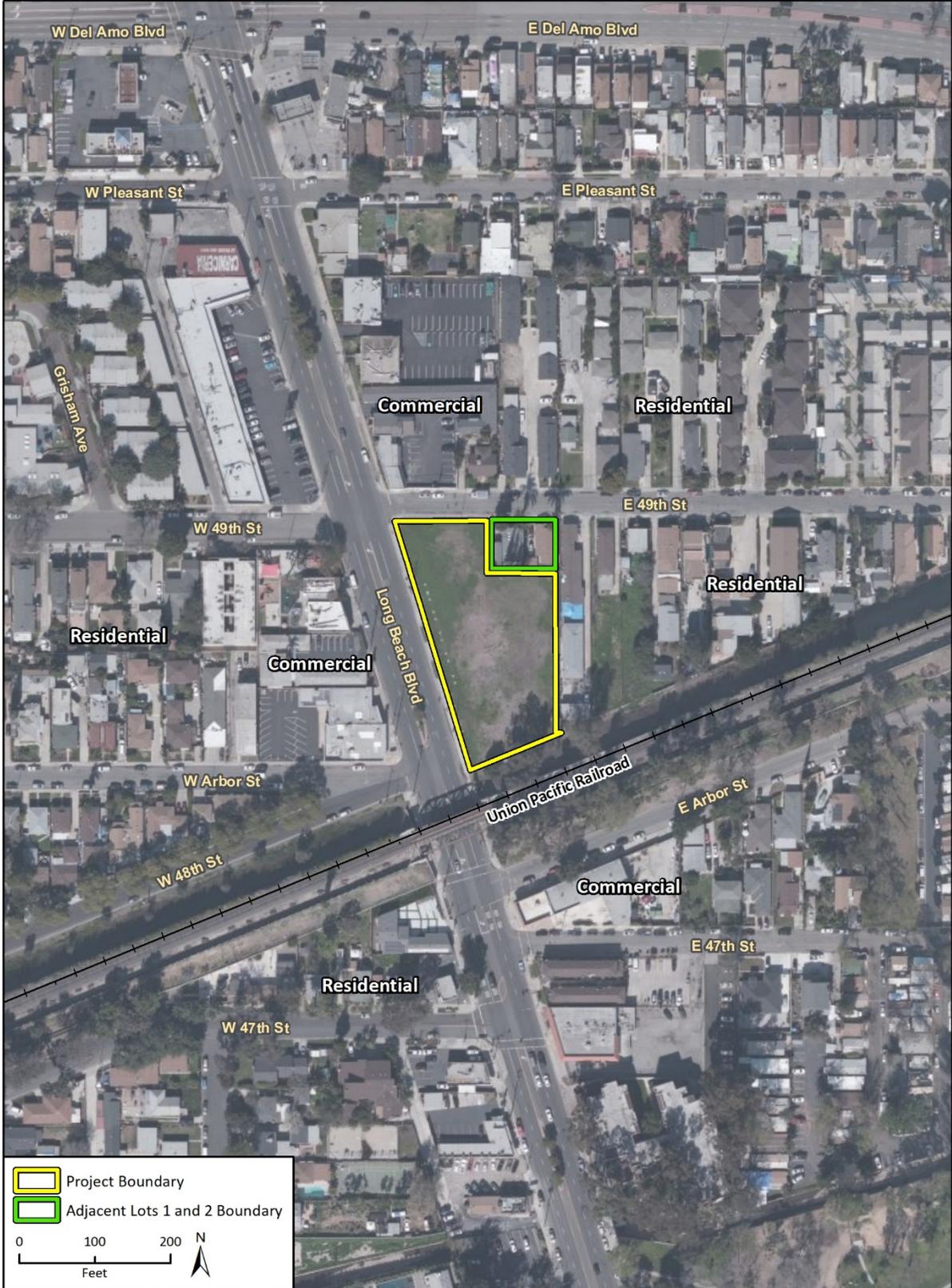


Fig 1 Regional Location

Figure 2 Project Location



Imagery provided by Microsoft Bing and its licensors © 2020.

Fig. 2 Project Location

6. Existing Setting

The project site consists of five vacant, undeveloped parcels that have been previously disturbed and graded. The project site is covered with ruderal vegetation. No trees are present on site. Existing concrete slabs are present on site. Figure 3 includes photos of the existing conditions at the project site. Adjacent Lots 1 and 2, located immediately east of the project site, are occupied by one single-story, single-family residence per lot, as shown in Figure 4.

7. General Plan Designation

Project Site: NSC-L (Neighborhood Serving Center or Corridor Low Density)

Adjacent Lots 1 and 2: NSC-L (Neighborhood Serving Center or Corridor Low Density)

8. Zoning

Project Site: CCA (Community Commercial Automobile-Oriented)

Adjacent Lots 1 and 2: CCA (Community Commercial Automobile-Oriented)

9. Description of Project

The 4800 Long Beach Boulevard Project (“proposed project” or “project”) involves development of 18, three-story townhomes that would be a maximum height of 38 feet. Nine of the proposed units would consist of 1,411 square feet (sf) and nine would be 1,747 sf. The site would include two buildings with eight townhomes each and one building with two townhomes. Pursuant to the Long Beach Municipal Code (LBMC), the allowable density on site is 44 homes per acre. The total site area is 48,003 sf (1.102 acres) and the net site area is 42,558 sf (0.977 acres). The density of the proposed project would be 18.24 homes per acre.

The proposed project would require and provide 41 parking spaces, including 36 residential spaces (two spaces per home) and five guest spaces (0.25 spaces per home). The proposed project requires 2,700 sf of open space, including 1,350 sf of common space (75 sf per home) and 1,350 sf of private space (75 sf per home). The proposed project would provide 10,880 sf of open space, including 6,856 sf of common open space and 4,024 sf of private open space. The proposed project would exceed Title 24 standards by 19 percent and would incorporate a number of green building features, including the following:

- 75% of landscaping comprised of drought tolerant plants
- 1-1.5-inch foam insulation on hot water pipes
- Low-flow plumbing fixtures
- Rooftop solar panels (net zero energy townhomes)
- EnergyStar appliances
- High-efficiency lighting

Figure 5 through Figure 9 show the proposed site plan, building elevations, and landscape plan, while Table 1 details of the proposed residences. Additionally, as discussed further below, the proposed project requires the rezoning of the project site.

Figure 3 Views of the Project Site



View of the project site, looking south from the east side of Long Beach Boulevard.



View of the project site, looking east from the northern portion of the project site.

Figure 4 View of the Adjacent Lots 1 and 2



View of adjacent Lots 1 and 2 to the east of the project site.

Figure 5 Project Site Plan



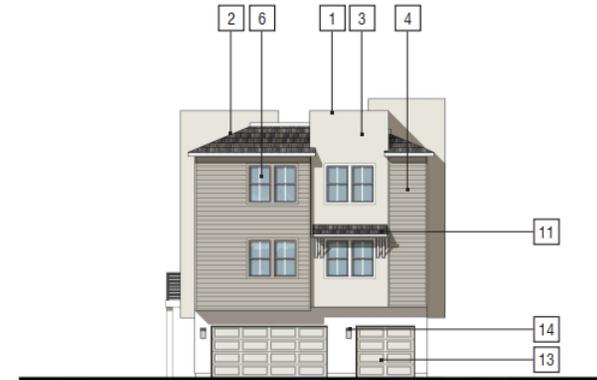
Source: William Hezmalhalch Architects, Inc., March 2020.

Figure 6 Project Elevations – Building 200, Duplex



Note: Artist's conception, colors, materials and application may vary. **Right Elevation**

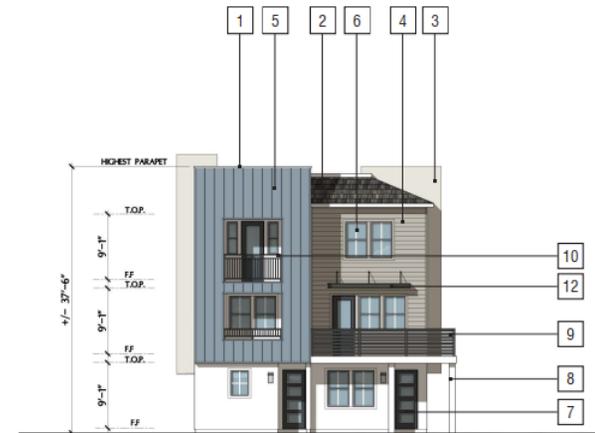
- MATERIALS:**
- 1 Roof: Flat With Parapet
 - 2 Roof: Composite Shingles
 - 3 Stucco
 - 4 Horizontal Lap Siding
 - 5 Board and Batt
 - 6 Vinyl Windows
 - 7 Entry Door
 - 8 Stucco Column
 - 9 Horizontal Wood Like Railing
 - 10 Vertical Metal Railing
 - 11 Awning w/Wood Brackets
 - 12 Metal Awning
 - 13 Metal Sectional Roll-Up Garage Door
 - 14 Coach Light And Illuminated Address Panel
 - 15 Utility Cabinet



Rear Elevation



Refer to Landscape Drawings for wall, tree, shrubs and patio wall locations. **Left Elevation**



Front Elevation

Scheme 1

Source: William Hezmalhalch Architects, Inc., March 2020.

Figure 8 Landscape Plan



LEGEND

- 1** Vehicular Entry
- 2** Entry Monuments
- 3** Private Yard
 - Patio Walls - 48" ht. Stucco Low Wall with Fence Panel
 - Patio Gate - 48" ht. Gate to Match Fence Panel
- 4** Social Event Gardens
 - Enhanced Paving
 - Event Lawn for Active Play or Passive Activities
 - Community Seating Areas
 - Formal Tree Rows
- 5** Outdoor Living Space
 - Shade Structure with Decor Backdrop Wall
 - Enhanced Paving
 - Decomposed Granite Paving
 - Event Lawn for Active Play or Passive Activities
 - Community Fire Place with Lounge Seating
 - Barbecue Kitchen with Harvest Table
- 6** Rear Yard/Property Line Wall
- 7** Property Line Wall with Hedged Espaliers
- 8** Community Mailboxes
- 9** Accessible Parking
- 10** Motorcourt
- 11** Accessible Community Sidewalks
- 12** City Sidewalk
- 13** New Street Trees and Tree Wells at 25" o.c. with Root Barrier

Root Barrier:
 Provide root control barriers for street trees planted along Long Beach Boulevard according to the specifications of the Director of Public Works per Long Beach Municipal Code Section 21.42.050.

Irrigation Note:
 All planting areas shall have a fully automatic irrigation system. Utilization water conserving features such as low-precipitation rate heads; low-flow micro sprays or drip irrigation, water sensors and multi-program controllers with weather station capability and drip circuit features. "Water Efficient Landscapes" irrigation system, scheduling and water use WELCO calculations shall be designed to meet the requirements of the specifications of the Director of Public Works per Long Beach Municipal Code Section 21.42.050.

. A N



Source: William Hezmalchal Architects, Inc., February 2020.

Table 1 Project Details

Lot Area (sf)	48,003
Height	3 stories (38 feet)
Density	18.24 homes per acre
Floor Plan 1 (3 bedrooms, 3 bathrooms)	1,411 sf per unit
Floor Plan 2 (3 bedrooms, 3 bathrooms + den)	1,747 sf per unit
Residential Parking Spaces	36
Guest Parking Spaces	5
Private Open Space (sf)	4,024
Common Open Space (sf)	6,856
Setbacks	
Front Yard (ft)	15
Street Side Yard (ft)	15
Interior Side Yard (ft)	10
Rear Yard (ft)	20-foot setback for two-story buildings/ 30-foot for three-story buildings
Zone Change	
Proposed R-4-N zone designation ("Project Site")	APNs 7133-010-900, -901, -902, -903, and -904
Proposed R-3-T zone designation ("Adjacent Lots 1 and 2")	APNs 7133-010-003 and -004
sf = square feet; ft = feet	

Zone Change

The project site is currently zoned CCA (Community Commercial Automobile-Oriented) and has a Land Use Designation of NSC-L (Neighborhood Serving Center or Corridor Low Density). The CCA zone permits retail and service uses. Multi-family residential uses are not permitted in the CCA zone. The NSC-L General Plan land use designation encourages development of mixed-use smaller scale retail and low-density apartment and condominium buildings. The NSC-L designation allows up to three stories in height and residential densities of up to 44 dwelling units per acre (du/acre) depending on lot size. As such, the proposed project would be consistent with the General Plan designation but would not be consistent with the current zoning designation. Project entitlements include a Zone Change to R-4-N (Medium-density Multiple Residential) to allow for the development of the proposed townhomes. The R-4-N zone allows for a high density, multifamily residential district. It is intended to meet the demand of a broad segment of the population which provides a diversity of housing choices.

The project also includes the rezoning of the two parcels located immediately to the east of the project site. Currently, the two parcels are zoned CCA and have a Land Use Designation of NSC-L (Neighborhood Serving Center or Corridor Low Density). As discussed above, the CCA zone does not allow for residential uses. The two parcels would be rezoned to the R-3-T (Multi-family Residential, Townhouse) designation. The proposed R-3-T zone designation allows for the development of multi-family residential uses. Pursuant to Section 21.31 of the LBMC, the allowable density under the R-3-T for both parcels would be one unit per lot, as both lots are less than 3,200 sf. Additionally the height limit for the R-3-T would be 28 feet (two stories), which is the same as what is currently allowed under the CCA Zone. Given that the two parcels are currently occupied by single-family

residences and that under the R-3-T zoning designation the maximum density allowed is one residential unit per lot, the rezone of the two properties would not facilitate development at a greater density than what is currently existing. Additionally, the proposed R-3-T zone designation would not facilitate development at a greater height than what is currently allowed under the CCA zone designation (28 feet, two stories). No new development or physical or operational changes to the existing buildings are proposed on these two parcels. Table 2 shows the development standards associated with the applicable zoning designations.

Table 2 Zoning Development Standards

Standard	CCA	R-4-N	R-3-T
Allowable Uses	Retail and commercial	High density, multi-family residential	Multi-family residential
Density	Residential uses not allowed	1 unit per 975 sf for lot areas of 22,501 sf or more ¹	1 unit per lot for lots of 0 – 3,200 sf ²
Maximum Building Height	28 ft (two stories)	38 ft (three stories)	28 ft (two stories)

sf = square feet

¹ Pursuant to Section 21.31 of the LBMC, the allowable density under the R-4-N zone for the project site would be 44 homes as the total net site area is 42,558 sf.

² Pursuant to Section 21.31 of the LBMC, the allowable density under the R-3-T zone for APNs 7133-010-003 and 004 would be one unit per lot, as both lots are less than 3,200 sf.

Source: City of Long Beach Municipal Code Chapter 21 Zoning

Construction and Grading

Construction of the proposed project is anticipated to occur over an approximately 17-month period that would begin in July 2020 and end in December 2021. Construction phasing would include site preparation, grading, building construction, asphalt paving and architectural coating. The graded soil would be utilized onsite for construction of the building pads and foundations. No new development or construction is proposed on adjacent Lots 1 and 2.

Access

Access to the project site would be provided via 49th Street, which would lead to an internal driveway that would provide access to the individual garages and surface parking. Access to the existing single-family residences on adjacent Lots 1 and 2 is provided from private driveways via 49th street; no changes to these driveways are proposed under the zone change.

10. Surrounding Land Uses and Setting

The project site and adjacent Lots 1 and 2 are located in an urban area. Land uses to the east of the project site and adjacent Lots 1 and 2 include one- and two-story, single- and multi-family residences. Land uses to the north of the project site, across 49th Street, include one- and two-story commercial uses and one- and two-story single- and multi-family residences. Land uses to the west of the project site, across Long Beach Boulevard, include one-story commercial uses and one- and two-story residential uses. Land uses to the south of the project site, across the Union Pacific Railroad, include one-story commercial uses and one- and two-story residential uses.

11. Required Approvals

Project entitlements include a Site Plan Review, Vesting Tentative Tract Map, and Zone Change. The proposed zoning for the project site is R-4-N. The proposed zone change for the adjacent Lots 1 and 2 located to the east of the project site is R-3-T.

12. Other Public Agencies Whose Approval is Required

The City of Long Beach is the lead agency with responsibility for approving the proposed project. Approval from other public agencies is not required. There are no responsible or trustee agencies for the project.

13. Have California Native American Tribes Traditionally and Culturally Affiliated with the Project Area Requested Consultation Pursuant to Public Resources Code Section 21080.3.1?

As part of the process of identifying cultural resources issues in or near the project site, the City sent letters inviting tribes to consult with the City on August 21, 2018. The City requested a response within 30 days of receipt as specified by AB 52. The City received a request for consultation from the Gabrieleño Band of Mission Indians on August 30, 2018. Consultation was held on November 1, 2018.

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Environmental Factors Potentially Affected

This project would potentially affect the environmental factors checked below, involving at least one impact that is “Potentially Significant” or “Potentially Significant Unless Mitigation Incorporated” as indicated by the checklist on the following pages.

- | | | |
|--|---|--|
| <input checked="" type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input checked="" type="checkbox"/> Geology/Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards & Hazardous Materials |
| <input type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources |
| <input checked="" type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation | <input checked="" type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Wildfire | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

Determination

Based on 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 to 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 potential 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.

Anita Juhola-Garcia

5/7/2020

Signature

Date

Anita Juhola-Garcia

Planner

Printed Name

Title

Environmental Checklist

1 Aesthetics

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
--	--------------------------------	--	------------------------------	-----------

Except as provided in Public Resources Code Section 21099, would the project:

a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a. *Would the project have a substantial adverse effect on a scenic vista?*

The project site is located on the southeast corner of Long Beach Boulevard and 48th Street in an urbanized area of Long Beach. The project would result in the construction of 18 three-story townhomes on a vacant 1.1-acre site. Additionally, the project would include the rezoning of Lots 1 and 2 located immediately east of the project site from CCA to R-3-T. There are no scenic vistas that can be viewed from the project site or adjacent Lots 1 and 2, or scenic vistas that would be obstructed by the project. Views from the project site and adjacent lots 1 and 2 include one- and two-story residential and commercial uses. Views of the project site and adjacent Lots 1 and 2 consist of undeveloped property and single-family residences, respectively. No new development or changes to the existing buildings are proposed on adjacent Lots 1 and 2. According to the City's General Plan Scenic Routes Element, cultural assets in the project's vicinity include the downtown Civic Center Complex which is approximately 4.7 miles south. Historical assets in the project's vicinity include two preserved ranches: Rancho Los Cerritos and Rancho Los Alamitos, which are 0.35 miles south and 6.8 miles southeast of the project site, respectively. Additionally, American Legion Post #560, which is a historic structure designated by the City of Long Beach, is located 1.6

miles southwest of the project site. Development of the proposed project would not obstruct public views of these cultural or historical resources because no views of these resources are available in the project site vicinity. Therefore, no impact to scenic vistas would occur.

NO IMPACT

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

The California Scenic Highway System indicates that no existing or proposed State scenic highways are located in the vicinity of the project site or adjacent Lots 1 and 2 (Caltrans, 2011). In addition, development of the proposed townhomes would not affect any trees, rock outcroppings, historic buildings, or other identified scenic resources. Existing vegetation on the project site consists of ruderal vegetation. Adjacent Lots 1 and 2 are occupied by one-story single-family residential buildings. Adjacent Lots 1 and 2 contain ornamental vegetation and mature ornamental trees onsite. No new development or physical changes to the existing buildings are proposed on adjacent Lots 1 and 2. Development of the proposed project would not result in the obstruction of public views of cultural or historical resources in the project vicinity, as no views of these resources are provided in the project vicinity. The project would not result in substantial damage to scenic resources in a state scenic highway and no impact would occur.

NO IMPACT

- c. *Would the project, in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?*

The proposed project involves development of 18 housing units on an undeveloped site. Implementation of the project would change the visual character of the project site by introducing new structures; however, the proposed structures would be similar to the existing residences surrounding the site and would not substantially change the existing visual character of the site or vicinity. As shown in Figure 3 of the *Project Description*, the project site is located in an urbanized area. Land uses to the east of the project site include one-story single-family residences. Land uses to the north, across East 49th Street include one-story commercial and single-family residential uses. Land uses to the west, across Long Beach Boulevard, include one-story commercial uses such as the Walls Motel Long Beach, the Word of God Ministries, and Bundle of Joy Daycare. Land uses to the south include one-story single-family residences, one- to two- story multi-family residences and one-story commercial uses.

Project entitlements include a Zone Change from CCA to R-4-N (Medium-density Multiple Residential), which would allow for the development of the proposed townhomes. The R-4 N zone allows for a high density, multifamily residential district and is intended to meet the demand of a broad segment of the population by providing a diversity of housing choices.

The project would also include the rezoning of the adjacent Lots 1 and 2 located to the east of the project site from CCA (Community Commercial Automobile-Oriented) to R-3-T (Townhomes). The two parcels are currently occupied by single-family residences. Under the R-3-T zoning designation the maximum density allowed would also be one residential unit per lot and no changes to the allowable building height would occur. Thus, the rezone of the two properties would not facilitate

development at a greater density or height than what is currently allowed. Additionally, as no new development or physical changes to existing buildings are proposed on adjacent Lots 1 and 2, no change would occur with respect to the visual character of these two properties.

Upon approval of the requested discretionary actions, development would comply with City zoning standards, including maximum height limits, yards, and front and side setbacks. Therefore, the addition of the three-story townhomes would not degrade the existing visual character or quality of the site and its immediate surroundings and would be consistent with the City's envisioned visual character and quality of the project site. Additionally, the project would include mitigation measure AES-1, which would reduce temporary construction impacts by screening public views of construction equipment, to the extent feasible, during construction of the project. With implementation of mitigation, impacts would be less than significant.

Mitigation Measure

AES-1 Construction Staging Areas

Construction equipment staging areas shall be located, to the greatest extent feasible, away from nearby existing residential uses, and utilize appropriate screening (i.e., temporary fencing with opaque material) to shield public views of construction equipment and material. Prior to issuance of a grading permit, the City Engineer shall verify that staging areas are identified on final grading/development plans and that appropriate perimeter screening is included as a construction specification.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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

The project site is located in an urbanized area, with existing sources of light and glare. Construction of the project would introduce construction vehicles and equipment during daytime hours that could potentially create glare for surrounding land uses. However, pursuant to Sections 8.80.202A through 8.80.202C of the Long Beach Municipal Code (LBMC), construction activities are prohibited between the hours of 7:00 PM and 7:00 AM on weekdays and Federal holidays, between the hours of 7:00 PM on Friday and 9:00 AM on Saturday and after 6:00 PM on Saturday, and any time on Sunday. These limits would reduce impacts from vehicle headlamps and any associated impacts to nighttime views during construction. Since proposed construction would be required to adhere to the timing restrictions laid out in the LBMC, no construction would occur at night when lighting would potentially be required. In addition, any lighting or glare during construction would be temporary.

Operation of the proposed project would not substantially increase lighting and glare in the surrounding area relative to existing levels. The project site lies in an urban area on a commercialized intersection that includes single- and multi-family residences, restaurants and other commercial buildings. Operation of the proposed project would include the use of nighttime security lighting, and general lighting associated with mixed-use development. Lighting fixtures would be aimed downwards, generally contained in the project site, and would not create a substantial source of light or glare. Operational lighting sources generated by the project would be similar to and consistent with the surrounding uses in the area and would not adversely affect day or nighttime views. Additionally, because no new development or changes to the existing buildings are proposed on adjacent Lots 1 and 2, no changes would occur with respect to light or glare on the

adjacent Lots 1 and 2 as compared to existing conditions. Implementation of mitigation measure AES-2 would require that any exterior lighting would not spill over onto adjacent uses. Because the project would not generate substantial sources of light or glare, impacts would be less than significant.

Mitigation Measure

AES-2 Outdoor Lighting Plan

Exterior lighting shall not spill over onto adjacent uses. Prior to issuance of any building permit, the project applicant shall prepare and submit an Outdoor Lighting Plan to the City of Long Beach Development Services Department, for review and approval, that includes a foot-candle map illustrating the amount of light from the project at adjacent light sensitive receptors. All exterior light fixtures (including street lighting) shall be shielded or directed away from adjoining uses. Landscape light levels and fixtures shall be appropriate for the purpose and location. Design and placement will consider the type, intensity, and location of uses. Safety and security lighting for pedestrians and vehicular movements shall be provided.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Would the project:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with existing zoning for agricultural use or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)); timberland (as defined by Public Resources Code Section 4526); or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a. *Would the project 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?*

The project site and adjacent Lots 1 and 2 are located in an urbanized area in the City of Long Beach. The project site is presently vacant and the rezoning of adjacent Lots 1 and 2 are occupied by single-family residences. The California Department of Conservation’s 2014 map of Los Angeles County Important Farmland shows that the project site and adjacent Lots 1 and 2 are within an area that does not consist of Farmland. Therefore, the project would not have an impact on farmland.

NO IMPACT

- b. *Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?*

Neither the project site nor the adjacent Lots 1 and 2 are zoned for agricultural use or under any Williamson Act contract (California Department of Conservation, 2015-2016). The project site is currently zoned CCA (Community Commercial Automobile-Oriented) and has a Land Use Designation of NSC-L (Neighborhood Serving Center or Corridor Low Density). The two parcels included in the zone change are currently zoned CCA. The proposed project would involve the development of three-story townhomes and a parking lot and the rezone of two parcels immediately west of the project site. The proposed project does not include the conversion of farmland to non-agricultural uses. Therefore, the proposed project would have no impact with respect to agricultural zoning or other conversion of farmland to non-agricultural use.

NO IMPACT

- c. *Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?*

- d. *Would the project result in the loss of forest land or conversion of forest land to non-forest use?*

Neither the project site, adjacent Lots 1 and 2, nor the surrounding area are zoned for forest land or timberland. Accordingly, the project would not conflict with forest land or timberland zoning. Additionally, the project would not result in the loss of forest land or conversion of forest land to non-forest use. Therefore, no impact would occur.

NO IMPACT

- e. *Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?*

The proposed project would involve the development of the three-story townhomes and a parking lot and the rezoning of two properties to the immediate east of the project site. The project site does not include the conversion of farmland to non-agricultural uses. Therefore, the proposed project would have no impact with respect to agricultural zoning or other conversion of farmland to non-agricultural use.

NO IMPACT

3 Air Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Air Quality Standards and Attainment

The project site is located in the South Coast Air Basin (SCAB), which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). As the local air quality management agency, the SCAQMD is required to monitor air pollutant levels to ensure that state and federal ambient air quality standards (AAQS) are met and, if they are not met, to develop strategies to meet the AAQS.

Depending on whether or not the AAQS are met or exceeded, the SCAB is designated “attainment,” “maintenance,” or “nonattainment.” Under state law, air districts are required to prepare a plan for air quality improvement for pollutants for which the district is in non-compliance. The SCAQMD is designated nonattainment for the federal AAQS for ozone and PM_{2.5} and a CO maintenance area. Areas of the SCAB located in Los Angeles County are also federally designated nonattainment for lead. Under state AAQS, the SCAB is designated nonattainment for ozone, PM₁₀, and PM_{2.5}. The SCAB is designated unclassifiable or in attainment for all other federal and state standards. Characteristics of O₃, CO, NO₂, SO₂, and particulate matter are described in Table 3.

Table 3 Health Effects Associated with Criteria Pollutants

Pollutant	Adverse Effects
Ozone	(1) Short-term exposures: pulmonary function decrements and localized lung edema in humans and animals, risk to public health implied by alterations in pulmonary morphology and host defense in animals; (2) long-term exposures: risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (3) vegetation damage; and (4) property damage.
Carbon monoxide (CO)	Reduces oxygen delivery leading to: (1) Aggravation of chest pain (angina pectoris) and other aspects of coronary heart disease; (2) decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (3) impairment of central nervous system functions; and (4) possible increased risk to fetuses.
Nitrogen dioxide (NO ₂)	(1) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (2) risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (3) contribution to atmospheric discoloration.
Sulfur dioxide (SO ₂)	(1) Bronchoconstriction accompanied by symptoms that may include wheezing, shortness of breath, and chest tightness during exercise or physical activity in persons with asthma.
Inhalable particulate matter (PM ₁₀)	(1) Excess deaths from short-term and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease (including asthma). ^a
Fine particulate matter (PM _{2.5})	(1) Excess deaths from short- and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes, including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children, such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease, including asthma. ¹

¹ More detailed discussion on the health effects associated with exposure to suspended particulate matter can be found in the following documents: Office of Environmental Health Hazard Assessment, Particulate Matter Health Effects and Standard Recommendations, www.oehha.ca.gov/air/toxic_contaminants/PM10notice.html#may, May 9, 2002; and EPA, Air Quality Criteria for Particulate Matter, October 2004.

Source: U.S. EPA 2015

Air Quality Management

Under state law, the SCAQMD is required to prepare a plan for air quality improvement for pollutants for which the District is designated nonattainment. The latest Air Quality Management Plan (AQMP) from 2016 was adopted on March 3, 2017. It incorporates new scientific data and notable regulatory actions that have occurred since adoption of the 2012 AQMP, including the approval of the new federal 8-hour ozone standard of 0.070 ppm that was finalized in 2015. The Final 2016 AQMP addresses several state and federal planning requirements and incorporates new scientific information, primarily in the form of updated emissions inventories, ambient measurements, and meteorological air quality models. The Southern California Association of Government’s (SCAG) projections for socio-economic data (e.g., population, housing, employment by industry) and transportation activities from the 2016 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS) are integrated into the 2016 AQMP. The 2016 AQMP builds

upon the approaches taken in the 2012 AQMP for the attainment of federal PM and ozone standards and highlights the significant amount of reductions to be achieved. It emphasizes the need for interagency planning to identify additional strategies to achieve reductions within the timeframes allowed under the federal Clean Air Act, especially in the area of mobile sources. The 2016 AQMP also includes a discussion of emerging issues and opportunities, such as fugitive toxic particulate emissions, zero-emission mobile source control strategies, and the interacting dynamics among climate, energy, and air pollution. The 2016 AQMP also demonstrates strategies for attainment of the new federal eight-hour ozone standard and vehicle miles travelled (VMT) emissions offsets, pursuant to recent United States Environmental Protection Act (USEPA) requirements (Appendix A).

Air Emission Thresholds

The SCAQMD recommends quantitative regional significance thresholds for temporary construction activities and long-term project operation in the SCAB, shown in Table 4.

Table 4 SCAQMD Regional Significance Thresholds

Construction Thresholds	Operational Thresholds
75 pounds per day of ROG ¹	55 pounds per day of ROG
100 pounds per day of NO _x	55 pounds per day of NO _x
550 pounds per day of CO	550 pounds per day of CO
150 pounds per day of SO _x	150 pounds per day of SO _x
150 pounds per day of PM ₁₀	150 pounds per day of PM ₁₀
55 pounds per day of PM _{2.5}	55 pounds per day of PM _{2.5}

Notes: ROG = reactive organic compounds, NO_x = nitrogen oxides, CO = carbon monoxide, SO_x = sulfur oxides, PM₁₀ = inhalable particulate matter with a diameter of 10 microns or less, and PM_{2.5} = fine particulate matter with a diameter of 2.5 microns or less.

¹Organic compound precursors of ozone are routinely described by a number of variations of three terms: hydrocarbons (HC), organic gases (OG), and organic compounds (OC). These terms are often modified by adjectives such as total, reactive, or volatile, and result in a rather confusing array of acronyms: HC, THC (total hydrocarbons), RHC (reactive hydrocarbons), TOG (total organic gases), ROG (reactive organic gases), TOC (total organic compounds), ROC (reactive organic compounds), and VOC (volatile organic compounds). While most of these differ in some significant way from a chemical perspective, two groups are important from an air quality perspective: non-photochemically reactive in the lower atmosphere, or photochemically reactive in the lower atmosphere (HC, RHC, ROG, ROC, and VOC). SCAQMD uses the term VOC to denote organic precursors.

Source: SCAQMD 2019

Localized Significance Thresholds

In addition to the above regional thresholds, the SCAQMD has developed Localized Significance Thresholds (LSTs) in response to the Governing Board’s Environmental Justice Enhancement Initiative (1-4), which was prepared to update the *CEQA Air Quality Handbook* (1993). LSTs were devised in response to concern regarding exposure of individuals to criteria pollutants in local communities and have been developed for NO₂, CO, PM₁₀, and PM_{2.5}. LSTs represent the maximum emissions from a project that will not cause or contribute to an air quality exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest sensitive receptor, taking into consideration ambient concentrations in each source receptor area (SRA), distance to the sensitive receptor, and project size. LSTs have been developed for emissions within construction areas up to five acres in size. Additionally, LSTs only apply to onsite emissions and are not applicable to mobile sources, such as cars on a roadway (SCAQMD 2008). As such, LSTs are typically applied only to construction emissions because the majority of operational air quality emissions from

residential and retail developments are associated with project-generated vehicle trips. Therefore, operational LSTs are not discussed further below.

LSTs have been developed for emissions within construction areas up to five acres in size. The SCAQMD provides lookup tables for project sites that measure one, two, or five acres. The project site encompasses 1.1 acres. Therefore, this analysis utilizes the one-acre LSTs. LSTs are provided for receptors at a distance of 82 to 1,640 feet from the project site boundary. Construction activity would occur approximately 25 feet south from the closest sensitive receptor, which is a single-family residential property. According to the SCAQMD’s publication, *Final LST Methodology*, projects with boundaries located closer than 82 feet to the nearest receptor should use the LSTs for receptors located at 82 feet. Therefore, the analysis below uses the LST values for 82 feet.

The project site is located in SRA-4 (South Coastal Los Angeles County). LSTs for construction in SRA-4 on a 1-acre site with a receptor 82 feet away are shown in Table 5.

Table 5 SCAQMD LSTs for Construction Emissions

Pollutant	Allowable Emissions from a 1-acre Site in SRA-4 for a Receptor 82 Feet Away
Gradual conversion of NO _x to NO ₂	57
CO	585
PM ₁₀	4
PM _{2.5}	3

Source: SCAQMD 2009

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

A project may be inconsistent with the AQMP if it would generate population, housing or employment growth exceeding the forecasts used in the development of the AQMP. The 2016 AQMP relies on local general plans and the SCAG Regional Transportation Plan’s (RTP) forecasts of regional population, housing, and employment growth in its own projections for managing air quality in the Basin.

The growth projections used by the SCAQMD to develop the AQMP emissions budgets are based on the population, vehicle trends, and land use plans developed in general plans and used by SCAG in the development of the regional transportation plans and sustainable communities strategy. As such, projects that propose development that is consistent with the growth anticipated by SCAG’s growth projections and/or the General Plan would not conflict with the SCAQMD AQMP.

As mentioned in Section 11, *Land Use and Planning*, the proposed project involves development of 18 three-story townhomes. The project site has a Land Use Designation of NSC-L (Neighborhood Serving Center or Corridor Low Density). The NSC-L General Plan land use designation encourages development of mixed-use smaller scale retail uses and low-density apartment and condominium buildings. The proposed project would be consistent with the General Plan designation.

As discussed in Section 14, *Population and Housing*, according to the California Department of Finance (DOF), the City of Long Beach has an estimated population of 475,013 with an average household size of 2.82 persons (DOF 2019). The Southern California Association of Governments (SCAG) estimates a population increase to 484,500 by 2040 which is an increase of approximately two percent or 9,487 persons (SCAG 2016). Development of 18 new townhomes would increase the

existing population by approximately 51 residents (approximately 0.01 percent) to 475,063, which would be within SCAG's 2040 population forecast. In addition, SCAG's estimate for existing households in 2012 is 163,800. SCAG estimates a housing increase to 175,500 by 2040, which is an increase of approximately seven percent, or 11,700 housing units (SCAG 2016). Construction of the proposed 18 housing units would represent approximately 0.1 percent of the projected housing stock increase, which would not exceed SCAG's 2040 housing units forecast. The City has identified that it needs to build approximately 28,000 additional housing units by 2040 (Beacon Economics 2018). The 18 townhomes proposed by the project would help fill the City's regional housing allocation needs and residents would likely come from within the community, rather than from outside the region.

The project would also include the rezoning of the two properties to the east of the project site from CCA (Community Commercial Automobile-Oriented) to R-3-T (Townhomes). The two parcels are currently occupied by single-family residences. Under the R-3-T zoning designation the maximum density allowed would also be one residential unit per lot. No new development or physical or operational changes to the existing buildings are proposed on Lots 1 and 2. The rezoning of Lots 1 and 2 would serve to reflect existing conditions on these lots. Therefore, the rezoning of these two parcels would not result in a change to population or housing. The potential population and housing increase generated by the proposed project would not substantially alter air quality conditions in the Basin and would not generate emissions that would adversely affect regional air quality; therefore, the project would not conflict with the SCAQMD's AQMP. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- b. *Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?*

Consistent with CEQA Guidelines Section 15064(h)(3), the SCAQMD's approach for assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and state Clean Air Acts. If the mass regional emissions calculated for a project exceed the applicable SCAQMD daily significance thresholds that are designed to assist the region in attaining the applicable state and national ambient air quality standards, that project can be considered cumulatively considerable.

While the proposed project includes the rezone of the two properties to the east of the project site, no new development or physical changes to the existing buildings are proposed on adjacent Lots 1 and 2. Therefore, the rezone of the two additional properties to the east of the project site would not result in the generation of air quality emissions and thus the focus of this air quality analysis is on the proposed residential development.

Construction Emissions

Project construction would generate temporary air pollutant emissions during the 17-month construction period. These emissions would include fugitive dust, exhaust emissions from heavy construction vehicles, as well as off-gassing from the application of architectural coatings and paving. Grading, excavation, hauling, and site preparation would generally involve the highest use of heavy equipment and the greatest generation of emissions.

Project-related air pollutant emissions from construction activities were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2. For the purposes of modeling, it was assumed that the project would comply with SCAQMD Rule 403 to reduce fugitive dust and Rule 1113 to limit volatile organic compound (VOC) content in architectural coating. Specifically, Rule 403, Rule 1113, and other applicable Regulatory Compliance Measures are listed below.

Table 6 summarizes the estimated maximum daily emissions of pollutants during construction on the project site. As shown construction emissions would not exceed SCAQMD regional thresholds or LSTs. Therefore, impacts to regional air quality and local receptors due to construction emissions would be less than significant.

Table 6 Construction Emissions

Construction Phase	Estimated Maximum Daily Emissions (lbs/day)					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2020 Maximum (lbs/day)	3.2	35.9	22.3	<0.1	3.8	2.6
2021 Maximum (lbs/day)	3.7	23.4	23.4	<0.1	1.5	1.2
SCAQMD Thresholds	75	100	550	150	150	55
Threshold Exceeded?	No	No	No	No	No	No
Maximum Onsite Emissions (lbs/day)	3.5	34.6	22.8	<0.1	3.7	2.5
Local Significance Thresholds (LSTs) (onsite only)	N/A	57	585	N/A	4	3
Threshold Exceeded?	N/A	No	No	N/A	No	No

See Appendix A for modeling details and CalEEMod results.

Notes: Emissions presented are the highest of the winter and summer modeled emissions. Due to rounding, numbers may not add up precisely to the totals indicated. Emission data is pulled from “mitigated” results, which include measures that will be implemented during project construction, such as watering of soils during construction as required under SCAQMD Rule 403.

Regulatory Compliance Measures

Compliance with the following SCAQMD standard regulatory requirements was included in CalEEMod:

Demolition, Grading, and Construction Activities: Compliance with Provisions of South Coast Air Quality Management District (SCAQMD) Rule 403

Rule 403 includes the following provisions:

- All unpaved demolition and construction areas shall be wetted at least twice daily during excavation and construction, and temporary dust covers shall be used to reduce dust emissions and meet SCAQMD Rule 403.
- The construction area shall be kept sufficiently dampened to control dust caused by grading and hauling, and at all times provide reasonable control of dust caused by wind.
- All clearing, earth moving, or excavation activities shall be discontinued during periods of high winds (i.e., greater than 15 mph), so as to prevent excessive amounts of dust.

- All dirt/soil shall be secured by trimming, watering, or other appropriate means to prevent spillage and dust.
- All dirt/soil materials transported off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust.
- General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions.
- Trucks having no current hauling activity shall not idle but be turned off.
- Exposed unpaved surfaces shall be maintained at a minimum soil moisture of 12 percent and vehicle speeds shall be limited to 15 miles per hour on unpaved roads.

Engine Idling

In accordance with Section 2485 of Title 13 of the California Code of Regulations, the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) during construction shall be limited to five minutes at any location.

Emission Standards

In accordance with Section 93115 of Title 17 of the California Code of Regulations, operation of any stationary, diesel-fueled, compression-ignition engines shall meet specified fuel and fuel additive requirements and emission standards.

Architectural Coatings

SCAQMD Rule 1113 limits the volatile organic compound (VOC) content of architectural coatings.

In addition, the model included project-specific features discussed under *Description of the Project*, above (see page 4 of this report).

Operational Emissions

Long-term emissions associated with project operation, as shown in Table 7, would include emissions from vehicle trips (mobile sources) and landscape maintenance equipment, consumer products, and architectural coating (area sources). The proposed townhomes would not include natural gas and would be net zero energy due to the rooftop solar panels; therefore, there would be no emissions associated with energy sources. As indicated in Table 7, emissions during operation of the proposed project would not exceed SCAQMD thresholds for any criteria pollutant. Therefore, operational air quality impacts would be less than significant.

Table 7 Project Operational Emissions

Emission Source	Maximum Daily Emissions (lbs/day)					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Area	0.7	<0.1	1.5	<0.1	<0.1	<0.1
Energy	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mobile	0.1	0.6	1.5	<0.1	0.8	0.2
Total Project Emissions	0.8	0.6	3.0	<0.1	0.8	0.2
SCAQMD Regional Thresholds	55	55	550	150	150	55
Threshold Exceeded?	No	No	No	No	No	No

Notes: Emissions modeling was completed using CalEEMod. See Appendix A for modeling results. Due to rounding, numbers may not add up precisely to the totals indicated. Emission data is pulled from “mitigated” results that include compliance with regulations and mitigation measures that will be included in the project.

LESS THAN SIGNIFICANT IMPACT

c. *Would the project expose sensitive receptors to substantial pollutant concentrations?*

Local Significance Thresholds (LSTs)

LSTs were developed in response to environmental justice and health concerns raised by the public regarding exposure of individuals to criteria pollutants in local communities. To address the issue of localized significance, the SCAQMD adopted LSTs that show whether a project would cause or contribute to localized air quality impacts and thereby cause or contribute to potential localized adverse health effects. As shown in Table 6, project construction generated emissions would not exceed localized significance thresholds. Additionally, no new development or construction is proposed on adjacent Lots 1 and 2. Therefore, the project would not expose local sensitive receptors to substantial pollutant concentrations from onsite activities during construction. Impacts would be less than significant.

CO Hotspots

A CO hotspot is a localized concentration of CO that is above a CO one-hour or eight-hour AAQS of 35.0 parts per million (ppm) and 9.0 ppm, respectively (CARB 2016). Localized CO hotspots generally occur at intersections with heavy peak hour traffic. Specifically, hotspots can be created at intersections where traffic volumes are high with high congestion.

The SCAB is a federal CO maintenance area and a state attainment area. CO concentrations have been reduced to low levels of the past 10 years such that most air quality monitoring stations in the SCAB no longer report CO levels. No stations within the vicinity of the project site have monitored CO in the last four years. In 2012, the Long Beach-2425 Webster Street monitoring station detected an eight-hour maximum CO concentration of 2.6 ppm, which is substantially below the state and federal standard of 9.0 ppm (CARB 2018). Based on the low background level of CO in the project area, improving vehicle emissions standards for new cars, and the project’s low level of traffic, the project would not create new hotspots or contribute substantially to existing hotspots. Localized air quality impacts related to CO hotspots would not occur.

Toxic Air Contaminants – Diesel Particulate Matter

Construction

Construction of the project is expected to occur over a 17-month period and would result in the generation of diesel-exhaust Diesel Particulate Matter (DPM) emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities and on-road diesel equipment used to bring materials to and from the project site.

According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2015). Thus, if the duration of proposed construction activities near any specific sensitive receptor were 17 months, the exposure would be approximately five percent of the total exposure period used for health risk calculation. Therefore, DPM generated by project construction is not expected to create conditions that expose sensitive receptors to substantial pollutant concentration over an extended period of time. Additionally, with ongoing implementation of USEPA and CARB requirements for cleaner fuels; off-road diesel engine retrofits; and new, low-emission diesel engine types, the DPM emissions of individual equipment would be substantially reduced. In addition, the project would include the rezoning of the adjacent Lots 1 and 2 located to the east of the project site. The two parcels are currently occupied by single-family residences. No new development or construction is proposed on the adjacent Lots 1 and 2. The maximum density allowed under the R-3-T zoning designation for adjacent Lots 1 and 2 would also be one residential unit. Therefore, the rezoning of the two properties would not facilitate development at a greater density than what is currently existing. Localized air quality impacts from construction related DPM emissions would be less than significant.

Operation

In addition to criteria pollutant emissions, a project may impact sensitive receptors by emitting toxic air contaminants (TAC). The project proposes residential uses, which are not emitters of substantial TAC concentrations. The project itself does not include any significant source of TACs that would potentially affect sensitive receptors. Land uses surrounding the project are residential developments, hotels, and institutional uses. None of these land uses are typically associated with the emission of TACs. Additionally, the project would include the rezoning of the adjacent Lots 1 and 2 located to the east of the project site from CCA (Community Commercial Automobile-Oriented) to R-3-T (Townhomes). The two parcels are currently occupied by single-family residences. Under the R-3-T zoning designation the maximum density allowed would also be one residential unit per lot. No new development or operational changes are proposed on the adjacent Lots 1 and 2. For these reasons, exposure of persons on the project site would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- d. *Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?*

The potential for an odor impact is dependent on a number of variables including the nature of the odor source, distance between the receptor and odor source, and local meteorological conditions. During construction, potential odor sources associated with the project include diesel exhaust associated with construction equipment. Diesel exhaust may be noticeable temporarily; however, construction activities would be temporary. Therefore, the diesel exhaust odors would result in less than significant impacts.

Common sources of operational odor complaints include sewage treatment plants, landfills, recycling facilities, and agricultural uses. The proposed project, and rezone of the two properties to the east, would not include any of these uses that are known to generate odors. In addition, solid waste generated by the proposed onsite uses would be collected by a contracted waste hauler, ensuring that odors resulting from onsite waste would be managed and collected in a manner to prevent the proliferation of odors. In addition, no new development or physical or operational changes are proposed on adjacent Lots 1 and 2, which are currently occupied by single-family residences. Therefore, the project would have a less than significant impact on operational odors.

LESS THAN SIGNIFICANT IMPACT

4 Biological Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a. *Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?*

The project site is presently vacant and is located in an urbanized area in the City of Long Beach. Existing vegetation onsite consists of ruderal vegetation. Additionally, the adjacent Lots 1 and 2 contain ornamental vegetation and mature ornamental trees onsite. The vegetation present on the project site and adjacent Lots 1 and 2 could provide nesting habitat for common resident birds that were observed during the field survey. In addition, there are several large ornamental trees on adjacent properties that could provide potential habitat for nesting raptors, such as red-tailed hawk (*Buteo jamaicensis*). Nesting birds are protected under the Migratory Bird Treaty Act (MBTA) and the California Fish and Game Code (CFGF), and violation of these provisions would be considered a potentially significant impact. Although raptor nesting potential occurs outside of the project footprint, the project could directly (e.g. vegetation removal) and indirectly (e.g., construction noise and motion) affect nesting of these species. Implementation of mitigation measure BIO-1 would avoid potential conflicts with the MBTA and CFGF, thereby reducing potential impacts to a less than significant level.

Mitigation Measure

BIO-1 Nesting Bird Avoidance

If site preparation/construction activities including vegetation clearing, vegetation trimming, grading or other ground disturbing activities are initiated during the nesting bird season (February 1-August 31 for passerines, January 1 – August 31 for raptors), a preconstruction nesting bird survey shall be conducted by a qualified biologist to determine the presence/absence, location, and status of any active nests onsite or within 100 feet of the site for nesting passerines, or within 250 feet of the site for nesting raptors. In areas where site access is limited or prohibited (e.g. private property) the area will be surveyed using binoculars. Nesting bird surveys shall be completed not more than 14 days before the start of construction activities.

If active nests are discovered on the project site, a qualified biologist will establish a species-specific avoidance buffer around the nest where no construction activity is allowed until a qualified biologist has determined that the nest is no longer active. Encroachment into the buffer can occur at the discretion of the qualified biologist with the City's consent.

The City shall be provided with a preconstruction nesting bird survey results report within 48 hours of completion of the survey, if required, prior to obtaining the City issued grading permit, or within 2 weeks if not required for permit issuance. The report shall include date of the survey, date of the report, authors and affiliations, contact information, methods, study location, results, and discussion/recommendations. If nesting birds are found, a map must be included with locations, buffers, and recommended measures to avoid impacts to the nests.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

- b. *Would the project 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 Wildlife or U.S. Fish and Wildlife Service?*

Plant communities are considered sensitive biological resources if they have limited distributions, have high wildlife value, including sensitive species, or are particularly susceptible to disturbance. CDFW ranks sensitive communities as “threatened” or “very threatened” and keeps records of their occurrences in California Natural Diversity Database. Riparian habitats typically exist to a very limited extent along streams and flood channels where disturbance is (City of Long Beach 1973). There are no water bodies or riparian habitat on the project site, rezone properties, or in the immediate vicinity. The Los Angeles River approximately 0.6 mile to the west and two small man-made ponds are located in the Virginia Country Club (approximately 0.5 mile southwest of the project site) and Sherer Park (approximately 0.3 mile southeast of the project site). According to The City of Long Beach’s General Plan and a site visit conducted August 29, 2018, no riparian habitats or other sensitive natural communities are present in the project site vicinity. Therefore, no impact would occur.

NO IMPACT

- c. *Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

No wetlands are located on or adjacent to the project site or adjacent Lots 1 and 2. The project would not directly or indirectly have adverse effects on state or federally protected wetlands. No impact would occur.

NO IMPACT

- 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 wildlife corridors, or impede the use of native wildlife nursery sites?*

The project site and adjacent Lots 1 and 2 are in an urban area that is not within an established native resident or migratory wildlife corridor. The project would not impede the use of native wildlife nursery sites. No impact would occur.

NO IMPACT

- e. *Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

There are no existing trees located on the project site. Construction of the proposed project is not expected to result in the removal of mature trees that are protected by the City’s Tree Protection Ordinance. No construction is proposed on the adjacent Lots 1 and 2, which contain mature trees. Therefore, no impact would occur.

LESS THAN SIGNIFICANT IMPACT

4800 Long Beach Boulevard Project

- 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?*

The project site and adjacent Lots 1 and 2 are not located within an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan area. No impact would occur.

NO IMPACT

5 Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a. *Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?*

The project site is currently vacant and surrounded by a mix of commercial and residential buildings. No historic resources are located in the immediate vicinity of the project site (City of Long Beach 2010). The closest historic structure to the project site that is designated by the City of Long Beach is the American Legion Post #560, located 1.6 miles southwest of the project site. Additionally, the adjacent Lots 1 and 2 are currently occupied by single-story single-family residential buildings. No new development or physical changes to the existing buildings are proposed by the rezoning on these two properties. Therefore, no impact would occur.

LESS THAN SIGNIFICANT IMPACT

b. *Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?*

c. *Would the project disturb any human remains, including those interred outside of formal cemeteries?*

The project site and the adjacent lots 1 and 2 to be rezoned are located in an urbanized area. There is no evidence that archaeological resources or human remains are present onsite. No new development or changes to the existing buildings are proposed on the rezoned properties. However, cultural resources may be encountered during project-related development and ground-disturbing activities associated with construction of the townhomes on the project site. Impacts would be significant if construction activities result in the destruction, damage, or loss of scientifically important cultural or paleontological resources. The activities may include grading, excavation, or any other activity that disturbs the surface of the site. As a result of the tribal consultation held on November 1, 2018, mitigation measures CR-1 and CR-2 were incorporated into this document. The mitigation measures would address the potentially significant impacts relating to the unanticipated discovery of archeological or paleontological resources and human remains during project

development. These measures would apply to all phases of project construction and would provide for the assessment and disposition of resources found onsite. Implementation of mitigation measures CR-1 and CR-2 would reduce potential impacts to the unanticipated discovery of archeological or paleontological resource and human remains, respectively, to a less than significant level.

Mitigation Measures

CR-1 Unanticipated Discovery of Archaeological Resources

If evidence of subsurface archaeological resources is found during construction, excavation and other construction activity in that area shall cease and the construction contractor shall contact the City of Long Beach Development Services Department. With direction from the Development Services Department, an archaeologist certified by the County of Los Angeles shall be retained to evaluate the discovery prior to resuming grading in the immediate vicinity of the find. If warranted, the archeologist shall collect the resource and prepare a technical report describing the results of the investigation. The test-level report shall evaluate the site including discussion of significance (depth, nature, condition and extent of the resources), final mitigation recommendations, and cost estimates.

CR-2 Unanticipated Discovery of Human Remains

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, which will determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site and provide recommendations for treatment to the landowner within 48 hours of being granted access.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

6 Energy

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Electricity and Natural Gas

In 2018, California used 285,488 gigawatt-hours (GWh) of electricity, of which 31 percent were from renewable resources (California Energy Commission [CEC] 2019a). California also consumed approximately 23,834.3 million U.S. therms (MMthm) of natural gas in 2018 (U.S. Energy Information Administration [EIA] 2020). The project site would be provided electricity by Southern California Edison (SCE) and natural gas by Southern California Gas Company (SCG). Table 8 and Table 9 show the electricity and natural gas consumption by sector and total for SCE and SCG. In 2018, SCE provided approximately 29.9 percent of the total electricity used in California. Also, in 2018, SCG provided approximately 23.2 percent of the total natural gas usage in California.

Table 8 Electricity Consumption in the SCE Service Area in 2018

Agriculture and Water Pump	Commercial Building	Commercial Other	Industry	Mining and Construction	Residential	Streetlight	Total Usage
2,975.4	31,573.8	4,367.4	13,391.6	2,390.0	29,865.0	496.0	85,276.0

Notes: Usage expressed in GWh

Source: CEC 2020a

Table 9 Natural Gas Consumption in SCG Service Area in 2018

Agriculture and Water Pump	Commercial Building	Commercial Other	Industry	Mining and Construction	Residential	Total Usage
77.6	913.0	74.5	1,714.5	229.2	2,147.4	5,156.1

Notes: All usage expressed in MMThm

Source: CEC 2020b

Petroleum

In 2016, approximately 40 percent of the state’s energy consumption was used for transportation activities (EIA 2018). Californians presently consume over 19 billion gallons of motor vehicle fuels per year (CEC 2018b). Though California’s population and economy are expected to grow, gasoline demand is projected to decline from roughly 15.8 billion gallons in 2017 to between 12.3 billion and 12.7 billion gallons in 2030, a 20 percent to 22 percent reduction. This decline comes in response to both increasing vehicle electrification and higher fuel economy for new gasoline vehicles (CEC 2018b).

- a. *Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?*

Construction Energy Demand

During project construction, energy would be consumed in the form of petroleum-based fuels used to power off-road construction vehicles and equipment on the project site, construction worker travel to and from the project site, and vehicles used to deliver materials to the site. The project would require site preparation and grading, including hauling material off-site; pavement and asphalt installation; building construction; architectural coating; and landscaping and hardscaping.

The total consumption of gasoline and diesel fuel during project construction was estimated using the assumptions and factors from CalEEMod used to estimate construction air emissions in the Air Quality and Greenhouse Gas Emission Report (Appendix A). Table 10 presents the estimated construction phase energy consumption, indicating construction equipment, vendor trips, and worker trips would consume approximately 63,535 gallons of fuel over the project construction period. Construction equipment would consume an estimated 57,938 gallons of fuel; vendor and hauling trips would consume approximately 923 gallons of fuel; and worker trips would consume approximately 4,674 gallons of fuel over the combined phases of project construction.

Table 10 Estimated Fuel Consumption during Construction

Fuel Type	Gallons of Fuel	MMBtu ⁴
Diesel Fuel (Construction Equipment) ¹	57,938	7,385
Diesel Fuel (Hauling & Vendor Trips) ²	923	118
Other Petroleum Fuel (Worker Trips) ³	4,674	513
Total	63,535	8,016

¹ Fuel demand rate for construction equipment is derived from the total hours of operation, the equipment’s horse power, the equipment’s load factor, and the equipment’s fuel usage per horse power per hour of operation, which are all taken from CalEEMod outputs (see Appendix A), and from compression-ignition engine brake-specific fuel consumption factors for engines between 0 to 100 horsepower and greater than 100 horsepower (U.S. EPA 2018). Fuel consumed for all construction equipment is assumed to be diesel fuel.

² Fuel demand rate for hauling and vendor trips (cut material imports) is derived from hauling and vendor trip number, hauling and vendor trip length, and hauling and vendor vehicle class from “Trips and VMT” Table contained in Section 3.0, *Construction Detail*, of the CalEEMod results (see Appendix A). The fuel economy for hauling and vendor trip vehicles is derived from the United States Department of Transportation (DOT 2018). Fuel consumed for all hauling trucks is assumed to be diesel fuel.

³ The fuel economy for worker trip vehicles is derived from the U.S. Department of Transportation National Transportation Statistics (24 mpg) (DOT 2018). Fuel consumed for all worker trips is assumed to be gasoline fuel.

⁴ CaRFG CA-GREET 2.0 fuel specification of 109,786 Btu/gallon used to identify conversion rate for fuel energy consumption for worker trips specified above (California Air Resources Board [CARB] 2015). Low-sulfur Diesel CA-GREET 2.0 fuel specification of 127,464 Btu/gallon used to identify conversion rate for fuel energy consumption for construction equipment specified above (CARB 2015). Due to rounding, numbers may not add up precisely to the totals indicated.

The construction energy estimates represent a conservative estimate because the construction equipment used in each phase of construction was assumed to be operating every day of construction. Construction equipment would be maintained to all applicable standards, and construction activity and associated fuel consumption and energy use would be temporary and typical for construction sites. It is also reasonable to assume contractors would avoid wasteful, inefficient, and unnecessary fuel consumption during construction to reduce construction costs. In addition, no new development or changes to the existing buildings are proposed on adjacent Lots 1 and 2. Therefore, the rezone of the two additional properties to the east of the project site would not result in construction related energy demand. Therefore, the project would not involve the inefficient, wasteful, and unnecessary use of energy during construction, and the construction-phase impact related to energy consumption would be less than significant.

Operational Energy Demand

Operation of the project would increase area energy demand from greater electricity, natural gas, and gasoline consumption at a currently undeveloped site. Electricity would be used for heating and cooling systems, lighting, appliances, water use, and the overall operation of the project. Gasoline consumption would be attributed to the trips generated from people employed by the proposed project during normal operations, and patrons accessing the site. The estimated number of average daily trips associated with the project is used to determine the energy consumption associated with fuel use from the operation of the project. The majority of the fuel consumption would be from motor vehicles traveling to and from the project site. According to the CalEEMod calculations, the project would result in 347,612 annual VMT (Appendix A). Table 11 shows the estimated total annual fuel consumption of the project using the estimated trip generation (Appendix H) and VMT with the assumed vehicle fleet mix (Appendix A).

Table 11 Estimated Project Annual Transportation Energy Consumption

Vehicle Type ¹	Percent of Vehicle Trips ²	Annual Vehicle Miles Traveled ³	Average Fuel Economy (miles/gallon) ⁴	Total Annual Fuel Consumption (gallons) ⁶	Total Fuel Consumption (MMBtu) ⁶
Passenger Cars	55.46	192,781	24.0	8,032.56	881.86
Light/Medium Trucks	35.96	125,012	17.4	7,184.60	915.78
Heavy Trucks/Other	8.50	29,554	7.4	3,993.73	509.06
Motorcycles	0.08	264	44.0	6.02	0.66
Total	100.0	347,612	–	19,216.91	2,307.36

¹ Vehicle classes provided in CalEEMod do not correspond exactly to vehicle classes in DOT fuel consumption data, except for motorcycles. Therefore, it was assumed that passenger cars correspond to the light-duty, short-base vehicle class, light/medium trucks correspond to the light-duty long-base vehicle class, and heavy trucks/other correspond to the single unit, 2-axle 6-tire or more class.

² Percent of vehicle trips from Table 4.4 “Fleet Mix” in Air Quality and Greenhouse gas Emissions Study, CalEEMod output (see Appendix A).

³ Mitigated annual VMT found in Table 4.2 “Trip Summary Information” in Air Quality and Greenhouse Gas Emissions Study CalEEMod output (see Appendix A).

⁴ Average Fuel Economy: U.S. Department of Energy, 2018.

⁵ U.S. Department of Transportation 2013

⁶ CaRFG fuel specification of 109,786 Btu/gallon used to identify conversion rate for fuel energy consumption gasoline vehicles (CARB 2015), while one gallon of diesel is equivalent to approximately 127,460 Btu (Schremp 2017).

Notes: Due to rounding, numbers may not add up precisely to the totals indicated.

As shown in Table 11, the project would consume approximately 16,914 gallons of fuel, or 1,915 MBtu, each year for transportation uses from operation.

The project includes solar panels, which would provide for all energy used onsite and result in the townhomes being net zero energy. Therefore, the project would not consume electricity or natural gas in any significant quantities or represent a strain to SCE or SCG. SCE and SCG would have sufficient supplies for the project.

The project would exceed the standards set in California Building Code (CBC) Title 24 by 19 percent, which would minimize the wasteful, inefficient, or unnecessary consumption of energy resources during operation. California's Green Building Standards Code (CALGreen; California Code of Regulations, Title 24, Part 11) requires implementation of energy efficient light fixtures and building materials into the design of new construction projects. Furthermore, the 2019 Building Energy Efficiency Standards (CBC Title 24, Part 6) requires newly constructed buildings to meet energy performance standards set by the Energy Commission. These standards are specifically crafted for new buildings to result in energy efficient performance so that the buildings do not result in wasteful, inefficient, or unnecessary consumption of energy. The standards are updated every three years and each iteration is more energy efficient than the previous standards. For example, according to the California Energy Commission (CEC), residences built with the 2019 standards will use about seven percent less energy due to energy efficiency measures versus those built under the 2016 standards, or 53 percent less energy with rooftop solar, and nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades (CEC 2018a). Furthermore, the project would continue to reduce its use of nonrenewable energy resources as the electricity generated by renewable resources provided by SCE continues to increase to comply with state requirements through Senate Bill 100, which requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

In conclusion, the construction of the project would be temporary and typical of similar projects, and would not result in the wasteful, inefficient, or unnecessary consumption of energy. The operation of the project would increase the consumption of fuel, natural gas, and electricity from existing conditions of an undeveloped site; however, the increase would be in conformance with the latest version of California's Green Building Standards Code and the Building Energy Efficiency Standards. Additionally, the project would include the rezoning of the adjacent Lots 1 and 2 to the east of the project site from CCA (Community Commercial Automobile-Oriented) to R-3-T (Townhomes). The two parcels are currently occupied by single-family residences. The maximum density allowed under the R-3-T zoning designation for adjacent Lots 1 and 2 would also be one residential unit per lot. Therefore, the rezoning of the two properties would not facilitate development at a greater density than what is currently existing. No new development or operational changes to the existing buildings are proposed on adjacent Lots 1 and 2. Therefore, the rezoning of the two additional properties to the east of the project site would not result in a change to existing operation energy demand.

LESS THAN SIGNIFICANT IMPACT

- b. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?*

As discussed above, SB 100 mandates 100 percent clean electricity for California by 2045. Because the proposed project would be powered by onsite solar panels, the proposed project would not conflict with this statewide plan. Additionally, as discussed under Checklist Item *a.* above, the proposed project would be subject to more stringent energy efficiency standards pursuant to updated CALGreen requirements.

The City of Long Beach has not adopted specific renewable energy or energy efficiency plans with which the project could comply; however, a Climate Action and Adaptation Plan (CAAP) is currently under development. This plan would provide framework for updating policies, programs, practices, and incentives for residents and business to reduce emissions and will likely include various energy efficiency measures to that end. As demonstrated further in Section 8, *Greenhouse Gas Emissions*, the proposed project is consistent with and would not conflict with or obstruct the state plan for renewable energy; therefore, no impact would occur.

NO IMPACT

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7 Geology and Soils

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Would the project:

a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Be located on a geologic unit or soil that is unstable, or that become unstable as a result of the project, and potentially result in on or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- a.1. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?*

The project site and adjacent Lots 1 and 2 are located in a seismically active region of Southern California; however, there are no known faults on the project site (City of Long Beach 1988). The nearest known active fault is Newport-Inglewood Fault Zone which is approximately 1.38 miles away from the project site (California Department of Conservation 2018). Neither the project site nor adjacent Lots 1 and 2 are located in an Alquist-Priolo earthquake fault zone as defined by the State Geologist (DOC 2018). Furthermore, ground breakage has not been observed along the faults of the Newport-Inglewood Zone in historic times. The proposed project would comply with State of California standards for building design through the California Building Standards Code (California Code of Regulations, Title 24), which requires various measures of all construction in California to account for hazards from seismic shaking. Therefore, the proposed project would not directly or indirectly cause adverse impacts associated with surface fault rupture. No impact would occur.

NO IMPACT

- a.2. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?*

The project site and adjacent Lots 1 and 2 are located in the highly seismic Southern California region where several fault systems are active or potentially active. Nearby active faults include the Newport-Inglewood Fault Zone which is approximately a mile away from the project site (DOC 2018). The Newport-Inglewood fault zone could create substantial ground shaking if a seismic event occurred along that fault. Similarly, a strong seismic event on any other fault system in Southern California has the potential to create considerable levels of ground shaking throughout the City. However, the project site and adjacent Lots 1 and 2 are not subject to unusual levels of ground shaking.

The California Building Code (CBC) requires structural design and construction methods which will be employed to minimize adverse effects of seismic ground shaking. Because the project would comply with the CBC, impacts related to seismically induced ground shaking would be less than significant and the proposed project would not exacerbate ground shaking conditions.

LESS THAN SIGNIFICANT IMPACT

- a.3. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?*

Liquefaction is a process whereby soil is temporarily transformed to fluid form during intense and prolonged ground shaking or because of a sudden shock or strain. Liquefaction typically occurs in areas where the groundwater is less than 30 feet from the surface and where the soils are composed of poorly consolidated fine to medium sand. As shown in Plate 7, "Liquefaction Potential Areas," of the Seismic Safety Element of the Long Beach General Plan (City of Long Beach 1988), the project site and adjacent Lots 1 and 2 are in an area where the liquefaction potential is low. Compliance with the CBC would reduce impacts associated with seismic-related ground failure including liquefaction to less than significant.

LESS THAN SIGNIFICANT IMPACT

- a.4. *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?*

Per the City of Long Beach Seismic Safety Element, the City is relatively flat and characterized by slopes that are not high (less than 50 feet) or steep (generally sloping flatter than 1-1/2:1, horizontal to vertical). The State Seismic Hazard Zone map of the Long Beach Quadrangle indicates that earthquake induced landslide hazard areas are not present on the project site (DOC 1998). Additionally, the project site, adjacent Lots 1 and 2 and the surrounding area are flat. Therefore, there is no risk of landslides on the site or adjacent Lots 1 and 2.

NO IMPACT

- b. *Would the project result in substantial soil erosion or the loss of topsoil?*

Ground-disturbing activities associated with the project implementation may result in the removal of some topsoil in order to construct the three-story townhomes. Standard construction best management practices (BMPs) would be implemented in order to avoid or minimize soil erosion associated with ground-disturbing activities. As discussed further in Section 10, Hydrology and Water Quality, implementation of erosion control measures stated in Chapter 98.02 of the LBMC, as well as adherence to requirements provided in the National Pollutant Discharge Elimination System (NPDES) permit for construction activities would avoid or minimize potential impacts. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- c. *Would the project 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 offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?*

Per Plate 9, "Slope Stability Study Areas," the Long Beach General Plan Seismic Safety Element, the project site and adjacent Lots 1 and 2 are not located in an area of slope instability (City of Long Beach 1988). As discussed above, the project site is also located in an area with low liquefaction potential. No impact would occur.

NO IMPACT

- d. *Would the project be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?*

Expansive soils are clay-based soils that tend to expand as they absorb water and shrink as water is drawn away. The project site and adjacent Lots 1 and 2 consist of loamy materials and Riverwash soils (City of Long Beach 1988). The project site and adjacent Lots 1 and 2 do not consist of expansive soils according to the General Plan Conservation Element and no impact would occur.

NO IMPACT

- e. *Would the project 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?*

The proposed project would not include the installation of new septic tanks or alternative wastewater disposal systems. No impacts would be associated with wastewater conveyance.

NO IMPACT

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

The project site and adjacent Lots 1 and 2 are located in an urbanized area. There is no evidence that paleontological resources are present onsite. Additionally, no new development or physical changes to the existing sing-family residences are proposed on the adjacent Lots 1 and 2. However, paleontological resources may be encountered during project-related development and ground-disturbing activities associated with the proposed townhomes. Impacts would be significant if construction activities result in the destruction, damage, or loss of scientifically important paleontological resources. The activities may include grading, excavation, or any other activity that disturbs the surface of the site. The following mitigation measure would address the potentially significant impacts relating to the unanticipated discovery of paleontological resources during project implementation. These measures would apply to all phases of project construction and would provide for the assessment and disposition of any resources discovered onsite. Implementation of Mitigation Measure GEO-1 would reduce potential impacts to paleontological resources to a less than significant level.

Mitigation Measure

GEO-1 Unanticipated Discovery of Paleontological Resources

If evidence of subsurface paleontological resources is found during construction, excavation and other construction activity in that area shall cease and the construction contractor shall contact the City of Long Beach Development Services Department. With direction from the Development Services Department, a paleontologist certified by the County of Los Angeles shall evaluate the find. If warranted, the paleontologist shall prepare and implement a standard Paleontological Resources Mitigation Program for the salvage and curation of the identified resources.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

8 Greenhouse Gas Emissions

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Climate change is the observed increase in the average temperature of the Earth’s atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period of time. Climate change is the result of numerous, cumulative sources of greenhouse gases (GHGs) that contribute to the “greenhouse effect,” a natural occurrence that takes place in Earth’s atmosphere to help regulate the temperature of the planet. The majority of radiation from the sun hits Earth’s surface and warms it. The surface, in turn, radiates heat back towards the atmosphere in the form of infrared radiation. Gases and clouds in the atmosphere trap and prevent some of this heat from escaping into space and re-radiate it in all directions. However, anthropogenic activities since the beginning of the industrial revolution (approximately 250 years ago) are adding to the natural greenhouse effect by increasing the gases in the atmosphere that trap heat. Emissions resulting from human activities thereby contribute to an average increase in Earth’s temperature.

The majority of individual projects do not generate sufficient GHG emissions to directly influence climate change. However, physical changes caused by a project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project’s contribution towards an impact would be cumulatively considerable. “Cumulatively considerable” means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15064[h][1]).

In late 2015, the California Supreme Court’s Newhall Ranch decision confirmed that there are multiple potential pathways for evaluating GHG emissions consistent with CEQA, depending on the circumstances of a given project (Center for Biological Diversity v. Department of Fish and Wildlife (2015) 62 Cal. 4th 204). Given the legislative attention and judicial action regarding post-2020 goals and the scientific evidence that additional GHG reductions are needed through the year 2050, the Association of Environmental Professionals’ (AEP) Climate Change Committee published a white paper in October 2016 to provide guidance on defensible GHG thresholds for use in CEQA analyses and GHG reduction targets in climate action plans in light of the change in focus on the 2030 reduction target and questions raised in the Newhall Ranch case (AEP 2016).

The AEP Climate Change Committee white paper identified seven thresholds for operational emissions. The following four methods described are the most widely used evaluation criteria.¹

- (1) **Consistency with a Qualified GHG Reduction Plan.** For a project located within a jurisdiction that has adopted a qualified GHG reduction plan (as defined by CEQA Guidelines Section 15183.5), GHG emissions would be less than significant if the project is anticipated by the plan and fully consistent with the plan. However, projects with a horizon year beyond 2020 should not tier from a plan that is qualified up to 2020.
- (2) **Bright line Thresholds.** There are two types of bright line thresholds:
 - a. **Standalone Threshold.** Emissions exceeding standalone thresholds would be considered significant.
 - b. **Screening Threshold.** Emissions exceeding screening thresholds would require evaluation using a second-tier threshold, such as an efficiency threshold or other threshold concept to determine whether project emissions would be considered significant.

However, projects with a horizon year beyond 2020 should take into account the type and amount of land use projects and their expected emissions out to the year 2030.
- (3) **Efficiency Thresholds.** Land use sector efficiency thresholds are currently based on AB 32 targets and should not be used for projects with a horizon year beyond 2020. For projects with a horizon year beyond 2020, efficiency metrics should be adjusted for 2030 and include applicable land uses.
- (4) **Percent Below “Business as Usual” (BAU).** GHG emissions would be less than significant if the project reduces BAU emissions by the same amount as the statewide 2020 reductions. However, this method is no longer recommended following the Newhall Ranch ruling.

Operational emissions methods (1), (2), and (4) are not applicable. Method (3) is the most appropriate threshold based on guidance from the 2017 Scoping Plan, which identifies 2030 and 2050 per capita efficiency metrics that can be used to develop locally-appropriate project-specific efficiency thresholds (CARB 2017). The City of Long Beach is currently drafting a Climate Action and Adaptation Plan (CAAP), which is expected to be adopted by City Council in 2020 (City of Long Beach 2020). While, the CAAP has not yet been finalized or adopted by the City and cannot be used for project tiering, the emissions inventories and targets can be used in the development of a locally-appropriate project-specific efficiency threshold.

Efficiency thresholds are quantitative thresholds based on a measurement of GHG efficiency for a given project, regardless of the amount of mass emissions. These thresholds identify the emission level below which new development would not interfere with attainment of statewide GHG reduction targets. A project that attains such an efficiency target, with or without mitigation, would result in less than significant GHG emissions.

¹ The three other thresholds are best management practices (BMP)/best available mitigation (BAM), compliance with regulations, and a hybrid threshold concept: separate transportation and non-transportation threshold. The BMP/BAM concept would require creation and implementation of an approved list of BMPs to ensure compliance with statewide reduction targets. No such list has been created/approved to date. Compliance with existing regulations is not recommended until the state has developed its regulatory framework to meet 2030 GHG reduction targets. Finally, the hybrid transportation and non-transportation thresholds approach is generally reserved for residential and/or mixed-use projects qualifying for relief from analysis GHG emissions from cars and light-duty trucks. As such, none of these thresholds specifically apply to this project.

Accordingly, consistent with the concerns raised in the Golden Door (2018) and Newhall Ranch (2015) decisions regarding the correlation between state and local conditions, the 2030 City inventory targets were modified to establish a locally appropriate, evidence-based, project-specific threshold consistent with California’s GHG reduction targets.

The Draft Climate Action Plan provides an inventory of the Community wide emissions and breaks the energy emissions into residential, commercial sectors, and industrial categories. The City also includes aggregated emissions from energy facilities, fugitive natural gas, transportation, and solid waste emissions. The aggregated emissions were assigned to the residential or commercial/industrial sectors based on SCAG’s 2030 population and employment projections included in the 2040 Regional Transportation Plan and Sustainable Communities Plan. Table 12 summarizes the project specific threshold for this analysis.

Table 12 2030 GHG Efficiency Thresholds by Land Use for the City of Long Beach

2030 Population	2030 Employment	2030 Emissions	Residential Emissions	Commercial/Industrial Emissions	Residential Threshold	Commercial/Industrial Threshold
483,355	189,524	3,125,564 MT CO ₂ e	1,787,091 MT CO ₂ e	1,332,699 MT CO ₂ e	3.70 MT CO ₂ e/ Resident	7.03 MT CO ₂ e/ Employee

Source: City of Long Beach 2019; SCAG 2016b

The proposed project is for the construction of townhomes. Therefore, the residential threshold of 3.7 MT CO₂e per resident is used for assessing the proposed project. In addition, the residential threshold of 3.70 MT CO₂e is the most stringent locally appropriate GHG emissions threshold and therefore represents the most conservative evaluation of project impacts. Emissions associated with the project were estimated using CalEEMod, version 2016.3.2. Complete CalEEMod results and assumptions can be viewed in Appendix A.

A project’s service population includes both its residents and employees. The proposed new townhomes would serve a population of approximately 51 residents. There would be no permanent employees associated with the proposed project.

a. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction activities, energy use, daily operational activities, and mobile sources (traffic) due to the proposed project would generate GHG emissions. CalEEMod version 2016.3.2 was used to calculate emissions resulting from project construction and long-term operation. Adjustments to the CalEEMod model were made based upon project-specific sustainability features and updated requirements of Title 24 and other statewide GHG reduction initiatives that standard CalEEMod parameters do not account for. These include the following:

- Electricity emissions are calculated by multiplying the energy use times the carbon intensity of the utility district per kilowatt hour (CAPCOA 2017). The project would be served by SCE. Therefore, SCE’s specific energy intensity factors (i.e., the amount of CO₂, CH₄, and N₂O per kilowatt-hour) are used in the calculations of GHG emissions. The energy intensity factors included in CalEEMod are based on 2012 data by default at which time SCE had only achieved a 20.6 percent procurement of renewable energy. Per SB 100, the statewide Renewable Portfolio Standard (RPS) Program requires electricity providers to increase procurement from eligible renewable energy sources to 60 percent by 2030. To account for the continuing effects of the

RPS, the energy intensity factors included in CalEEMod were reduced based on the percentage of renewables reported by SCE.

- Energy usage for the single-family residences was reduced by seven percent to account for the requirements of 2019 Title 24 standards (CEC 2019b).
- CalEEMod does not incorporate water use reductions achieved by CALGreen (Part 11 of Title 24). New development would be subject to CalGreen, which requires a 20 percent increase in indoor water use efficiency. Thus, in order to account for compliance with CALGreen, a 20 percent reduction in indoor water use was included in the water consumption calculations for new development.
- According to a CalRecycle report to the Legislature, as of 2013 California had achieved a statewide 50 percent diversion of solid waste from landfills through “reduce/recycle/compost” programs (CalRecycle 2015). CalEEMod assumes this 50 percent diversion rate. However, as of 2018, the City of Long Beach has achieved a landfill diversion rate of 70 percent (CalRecycle 2020). Therefore, the solid waste diversion rate in CalEEMod was adjusted to reflect the City’s current diversion rate.
- Project-specific sustainability features including onsite solar panels that provide 100 percent of the project’s operational energy use, low-flow indoor water faucets and toilets, recycled water irrigation system, and a 19 percent exceedance of Title 24 were included in CalEEMod.

Emissions exceeding the 3.70 MT of CO₂e per resident threshold would be considered significant.

Additionally, while the proposed project includes the rezone of the two properties to the east of the project site; no new development or physical changes to the existing buildings are proposed on the adjacent Lots 1 and 2. Therefore, the rezone of the two additional properties to the east of the project site would not result in any new GHG emissions and is no longer evaluated in this GHG analysis.

Construction GHG Emissions

Although construction activity is addressed in this analysis, AEP does not discuss whether any of the suggested threshold approaches adequately address impacts from temporary construction activity). Regardless, the SCAQMD has recommended amortizing construction-related emissions over a 30-year period in conjunction with the proposed project’s operational emissions to measures to be applied that can reduce all project related GHG emissions.

Based on CalEEMod results, construction of the project would generate an estimated 592.9 MT of CO₂e, as shown in Table 13.

Table 13 Estimated Construction GHG Emissions

Year	Project Emissions (CO ₂ e) in metric tons
2020	204.9
2021	388.0
Total	592.9
Total Amortized over 30 Years	19.76

See Appendix A for CalEEMod model output.

Operational GHG Emissions

The project’s proposed energy use, daily operational activities, and mobile sources (traffic) would generate GHG emissions. The project would include solar panels which would generate sufficient electricity annually to fully power the project. In addition, green building features such as the use of drought tolerant plants in 75 percent of the landscaping, and hot water pipe insulation would be included in the proposed project. As shown in Table 14, the project’s emissions would be approximately 151.4 MT of CO₂e or 2.97 MT CO₂e per person, which would not exceed the project specific threshold of 3.70 MT CO₂e per person.

Table 14 Combined Annual Emissions of Greenhouse Gases

Emission Source	Annual Emissions (CO₂e) in metric tons
Construction	19.76
Operational	
Area	0.3
Energy	0.0
Solid Waste	2.5
Water	3.4
Mobile	
CO ₂ and CH ₄	118.3
N ₂ O	7.1
Total Emissions	151.4
Service Population (Residents)	51
Emissions per Service Population (MT CO₂e/SP/year)	2.97
Project-Specific Efficiency Threshold (MT CO ₂ e/SP/year)	3.70
Exceed Project-Specific Threshold?	No

Source: Appendix A (CalEEMod outputs)

Therefore, the GHG impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

There are numerous state plans, policies, and regulations adopted for the purpose of reducing GHG emissions. The principal overall state plan and policy is AB 32, the California Global Warming Solutions Act of 2006, and the follow up, SB 32. The quantitative goal of AB 32 is to reduce GHG emissions to 1990 levels by 2020 and the goal of SB 32 is to reduce GHG emissions to 40 percent below 1990 levels by 2030. Statewide plans and regulations such as GHG emissions standards for vehicles (AB 1493), the Low Carbon Fuel Standard, and regulations requiring an increasing fraction of electricity to be generated from renewable sources are being implemented at the statewide level;

as such, compliance at a project level is not addressed. Therefore, the project does not conflict with statewide plans and regulations.

Senate Bill 375, signed in August 2008, directs each of the State’s 18 major Metropolitan Planning Organizations (MPO) to prepare a SCS that contains a growth strategy to meet these emission targets for inclusion in the RTP. In April 2016, SCAG adopted the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy. SCAG’s RTP/SCS includes a commitment to reduce emissions from transportation sources by promoting compact and infill development to comply with SB 375. The City of Long Beach is developing its first Climate Action and Adaptation Plan (CAAP) which will provide a framework for creating or updating g policies, programs, practices, and incentives for Long Beach residents and businesses to reduce the City’s GHG footprint.

Table 15 illustrates the project’s consistency with relevant goals and strategies embodied in Chapter 5, *On the Road to Greater Mobility and Sustainable Growth*, of the 2016 RTP/SCS (SCAG 2016). As shown in Table 15, the project is consistent with the applicable strategies in the 2016 RTP/SCS. Therefore, the project would have a less than significant impact.

Table 15 Consistency with Applicable SCAG RTP/SCS GHG Emission Reduction Strategies

Strategy/Action	Project Consistency
Land Use and Transportation	
<p><i>Focus new growth around transit.</i> The 2016 RTP/SCS land use pattern reinforces the trend of focusing growth in the region’s High Quality Transit Areas (HQTAs). Concentrating housing and transit in conjunction concentrates roadway repair investments, leverages transit and active transportation investments, reduces regional life cycle infrastructure costs, improves accessibility, avoids greenfield development, and has the potential to improve public health and housing affordability. HQTAs provide households with alternative modes of transport that can reduce VMT and GHG emissions.</p>	<p>Consistent. The project would be within 0.25 mile of bus stops along Long Beach Boulevard and Del Amo Boulevard. The project site is also approximately one mile from the Metro Blue Line’s Del Amo Station.</p>
<p><i>Plan for growth around livable corridors.</i> The Livable Corridors strategy seeks to create neighborhood retail nodes that would be walking and biking destinations by integrating three different planning components:</p> <ol style="list-style-type: none"> 1. Transit improvements 2. Active transportation improvements (i.e., improved safety for walking and biking) 3. Land use policies that include the development of mixed-use retail centers at key nodes and better integrate different types of ritual uses. 	<p>Consistent. The project would be within 0.25 mile of bus stops along Long Beach Boulevard and Del Amo Boulevard. The project site is also approximately one mile from the Metro Blue Line’s Del Amo Station. As such, future residents would have access to public transit.</p>

Strategy/Action	Project Consistency
<p><i>Provide more options for short trips.</i> 38 percent of all trips in the SCAG region are less than three miles. The 2016 RTP/SCS provides two strategies to promote the use of active transport for short trips. Neighborhood Mobility Areas are meant to reduce short trips in a suburban setting, while “complete communities” support the creation of mixed-use districts in strategic growth areas and are applicable to an urban setting.</p>	<p>Consistent. The project would be within 0.25 mile of bus stops along Long Beach Boulevard and Del Amo Boulevard. The project site is also approximately one mile from the Metro Blue Line’s Del Amo Station. As such, alternative means of transportation would be available for access to and from the project site.</p>
<p><i>Protect Natural and Farm Lands.</i> Many natural and agricultural land areas near the edge of existing urbanized areas do not have plans for conservation and they are susceptible to the pressures of development. Many of these lands, such as riparian areas, have high per-acre habitat values and are host to some of the most diverse yet vulnerable species that play an important role in the overall ecosystem.</p>	<p>Consistent. The project would be in an urbanized area designated for residential land uses and thus would not add pressure to develop natural or agricultural lands.</p>
<p>Transit Initiatives</p>	
<p>Develop first-mile/last-mile strategies on a local level to provide an incentive for making trips by transit, bicycling, walking, or neighborhood electric vehicle or other Zero Emission Vehicles (ZEV) options.</p>	<p>Consistent. The project would be within 0.25 mile of bus stops along Long Beach Boulevard and Del Amo Boulevard. The project site is also approximately one mile from the Metro Blue Line’s Del Amo Station. This would incentivize greater use of alternative transportation.</p>
<p>Other Initiatives</p>	
<p>Reduce emissions resulting from a project through implementation of project features, project design, or other measures. Incorporate design measures to reduce energy consumption and increase use of renewable energy.</p>	<p>Consistent. The design and implementation of the proposed project would comply with CALGreen Building Standards, which includes measures to reduce emissions. The project would also comply with SCAQMD Rule 1113 that limits VOCs from building architectural coatings.</p>

Source: SCAG 2016

LESS THAN SIGNIFICANT IMPACT

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9 Hazards and Hazardous Materials

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Would the project:

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on a site that is included on a list of hazardous material 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. For a project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

Project construction would involve the use of potentially hazardous materials such as vehicle fuels and fluids that could be released should an accidental leak or spill occur. No new development or construction are proposed on adjacent Lots 1 and 2. However, standard construction best management practices for the use and handling of such materials would be implemented to avoid or reduce the potential for such conditions to occur. Any use of potentially hazardous materials utilized during construction of the proposed project would comply with all local, state, and federal regulations regarding the handling of potentially hazardous materials. Operation and maintenance of the proposed residential project would not involve the routine transport, use, or disposal of hazardous materials. Materials used by the proposed project would be similar to those found in common household projects such as surface and floor cleaning products utilized for routine janitorial cleaning procedures. Therefore, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- 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?*

As described above, construction of the proposed project would involve the use of potentially hazardous materials such as vehicle fuels and fluids that could be released should an accidental leak or spill occur. No new development or construction are proposed on adjacent Lots 1 and 2. However, standard construction best management practices for the use and handling of such materials would be implemented to avoid or reduce the potential for such conditions to occur. The transport, use, and storage of hazardous materials during the construction of the project would be conducted in accordance with all applicable State and federal laws, such as the Hazardous Materials Transportation Act, Resource Conservation and Recovery Act, the California Hazardous Material Management Act, and the California Code of Regulations, Title 22. Adherence to these requirements would reduce impacts to a less than significant level. Additionally, operation of the proposed residential project would not create a significant hazard to the public or the environment and would not emit hazardous emissions. Potential impacts associated with upset or accident conditions would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- c. *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?*

The project site is located approximately 100 feet from the Bundle of Joy Daycare across Long Beach Boulevard, approximately 330 feet (0.5 mile) from Dorothy Ahrens Nursery School to the north, and approximately 1,050 feet (.20 mile) from Dooley Elementary School to the north. During construction of the proposed project, hazardous and potentially hazardous materials would be utilized for the transport and operation of vehicles and machinery. No new development or construction are proposed on adjacent Lots 1 and 2. As discussed above, the transport, use, and storage of hazardous materials during the construction of the project would be conducted in accordance with all applicable State and federal laws, such as the Hazardous Materials Transportation Act, Resource Conservation and Recovery Act, the California Hazardous Material Management Act, and the California Code of Regulations, Title 22. Additionally, operation of the proposed residential project would not involve the use or transport of large quantities of hazardous

materials. Therefore, impacts related to hazardous emissions or materials affecting local schools would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- d. *Would the project be located on a site that is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

The following databases and listings compiled pursuant to Government Code Section 65962.5 were checked in September 2018 for known hazardous materials contamination at the project sites and adjacent Lots 1 and 2:

- **United States Environmental Protection Agency (U.S. EPA)**
 - Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) / Superfund Enterprise Management System (SEMS)/Envirofacts database search
- **State Water Resources Control Board (SWRCB)**
 - GeoTracker search for leaking underground storage tanks (LUST) and other cleanup sites
- **Department of Toxic Substances Control (DTSC)**
 - EnviroStor database for hazardous waste facilities or known contamination sites
 - Cortese List of Hazardous Waste and Substances Sites

The project site and adjacent Lots 1 and 2 are not located on or directly adjacent to any known hazardous or contaminated sites that are actively being monitored. The U.S. EPA is retiring the CERCLIS database and is replacing it with SEMS. The SEMS database search did not produce any results associated with the project site, indicating that the site is free of known hazards and contaminants (U.S. EPA 2020). A search of the EnviroStor database showed that there are no contaminated sites within a one-mile radius of the project site (DTSC 2020). The GeoTracker database indicates that there are no active cleanup sites within a half-mile radius of the project site (SWRCB 2020). Since the proposed project is not located on or in the vicinity of hazardous materials sites or contaminated sites and the proposed project would not involve routine use of hazardous materials, no impact would occur due to the construction or operation of the proposed project.

NO IMPACT

- e. *For a project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?*

The airport or airstrip nearest to the proposed project site and adjacent Lots 1 and 2 is the Long Beach Airport, located approximately 3.8 miles southeast of the project site. The project is not located within two miles of a public use airport or private airstrip and would not introduce associated hazards or excessive noise to people residing or working in the area. No impact would occur.

NO IMPACT

- f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

The proposed project would not involve the development of structures that could potentially impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. No new development or changes to the existing single-family residences are proposed on adjacent Lots 1 and 2. In accordance with the Public Safety Element of the General Plan, emergency response and evacuation procedures would be developed through the City in coordination with the police and fire departments. The proposed project would not require the development of additional streets or introduce new features that would interfere with or obstruct an adopted emergency response plan. Implementation of the project would increase traffic to and from the project site; however, the project site is surrounded by major roadways including Long Beach Boulevard, which have sufficient capacity to provide access to and from the project site. Therefore, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?*

The project site and adjacent Lots 1 and 2 are not located in a wildland fire hazard area as defined by the Department of Forestry and Fire Protection (CalFire 2007). The project would not affect the potential for wildland fires to occur. No impact would occur.

NO IMPACT

10 Hydrology and Water Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) Result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(iii) 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; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(iv) Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a. *Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?*

Long Beach is serviced by three sewage treatment facilities that discharge treated effluent to marine waters. The project site and adjacent Lots 1 and 2 are located in an urban area and there are no surface water bodies in the project vicinity. The project site consists of five vacant parcels that have been previously disturbed and graded. Construction and grading are planned to occur and would include residential buildings and parking areas. No new development or construction are proposed on the rezoned properties. The proposed project would comply with current National Pollutant Discharge Elimination System (NPDES), which regulates discharges into surface waters, and Los Angeles County MS4 permit regulations pertaining to the prevention of erosion and detention of site runoff into storm drains and receiving waters and include storm water Low Impact Development (LID) Best Management Practices (BMPs). Additionally, Chapter 18.74 of the LBMC regulates the implementation of the LIDs and BMPs for projects in the City. Compliance with these requirements would reduce potential impacts to local storm water drainage facilities to a less than significant level.

LESS THAN SIGNIFICANT IMPACT

- b. *Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?*

The major aquifers beneath Long Beach are known as the 400-foot Gravel, the 200-foot Sand, and the Gaspar Zone (City of Long Beach 1973). These aquifers have a capacity for storing approximately 30 million acre-feet of water. The proposed project would involve construction of residential buildings with minimal excavation and includes a zone change for the two properties to the east of the project site. As discussed in *Utilities and Service Systems*, water supply requirements associated with the project would not deplete local groundwater supplies. Therefore, no impact would occur.

NO IMPACT

- c.(i) *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 through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site?*
- c.(ii) *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 through the addition of impervious surfaces, in a manner that would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?*
- c.(iii) *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 through the addition of impervious surfaces, in a manner that would 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?*
- c.(iv) *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 through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?*

Development of the proposed townhomes would alter the existing drainage patterns on the undeveloped project site by introducing new structures and pervious surfaces, but implementation of the project would not alter the course of a stream or river. No new development or construction are proposed on the rezoned properties. The project would comply with Chapter 18.74 of the LBMC, which requires implementation of standard construction BMPs to avoid or minimize temporary adverse effects such as erosion and siltation. A LID Plan shall be prepared to demonstrate the following (LBDS 2013):

- 1 Stormwater runoff will be infiltrated, evapotranspired, and/or captured and used through stormwater management techniques as identified in Section 4.1. The onsite stormwater management techniques must be properly sized, at a minimum, to infiltrate, evapotranspire, store for use, without any stormwater runoff leaving the site to the maximum extent feasible, for at least the volume of water produced by the water quality design storm event that results from:
 - i. The 85th percentile 24-hour runoff event determined as the maximized capture stormwater volume for the area using a 48- to 72-hour drawdown time, from the formula recommended in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998); or
 - ii. The volume of annual runoff based on unit basin storage water quality volume, to achieve 80 percent or more volume treatment by the method recommended in the California Stormwater Best Management Practices Handbook –Industrial/Commercial, (2003); or
 - iii. The volume of runoff produced from a 0.75-inch storm event.

The proposed project would alter existing land uses on the project site and would include a site-specific drainage plan to guide surface water runoff to the existing municipal drainage system. As discussed above, the proposed project would comply with NPDES and Los Angeles County MS4 permit regulations and would comply with the City's LID BMP Manual. Compliance with these requirements would reduce potential impacts to a less than significant level.

LESS THAN SIGNIFICANT IMPACT

- d. *In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?*

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), the project site and adjacent Lots 1 and 2 are not located in a 100-year flood zone (Map # 06037C1955F) (FEMA 2018). The dam nearest to the project site and adjacent Lots 1 and 2 is the Sepulveda Dam approximately 36 miles to the northwest. The project site is located 6.2 miles north from the Pacific Ocean; however, the project site is not located in an inundation or tsunami zone (DOC 2018). Additionally, the project site and adjacent Lots 1 and 2 are not located near a body of water that would be subject to seiche and is not located on or near slopes subject to mudflow events. The project would not result risk release of pollutants due to project inundation. No impact would occur.

NO IMPACT

4800 Long Beach Boulevard Project

- e. *Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?*

Potential water quality impacts associated with the proposed project are discussed above under checklist question a. and b. The project would not otherwise substantially degrade water quality. No impact would occur.

NO IMPACT

11 Land Use and Planning

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a. Would the project physically divide an established community?

The proposed project would occur on a vacant site, surrounded by an established community. No new development or changes to existing buildings are proposed on the adjacent lots 1 and 2. The project does not propose any new roads or infrastructure that has the potential to divide any communities. No impact would occur.

NO IMPACT

b. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The proposed project involves development of 18 three-story townhomes. The project site is currently zone CCA (Community Commercial Automobile-Oriented) and has a Land Use Designation of NSC-L (Neighborhood Serving Center or Corridor Low Density). The CCA zone permits retail and service uses. Multi-family residential uses are not permitted in the CCA zone. The NSC-L General Plan land use designation encourages development of mixed-use smaller scale retail and low-density apartment and condominium buildings. The NSC-L designation allows up to three stories in height and residential densities of up to 44 dwelling units per acre (du/acre) depending on lot size. As such, the proposed project would not be consistent with the current zoning designation but would be consistent with the General Plan designation. Project entitlements include a Zone Change to R-4-N (Medium-density Multiple Residential), which would allow for the development of the proposed townhomes. The R-4 N zone allows for a high density, multifamily residential district. It is intended to meet the demand of a broad segment of the population and provide a diversity of housing choices.

The project also includes the rezoning of the adjacent lots 1 and 2 located immediately to the east of the project site. Currently, the two parcels are zoned CCA and have a Land Use Designation of NSC-L (Neighborhood Serving Center or Corridor Low Density). As discussed above, the CCA zone does not allow for residential uses. The two parcels would be rezoned to the R-3-T (Multi-family Residential, Townhouse) designation. The R-3-T zone allows for the development of multi-family residential uses. Pursuant to Section 21.31 of the LBMC, "The R-3-T district is a townhouse or row

house residential district on small (especially shallow) lots. It is intended for residential lots located along significant traffic arteries where a lot line to lot line, high lot coverage, inward-oriented dwelling is appropriate. This district is typically appropriate in areas in transition from commercial to residential use.” The allowable density under the R-3-T zone would be one unit per lot because both lots are less than 3,200 sf. Additionally the height limit for the R-3-T would be 28 feet (two stories), which is the same as what is currently allowed under the CCA Zone. The two parcels are currently occupied by single-family residences. Under the proposed R-3-T zoning, the maximum density allowed would also be one residential unit per lot and no changes to the allowable building height would occur. Thus, the rezone of the two properties would not facilitate development a greater density or height than what is currently allowed. No new development or changes to operational use of the existing single-family residences is currently proposed on these two parcels.

According to the City’s General Plan Land Use Element, the project site is located within the Addams Neighborhood area, which is defined by Market Street to the north, Atlantic Boulevard to the east, the Union Pacific Railroad right-of-way on the south and Long Beach Boulevard on the west (City of Long Beach 1998). The mixed residential area is an older area where single family houses are the most common use, with multifamily housing and commercial uses along major avenues, such as Long Beach Boulevard (City of Long Beach 2019b). The Land Use Element identifies the development of new multifamily housing along commercial corridors as an important strategy in this area of Long Beach (City of Long Beach 2019b). The project would be consistent with the City’s General Plan by creating new multifamily housing in the vicinity of commercial uses and would be consistent with the character of surrounding neighborhood. Additionally, as discussed in Section 3, *Air Quality*, Section 7, *Geology and Soils*, and Section 13, *Noise*, the project would be consistent with the City’s Air Quality, Noise and Seismic Safety Elements, respectively.

Upon approval of the requested discretionary actions, development of the proposed project would be consistent with the current General Plan land use designation, and development would comply with City zoning standards, including maximum height limits, yards, and front and side setbacks. The proposed project would not conflict with any applicable land use plan, policy, or regulation. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

12 Mineral Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- 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?*
- b. *Would the project 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?*

The project site, adjacent Lots 1 and 2 and surrounding properties are located in an urban area. The California Surface Mining and Reclamation Act of 1975 (SMARA) was enacted to promote conservation and protection of significant mineral deposits. According to the California Department of Conservation Mineral Land Classification Maps, the project site is located in an area with an MRZ-1 designation, indicating that there is little to no likelihood for the presence of significant mineral deposits onsite (DOC 1983). Although oil deposits are abundant in the City of Long Beach, no oil extraction occurs on or adjacent to the project site (City of Long Beach 1973). Because there are no known mineral resources on the project site or in the vicinity of the site, the project would have no impact on the availability or recovery of mineral resources.

NO IMPACT

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13 Noise

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

General Noise Background

Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz).

Sound pressure level is measured on a logarithmic scale with the 0-dBA level based on the lowest detectable sound pressure level that people can perceive (an audible sound that is not zero sound pressure level). Based on the logarithmic scale, a doubling of sound energy is equivalent to an increase of 3 dBA, and a sound that is 10 dBA less than the ambient sound level has no effect on ambient noise. Because of the nature of the human ear, a sound must be about 10 dBA greater than the ambient noise level to be judged as twice as loud. In general, a 3 dBA change in the ambient noise level is noticeable, while 1-2 dBA changes generally are not perceived. Quiet suburban areas typically have noise levels in the range of 40-50 dBA, while areas adjacent to arterial streets are typically in the 50 to 60+ dBA range. Normal conversational levels are usually in the 60 to 65 dBA range, and ambient noise levels greater than 65 dBA can interrupt conversations.

Noise from point sources, such from individual pieces of machinery, typically attenuates (or drop off) at a rate of 6 dBA per doubling of distance from the noise source. Noise levels from lightly traveled roads typically attenuate at a rate of about 4.5 dBA per doubling of distance. Noise levels

from heavily traveled roads typically attenuate at about 3 dBA per doubling of distance. Noise levels may also be reduced by intervening structures. Generally, a single row of buildings between the receptor and the noise source reduces noise levels by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA (Federal Transit Administration [FTA] 2018). The manner in which buildings in California are constructed generally provides a reduction of exterior-to-interior noise levels of approximately 20 to 25 dBA with closed windows (FTA 2018).

In addition to the instantaneous measurement of sound levels, the duration of sound is important since sounds that occur over a long period of time are more likely to be an annoyance or cause direct physical damage or environmental stress. One of the most frequently used noise metrics that considers both duration and sound power level is the equivalent noise level (Leq). The Leq is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). Typically, Leq is summed over a one-hour period. Lmax is the highest RMS (root mean squared) sound pressure level within the measurement period, and Lmin is the lowest RMS sound pressure level within the measurement period.

The time period in which noise occurs is also important since nighttime noise tends to disturb people more than daytime noise. Community noise is usually measured using Day-Night Average Level (Ldn), which is the 24-hour average noise level with a 10-dBA penalty for noise occurring during nighttime (10:00 PM to 7:00 AM) hours, or Community Noise Equivalent Level (CNEL), which is the 24-hour average noise level with a 5 dBA penalty for noise occurring from 7:00 PM to 10:00 PM and a 10 dBA penalty for noise occurring from 10:00 PM to 7:00 PM. Noise levels described by Ldn and CNEL typically do not differ by more than 1 dBA. In practice, CNEL and Ldn are often used interchangeably.

The relationship between peak hourly Leq values and associated Ldn/CNEL values depends on the distribution of traffic over the entire day. There is no precise way to convert a peak hourly Leq to Ldn/CNEL. However, in urban areas near heavy traffic, the peak hourly Leq value is typically 2 to 4 dBA lower than the daily Ldn/CNEL value (California State Water Resources Control Board [SWRCB] 1999). The project site is located in an urban area. Therefore, the daily CNEL value at the project site would be 2 to 4 dBA higher than the peak hourly Leq.

Vibration

Vibration refers to groundborne noise and perceptible motion. Vibration is a unique form of noise because its energy is carried through buildings, structures, and the ground, whereas noise is simply carried through the air. Thus, vibration is generally felt rather than heard. Some vibration effects can be caused by noise; e.g., the rattling of windows from passing trucks. This phenomenon is caused by the coupling of the acoustic energy at frequencies that are close to the resonant frequency of the material being vibrated. Typically, groundborne vibration generated by manmade activities attenuates rapidly as distance from the source of the vibration increases. The ground motion caused by vibration is measured as particle velocity in inches per second and is referenced as vibration decibels (VdB) in the U.S.

The background vibration velocity level in residential areas is usually around 50 VdB. The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. The range of interest is from approximately 50 VdB, which is the typical background vibration velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings (FTA 2018). Most perceptible indoor vibration is caused by sources within

buildings such as operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel wheeled trains, and traffic on rough roads.

Project Area Noise Conditions

The primary off-site noise sources in the project area are motor vehicles (e.g., automobiles, buses, and trucks), particularly along Long Beach Boulevard. Motor vehicle noise is a concern because it is characterized by a high number of individual events that often create sustained noise levels. The railroad directly south of the project site would be an additional source of noise, as trains pass at various frequencies throughout the day. Ambient noise levels would be expected to be highest during the daytime and rush hour unless congestion slows speeds substantially.

To determine ambient noise levels in the project area, three 10-minute sound level measurements were taken using an Extech ANSI Type II sound level meter during morning peak traffic hours between 4:00 PM and 5:00 PM on August 29, 2018 (refer to Appendix B for sound measurement data). Measurement locations were selected based on the potential exposure of surrounding noise-sensitive receptors, mainly residences, to noise levels from construction and operation of the proposed project. See Figure 9 for the locations of sound measurements. As shown in Table 16, the ambient noise level at the project site was measured at a range between 61.7 and 70.0 dBA Leq.

Table 16 Sound Level Measurement Results

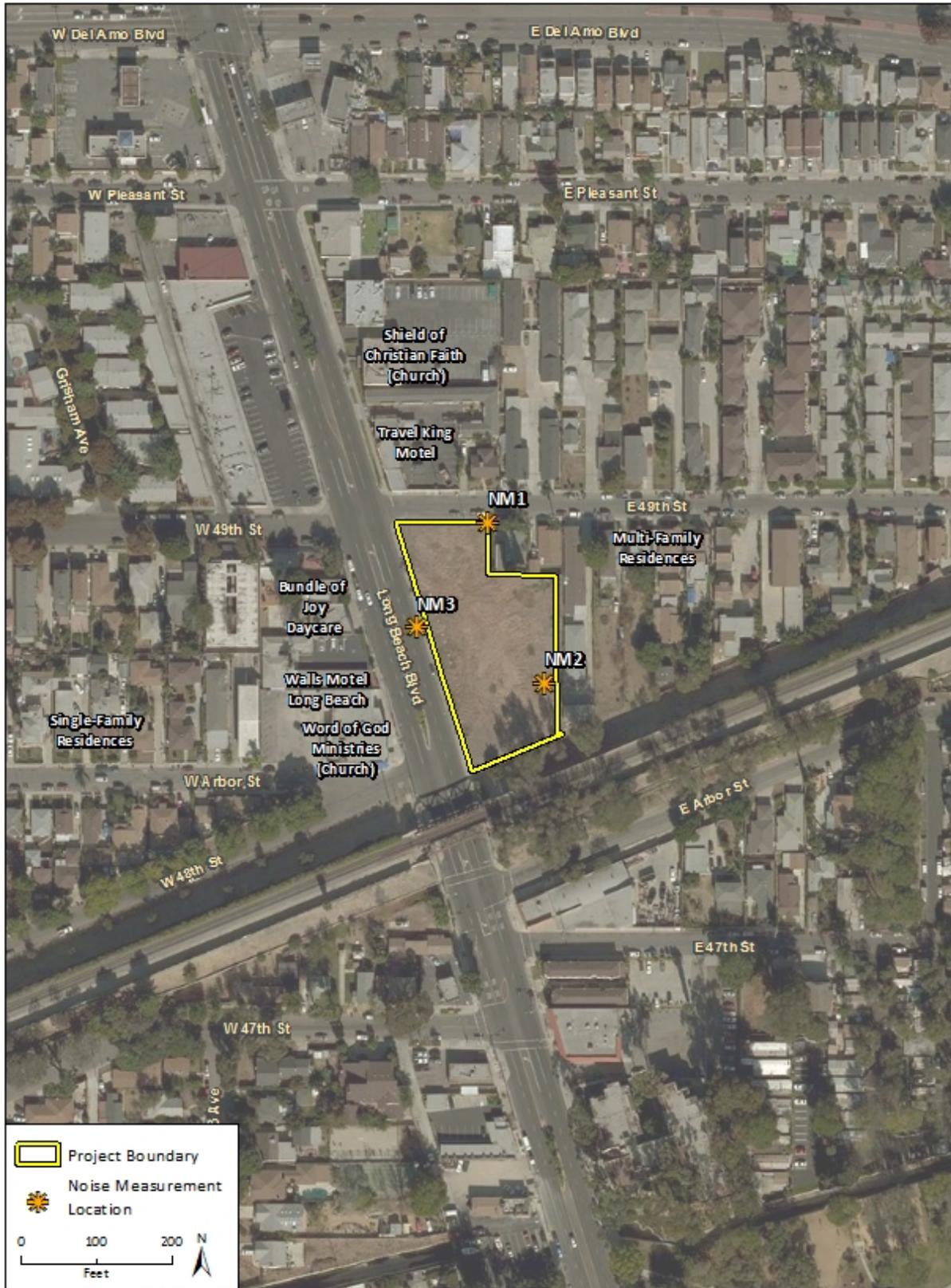
	Measurement Location	Primary Source of Noise	Approximate Distance to Centerline of Roadway (feet)	Sample Time	Leq[10] (dBA) ¹
1	East 49 th Street, northern boundary of the site	Vehicles on Long Beach Boulevard	175	4:24 PM – 4:34 PM	62.5
2	Onsite, eastern boundary of the site	Vehicles on Long Beach Boulevard	175	4:37 PM – 4:47 PM	61.7
3	Long Beach Boulevard, western boundary of the site	Vehicles on Long Beach Boulevard	40	4:49 PM – 4:59 PM	70.0

See Figure 9 for a map of sound level measurement locations. See Appendix B for noise monitoring data.

¹ The equivalent noise level (Leq) is defined as the single steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual fluctuating levels over a period of time (essentially, the average noise level). For this measurement, the Leq was over a 10-minute period (Leq[10]).

Source: Rincon Consultants, field measurements on August 29, 2018 using ANSI Type II Integrating sound level meter

Figure 9 Sound Level Measurement and Sensitive Receptor Locations



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Fig. 9.00-01 Sound Level Measurement and Sensitive Receptor Locations

Sensitive Receptors

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. According to the Noise Element of the Long Beach General Plan (1975), noise-sensitive land uses include, but are not limited to, residences, schools, hospitals, and libraries.

Noise-sensitive receptors closest to the project site include existing multi-family residences northeast and east of the project site; the Travel King Motel located 40 feet north across East 49th Street; the Shield of Faith church located 185 feet north of the site; Bundle of Joy Daycare, Walls Motel Long Beach, and the Word of God Ministries church located 100 feet west of the site across Long Beach Boulevard; and single-family residences located 330 feet west of the site (see Figure 9). In addition, the proposed residences would also be considered noise-sensitive receptors.

Regulatory Setting

State of California

California Code of Regulations (CCR) Title 24 requires that the interior noise level attributable to exterior noise sources not exceed a CNEL of 45 dBA in any habitable room with windows closed.

City of Long Beach Standards

The City of Long Beach uses the State Noise/Land Use Compatibility Standards, which suggests a desirable exterior noise exposure at 65 dBA Community Noise Equivalent Level (CNEL) for sensitive land uses such as residences. Less sensitive commercial and industrial uses may be compatible with ambient noise levels up to 70 dBA. The City has also adopted a Noise Ordinance (LBMC Chapter 8.80) that sets exterior and interior noise standards.

As outlined in Section 8.80.150 of the LBMC, maximum exterior noise levels are based on land use districts. According to the Noise District Map of the LBMC, the project site and surrounding area is located within District One, which is defined as “predominantly residential uses with other land use types also present” (LBMC Section 8.80.160). Sections 8.80.202A through 8.80.202C of the LBMC specifies that no person shall operate tools or equipment used for construction activities or any other related building activity between the hours of 7:00 PM and 7:00 AM on weekdays and Federal holidays; between the hours of 7:00 PM on Friday and 9:00 AM on Saturday and after 6:00 PM on Saturday; or at any time on Sunday. Table 17 summarizes the exterior and interior noise limits for District One while Table 18 summarizes interior noise limits based on general land uses.

Table 17 Exterior Noise Limits

Time Period	Noise Level (dba) ¹
10:00 PM to 7:00 AM	45
7:00 AM to 10:00 PM	50

¹ Cannot be exceeded more than 30 minutes cumulatively in an hour.

Source: LBMC Section 8.80.160

Table 18 Interior Noise Limits

Receiving Land Use	Source Land Use	Time Period	Noise Level (dBA) ¹
All	Residential	10:00 PM to 7:00 AM	35
		7:00 AM to 10:00 PM	45
All	School	7:00 AM to 10:00 PM (while school is in session)	45
Hospital, designated quiet zones and noise sensitive zones		Anytime	40

Source: LBMC Section 8.80.170

¹ Cannot be exceeded by more than five minutes cumulatively in an hour.

- a. *Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

Although CEQA does not require analysis of potential impacts of the environment on the proposed project, the following impact analysis of the ambient noise environment on future residents at the project is provided for informational purposes to disclose existing noise conditions in the project site vicinity. The proposed project’s construction and operational noise impacts on adjacent off-site noise-sensitive receptors are discussed further below.

The predominant source of noise on the project site is traffic along Long Beach Boulevard. The proposed townhome development would be a noise-sensitive receptor to ambient noise. Existing ambient sound levels were measured during a site visit on August 29, 2018 (see Appendix B for measurement results and Figure 9 for sound measurement locations in the site vicinity). As shown in Table 16, the ambient noise level at the project site is 70.0 dBA Leq. As shown in Table 19, the modeled existing ambient noise level in the project area is approximately 71 CNEL.

According to the City’s land use compatibility standards, 65 CNEL is acceptable for residential development. Therefore, assuming a noise exposure level up to 71 CNEL, the proposed townhomes would be exposed to noise levels in excess of 65 CNEL. According to project plans, the proposed townhomes would include patio areas along Long Beach Boulevard. Although traffic noise levels at proposed patios areas would be a potential annoyance for project tenants, passing vehicles would generate an intermittent noise source and tenants would have the option of retiring indoors. Therefore, exterior noise levels at the project site would be less than significant. Furthermore, the manner in which buildings in California are constructed typically provides a reduction of exterior-to-interior noise levels of up to 25 dBA with closed windows (FTA 2018). Based on an exterior noise level up to 71 CNEL, interior noise at would be approximately 46 CNEL and in marginal excess of the CCR Title 24 interior noise standard of 45 CNEL. Mitigation Measure NOI-1 would require the provision of forced-air mechanical ventilation to enable the retention of adequate air quality with closed windows for new residents. In addition, installation of Sound Transmission Class (STC) 30-rated² exterior wall assemblies would be required to reduce interior noise in habitable rooms for compliance with CCR Title 24 such that the interior noise levels do not exceed a CNEL of 45 dBA.

² Exterior materials with an STC 30 rating would reduce exterior noise at a 500 Hz frequency by approximately 30 dBA in the interior environment. This STC rating is calculated for specific materials in a laboratory setting by measuring sound transmission loss in 1/3 octave increments between 125 Hz and 4,000 Hz. Although STC 30-rated materials would not perform equally at all frequencies of ambient noise, they would reduce overall exterior noise of up to 71 CNEL by about 30 dBA.

The project site is also located approximately 60 feet north of an operational Union Pacific railroad that serves passing freight trains. The U.S. Department of Transportation, Federal Railroad Administration's (FRA) Crossing Inventory System documents all rail movements and train safety throughout the U.S. According to the inventory report for main rail line section directly south of the project site, there is generally only one freight train per week that passes the site (FRA 2018). The project site would occasionally be exposed to noise associated with passing trains, including blaring horns and the movement of steel wheels on tracks. However, such occurrences would remain intermittent and, given the predominant source of noise at the project site is vehicle traffic, passing trains would not contribute to a perceptible increase in the daily noise level at the project site. Furthermore, using guidance from the FTA *Transit Noise and Vibration Impact Assessment Manual* (2018) for calculating train vibration, a freight train passing near the site would generate a vibration level of 69 VdB at the nearest proposed townhome (refer to Appendix B for the vibration calculations). Compared to FTA vibration levels, train vibration at the site would not exceed 75 VdB, which is the threshold between barely perceptible and distinctly perceptible vibration levels, nor would train vibration reach levels that could cause damage (100 VdB) to proposed onsite townhomes. While a future increase in train services would potentially increase the number of passing trains, such occurrences would remain intermittent and temporary and would not combine to increase vibration levels at the project site. Additionally, the proposed project would comply with Mitigation Measure NOI-1, which would reduce interior noise in habitable rooms for compliance with CCR Title 24 such that the interior noise levels do not exceed a CNEL of 45 dBA. Therefore, the proposed project would not be exposed to significant noise or vibration impacts from passing freight trains.

Overall, as a residential project, implementation of the proposed project would not generate noise sources that would substantially increase ambient noise levels in the project site vicinity and expose future onsite, noise-sensitive residents to new and unusual noise and vibration. Nonetheless, the exposure of future onsite residents to ambient noise and vibration is an analysis of potential impacts of the environment on the project. Therefore, it is not an impact under CEQA and is only discussed in this section for informational purposes. Impacts would be less than significant.

The proposed project would introduce 18 new townhomes to the project area. Existing noise-sensitive uses near the project site may be subject to both onsite residential noise sources and off-site traffic noise associated with operation of the proposed project. The following discussion addresses each noise source separately.

Onsite Operational Noise

The primary onsite noise sources associated with operation of the proposed project would include vehicle circulation noise (e.g., engine startups, alarms, parking) associated with the onsite roads; heating, ventilation, and air conditioning (HVAC) equipment at proposed townhome buildings; outdoor recreational noise at common and private open space areas; and use of landscaping equipment. However, the project site is located along Long Beach Boulevard and is surrounded by single- and multi-family residences, motels, churches, a daycare, and commercial uses. Therefore, the project site vicinity is already exposed to typical vehicle circulation noise, HVAC noise, recreational noise, and landscape equipment noise associated with existing uses in the project vicinity. Operation of the proposed townhomes would not generate sources of noise that are new to the existing surrounding area. In addition, the primary off-site noise sources in the project area are motor vehicles (e.g., automobiles, buses, and trucks) along Long Beach Boulevard. Given that motor vehicle noise is characterized by a high number of individual events that often create sustained

noise levels, operational noise of the proposed townhomes would not generate a perceptible increase in noise above existing ambient noise. Furthermore, the proposed project would also be subject to the City's noise standards for residential uses, as shown in Table 17 and Table 18. Overall, the proposed project would not introduce unusual noise sources new to the project area and all noise generated by the project would be subject to the City's Noise Ordinance standards. Onsite operational noise would be less than significant.

Off-site Traffic Noise

The dominant source of noise in the project area is traffic on nearby roadways, particularly Long Beach Boulevard. The proposed project would generate new vehicle trips and increase traffic on area roadways. As discussed in Section 18, *Transportation*, full buildout of the proposed project would generate approximately 105 daily trips, including eight trips during the morning peak hour and nine trips during the afternoon peak hour. Access to the project site would be provided via East 49th Street. However, as the nearest arterial street abutting the project site, Long Beach Boulevard would receive the bulk of project-generated vehicle trips. To assess the effect of new vehicle trips on roadway noise, Long Beach Boulevard was modeled under Existing and Existing plus Project conditions. Based on the City's most recent available 24-hour traffic counts, Long Beach Boulevard between Del Amo Boulevard and Market Street had an average daily trip (ADT) count of 24,500 in 2014 (City of Long Beach 2014).

Traffic noise associated with existing and future traffic was estimated using the United States Department of Housing and Urban Development (HUD) Day/Night Noise Level (DNL) Calculator (HUD 2018). Traffic noise model data is provided in Appendix B. As shown in Table 19, model calculations indicate an existing noise level of approximately 71 dBA CNEL along Long Beach Boulevard. The California Department of Transportation (Caltrans) indicates that modeled noise is generally reflective of measured vehicle noise if modeled noise is within 3 dBA of the peak-hour measurement (Caltrans 2013). Since modeled results are within 3 dBA of measured noise levels (see Table 16), the HUD DNL Calculator appropriately reflects existing traffic noise.

Table 19 also compares existing and existing plus project-generated traffic noise. Since the City does not have a threshold for transportation noise, this analysis uses recommendations in the FTA's *Transit Noise and Vibration Impact Assessment Manual (2018)* as guidance to determine whether or not a change in traffic would result in a substantial permanent increase in roadway noise. Using the FTA criteria, a significant noise exposure increase is 1 dBA CNEL where the existing ambient noise level is between 70 and 75 dBA CNEL (FTA 2018). As shown in Table 19 the addition of 105 project-generated daily trips would not generate a measurable increase of traffic noise. Therefore, the project's impact on traffic noise would be less than significant.

Table 19 Comparison of Existing and Existing plus Project Traffic Noise

Roadway Segment	Noise Level (dBA, CNEL)			Significance Threshold ¹ (dBA, CNEL)	Significant
	Existing [1]	Existing Plus Project [2]	Change in Noise Level [2] – [1]		
Long Beach Boulevard between Del Amo Boulevard and San Antonio Drive	71	71	+0	1	No

Source: City of Long Beach Public Works 2014. See Appendix B for HUD DNL Calculator results. Results are rounded to the nearest whole number.

Temporary noise levels caused by construction activity would be a function of the noise generated by construction equipment, the location and sensitivity of nearby land uses, and the timing and duration of noise-generating activities. Construction noise was estimated using the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) Version 1.1. The construction equipment included in RCNM are based on standard equipment assumptions for construction of the proposed project from CalEEMod (see Section 3, *Air Quality*, and Appendix A). To determine construction noise impacts, noise was modeled at the nearest noise-sensitive receptors, consisting of multi-family residences northeast and east of the project site; the Travel King Motel located 40 feet north across East 49th Street; the Shield of Faith church located 185 feet north of the site; Bundle of Joy Daycare, Walls Motel Long Beach, and the Word of God Ministries church located 100 feet west of the site across Long Beach Boulevard; and single-family residences located 330 feet west of the site.

Modeled construction noise assumes that onsite construction activities would occur, on average, 50 feet from the project site boundary in order to provide an overall estimate of average hourly construction noise. Therefore, modeled distances between construction activity and off-site noise-sensitive receptors were 50 feet for the adjacent multi-family residences northeast and east of the project site; 90 feet for the Travel King Motel; 235 feet for the Shield of Faith church; 150 feet for Bundle of Joy Daycare, Walls Motel Long Beach, and the Word of God Ministries church; and 380 feet for single-family residences west of the site. Table 20 shows the equipment assumed to be used during each construction phase, as well as the average hourly noise levels (dBA, Leq) at distances of 50 feet, 90 feet, 150 feet, 235 feet, and 380 feet from the source. Construction noise estimates are based on the assumption that multiple pieces of construction equipment would operate simultaneously, and do not account for the presence of intervening structures or topography, which could reduce noise at receptor locations. Therefore, the noise levels presented in Table 20 represent a reasonably conservative estimate of actual construction noise.

The City does not have specific quantitative noise standards or limits related to construction noise. As shown in Table 16, the ambient noise level at the project site was measured at a range between 61.7 and 70.0 dBA Leq. As shown in Table 20, construction would generate noise levels of up to an estimated 86 dBA Leq during construction of the project at the nearest noise-sensitive receptor. Although construction would generate temporary noise levels in excess of ambient noise levels in the project vicinity, construction noise would cease after the completion of the proposed project. In addition, Sections 8.80.202A through 8.80.202C of the LBMC prohibits construction activities between the hours of 7:00 PM and 7:00 AM on weekdays and Federal holidays, between the hours of 7:00 PM on Friday and 9:00 AM on Saturday and after 6:00 PM on Saturday, and any time on Sunday). Compliance with the LBMC would limit construction hours so that construction noise does not occur during nighttime sleep hours and disturb noise sensitive residential receptors.

Table 20 Construction Noise Levels by Phase

Construction Phase	Equipment	Approximate Leq, dBA				
		50 Feet ¹	90 Feet ²	150 Feet ³	235 Feet ⁴	380 Feet ⁵
Site Preparation and Grading	Grader, Tractor, Dozer	85	80	75	71	67
Building Construction	Generator Set, Crane, Forklift, Tractor, Welders (3)	86	81	76	72	68
Paving	Cement and Mortar Mixer, Paver, Roller, Tractor, Paving Equipment	86	80	76	72	68
Architectural Coating	Air Compressor	74	69	64	60	56

See Appendix B for RCNM data sheets and assumptions.

¹ Modeled distance for adjacent multi-family residences.

² Modeled distance for Travel King Motel across East 49th Street.

³ Modeled distance for Bundle of Joy Daycare, Walls Motel Long Beach, and Word of God Ministries church across Long Beach Boulevard.

⁴ Modeled distance for Shield of Faith church north of the site.

⁵ Modeled distance for single-family residences west of the site.

Additionally, the project would include the rezoning of the two properties to the east of the project site from CCA (Community Commercial Automobile-Oriented) to R-3-T (Townhomes). The two parcels are currently occupied by single-family residences. No new development or changes to the existing buildings are proposed on the rezoned properties. Therefore, the rezoning of the two additional properties to the east of the project site would not result in construction-related noise or changes in operation noise as compared to the existing conditions. Additionally, the proposed project would implement Mitigation Measure NOI-2 during construction. Temporary construction noise would be less than significant.

Mitigation Measures

NOI-1 Sound Insulation

The applicant shall install exterior building materials with sufficient Sound Transmission Class (STC) ratings to reduce interior noise levels in habitable rooms of all residential units with direct exposure to Long Beach Boulevard and the adjacent Union Pacific Railroad to below 45 CNEL, as required by CCR Title 24. All residential windows, exterior doors, and exterior wall assemblies that face Long Beach Boulevard and the adjacent Union Pacific Railroad, shall meet an STC 30 rating to ensure the adequate attenuation of noise at a range of frequencies. The provision of forced-air mechanical ventilation, enabling new residents to retain adequate air quality with windows closed, and the installation of STC 30-rated residential windows, exterior doors, and exterior wall assemblies would substantially reduce interior noise in habitable rooms. Prior to approval of the development, the applicant shall demonstrate to the Department of Development Services how construction of the proposed residential units and chosen building materials will achieve an interior noise level of 45 CNEL.

NOI-2 Construction Noise

Prior to Grading Permit issuance, the project applicant shall demonstrate, to the satisfaction of the City of Long Beach City Engineer 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.
- Property owners and occupants located within 200 feet of the project boundary shall be sent a notice regarding the construction schedule of the proposed project, at least 15 days prior to commencement of construction of each phase. A sign, legible at a distance of 50 feet shall be posted at the project construction site. All notices and signs shall be reviewed and approved by the City of Long Beach Development Services Department, prior to mailing or posting, and shall indicate the dates and duration of construction activities, as well as provide a contact name and telephone number where residents can inquire about the construction process and register complaints.
- Prior to issuance of any Grading or Building Permit, the Contractor shall provide evidence that a construction staff member will be designated as a Noise Disturbance Coordinator and will be present onsite during construction activities. The Noise Disturbance Coordinator shall be responsible for responding to any local complaints about construction noise. When a complaint is received, the Noise Disturbance Coordinator shall notify the City within 24-hours of the complaint and determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and shall implement reasonable measures to resolve the complaint, as deemed acceptable by the Public Works Department. All notices that are sent to residential units immediately surrounding the construction site and all signs posted at the construction site shall include the contact name and the telephone number for the Noise Disturbance Coordinator.
- Prior to issuance of any Grading or Building Permit, the Project Applicant shall demonstrate to the satisfaction of the City Engineer that construction noise reduction methods shall be used where feasible. These reduction methods include shutting off idling equipment, installing temporary acoustic barriers around stationary construction noise sources, maximizing the distance between construction equipment staging areas and occupied residential areas, and electric air compressors and similar power tools. Construction haul routes shall be designed to avoid noise sensitive uses (e.g., residences, convalescent homes, etc.), to the extent feasible.
- During construction, stationary construction equipment shall be placed such that emitted noise is directed away from sensitive noise receivers.
- Construction activities shall not take place outside of the allowable hours specified by the City's Municipal Code Section 8.80.202, Construction Activity (7:00 a.m. to 7:00 p.m. on weekdays and 9:00 a.m. to 6:00 p.m. on Saturdays; construction activities are not permitted on Sundays or legal holidays).

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Construction activity associated with the project would create groundborne vibration. Operation of the proposed project would not generate significant ground-borne vibration as residences would not require the use of heavy industrial machinery. Therefore, this analysis considers vibration impacts only from project construction. To determine ground-borne vibration impacts, vibration

was modeled at the nearest sensitive receptors, consisting of multi-family residences northeast and east of the project site; the Travel King Motel located 40 feet north across East 49th Street; the Shield of Faith church located 185 feet north of the site; Bundle of Joy Daycare, Walls Motel Long Beach, and the Word of God Ministries church located 100 feet west of the site across Long Beach Boulevard; and single-family residences located 330 feet west of the site.

Construction activity would not operate exclusively along the project boundary of the site. Rather, stationary construction activity would occur at various locations on the project site and mobile construction equipment would operate throughout the site. To provide an overall estimate of construction vibration levels, modeled construction vibration assumes that onsite construction activities would occur, on average, 50 feet from the project site boundaries; therefore, modeled distances between construction activity and off-site noise-sensitive receptors were 50 feet for the adjacent multi-family residences northeast and east of the project site; 90 feet for the Travel King Motel; 235 feet for the Shield of Faith church; 150 feet for Bundle of Joy Daycare, Walls Motel Long Beach, and the Word of God Ministries church; and 380 feet for single-family residences west of the site. Vibration levels were calculated at these sensitive receptors using the VdB of the highest impact pieces of equipment that would be used during project construction, which are the roller and dozer. Table 21 lists ground-borne vibration levels from a roller and dozer at 50 feet, 90 feet, 150 feet, 235 feet, and 380 feet from the source.

Table 21 Vibration Levels for Construction Equipment

Equipment	Approximate VdB				
	50 Feet ¹	90 Feet ²	150 Feet ³	235 Feet ⁴	380 Feet ⁵
Roller	85	78	71	65	59
Dozer	78	70	64	58	51

See Appendix B for vibration modeling data sheets.

¹ Modeled distance for adjacent multi-family residences.

² Modeled distance for Travel King Motel across East 49th Street.

³ Modeled distance for Bundle of Joy Daycare, Walls Motel Long Beach, and Word of God Ministries church across Long Beach Boulevard.

⁴ Modeled distance for Shield of Faith church north of the site.

⁵ Modeled distance for single-family residences west of the site.

As shown in Table 21 operation of a loaded truck, dozer, and roller would generate peak vibration levels of approximately 85 VdB at the nearest noise-sensitive receptors. Although vibration would exceed 75 VdB (the threshold between barely perceptible and distinctly perceptible) such events would be intermittent and relatively short in duration. According to Sections 8.80.202A through 80.202C of the LBMC, construction activities are prohibited between the hours of 7:00 PM and 7:00 AM on weekdays and Federal holidays, between the hours of 7:00 PM on Friday and 9:00 AM on Saturday and after 6:00 PM on Saturday, and any time on Sunday. Compliance with the City’s permitted hours of construction would prohibit construction vibration during nighttime sleep hours. Furthermore, according to FTA vibration levels, ground-borne vibration would not reach levels that could cause damage (100 VdB) to structures in the vicinity of the project site. Therefore, impacts from vibration would be less than significant.

The project would also include the rezoning of the two properties to the east of the project site from CCA (Community Commercial Automobile-Oriented) to R-3-T (Townhomes). The two parcels

are currently occupied by single-family residences. No new development or physical changes to the existing buildings are proposed on adjacent Lots 1 and 2. Therefore, the rezoning of the two additional properties to the east of the project site would not result in construction related ground-borne vibration.

LESS THAN SIGNIFICANT IMPACT

- c. *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

As discussed in Section 9, *Hazards and Hazardous Materials*, the nearest aircraft facility to the project site and adjacent Lots 1 and 2 is the Long Beach Airport approximately 3.8 miles southeast of the project site. According to the County of Los Angeles Airport Land Use Commission (ALUC), the project site is outside the noise contours of the airport (ALUC 2003). Although the project site would potentially be subject to occasional aircraft overflight noise, such occurrences would be intermittent and temporary. In addition, there are no private airstrips in the vicinity of the project site and adjacent Lots 1 and 2. Therefore, the project would not result in noise impacts related to airports for people residing or working at the project site and its vicinity. Impacts would not occur.

NO IMPACT

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14 Population and Housing

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Would the project:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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

As discussed in Section 14, *Population and Housing*, according to the California Department of Finance (DOF), the City of Long Beach has an estimated population of 475,013 with an average household size of 2.82 persons (DOF 2019). The Southern California Association of Governments (SCAG) estimates a population increase to 484,500 by 2040 which is an increase two percent or 9,487 persons (SCAG 2016). Development of 18 new townhomes would increase the existing population by approximately 51 residents (approximately 0.01 percent) to 475,063. . In addition, SCAG’s estimate for existing households in 2012 is 163,800. SCAG estimates a housing increase to 175,500 by 2040, which is an increase of approximately seven percent, or 11,700 housing units (SCAG 2016). Construction of the proposed 16 housing units would represent approximately 0.1 percent of the projected housing stock increase, which would not exceed SCAG’s 2040 housing units forecast.

The project would also include the rezoning of the two properties to the east of the project site from CCA (Community Commercial Automobile-Oriented) to R-3-T (Townhomes). The two parcels are currently occupied by single-family residences. Under the R-3-T zoning designation the maximum density allowed on each of the rezone parcels would also be one residential unit per lot. No new development or physical changes to the existing buildings are proposed on the rezoned properties. Therefore, the rezoning of these two parcels would not result in a change to population. Therefore, the proposed project would not cause a substantial increase in population nor induce unplanned population growth. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

4800 Long Beach Boulevard Project

- b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?*

Because the project site is vacant, the proposed project would not displace existing housing or people and would not necessitate the construction of replacement housing elsewhere. Additionally, the project includes the rezoning of the two parcels located immediately to the east of the project site. The two parcels are currently each occupied by a single-family residence. No new development or physical changes to the existing buildings are proposed on the adjacent Lots 1 and 2. Therefore, the rezoning of these two parcels would not result in a change to housing and no impact would occur.

NO IMPACT

15 Public Services

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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:

1	Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a.1. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, or the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

Fire protection is provided by the Long Beach Fire Department (LBFD). The nearest fire station to the project site is LBFD Station No. 11 located at 160 East Market Street, approximately one mile north. As identified in Chapter 18.48 of the LBMC, the City of Long Beach has adopted the California Fire Code (2016 edition). The Fire Code contains regulations related to construction, maintenance and design of buildings and land uses. The proposed project would be required to adhere to all Fire Code requirements.

The proposed project would involve construction of 16 residential townhomes in an urbanized area. Additionally, the project would include the rezoning of the two properties to the east of the project site from CCA (Community Commercial Automobile-Oriented) to R-3-T (Townhomes). The two parcels are currently occupied by single-family residences. No new development or changes to the existing buildings are proposed on the rezoned properties. The proposed project would increase development intensity on the project site, which would incrementally increase demand for fire protection services. However, the proposed project is an infill development within the existing service area of the LBFD. Additionally, the project site is not located in a Fire Hazard Severity Zone

and thus would not be exposed to an increased risk of wildfires (Cal Fire 2007). The proposed project would not place an unanticipated burden on fire protection services and would therefore not affect response times or service ratios such that new or expanded fire facilities would be needed. Additionally, the LBFD would be required to sign off on project activities prior to implementation of the portions project that are in their respective jurisdictions. Based on verbal communication with the LBFD Fire Prevention Division, LBFD has adequate capabilities to serve the proposed townhomes (LBFD 2018). Therefore, the project would not create the need for new or expanded fire protection facilities. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.2. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, or the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

Police protection services in Long Beach are provided by the Long Beach Police Department (LBPD). LBPD consists of approximately 800 sworn police officers and total staffing of over 1,200 employees (LBPD 2018). Based on a current total population of 478,561 (DOF 2018), the current officer to population ratio is 1.7 sworn officers per 1,000 residents. The Patrol Bureau includes one specialized Field Support Division and three geographical divisions: North, East and West. The project site and adjacent Lots 1 and 2 are served by the LBPD North Division Station, located at 4891 Atlantic Avenue, approximately 0.5 mile east of the project site. The proposed townhomes would add an estimated 45 new residents to the City population. No new development or changes to the existing buildings are proposed on the rezoned properties. Based on verbal communication with LBPD Crime Prevention Division, the LBPD would have adequate capabilities to serve the proposed townhomes (LBPD 2018). The proposed project would not cause substantially delayed response times, degraded service ratios or necessitate construction of new facilities, due to the relatively small size of the development and the location in an already developed and well served area. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.3. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered schools, or the need for new or physically altered schools, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

The project site and rezoned properties are served by Long Beach Unified School District (LBUSD). LBUSD operates 85 facilities serving grade levels pre-K through high school and has a current enrollment of 72,000 students (LBUSD 2018a). Schools serving the project site include Dooley Elementary, located at 5075 Long Beach Boulevard, which serves grades K through 5th, Lindsey Academy, located at 5075 Daisy Avenue, which serves grades 6th through 8th, and Jordan High School, located at 6500 Atlantic Avenue, which serves grades 9th through 12th (LBUSD 2018b).

The proposed project would involve the construction of 18 new townhomes. A conservative assumption of one student per household was used to determine that the proposed project would generate approximately 18 additional students that would attend the schools within the LBUSD. No new development or changes to the existing buildings are proposed on adjacent Lots 1 and 2. Based on verbal and written communication with LBUSD Facilities Development & Planning Department,

LBUSD has adequate capabilities to serve the proposed project (LBUSD 2018c). As shown in Table 22 below, enrollment for the schools serving the project site is below capacity. Therefore, the incremental increase in the number of students generated by the proposed townhomes would not result in the need for new or physically altered school facilities as sufficient capacity is available.

Table 22 Enrollment and Capacity at School Serving the Project Site

School	Enrollment	Capacity
Dooley Elementary School	903	956
Perry Lindsey Middle School	769	1,002
Jordan High School	2,449	4,038

Source: LBUSD Facilities Development & Planning Department, 2018

In accordance with State law, the applicant would be required to pay school impact fees. Pursuant to Section 65995 (3)(h) of the California Government Code (Senate Bill 50, chaptered August 27, 1998), the payment of statutory fees "...is deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization." Thus, payment of development fees is considered full mitigation for the modified project's impacts under CEQA.

LESS THAN SIGNIFICANT IMPACT

a.4. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered parks, or the need for new or physically altered parks, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

Recreational amenities in the City of Long Beach include 170 parks and 26 community centers, providing more than 3,100 acres of developed for recreational space (DPRM 2018). Based on a population of 478,561 residents, the City's current parkland ratio is approximately 6.5 parkland acres per 1,000 residents. The desired standard stated in the 1975 Quimby Act is 3 acres of parkland per 1,000 residents. By this guideline standard, the City of Long Beach has an adequate amount of open space on a per population basis. The project site is located approximately 0.2 mile north of Scherer Park, which is a 26-acre park that includes a community center, picnic area, playground, basketball courts, tennis courts, and volleyball courts, and would serve residents associated with the proposed project.

The proposed townhomes would generate an estimated 51 residents and would incrementally increase the demand for usage of existing parks in the City. The proposed project would include 10,880 sf of open space, which would offset some demand on park and recreational facilities in the City. No new development or changes to the existing buildings are proposed on the rezoned properties. However, since the City is well served by open space on a per population basis, the proposed townhomes would not create unanticipated demand on city parks. Additionally, in accordance with the Quimby Act, the City assesses open space development fees for new residential development. Pursuant to Chapter 18.18 of the LBMC, all residential development is required to pay a park fee prior to the issuance of a certificate of occupancy. This fee is intended to be used for the

acquisition, improvement, and expansion of public parks and/or recreational facilities. The proposed project would be subject to park land dedication fees. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.5. Would the project result in substantial adverse physical impacts associated with the provision of other new or physically altered public facilities, or the need for other new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

Implementation of the proposed townhomes would increase the local population by approximately 51 residents. No new development or changes to the existing buildings are proposed on the rezoned properties. The proposed project would contribute incrementally toward impacts to City public services and facilities such as storm drain usage (discussed in Section 10, *Hydrology and Water Quality*), public parks, solid waste disposal (discussed in Section 19, *Utilities and Service Systems*), water usage and wastewater disposal (discussed in more detail in Section 19, *Utilities and Service Systems*), and libraries. The project's contribution would be offset through payment of fees that are used to fund storm drain improvements, and school facility expansions, as well as by the project-specific features described in the individual resource section analyses described in this Initial Study. Additionally, the proposed project would be served by the Michelle Obama Public Library located at 5870 Atlantic Ave, approximately 1.7 miles north east of the project site. The Michelle Obama Neighborhood Library opened in September 2016 and includes a 24,655-sf facility with state-of-the-art amenities. The building also has three public community meeting spaces. The new library has expanded resources and programs to serve the community of north Long Beach (LBPL 2018). Therefore, increased demand would be nominal, and the addition of the Michelle Obama Library would continue to accommodate the needs of the residents. Overall, impacts to other public facilities would be less than significant.

LESS THAN SIGNIFICANT IMPACT

16 Recreation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

As discussed above under Section 15, *Public Services*, recreational amenities in the City of Long Beach include 170 parks and 26 community centers, providing more than 3,100 acres of developed for recreational space (DPRM 2018). Based on a population of 478,561 residents, the City’s current parkland ratio is approximately 6.5 parkland acres per 1,000 residents. The desired standard stated in the 1975 Quimby Act is three acres of parkland per 1,000 residents. By this guideline standard, the City of Long Beach has an adequate amount of open space on a per population basis. The project site is located approximately 0.2 mile north of Scherer Park, which is a 26-acre park that includes a community center, picnic area, playground, basketball courts, tennis courts, and volleyball courts, and would serve residents associated with the proposed project.

The proposed project would generate an estimated 51 residents and would incrementally increase the demand for usage of existing parks in the City. The proposed project would include 10,880 sf of open space, which would offset some demand on park and recreational facilities in the City. Additionally, the project would include the rezoning of the two properties to the east of the project site from CCA (Community Commercial Automobile-Oriented) to R-3-T (Townhomes). The two parcels are currently occupied by single-family residences. Under the R-3-T zoning designation the maximum density allowed on each of the rezoned parcels would also be one residential unit per lot. No new development or changes to the existing buildings are proposed on adjacent Lots 1 and 2. Because the City is well served by open space on a per population basis, the proposed project would not create unanticipated demand on city parks or cause substantial deterioration of existing parks such that new park facilities would be needed. Additionally, in accordance with the Quimby Act, the City assesses open space development fees for new residential development. Pursuant to Chapter 18.18 of the LBMC, the project would require a park fee prior to the issuance of a certificate of

City of Long Beach

4800 Long Beach Boulevard Project

occupancy. This fee is intended to be used for the acquisition, improvement, and expansion of public parks and/or recreational facilities. The proposed project would be subject to park land dedication fees. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

17 Transportation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Would the project:

a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a. *Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?*

Construction of the proposed project would generate traffic for deliveries of equipment and materials to the project site and construction worker traffic. However, construction traffic would be temporary, and the movement of construction equipment would be limited to the project site for most of the construction period. Therefore, construction traffic would not substantially interfere with the City’s circulation system. Additionally, the project would include the rezoning of the two properties to the east of the project site from CCA (Community Commercial Automobile-Oriented) to R-3-T (Townhomes). The two parcels are currently occupied by single-family residences. The maximum density allowed under the R-3-T zoning designation for the rezoned properties would also be one residential unit per lot. Therefore, the rezoning of the two properties would not facilitate development at a greater density than what is currently existing. No new development or changes to the existing buildings are proposed on the rezoned properties.

Operation of the proposed project would generate new vehicle trips on the surrounding circulation system. Trip generation estimates were developed utilizing trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation 10th Edition. According to ITE rates for residential condo/townhouse, the proposed project would generate approximately 100 daily trips, including six AM peak hour trips and eight PM peak hour trips. Project-generated vehicle trips would incrementally increase existing traffic volumes of the surrounding circulation system.

Access to the project site would be provided via East 49th Street. However, as the nearest arterial street abutting the project site, it is reasonable to assume that Long Beach Boulevard would receive the bulk of project-generated vehicle trips. The City’s most recent available 24-hour traffic counts for Long Beach Boulevard (between Del Amo Boulevard and Market Street) had an average daily trip

(ADT) count of 24,500 in 2014 (City of Long Beach 2014). Therefore, assuming all daily trips generated by the proposed project occur on Long Beach Boulevard, the addition of 100 daily trips generated by the proposed project would represent an increase of 0.4 percent above existing daily trip conditions. Such an increase would not affect service levels in a manner that would conflict with City plans or policies related to transportation system performance. Impacts would be less than significant.

The proposed project would be limited to site-specific improvements and would not damage the performance or safety of any public transit, bikeway or pedestrian facilities. Sidewalks are provided along all key roadways in the project site vicinity and pedestrian crosswalks with signalized intersections in the project area. The project would include a 13-foot dedication along Long Beach Boulevard and an eight-foot dedication along 49th Street for future street widening. Sidewalk improvements shall be in accordance with Public Works requirements. Existing transit lines along Long Beach Boulevard include Long Beach Transit, Metro and Orange County Transit Authority. The project would not conflict with adopted policies, plans, or programs regarding public transit, bikeways, or pedestrian facilities, and would not otherwise substantially reduce the performance or safety of such facilities. Therefore, there would be no impact of the proposed project.

Additionally, the Los Angeles County Congestion Management Program (CMP) requires an analysis of all arterial segments and arterial monitoring intersections on the CMP roadway network where the project adds 50 or more peak hour trips. In addition, the CMP requires evaluation of all mainline freeway-monitoring locations where the project adds 150 or more peak hour trips. The project would generate approximately six AM peak hour trips and eight PM peak hour trips. Therefore, it would not generate traffic exceeding CMP thresholds or otherwise conflict with the CMP. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)??

CEQA Guidelines Section 15064.3(b) identifies appropriate criteria for evaluating transportation impacts. It states that land use projects with vehicle miles traveled (VMT) exceeding an applicable threshold of significance may indicate a significant impact, and that projects that decrease VMT compared to existing conditions should be presumed to have a less than significant transportation impact. Section 15064.3(c) states that the requirement to use these criteria only applies on and after July 1, 2020. The proposed project would be infill development, which generally generates lower VMT than “greenfield” development (new development in rural or agricultural areas on the periphery of communities, or lands otherwise not previously planned for development).

As discussed in Section 11, *Land Use and Planning*, project entitlements include a Zone Change to R-4-N (Medium-density Multiple Residential), which would allow for the development of the proposed townhomes. The R-4 N zone allows for a high density, multifamily residential district. It is intended to meet the demand of a broad segment of the population which provides a diversity of housing choices.

Additionally, the project includes the rezoning of the two parcels located immediately to the east of the project site. Currently, the two parcels are zoned CCA and have a Land Use Designation of 3A (Townhomes). The two parcels would be rezoned to the R-3-T (Multi-family Residential, Townhouse) designation. The rezoned properties are currently occupied by single-family residences. No new development or changes to the existing buildings are proposed on the rezoned properties.

Development of the proposed project would place high density multi-family residences near commercial uses located to the west and south of the project site, across Long Beach Boulevard. Additionally, the project would be developed within a quarter mile of bus stops along Long Beach Boulevard and Del Amo Boulevard. The project site and adjacent Lots 1 and 2 are also approximately one mile from the Metro Blue Line's Del Amo Station. The proposed project would therefore reduce VMT by developing high-density residential uses in walking distance to commercial uses and employment opportunities, and near public transit options. In addition, according to the Governor's Office of Planning and Research (OPR) *Technical Advisory on Evaluating Transportation Impacts in CEQA* (2018), land use projects such as the proposed project "that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than significant transportation impact." For these reasons, the proposed project would not conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b), and there would be no impact.

NO IMPACT

- c. *Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?*

No roads would be permanently closed as a result of construction or operation of the proposed project and rezone of the properties to the east of the project site. During operation of the project, each of the proposed residences would have an individual access driveway leading to an internal driveway located off 49th Street. The proposed project would not result in inadequate emergency access or introduce any design features or incompatible uses, such as sharp curves or dangerous intersections, that would substantially increase hazards at the site and no impact would occur.

NO IMPACT

- d. *Would the project result in inadequate emergency access?*

The proposed project, and rezone of the two properties to the east of the project site, would not result in inadequate emergency access because it would be subject to the Long Beach Fire Department review and acceptance of site plans, and structures prior to occupancy to confirm that required fire protection safety features, including adequate driveway access to buildings and adequate emergency access, are implemented. Consequently, there would be no impact.

NO IMPACT

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18 Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in a Public Resources Code Section 21074 as either a site, feature, place, or 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	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 significant of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

As of July 1, 2015, California Assembly Bill 52 of 2014 (AB 52) was enacted and expands CEQA by defining a new resource category, “tribal cultural resources.” AB 52 establishes that “A project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment” (PRC Section 21084.2). It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3).

PRC Section 21074 (a)(1)(A) and (B) defines tribal cultural resources as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe” and is:

1. 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
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe.

AB 52 also establishes a formal consultation process for California tribes regarding those resources. The consultation process must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to “begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project.” Native American tribes to be included in the process are those that have requested notice of projects proposed within the jurisdiction of the lead agency.

- a. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074 that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?*
- b. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074 that is 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?*

Tribal cultural resources are defined in Public Resources Code 21074 as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either:

- Included or determined to be eligible for inclusion in the California Register of Historical Resources
- Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1

As part of the process of identifying tribal cultural resources in or near the project site, the City sent letters inviting tribes to consult with the City on August 21, 2018. The City requested a response within 30 days of receipt as specified by AB 52. The City received a request for consultation from the Gabrieleño Band of Mission Indians on August 30, 2018. Consultation was held on November 1, 2018.

As discussed in Section 5, *Cultural Resources*, the project site is currently vacant and disturbed. There is no evidence that archaeological resources are present onsite or on the rezoned properties. No new development is proposed on the rezoned properties. Although it is not anticipated that intact tribal cultural resources are present in the project site there is the potential for the recovery of buried cultural materials during project construction activities associated with the proposed townhomes. Mitigation measures CR-1 and CR-2 and GEO-1 would address the potentially significant impacts relating to the unanticipated discovery of archeological or paleontological resources and human remains during project development.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

19 Utilities and Service Systems

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Would the project:

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a. *Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?*

Water

The Long Beach Water Department (LBWD) primarily relies upon groundwater extracted locally from the Central Basin to meet customer water demands. Additionally, LBWD purchases imported water from Metropolitan Water District (MWD) to make up the difference between demand and groundwater supplies. LBWD also provides recycled water to an increasing number of customers to

replace the use of potable water (LBWD 2015). The City of Long Beach's 2015 Urban Water Management Plan (UWMP) reports total citywide water demand for 2015 at 55,206 acre feet. This is projected to increase by 3,900 acre feet (or 7.1 percent) to 59,106 acre feet in 2040. According to the Long Beach UWMP, the City expects to meet project demand needs for the next 25 years (LBWD 2015). The proposed project would demand an estimated 0.74 million gallons (2.3 acre-feet [AFY]) of water per year according to CalEEMod estimates (See Appendix A). Project water demand would represent approximately 0.05 percent of the projected increase in water demand of 3,900 AFY for 2040.

The project would also include the rezoning of the two properties to the east of the project site from CCA (Community Commercial Automobile-Oriented) to R-3-T (Townhomes). The two parcels are currently occupied by single-family residences. Under the R-3-T zoning designation the maximum density allowed on each of the rezoned parcels would also be one residential unit per lot. No new development or changes to the existing buildings are proposed on the rezoned properties. As such, no change with respect to water demand would occur of these parcels. Therefore, the proposed project's projected water demand is within forecasted water supply and would not require the construction of new water supply facilities, or expansion of existing facilities. Impacts would be less than significant.

Wastewater

A majority of the City's wastewater is delivered to the Joint Water Pollution Control Plant (JWPCP) of the Los Angeles County Sanitation Districts (LACSD). The remaining portion is delivered to the Long Beach Water Reclamation Plant (LBWRP) of the LACSD. The JWPCP provides advanced primary and partial secondary treatment for 260 million gallons of wastewater per day (MGD), with a permitted capacity for 400 MGD of wastewater (LACSD 2018a), resulting in an available capacity of 140 MGD. The LBWRP provides primary, secondary, and tertiary treatment for 25 MGD of wastewater (LACSD 2018b).

The proposed project would create demand for an estimated 0.74 million gallons of water per year according to CalEEMod estimates (see Appendix A). Assuming that 100 percent of this water use would be treated as wastewater, 0.74 million gallons per year (2,027 gallons per day or 0.002 MGD) represents less than 0.01 percent of the remaining daily capacity of 140 MGD of wastewater at the JWPCP. Additionally, no new development or changes to the existing buildings are proposed on the adjacent Lots 1 and 2. As such, no change with respect to wastewater generation would occur of these parcels. The proposed project would not require the construction of new treatment facilities because the JWPCP would have adequate capacity to treat the wastewater produced by the proposed project. Impacts would be less than significant.

Stormwater Drainage As discussed in Section 10, *Hydrology and Water Quality*, the proposed project would comply with current NPDES and Los Angeles County MS4 permit regulations pertaining to the retention of erosion and detention of site runoff into storm drains and receiving waters and include storm water Low Impact Development (LID) Best Management Practices (BMPs). Additionally, the Chapter 18.74 of the LBMC regulates the implementation of the LIDs and BMPs for projects in the City. Compliance with these requirements would reduce potential impacts to local stormwater drainage facilities to a less than significant level.

Electric Power, Natural Gas, Telecommunications

The project site, and adjacent Lots 1 and 2, are located in the existing developed area of the City of Long Beach, which has existing infrastructure for electric power, natural gas, and

telecommunications services. The proposed project would be infill development consistent with long-range plans for the area (see Section 11, *Land Use and Planning*). The proposed project would not cause substantial unplanned population growth (see Section 14, *Population and Housing*), and would not result in wasteful or inefficient use of energy (see Section 6, *Energy*), nor would the project require or result in the construction of new electric power, natural gas, or telecommunication facilities or expansion of existing facilities. Additionally, no new development or changes to the existing buildings are proposed on adjacent Lots 1 and 2. As such, although the proposed project would create an incremental increase in demands on these facilities, this impact would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

As shown in Table 23, LBWD projects that water supplies will be sufficient to meet all demands through the year 2040 during normal, single dry year, and multiple dry year hydrologic conditions.

Although historical precedent has consistently proven that water demands decrease in dry years due to voluntary and mandatory water use restrictions and a general increase in public awareness of the need for water conservation, the 2015 UWMP takes a conservative approach to planning by assuming that water demand will remain steady rather than decrease during dry years. LBWD supplies are projected to significantly exceed demands through 2040 even in future dry years if customers do not reduce their demand as they have done in recent droughts (LBWD 2015).

The proposed project would demand an estimated 0.74 million gallons (2.3 acre-feet [AFY]) of water per year according to CalEEMod estimations (See Appendix A). The proposed project would represent approximately 0.02 percent of the 15,154 AF surplus of water supply during normal, single and multiple dry year conditions for year 2040.

The project would also include the rezoning of the two properties to the east of the project site from CCA (Community Commercial Automobile-Oriented) to R-3-T (Townhomes). The two parcels are currently occupied by single-family residences. Under the R-3-T zoning designation the maximum density allowed on each of the rezone parcels would also be one residential unit per lot. No new development or changes to the existing buildings are proposed on the rezoned properties. As such, no change with respect to water demand would occur of these parcels. Because sufficient water is available to serve the project during normal, single and multiple dry year conditions, new sources of water would be not required to meet project water needs. The impact would be less than significant.

Table 23 Water Supply and Demand in Single and Multiple Dry Years (AF)

Year-Type	2020	2025	2030	2035	2040
Normal Year					
Total Supplies	77,291	77,791	78,291	78,791	79,291
Total Demands	63,643	63,410	63,454	63,609	64,137
Surplus	13,648	14,381	14,836	15,182	15,154
Single Dry Year					
Total Supplies	77,291	77,791	78,291	78,791	79,291
Total Demands	63,643	63,410	63,454	63,609	64,137
Surplus	13,648	14,381	14,836	15,182	15,154
Multiple Dry Year 1st, 2nd, and 3rd Year Supply					
Total Supplies	77,291	77,791	78,291	78,791	79,291
Total Demands	63,643	63,410	63,454	63,609	64,137
Surplus	13,648	14,381	14,836	15,182	15,154

Units in acre-feet (AF)
 Source: LBWD 2015

LESS THAN SIGNIFICANT IMPACT

- c. *Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments?*

As discussed above, the proposed project would create demand for an estimated 0.74 million gallons of water per year according to CalEEMod estimations (see Appendix A). Assuming that 100 percent of this water use would be treated as wastewater, 0.74 million gallons per year (2,027 gallons per day or 0.002 MGD) represents less than 0.01 percent of the remaining daily capacity of 140 MGD of wastewater at the JWPCP. As discussed above under Checklist Item a., no new development or changes to the existing buildings are proposed on the rezoned properties; therefore, no change with respect to waste water generation would occur on these properties. The proposed project would not require the construction of new treatment facilities as the JWPCP would have adequate capacity to treat the wastewater produced by the proposed project. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

- d. *Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?*
- e. *Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?*

The Long Beach Environmental Services Bureau and private permitted waste haulers provide solid waste service for the City. Waste generated from the Project Site would be disposed at various facilities based on the contract made between a permitted waste hauler and the building occupant. One such facility is the Republic Services Bel Art Transfer station located approximately three miles north of the project site. Additionally, as reported in the County of Los Angeles 2016 Countywide Integrated Waste Management Plan, 47 percent of the waste received at the Southeast Resource Recovery Facility is generated by the City of Long Beach (County of Los Angeles Department of Public Works [DPW] 2017). Materials leaving transfer stations could be transported to a variety of destinations. Savage Canyon (Class III) Landfill is the nearest to the project site, although this would not necessarily be the landfill accepting materials generated by the project site, as that would be determined in part by a contract with a waste hauler. The Savage Canyon landfill is located approximately 19 miles north east of the project site. The landfill has a 350 ton per day maximum permitted throughput capacity and receives approximately 293 tons per day. Additionally, the landfill has a remaining capacity of 4.89 million tons and an estimated remaining life of 39 years (DPW 2017).

According to CalEEMod (see Appendix A), the proposed project would generate about 4.97 tons of solid waste per year (0.01 tons per day). The 0.01 tons of solid waste generated by the project would be approximately 0.02 percent of the available daily capacity of 57 tons at the Savage Canyon landfill. Additionally, the project would include the rezoning of the two properties to the east of the project site from CCA (Community Commercial Automobile-Oriented) to R-3-T (Townhomes). The two parcels are currently occupied by single-family residences. Under the R-3-T zoning designation the maximum density allowed on each of the rezone parcels would also be one residential unit per lot. No new development or changes to the existing buildings are proposed on the rezoned properties and as such, no change with respect to waste generation would occur of these parcels. The proposed project would comply with federal, State, and local statutes and regulations related to solid waste and recycling, such as AB 939 and SB 1383, through participation in existing City waste diversion programs. As there is adequate remaining daily landfill capacity in the region to accommodate project-generated waste, impacts related to solid waste and waste facilities would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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20 Wildfire

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a. *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?*

The project site and adjacent Lots 1 and 2 are located in an urban area of the City of Long Beach. Undeveloped wildland areas are not located in proximity to the project site. According to CalFire the project site is not located in a “Fire Hazard Severity Zone” or “Very High Hazard Severity Zone” for wildland fires (CalFire 2007). Therefore, the project site is not located near a state responsibility area or classified as having a high fire hazard.

As discussed in Section 15, *Public Services*, the Lbfd provides fire prevention, fire protection, and emergency response for the project site and the surrounding Long Beach area. According to the City’s General Plan Public Safety Element, the Department of Emergency Preparedness has prepared and adopted citywide emergency procedures (City of Long Beach 1975c). In order to comply with these procedures, all development including the proposed project, in the City of Long Beach would consider existing emergency routes, response procedures and action plans. Construction of the

proposed project would maintain emergency access to the site and on area roadways and would not interfere with an emergency response plan or evacuation route as described in the Public Safety Element of the City's General Plan. No new development or construction are proposed on the adjacent Lots 1 and 2. No impact would occur.

NO IMPACT

- b. *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?*
- d. *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?*

Long Beach is located directly east of the Palos Verdes Peninsula, and has a mostly south facing coastline along the Pacific Ocean. The city is largely characterized by flat topography, with the Palos Verdes hills to the west that generally block strong west to east wind patterns. Prevailing winds in the city and at the project site are influenced mainly by hilly terrain to the west and the coastline to the south, resulting in wind mostly from the west from February through November and from the north from November through January. The project site, adjacent Lots 1 and 2, and the surrounding area are not at risk to high windspeeds or slopes that may exacerbate wildfire risk.

There are no streams or rivers located on or adjacent to the project site, and the project site and surrounding areas are not at high risk of downslope or downstream flooding or landslides. The project site and adjacent Lots 1 and 2 are located in an urbanized area and is not located in a high fire hazard severity zone (CalFire 2007). Therefore, wildfire risks would not be exacerbated and risks to people or structures due to runoff, post-fire slope instability, or drainage changes would not occur. Residents and visitors of the project site and adjacent Lots 1 and 2 would not be exposed to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. No impact would occur.

NO IMPACT

- c. *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?*

The project site and adjacent Lots 1 and 2 are located in an urbanized area and are not located in or near a state responsibility area or land classified as a very high fire hazard severity zone (CalFire 2007). The project includes the development of 16 townhomes and would not require the installation or maintenance of associated infrastructure that may exacerbate fire risk. Additionally, no new development or changes to the existing buildings are proposed on the adjacent Lots 1 and 2. project site would be adequately served by existing facilities and utilities. Therefore, the proposed project would not require additional roads, fuel breaks, emergency water sources, power lines or other utilities that would exacerbate fire risk and no temporary or ongoing impacts to the environment would occur.

NO IMPACT

21 Mandatory Findings of Significance

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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Does the project:

a. Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a. *Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?*

As discussed in Section 4, *Biological Resources*, the project site and adjacent Lots 1 and 2 are not included in any mapped essential habitat connectivity areas in the immediate vicinity. In addition, regional wildlife movement is restricted given the built-out nature of the project area surroundings, and no native resident or migratory fish or wildlife species, established native resident or migratory wildlife corridors, or native wildlife nursery sites exist on the project site. However, the project site currently has existing vegetation that would be removed for project construction, which may contain nesting or breeding birds. Therefore, implementation of Mitigation Measure BIO-1 would

require nesting bird surveys to be completed prior to construction activities and, therefore, would reduce potential impacts to a less than significant level.

Furthermore, as discussed in Section 5, *Cultural Resources*, Section 7, *Geology and Soils*, and Section 18, *Tribal Cultural Resources*, the proposed project would have a less than significant impact on unanticipated cultural resources, paleontological resources, and tribal cultural resources with implementation of mitigation measures CR-1, CR-2 and GEO-1, which would require adherence to existing local, State and federal regulations and specific monitoring procedures related to the discovery of any unanticipated cultural resources, paleontological resources, tribal cultural resources, and human remains during construction activity.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

- 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)?*

As concluded in Sections 1 through 20, the project would have no impact, a less than significant impact, or a less than significant impact with mitigation incorporated with respect to all environmental issues considered in this document. Within a 1.5-mile radius of site, there are eight planned and pending projects as shown in Table 24

Table 24 Cumulative Projects List

Project No.	Project Location ¹	Land Use	Description ²
1	5100 Long Beach Blvd.	Multi-Family Residential	38 three-story townhomes
2	5721 Lime Ave.	Multi-Family Residential	14 new residential units with 1 very low-income unit
3	4700 Cherry Ave.	Commercial	5,300 sf commercial building
4	3849 Atlantic Ave.	Commercial	5,000 sf retail building
5	4251 Long Beach Blvd.	Commercial	8,559 sf commercial shell building
6	4747 Daisy Ave.	Multi-Family Residential	131 single-family residential units
7	3701 Pacific Place	Industrial	147,917 sf, 3-story self-storage facility and onsite, at grade RV parking storage
8	4000 Via Oro Ave.	Industrial	517,037 sf distribution center/warehouse

^{1,2}Cumulative project details were sourced from the City of Long Beach in March 2020

sf = square feet

The planned projects closest to the project site are the multifamily residential project at 5100 Long Beach Boulevard, approximately 0.31 miles north of the site, and the single-family residential subdivision located at 4747 Daisy Avenue approximately a half mile to the southwest of the project site. Cumulative impacts of several resource areas have been addressed in the individual resource sections, including Air Quality, Greenhouse Gases, and Noise. As discussed in Sections 1, *Air Quality*, the proposed project would result in less than significant impacts with respect to air quality emissions with incorporation of mitigation measures. As discussed in Sections 8, *Greenhouse Gas Emissions*, the proposed project would result in less than significant impacts with respect to greenhouse gas emissions. Therefore, the project would not contribute to cumulative impacts

related to these issues. The noise and traffic analyses (see Sections 13 and 17, respectively) both consider increases in transportation noise under Existing plus Project conditions. As discussed in Section 13, *Noise*, the proposed project would result in less than significant impacts with incorporation of mitigation measures. Section 17, *Transportation*, concluded that impacts would be less than significant. Some of the other resource areas (agricultural and mineral) were determined to have no impact in comparison to existing conditions. As such, the project would not contribute to cumulative impacts related to these issues. Other issues (e.g., geology, hazards, and hazardous materials) are by their nature project specific and impacts at one location do not add to impacts at other locations or create additive impacts. As such, cumulative impacts would be less than significant (not cumulatively considerable).

LESS THAN SIGNIFICANT IMPACT

- c. *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

In general, impacts to human beings are associated with air quality, hazards and hazardous materials, and noise impacts. As detailed in analyses for air quality, hazards and hazardous materials, and noise, the proposed project would not result, either directly or indirectly, in adverse hazards related to air quality, hazardous materials or noise. Compliance with applicable rules, regulations, and recommended mitigation measures would reduce potential impacts on human beings to a less than significant level.

LESS THAN SIGNIFICANT IMPACT

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List of Preparers

Rincon Consultants, Inc. prepared this IS-MND under contract to the City of Long Beach. Persons involved in data gathering analysis, project management, and quality control are listed below.

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Appendix A

Air Quality/Greenhouse Gas Emissions Modeling Results

4800 Long Beach Blvd - South Coast Air Basin, Annual

4800 Long Beach Blvd
South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	18.00	Dwelling Unit	1.10	28,422.00	51

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	31
Climate Zone	9			Operational Year	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	353.87	CH4 Intensity (lb/MW hr)	0.015	N2O Intensity (lb/MW hr)	0.003

1.3 User Entered Comments & Non-Default Data

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Project Characteristics - Adjusted for 2030 RPS

Land Use - taken from project plan

Construction Phase - Per client provided info

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Per client information

Off-road Equipment - per client provided info

Off-road Equipment - Per client information

Grading - per lot size and client info

Architectural Coating - architectural and area code compliance with Rule 1113

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - No fireplaces per client info

Area Coating - compliance w rule 1113

Energy Use - 7% reduction per 2019 building code; net zero energy emissions

Water And Wastewater - City served by sanitary sewer only. 20% reduction per 2016 CALGreen

Solid Waste - Updated to reflect City diversion rate of 70%

Construction Off-road Equipment Mitigation - compliance w rule 403- watering twice a day

Mobile Land Use Mitigation -

Area Mitigation - zero VOC paints for interiors

Energy Mitigation - Per GPR Scorecard

Water Mitigation - Low flow appliances

Waste Mitigation -

Fleet Mix -

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Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	10.00	228.00
tblConstructionPhase	NumDays	200.00	314.00
tblConstructionPhase	NumDays	4.00	27.00
tblConstructionPhase	NumDays	10.00	221.00
tblConstructionPhase	NumDays	2.00	13.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblEnergyUse	NT24NG	6,384.00	0.00
tblEnergyUse	T24E	243.83	226.76
tblEnergyUse	T24NG	10,792.56	0.00
tblFireplaces	NumberGas	15.30	0.00
tblFireplaces	NumberNoFireplace	1.80	18.00
tblFireplaces	NumberWood	0.90	0.00
tblGrading	AcresOfGrading	37.13	1.10
tblGrading	AcresOfGrading	13.00	1.10
tblGrading	MaterialImported	0.00	1,000.00
tblLandUse	LandUseSquareFeet	18,000.00	28,422.00
tblLandUse	LotAcreage	1.13	1.10
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.015
tblProjectCharacteristics	CO2IntensityFactor	702.44	353.87
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblSolidWaste	SolidWasteGenerationRate	8.28	4.97

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tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	1,172,772.46	938,217.97
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	0.90	0.00
tblWoodstoves	NumberNoncatalytic	0.90	0.00

2.0 Emissions Summary

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	7-1-2020	9-30-2020	0.7421	0.7421
2	10-1-2020	12-31-2020	0.9480	0.9480
3	1-1-2021	3-31-2021	0.9949	0.9949
4	4-1-2021	6-30-2021	0.9986	0.9986
5	7-1-2021	9-30-2021	0.7208	0.7208
		Highest	0.9986	0.9986

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	0.1172	2.1400e-003	0.1858	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3105
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	14.5122	14.5122	6.2000e-004	1.2000e-004	14.5643
Mobile	0.0197	0.1079	0.2650	1.2700e-003	0.1320	7.8000e-004	0.1328	0.0354	7.2000e-004	0.0361	0.0000	118.1384	118.1384	4.7000e-003	0.0000	118.2560
Waste						0.0000	0.0000		0.0000	0.0000	1.0089	0.0000	1.0089	0.0596	0.0000	2.4994
Water						0.0000	0.0000		0.0000	0.0000	0.3319	3.2794	3.6113	1.2800e-003	7.5000e-004	3.8668
Total	0.1369	0.1101	0.4509	1.2800e-003	0.1320	1.8100e-003	0.1338	0.0354	1.7500e-003	0.0371	1.3408	136.2333	137.5741	0.0665	8.7000e-004	139.4970

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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	0.1172	2.1400e-003	0.1858	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3105
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0197	0.1079	0.2650	1.2700e-003	0.1320	7.8000e-004	0.1328	0.0354	7.2000e-004	0.0361	0.0000	118.1384	118.1384	4.7000e-003	0.0000	118.2560
Waste						0.0000	0.0000		0.0000	0.0000	1.0089	0.0000	1.0089	0.0596	0.0000	2.4994
Water						0.0000	0.0000		0.0000	0.0000	0.2656	2.8872	3.1528	1.0400e-003	6.0000e-004	3.3581
Total	0.1369	0.1101	0.4509	1.2800e-003	0.1320	1.8100e-003	0.1338	0.0354	1.7500e-003	0.0371	1.2744	121.3289	122.6033	0.0657	6.0000e-004	124.4240

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.95	10.94	10.88	1.29	31.03	10.81

3.0 Construction Detail

Construction Phase

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/1/2020	7/15/2020	6	13	
2	Grading	Grading	7/16/2020	8/16/2020	6	27	
3	Paving	Paving	10/1/2020	6/15/2021	6	221	
4	Building Construction	Building Construction	10/15/2020	10/15/2021	6	314	
5	Architectural Coating	Architectural Coating	2/15/2021	11/6/2021	6	228	

Acres of Grading (Site Preparation Phase): 1.1

Acres of Grading (Grading Phase): 1.1

Acres of Paving: 0

Residential Indoor: 57,555; Residential Outdoor: 19,185; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Rubber Tired Loaders	1	8.00	203	0.36
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Air Compressors	1	8.00	78	0.48
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Rubber Tired Loaders	1	8.00	203	0.36
Grading	Scrapers	1	8.00	367	0.48
Grading	Skid Steer Loaders	1	8.00	65	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Surfacing Equipment	1	8.00	263	0.30
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

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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
Site Preparation	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	125.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	13.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0348	0.0000	0.0348	0.0189	0.0000	0.0189	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0169	0.1901	0.1065	2.2000e-004	8.2500e-003	8.2500e-003	8.2500e-003	7.5900e-003	7.5900e-003	7.5900e-003	0.0000	19.4416	19.4416	6.2900e-003	0.0000	19.5988
Total	0.0169	0.1901	0.1065	2.2000e-004	0.0348	8.2500e-003	0.0431	0.0189	7.5900e-003	0.0265	0.0000	19.4416	19.4416	6.2900e-003	0.0000	19.5988

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3.2 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	2.9000e-004	3.2100e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.8354	0.8354	2.0000e-005	0.0000	0.8360
Total	3.8000e-004	2.9000e-004	3.2100e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.8354	0.8354	2.0000e-005	0.0000	0.8360

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0157	0.0000	0.0157	8.5000e-003	0.0000	8.5000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0169	0.1901	0.1065	2.2000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	19.4416	19.4416	6.2900e-003	0.0000	19.5988
Total	0.0169	0.1901	0.1065	2.2000e-004	0.0157	8.2500e-003	0.0239	8.5000e-003	7.5900e-003	0.0161	0.0000	19.4416	19.4416	6.2900e-003	0.0000	19.5988

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3.2 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	2.9000e-004	3.2100e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.8354	0.8354	2.0000e-005	0.0000	0.8360
Total	3.8000e-004	2.9000e-004	3.2100e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.8354	0.8354	2.0000e-005	0.0000	0.8360

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0616	0.0000	0.0616	0.0336	0.0000	0.0336	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0421	0.4665	0.2616	5.6000e-004		0.0200	0.0200		0.0186	0.0186	0.0000	49.1512	49.1512	0.0148	0.0000	49.5203
Total	0.0421	0.4665	0.2616	5.6000e-004	0.0616	0.0200	0.0816	0.0336	0.0186	0.0522	0.0000	49.1512	49.1512	0.0148	0.0000	49.5203

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3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-004	0.0180	3.7300e-003	5.0000e-005	1.0700e-003	6.0000e-005	1.1300e-003	2.9000e-004	5.0000e-005	3.5000e-004	0.0000	4.7421	4.7421	3.4000e-004	0.0000	4.7507
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	1.0800e-003	8.3000e-004	9.2200e-003	3.0000e-005	2.6700e-003	2.0000e-005	2.6900e-003	7.1000e-004	2.0000e-005	7.3000e-004	0.0000	2.4024	2.4024	7.0000e-005	0.0000	2.4041
Total	1.5800e-003	0.0188	0.0130	8.0000e-005	3.7400e-003	8.0000e-005	3.8200e-003	1.0000e-003	7.0000e-005	1.0800e-003	0.0000	7.1444	7.1444	4.1000e-004	0.0000	7.1548

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0277	0.0000	0.0277	0.0151	0.0000	0.0151	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0421	0.4665	0.2616	5.6000e-004		0.0200	0.0200		0.0186	0.0186	0.0000	49.1511	49.1511	0.0148	0.0000	49.5203
Total	0.0421	0.4665	0.2616	5.6000e-004	0.0277	0.0200	0.0478	0.0151	0.0186	0.0337	0.0000	49.1511	49.1511	0.0148	0.0000	49.5203

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3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-004	0.0180	3.7300e-003	5.0000e-005	1.0700e-003	6.0000e-005	1.1300e-003	2.9000e-004	5.0000e-005	3.5000e-004	0.0000	4.7421	4.7421	3.4000e-004	0.0000	4.7507
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	1.0800e-003	8.3000e-004	9.2200e-003	3.0000e-005	2.6700e-003	2.0000e-005	2.6900e-003	7.1000e-004	2.0000e-005	7.3000e-004	0.0000	2.4024	2.4024	7.0000e-005	0.0000	2.4041
Total	1.5800e-003	0.0188	0.0130	8.0000e-005	3.7400e-003	8.0000e-005	3.8200e-003	1.0000e-003	7.0000e-005	1.0800e-003	0.0000	7.1444	7.1444	4.1000e-004	0.0000	7.1548

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0317	0.3407	0.3226	6.4000e-004		0.0178	0.0178		0.0163	0.0163	0.0000	56.3992	56.3992	0.0182	0.0000	56.8552
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0317	0.3407	0.3226	6.4000e-004		0.0178	0.0178		0.0163	0.0163	0.0000	56.3992	56.3992	0.0182	0.0000	56.8552

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3.4 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	1.7600e-003	1.3500e-003	0.0150	4.0000e-005	4.3300e-003	3.0000e-005	4.3700e-003	1.1500e-003	3.0000e-005	1.1800e-003	0.0000	3.9051	3.9051	1.1000e-004	0.0000	3.9079
Total	1.7600e-003	1.3500e-003	0.0150	4.0000e-005	4.3300e-003	3.0000e-005	4.3700e-003	1.1500e-003	3.0000e-005	1.1800e-003	0.0000	3.9051	3.9051	1.1000e-004	0.0000	3.9079

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	0.0317	0.3407	0.3226	6.4000e-004		0.0178	0.0178		0.0163	0.0163	0.0000	56.3991	56.3991	0.0182	0.0000	56.8551
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0317	0.3407	0.3226	6.4000e-004		0.0178	0.0178		0.0163	0.0163	0.0000	56.3991	56.3991	0.0182	0.0000	56.8551

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3.4 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	1.7600e-003	1.3500e-003	0.0150	4.0000e-005	4.3300e-003	3.0000e-005	4.3700e-003	1.1500e-003	3.0000e-005	1.1800e-003	0.0000	3.9051	3.9051	1.1000e-004	0.0000	3.9079
Total	1.7600e-003	1.3500e-003	0.0150	4.0000e-005	4.3300e-003	3.0000e-005	4.3700e-003	1.1500e-003	3.0000e-005	1.1800e-003	0.0000	3.9051	3.9051	1.1000e-004	0.0000	3.9079

3.4 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0526	0.5651	0.5765	1.1500e-003		0.0283	0.0283		0.0261	0.0261	0.0000	101.3911	101.3911	0.0328	0.0000	102.2109
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0526	0.5651	0.5765	1.1500e-003		0.0283	0.0283		0.0261	0.0261	0.0000	101.3911	101.3911	0.0328	0.0000	102.2109

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3.4 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	2.9500e-003	2.1900e-003	0.0248	8.0000e-005	7.7900e-003	6.0000e-005	7.8500e-003	2.0700e-003	5.0000e-005	2.1200e-003	0.0000	6.7922	6.7922	1.8000e-004	0.0000	6.7968
Total	2.9500e-003	2.1900e-003	0.0248	8.0000e-005	7.7900e-003	6.0000e-005	7.8500e-003	2.0700e-003	5.0000e-005	2.1200e-003	0.0000	6.7922	6.7922	1.8000e-004	0.0000	6.7968

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	0.0526	0.5651	0.5765	1.1500e-003		0.0283	0.0283		0.0261	0.0261	0.0000	101.3910	101.3910	0.0328	0.0000	102.2108
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0526	0.5651	0.5765	1.1500e-003		0.0283	0.0283		0.0261	0.0261	0.0000	101.3910	101.3910	0.0328	0.0000	102.2108

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3.4 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	2.9500e-003	2.1900e-003	0.0248	8.0000e-005	7.7900e-003	6.0000e-005	7.8500e-003	2.0700e-003	5.0000e-005	2.1200e-003	0.0000	6.7922	6.7922	1.8000e-004	0.0000	6.7968
Total	2.9500e-003	2.1900e-003	0.0248	8.0000e-005	7.7900e-003	6.0000e-005	7.8500e-003	2.0700e-003	5.0000e-005	2.1200e-003	0.0000	6.7922	6.7922	1.8000e-004	0.0000	6.7968

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	0.0680	0.4954	0.4418	7.4000e-004		0.0267	0.0267		0.0258	0.0258	0.0000	60.8166	60.8166	0.0113	0.0000	61.0989
Total	0.0680	0.4954	0.4418	7.4000e-004		0.0267	0.0267		0.0258	0.0258	0.0000	60.8166	60.8166	0.0113	0.0000	61.0989

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3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-004	7.1800e-003	1.8100e-003	2.0000e-005	4.2000e-004	4.0000e-005	4.6000e-004	1.2000e-004	3.0000e-005	1.6000e-004	0.0000	1.6391	1.6391	1.1000e-004	0.0000	1.6419
Worker	1.9400e-003	1.4900e-003	0.0165	5.0000e-005	4.7800e-003	4.0000e-005	4.8200e-003	1.2700e-003	3.0000e-005	1.3000e-003	0.0000	4.3055	4.3055	1.2000e-004	0.0000	4.3086
Total	2.1700e-003	8.6700e-003	0.0183	7.0000e-005	5.2000e-003	8.0000e-005	5.2800e-003	1.3900e-003	6.0000e-005	1.4600e-003	0.0000	5.9446	5.9446	2.3000e-004	0.0000	5.9505

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	0.0680	0.4954	0.4418	7.4000e-004		0.0267	0.0267		0.0258	0.0258	0.0000	60.8165	60.8165	0.0113	0.0000	61.0988
Total	0.0680	0.4954	0.4418	7.4000e-004		0.0267	0.0267		0.0258	0.0258	0.0000	60.8165	60.8165	0.0113	0.0000	61.0988

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3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-004	7.1800e-003	1.8100e-003	2.0000e-005	4.2000e-004	4.0000e-005	4.6000e-004	1.2000e-004	3.0000e-005	1.6000e-004	0.0000	1.6391	1.6391	1.1000e-004	0.0000	1.6419
Worker	1.9400e-003	1.4900e-003	0.0165	5.0000e-005	4.7800e-003	4.0000e-005	4.8200e-003	1.2700e-003	3.0000e-005	1.3000e-003	0.0000	4.3055	4.3055	1.2000e-004	0.0000	4.3086
Total	2.1700e-003	8.6700e-003	0.0183	7.0000e-005	5.2000e-003	8.0000e-005	5.2800e-003	1.3900e-003	6.0000e-005	1.4600e-003	0.0000	5.9446	5.9446	2.3000e-004	0.0000	5.9505

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2238	1.6841	1.5931	2.7200e-003		0.0845	0.0845		0.0816	0.0816	0.0000	224.2113	224.2113	0.0400	0.0000	225.2120
Total	0.2238	1.6841	1.5931	2.7200e-003		0.0845	0.0845		0.0816	0.0816	0.0000	224.2113	224.2113	0.0400	0.0000	225.2120

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3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.1000e-004	0.0240	6.0700e-003	6.0000e-005	1.5600e-003	5.0000e-005	1.6100e-003	4.5000e-004	5.0000e-005	5.0000e-004	0.0000	5.9973	5.9973	3.9000e-004	0.0000	6.0070
Worker	6.6700e-003	4.9500e-003	0.0560	1.7000e-004	0.0176	1.3000e-004	0.0178	4.6800e-003	1.2000e-004	4.8000e-003	0.0000	15.3591	15.3591	4.1000e-004	0.0000	15.3694
Total	7.3800e-003	0.0290	0.0621	2.3000e-004	0.0192	1.8000e-004	0.0194	5.1300e-003	1.7000e-004	5.3000e-003	0.0000	21.3564	21.3564	8.0000e-004	0.0000	21.3764

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	0.2238	1.6841	1.5931	2.7200e-003		0.0845	0.0845		0.0816	0.0816	0.0000	224.2111	224.2111	0.0400	0.0000	225.2117
Total	0.2238	1.6841	1.5931	2.7200e-003		0.0845	0.0845		0.0816	0.0816	0.0000	224.2111	224.2111	0.0400	0.0000	225.2117

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3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.1000e-004	0.0240	6.0700e-003	6.0000e-005	1.5600e-003	5.0000e-005	1.6100e-003	4.5000e-004	5.0000e-005	5.0000e-004	0.0000	5.9973	5.9973	3.9000e-004	0.0000	6.0070
Worker	6.6700e-003	4.9500e-003	0.0560	1.7000e-004	0.0176	1.3000e-004	0.0178	4.6800e-003	1.2000e-004	4.8000e-003	0.0000	15.3591	15.3591	4.1000e-004	0.0000	15.3694
Total	7.3800e-003	0.0290	0.0621	2.3000e-004	0.0192	1.8000e-004	0.0194	5.1300e-003	1.7000e-004	5.3000e-003	0.0000	21.3564	21.3564	8.0000e-004	0.0000	21.3764

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0889					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0250	0.1741	0.2072	3.4000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	29.1071	29.1071	2.0000e-003	0.0000	29.1570
Total	0.1139	0.1741	0.2072	3.4000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	29.1071	29.1071	2.0000e-003	0.0000	29.1570

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3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4200e-003	1.0500e-003	0.0119	4.0000e-005	3.7500e-003	3.0000e-005	3.7800e-003	1.0000e-003	3.0000e-005	1.0200e-003	0.0000	3.2718	3.2718	9.0000e-005	0.0000	3.2740
Total	1.4200e-003	1.0500e-003	0.0119	4.0000e-005	3.7500e-003	3.0000e-005	3.7800e-003	1.0000e-003	3.0000e-005	1.0200e-003	0.0000	3.2718	3.2718	9.0000e-005	0.0000	3.2740

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	0.0889					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0250	0.1741	0.2072	3.4000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	29.1071	29.1071	2.0000e-003	0.0000	29.1570
Total	0.1139	0.1741	0.2072	3.4000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	29.1071	29.1071	2.0000e-003	0.0000	29.1570

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3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4200e-003	1.0500e-003	0.0119	4.0000e-005	3.7500e-003	3.0000e-005	3.7800e-003	1.0000e-003	3.0000e-005	1.0200e-003	0.0000	3.2718	3.2718	9.0000e-005	0.0000	3.2740
Total	1.4200e-003	1.0500e-003	0.0119	4.0000e-005	3.7500e-003	3.0000e-005	3.7800e-003	1.0000e-003	3.0000e-005	1.0200e-003	0.0000	3.2718	3.2718	9.0000e-005	0.0000	3.2740

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	ROG	NOx	CO	SO2	Fugitive 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	0.0197	0.1079	0.2650	1.2700e-003	0.1320	7.8000e-004	0.1328	0.0354	7.2000e-004	0.0361	0.0000	118.1384	118.1384	4.7000e-003	0.0000	118.2560
Unmitigated	0.0197	0.1079	0.2650	1.2700e-003	0.1320	7.8000e-004	0.1328	0.0354	7.2000e-004	0.0361	0.0000	118.1384	118.1384	4.7000e-003	0.0000	118.2560

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	104.58	102.06	87.12	347,612	347,612
Total	104.58	102.06	87.12	347,612	347,612

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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	0.554588	0.041680	0.206638	0.111313	0.012826	0.005773	0.022313	0.034878	0.002168	0.001490	0.004854	0.000717	0.000760

5.0 Energy Detail

Historical Energy Use: N

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5.1 Mitigation Measures Energy

Exceed Title 24

Percent of Electricity Use Generated with Renewable 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	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	14.5122	14.5122	6.2000e-004	1.2000e-004	14.5643
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	90411.7	14.5122	6.2000e-004	1.2000e-004	14.5643
Total		14.5122	6.2000e-004	1.2000e-004	14.5643

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

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- Use Low VOC Paint - Residential Interior
- Use Low VOC Paint - Residential Exterior
- Use Low VOC Paint - Non-Residential Interior
- Use Low VOC Paint - Non-Residential Exterior
- No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1172	2.1400e-003	0.1858	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3105
Unmitigated	0.1172	2.1400e-003	0.1858	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3105

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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	8.8900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1027					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.6100e-003	2.1400e-003	0.1858	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3105
Total	0.1172	2.1400e-003	0.1858	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3105

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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	8.8900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1027					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.6100e-003	2.1400e-003	0.1858	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3105
Total	0.1172	2.1400e-003	0.1858	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3105

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	3.1528	1.0400e-003	6.0000e-004	3.3581
Unmitigated	3.6113	1.2800e-003	7.5000e-004	3.8668

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	0.938218 / 0.739357	3.6113	1.2800e-003	7.5000e-004	3.8668
Total		3.6113	1.2800e-003	7.5000e-004	3.8668

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7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	0.750574 / 0.739357	3.1528	1.0400e-003	6.0000e-004	3.3581
Total		3.1528	1.0400e-003	6.0000e-004	3.3581

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.0089	0.0596	0.0000	2.4994
Unmitigated	1.0089	0.0596	0.0000	2.4994

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	4.97	1.0089	0.0596	0.0000	2.4994
Total		1.0089	0.0596	0.0000	2.4994

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	4.97	1.0089	0.0596	0.0000	2.4994
Total		1.0089	0.0596	0.0000	2.4994

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

4800 Long Beach Blvd - South Coast Air Basin, Summer

4800 Long Beach Blvd
South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	18.00	Dwelling Unit	1.10	28,422.00	51

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	31
Climate Zone	9			Operational Year	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	353.87	CH4 Intensity (lb/MW hr)	0.015	N2O Intensity (lb/MW hr)	0.003

1.3 User Entered Comments & Non-Default Data

4800 Long Beach Blvd - South Coast Air Basin, Summer

Project Characteristics - Adjusted for 2030 RPS

Land Use - taken from project plan

Construction Phase - Per client provided info

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Per client information

Off-road Equipment - per client provided info

Off-road Equipment - Per client information

Grading - per lot size and client info

Architectural Coating - architectural and area code compliance with Rule 1113

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - No fireplaces per client info

Area Coating - compliance w rule 1113

Energy Use - 7% reduction per 2019 building code; net zero energy emissions

Water And Wastewater - City served by sanitary sewer only. 20% reduction per 2016 CALGreen

Solid Waste - Updated to reflect City diversion rate of 70%

Construction Off-road Equipment Mitigation - compliance w rule 403- watering twice a day

Mobile Land Use Mitigation -

Area Mitigation - zero VOC paints for interiors

Energy Mitigation - Per GPR Scorecard

Water Mitigation - Low flow appliances

Waste Mitigation -

Fleet Mix -

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Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	10.00	228.00
tblConstructionPhase	NumDays	200.00	314.00
tblConstructionPhase	NumDays	4.00	27.00
tblConstructionPhase	NumDays	10.00	221.00
tblConstructionPhase	NumDays	2.00	13.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblEnergyUse	NT24NG	6,384.00	0.00
tblEnergyUse	T24E	243.83	226.76
tblEnergyUse	T24NG	10,792.56	0.00
tblFireplaces	NumberGas	15.30	0.00
tblFireplaces	NumberNoFireplace	1.80	18.00
tblFireplaces	NumberWood	0.90	0.00
tblGrading	AcresOfGrading	37.13	1.10
tblGrading	AcresOfGrading	13.00	1.10
tblGrading	MaterialImported	0.00	1,000.00
tblLandUse	LandUseSquareFeet	18,000.00	28,422.00
tblLandUse	LotAcreage	1.13	1.10
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.015
tblProjectCharacteristics	CO2IntensityFactor	702.44	353.87
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblSolidWaste	SolidWasteGenerationRate	8.28	4.97

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tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	1,172,772.46	938,217.97
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	0.90	0.00
tblWoodstoves	NumberNoncatalytic	0.90	0.00

2.0 Emissions Summary

4800 Long Beach Blvd - South Coast Air Basin, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6564	0.0172	1.4866	8.0000e-005		8.2100e-003	8.2100e-003		8.2100e-003	8.2100e-003	0.0000	2.6739	2.6739	2.5800e-003	0.0000	2.7384
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.1192	0.5920	1.5732	7.4500e-003	0.7593	4.4000e-003	0.7637	0.2031	4.0800e-003	0.2071		763.2497	763.2497	0.0294		763.9842
Total	0.7756	0.6092	3.0598	7.5300e-003	0.7593	0.0126	0.7719	0.2031	0.0123	0.2154	0.0000	765.9236	765.9236	0.0320	0.0000	766.7226

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	0.6564	0.0172	1.4866	8.0000e-005		8.2100e-003	8.2100e-003		8.2100e-003	8.2100e-003	0.0000	2.6739	2.6739	2.5800e-003	0.0000	2.7384
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.1192	0.5920	1.5732	7.4500e-003	0.7593	4.4000e-003	0.7637	0.2031	4.0800e-003	0.2071		763.2497	763.2497	0.0294		763.9842
Total	0.7756	0.6092	3.0598	7.5300e-003	0.7593	0.0126	0.7719	0.2031	0.0123	0.2154	0.0000	765.9236	765.9236	0.0320	0.0000	766.7226

4800 Long Beach Blvd - South Coast Air Basin, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
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	Site Preparation	Site Preparation	7/1/2020	7/15/2020	6	13	
2	Grading	Grading	7/16/2020	8/16/2020	6	27	
3	Paving	Paving	10/1/2020	6/15/2021	6	221	
4	Building Construction	Building Construction	10/15/2020	10/15/2021	6	314	
5	Architectural Coating	Architectural Coating	2/15/2021	11/6/2021	6	228	

Acres of Grading (Site Preparation Phase): 1.1

Acres of Grading (Grading Phase): 1.1

Acres of Paving: 0

Residential Indoor: 57,555; Residential Outdoor: 19,185; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

4800 Long Beach Blvd - South Coast Air Basin, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Rubber Tired Loaders	1	8.00	203	0.36
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Air Compressors	1	8.00	78	0.48
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Rubber Tired Loaders	1	8.00	203	0.36
Grading	Scrapers	1	8.00	367	0.48
Grading	Skid Steer Loaders	1	8.00	65	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Surfacing Equipment	1	8.00	263	0.30
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

4800 Long Beach Blvd - South Coast Air Basin, Summer

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	125.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	13.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3591	0.0000	5.3591	2.9061	0.0000	2.9061			0.0000			0.0000
Off-Road	2.6010	29.2449	16.3789	0.0340		1.2695	1.2695		1.1679	1.1679		3,297.0370	3,297.0370	1.0663		3,323.6952
Total	2.6010	29.2449	16.3789	0.0340	5.3591	1.2695	6.6285	2.9061	1.1679	4.0740		3,297.0370	3,297.0370	1.0663		3,323.6952

4800 Long Beach Blvd - South Coast Air Basin, Summer

3.2 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0583	0.0394	0.5299	1.4900e-003	0.1453	1.1100e-003	0.1464	0.0385	1.0200e-003	0.0396		148.6987	148.6987	4.2900e-003		148.8059
Total	0.0583	0.0394	0.5299	1.4900e-003	0.1453	1.1100e-003	0.1464	0.0385	1.0200e-003	0.0396		148.6987	148.6987	4.2900e-003		148.8059

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					2.4116	0.0000	2.4116	1.3078	0.0000	1.3078			0.0000			0.0000
Off-Road	2.6010	29.2449	16.3789	0.0340		1.2695	1.2695		1.1679	1.1679	0.0000	3,297.0370	3,297.0370	1.0663		3,323.6952
Total	2.6010	29.2449	16.3789	0.0340	2.4116	1.2695	3.6810	1.3078	1.1679	2.4757	0.0000	3,297.0370	3,297.0370	1.0663		3,323.6952

4800 Long Beach Blvd - South Coast Air Basin, Summer

3.2 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0583	0.0394	0.5299	1.4900e-003	0.1453	1.1100e-003	0.1464	0.0385	1.0200e-003	0.0396		148.6987	148.6987	4.2900e-003		148.8059
Total	0.0583	0.0394	0.5299	1.4900e-003	0.1453	1.1100e-003	0.1464	0.0385	1.0200e-003	0.0396		148.6987	148.6987	4.2900e-003		148.8059

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.5640	0.0000	4.5640	2.4880	0.0000	2.4880			0.0000			0.0000
Off-Road	3.1196	34.5545	19.3803	0.0415		1.4830	1.4830		1.3762	1.3762		4,013.3262	4,013.3262	1.2057		4,043.4681
Total	3.1196	34.5545	19.3803	0.0415	4.5640	1.4830	6.0470	2.4880	1.3762	3.8642		4,013.3262	4,013.3262	1.2057		4,043.4681

4800 Long Beach Blvd - South Coast Air Basin, Summer

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0369	1.2899	0.2682	3.5900e-003	0.0809	4.1700e-003	0.0850	0.0222	3.9900e-003	0.0262		389.9999	389.9999	0.0276		390.6896
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	0.0807	0.0546	0.7336	2.0700e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		205.8905	205.8905	5.9300e-003		206.0389
Total	0.1176	1.3444	1.0019	5.6600e-003	0.2821	5.7000e-003	0.2878	0.0755	5.4000e-003	0.0809		595.8905	595.8905	0.0335		596.7285

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					2.0538	0.0000	2.0538	1.1196	0.0000	1.1196			0.0000			0.0000
Off-Road	3.1196	34.5545	19.3803	0.0415		1.4830	1.4830		1.3762	1.3762	0.0000	4,013.3262	4,013.3262	1.2057		4,043.4681
Total	3.1196	34.5545	19.3803	0.0415	2.0538	1.4830	3.5368	1.1196	1.3762	2.4958	0.0000	4,013.3262	4,013.3262	1.2057		4,043.4681

4800 Long Beach Blvd - South Coast Air Basin, Summer

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0369	1.2899	0.2682	3.5900e-003	0.0809	4.1700e-003	0.0850	0.0222	3.9900e-003	0.0262		389.9999	389.9999	0.0276		390.6896
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	0.0807	0.0546	0.7336	2.0700e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		205.8905	205.8905	5.9300e-003		206.0389
Total	0.1176	1.3444	1.0019	5.6600e-003	0.2821	5.7000e-003	0.2878	0.0755	5.4000e-003	0.0809		595.8905	595.8905	0.0335		596.7285

3.4 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	0.8016	8.6246	8.1671	0.0163		0.4494	0.4494		0.4134	0.4134		1,573.9096	1,573.9096	0.5090		1,586.6355
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8016	8.6246	8.1671	0.0163		0.4494	0.4494		0.4134	0.4134		1,573.9096	1,573.9096	0.5090		1,586.6355

4800 Long Beach Blvd - South Coast Air Basin, Summer

3.4 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	0.0449	0.0303	0.4076	1.1500e-003	0.1118	8.5000e-004	0.1126	0.0296	7.9000e-004	0.0304		114.3836	114.3836	3.3000e-003		114.4660
Total	0.0449	0.0303	0.4076	1.1500e-003	0.1118	8.5000e-004	0.1126	0.0296	7.9000e-004	0.0304		114.3836	114.3836	3.3000e-003		114.4660

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	0.8016	8.6246	8.1671	0.0163		0.4494	0.4494		0.4134	0.4134	0.0000	1,573.9096	1,573.9096	0.5090		1,586.6355
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8016	8.6246	8.1671	0.0163		0.4494	0.4494		0.4134	0.4134	0.0000	1,573.9096	1,573.9096	0.5090		1,586.6355

4800 Long Beach Blvd - South Coast Air Basin, Summer

3.4 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	0.0449	0.0303	0.4076	1.1500e-003	0.1118	8.5000e-004	0.1126	0.0296	7.9000e-004	0.0304		114.3836	114.3836	3.3000e-003		114.4660
Total	0.0449	0.0303	0.4076	1.1500e-003	0.1118	8.5000e-004	0.1126	0.0296	7.9000e-004	0.0304		114.3836	114.3836	3.3000e-003		114.4660

3.4 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7411	7.9589	8.1200	0.0163		0.3989	0.3989		0.3670	0.3670		1,574.1488	1,574.1488	0.5091		1,586.8766
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.7411	7.9589	8.1200	0.0163		0.3989	0.3989		0.3670	0.3670		1,574.1488	1,574.1488	0.5091		1,586.8766

4800 Long Beach Blvd - South Coast Air Basin, Summer

3.4 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0419	0.0273	0.3755	1.1100e-003	0.1118	8.3000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.6898	110.6898	2.9800e-003		110.7644
Total	0.0419	0.0273	0.3755	1.1100e-003	0.1118	8.3000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.6898	110.6898	2.9800e-003		110.7644

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	0.7411	7.9589	8.1200	0.0163		0.3989	0.3989		0.3670	0.3670	0.0000	1,574.1488	1,574.1488	0.5091		1,586.8766
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.7411	7.9589	8.1200	0.0163		0.3989	0.3989		0.3670	0.3670	0.0000	1,574.1488	1,574.1488	0.5091		1,586.8766

4800 Long Beach Blvd - South Coast Air Basin, Summer

3.4 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0419	0.0273	0.3755	1.1100e-003	0.1118	8.3000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.6898	110.6898	2.9800e-003		110.7644
Total	0.0419	0.0273	0.3755	1.1100e-003	0.1118	8.3000e-004	0.1126	0.0296	7.6000e-004	0.0304		110.6898	110.6898	2.9800e-003		110.7644

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

4800 Long Beach Blvd - South Coast Air Basin, Summer

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	6.6400e-003	0.2106	0.0512	5.1000e-004	0.0128	1.0400e-003	0.0138	3.6800e-003	1.0000e-003	4.6800e-003		54.5583	54.5583	3.4900e-003		54.6456
Worker	0.0583	0.0394	0.5299	1.4900e-003	0.1453	1.1100e-003	0.1464	0.0385	1.0200e-003	0.0396		148.6987	148.6987	4.2900e-003		148.8059
Total	0.0650	0.2501	0.5811	2.0000e-003	0.1581	2.1500e-003	0.1603	0.0422	2.0200e-003	0.0442		203.2570	203.2570	7.7800e-003		203.4514

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

4800 Long Beach Blvd - South Coast Air Basin, Summer

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	6.6400e-003	0.2106	0.0512	5.1000e-004	0.0128	1.0400e-003	0.0138	3.6800e-003	1.0000e-003	4.6800e-003		54.5583	54.5583	3.4900e-003		54.6456
Worker	0.0583	0.0394	0.5299	1.4900e-003	0.1453	1.1100e-003	0.1464	0.0385	1.0200e-003	0.0396		148.6987	148.6987	4.2900e-003		148.8059
Total	0.0650	0.2501	0.5811	2.0000e-003	0.1581	2.1500e-003	0.1603	0.0422	2.0200e-003	0.0442		203.2570	203.2570	7.7800e-003		203.4514

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608		2,001.2200	2,001.2200	0.3573		2,010.1517
Total	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608		2,001.2200	2,001.2200	0.3573		2,010.1517

4800 Long Beach Blvd - South Coast Air Basin, Summer

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.6300e-003	0.1915	0.0465	5.1000e-004	0.0128	3.9000e-004	0.0132	3.6800e-003	3.7000e-004	4.0600e-003		54.1488	54.1488	3.3500e-003		54.2325
Worker	0.0544	0.0355	0.4881	1.4400e-003	0.1453	1.0800e-003	0.1464	0.0385	9.9000e-004	0.0395		143.8968	143.8968	3.8800e-003		143.9937
Total	0.0600	0.2270	0.5346	1.9500e-003	0.1581	1.4700e-003	0.1596	0.0422	1.3600e-003	0.0436		198.0455	198.0455	7.2300e-003		198.2262

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608	0.0000	2,001.2200	2,001.2200	0.3573		2,010.1517
Total	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608	0.0000	2,001.2200	2,001.2200	0.3573		2,010.1517

4800 Long Beach Blvd - South Coast Air Basin, Summer

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.6300e-003	0.1915	0.0465	5.1000e-004	0.0128	3.9000e-004	0.0132	3.6800e-003	3.7000e-004	4.0600e-003		54.1488	54.1488	3.3500e-003		54.2325
Worker	0.0544	0.0355	0.4881	1.4400e-003	0.1453	1.0800e-003	0.1464	0.0385	9.9000e-004	0.0395		143.8968	143.8968	3.8800e-003		143.9937
Total	0.0600	0.2270	0.5346	1.9500e-003	0.1581	1.4700e-003	0.1596	0.0422	1.3600e-003	0.0436		198.0455	198.0455	7.2300e-003		198.2262

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.7800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	0.9989	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309

4800 Long Beach Blvd - South Coast Air Basin, Summer

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0126	8.1900e-003	0.1126	3.3000e-004	0.0335	2.5000e-004	0.0338	8.8900e-003	2.3000e-004	9.1200e-003		33.2070	33.2070	9.0000e-004		33.2293
Total	0.0126	8.1900e-003	0.1126	3.3000e-004	0.0335	2.5000e-004	0.0338	8.8900e-003	2.3000e-004	9.1200e-003		33.2070	33.2070	9.0000e-004		33.2293

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	0.7800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	0.9989	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309

4800 Long Beach Blvd - South Coast Air Basin, Summer

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0126	8.1900e-003	0.1126	3.3000e-004	0.0335	2.5000e-004	0.0338	8.8900e-003	2.3000e-004	9.1200e-003		33.2070	33.2070	9.0000e-004		33.2293
Total	0.0126	8.1900e-003	0.1126	3.3000e-004	0.0335	2.5000e-004	0.0338	8.8900e-003	2.3000e-004	9.1200e-003		33.2070	33.2070	9.0000e-004		33.2293

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4800 Long Beach Blvd - South Coast Air Basin, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1192	0.5920	1.5732	7.4500e-003	0.7593	4.4000e-003	0.7637	0.2031	4.0800e-003	0.2071		763.2497	763.2497	0.0294		763.9842
Unmitigated	0.1192	0.5920	1.5732	7.4500e-003	0.7593	4.4000e-003	0.7637	0.2031	4.0800e-003	0.2071		763.2497	763.2497	0.0294		763.9842

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	104.58	102.06	87.12	347,612	347,612
Total	104.58	102.06	87.12	347,612	347,612

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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	0.554588	0.041680	0.206638	0.111313	0.012826	0.005773	0.022313	0.034878	0.002168	0.001490	0.004854	0.000717	0.000760

5.0 Energy Detail

Historical Energy Use: N

4800 Long Beach Blvd - South Coast Air Basin, Summer

5.1 Mitigation Measures Energy

Exceed Title 24

Percent of Electricity Use Generated with Renewable 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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4800 Long Beach Blvd - South Coast Air Basin, Summer

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

4800 Long Beach Blvd - South Coast Air Basin, Summer

- Use Low VOC Paint - Residential Interior
- Use Low VOC Paint - Residential Exterior
- Use Low VOC Paint - Non-Residential Interior
- Use Low VOC Paint - Non-Residential Exterior
- No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6564	0.0172	1.4866	8.0000e-005		8.2100e-003	8.2100e-003		8.2100e-003	8.2100e-003	0.0000	2.6739	2.6739	2.5800e-003	0.0000	2.7384
Unmitigated	0.6564	0.0172	1.4866	8.0000e-005		8.2100e-003	8.2100e-003		8.2100e-003	8.2100e-003	0.0000	2.6739	2.6739	2.5800e-003	0.0000	2.7384

4800 Long Beach Blvd - South Coast Air Basin, Summer

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0487					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5628					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0449	0.0172	1.4866	8.0000e-005		8.2100e-003	8.2100e-003		8.2100e-003	8.2100e-003		2.6739	2.6739	2.5800e-003		2.7384
Total	0.6564	0.0172	1.4866	8.0000e-005		8.2100e-003	8.2100e-003		8.2100e-003	8.2100e-003	0.0000	2.6739	2.6739	2.5800e-003	0.0000	2.7384

4800 Long Beach Blvd - South Coast Air Basin, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0487					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5628					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0449	0.0172	1.4866	8.0000e-005		8.2100e-003	8.2100e-003		8.2100e-003	8.2100e-003		2.6739	2.6739	2.5800e-003		2.7384
Total	0.6564	0.0172	1.4866	8.0000e-005		8.2100e-003	8.2100e-003		8.2100e-003	8.2100e-003	0.0000	2.6739	2.6739	2.5800e-003	0.0000	2.7384

7.0 Water Detail

7.1 Mitigation Measures Water

- Install Low Flow Bathroom Faucet
- Install Low Flow Kitchen Faucet
- Install Low Flow Toilet
- Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

4800 Long Beach Blvd - South Coast Air Basin, Summer

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

4800 Long Beach Blvd - South Coast Air Basin, Winter

4800 Long Beach Blvd
South Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	18.00	Dwelling Unit	1.10	28,422.00	51

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	31
Climate Zone	9			Operational Year	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	353.87	CH4 Intensity (lb/MW hr)	0.015	N2O Intensity (lb/MW hr)	0.003

1.3 User Entered Comments & Non-Default Data

4800 Long Beach Blvd - South Coast Air Basin, Winter

Project Characteristics - Adjusted for 2030 RPS

Land Use - taken from project plan

Construction Phase - Per client provided info

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Per client information

Off-road Equipment - per client provided info

Off-road Equipment - Per client information

Grading - per lot size and client info

Architectural Coating - architectural and area code compliance with Rule 1113

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - No fireplaces per client info

Area Coating - compliance w rule 1113

Energy Use - 7% reduction per 2019 building code; net zero energy emissions

Water And Wastewater - City served by sanitary sewer only. 20% reduction per 2016 CALGreen

Solid Waste - Updated to reflect City diversion rate of 70%

Construction Off-road Equipment Mitigation - compliance w rule 403- watering twice a day

Mobile Land Use Mitigation -

Area Mitigation - zero VOC paints for interiors

Energy Mitigation - Per GPR Scorecard

Water Mitigation - Low flow appliances

Waste Mitigation -

Fleet Mix -

4800 Long Beach Blvd - South Coast Air Basin, Winter

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	10.00	228.00
tblConstructionPhase	NumDays	200.00	314.00
tblConstructionPhase	NumDays	4.00	27.00
tblConstructionPhase	NumDays	10.00	221.00
tblConstructionPhase	NumDays	2.00	13.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblEnergyUse	NT24NG	6,384.00	0.00
tblEnergyUse	T24E	243.83	226.76
tblEnergyUse	T24NG	10,792.56	0.00
tblFireplaces	NumberGas	15.30	0.00
tblFireplaces	NumberNoFireplace	1.80	18.00
tblFireplaces	NumberWood	0.90	0.00
tblGrading	AcresOfGrading	37.13	1.10
tblGrading	AcresOfGrading	13.00	1.10
tblGrading	MaterialImported	0.00	1,000.00
tblLandUse	LandUseSquareFeet	18,000.00	28,422.00
tblLandUse	LotAcreage	1.13	1.10
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.015
tblProjectCharacteristics	CO2IntensityFactor	702.44	353.87
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblSolidWaste	SolidWasteGenerationRate	8.28	4.97

4800 Long Beach Blvd - South Coast Air Basin, Winter

tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	1,172,772.46	938,217.97
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	0.90	0.00
tblWoodstoves	NumberNoncatalytic	0.90	0.00

2.0 Emissions Summary

4800 Long Beach Blvd - South Coast Air Basin, Winter

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	0.6564	0.0172	1.4866	8.0000e-005		8.2100e-003	8.2100e-003		8.2100e-003	8.2100e-003	0.0000	2.6739	2.6739	2.5800e-003	0.0000	2.7384
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.1140	0.6000	1.4751	7.0900e-003	0.7593	4.4100e-003	0.7637	0.2031	4.0900e-003	0.2072		726.0970	726.0970	0.0295		726.8344
Total	0.7704	0.6171	2.9617	7.1700e-003	0.7593	0.0126	0.7719	0.2031	0.0123	0.2154	0.0000	728.7710	728.7710	0.0321	0.0000	729.5728

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	0.6564	0.0172	1.4866	8.0000e-005		8.2100e-003	8.2100e-003		8.2100e-003	8.2100e-003	0.0000	2.6739	2.6739	2.5800e-003	0.0000	2.7384
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.1140	0.6000	1.4751	7.0900e-003	0.7593	4.4100e-003	0.7637	0.2031	4.0900e-003	0.2072		726.0970	726.0970	0.0295		726.8344
Total	0.7704	0.6171	2.9617	7.1700e-003	0.7593	0.0126	0.7719	0.2031	0.0123	0.2154	0.0000	728.7710	728.7710	0.0321	0.0000	729.5728

4800 Long Beach Blvd - South Coast Air Basin, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	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	Site Preparation	Site Preparation	7/1/2020	7/15/2020	6	13	
2	Grading	Grading	7/16/2020	8/16/2020	6	27	
3	Paving	Paving	10/1/2020	6/15/2021	6	221	
4	Building Construction	Building Construction	10/15/2020	10/15/2021	6	314	
5	Architectural Coating	Architectural Coating	2/15/2021	11/6/2021	6	228	

Acres of Grading (Site Preparation Phase): 1.1

Acres of Grading (Grading Phase): 1.1

Acres of Paving: 0

Residential Indoor: 57,555; Residential Outdoor: 19,185; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

4800 Long Beach Blvd - South Coast Air Basin, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Rubber Tired Loaders	1	8.00	203	0.36
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Air Compressors	1	8.00	78	0.48
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Rubber Tired Loaders	1	8.00	203	0.36
Grading	Scrapers	1	8.00	367	0.48
Grading	Skid Steer Loaders	1	8.00	65	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Surfacing Equipment	1	8.00	263	0.30
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

4800 Long Beach Blvd - South Coast Air Basin, Winter

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
Site Preparation	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	125.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	13.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.3591	0.0000	5.3591	2.9061	0.0000	2.9061			0.0000			0.0000
Off-Road	2.6010	29.2449	16.3789	0.0340		1.2695	1.2695		1.1679	1.1679		3,297.0370	3,297.0370	1.0663		3,323.6952
Total	2.6010	29.2449	16.3789	0.0340	5.3591	1.2695	6.6285	2.9061	1.1679	4.0740		3,297.0370	3,297.0370	1.0663		3,323.6952

4800 Long Beach Blvd - South Coast Air Basin, Winter

3.2 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0642	0.0433	0.4805	1.4000e-003	0.1453	1.1100e-003	0.1464	0.0385	1.0200e-003	0.0396		139.4707	139.4707	4.0100e-003		139.5710
Total	0.0642	0.0433	0.4805	1.4000e-003	0.1453	1.1100e-003	0.1464	0.0385	1.0200e-003	0.0396		139.4707	139.4707	4.0100e-003		139.5710

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					2.4116	0.0000	2.4116	1.3078	0.0000	1.3078			0.0000			0.0000
Off-Road	2.6010	29.2449	16.3789	0.0340		1.2695	1.2695		1.1679	1.1679	0.0000	3,297.0370	3,297.0370	1.0663		3,323.6952
Total	2.6010	29.2449	16.3789	0.0340	2.4116	1.2695	3.6810	1.3078	1.1679	2.4757	0.0000	3,297.0370	3,297.0370	1.0663		3,323.6952

4800 Long Beach Blvd - South Coast Air Basin, Winter

3.2 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0642	0.0433	0.4805	1.4000e-003	0.1453	1.1100e-003	0.1464	0.0385	1.0200e-003	0.0396		139.4707	139.4707	4.0100e-003		139.5710
Total	0.0642	0.0433	0.4805	1.4000e-003	0.1453	1.1100e-003	0.1464	0.0385	1.0200e-003	0.0396		139.4707	139.4707	4.0100e-003		139.5710

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.5640	0.0000	4.5640	2.4880	0.0000	2.4880			0.0000			0.0000
Off-Road	3.1196	34.5545	19.3803	0.0415		1.4830	1.4830		1.3762	1.3762		4,013.3262	4,013.3262	1.2057		4,043.4681
Total	3.1196	34.5545	19.3803	0.0415	4.5640	1.4830	6.0470	2.4880	1.3762	3.8642		4,013.3262	4,013.3262	1.2057		4,043.4681

4800 Long Beach Blvd - South Coast Air Basin, Winter

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0378	1.3068	0.2865	3.5300e-003	0.0809	4.2400e-003	0.0851	0.0222	4.0500e-003	0.0262		383.3392	383.3392	0.0287		384.0554
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	0.0888	0.0600	0.6653	1.9400e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		193.1132	193.1132	5.5600e-003		193.2522
Total	0.1266	1.3667	0.9517	5.4700e-003	0.2821	5.7700e-003	0.2878	0.0755	5.4600e-003	0.0810		576.4524	576.4524	0.0342		577.3076

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					2.0538	0.0000	2.0538	1.1196	0.0000	1.1196			0.0000			0.0000
Off-Road	3.1196	34.5545	19.3803	0.0415		1.4830	1.4830		1.3762	1.3762	0.0000	4,013.3262	4,013.3262	1.2057		4,043.4681
Total	3.1196	34.5545	19.3803	0.0415	2.0538	1.4830	3.5368	1.1196	1.3762	2.4958	0.0000	4,013.3262	4,013.3262	1.2057		4,043.4681

4800 Long Beach Blvd - South Coast Air Basin, Winter

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0378	1.3068	0.2865	3.5300e-003	0.0809	4.2400e-003	0.0851	0.0222	4.0500e-003	0.0262		383.3392	383.3392	0.0287		384.0554
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	0.0888	0.0600	0.6653	1.9400e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		193.1132	193.1132	5.5600e-003		193.2522
Total	0.1266	1.3667	0.9517	5.4700e-003	0.2821	5.7700e-003	0.2878	0.0755	5.4600e-003	0.0810		576.4524	576.4524	0.0342		577.3076

3.4 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	0.8016	8.6246	8.1671	0.0163		0.4494	0.4494		0.4134	0.4134		1,573.9096	1,573.9096	0.5090		1,586.6355
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8016	8.6246	8.1671	0.0163		0.4494	0.4494		0.4134	0.4134		1,573.9096	1,573.9096	0.5090		1,586.6355

4800 Long Beach Blvd - South Coast Air Basin, Winter

3.4 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	0.0493	0.0333	0.3696	1.0800e-003	0.1118	8.5000e-004	0.1126	0.0296	7.9000e-004	0.0304		107.2851	107.2851	3.0900e-003		107.3623
Total	0.0493	0.0333	0.3696	1.0800e-003	0.1118	8.5000e-004	0.1126	0.0296	7.9000e-004	0.0304		107.2851	107.2851	3.0900e-003		107.3623

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	0.8016	8.6246	8.1671	0.0163		0.4494	0.4494		0.4134	0.4134	0.0000	1,573.9096	1,573.9096	0.5090		1,586.6355
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.8016	8.6246	8.1671	0.0163		0.4494	0.4494		0.4134	0.4134	0.0000	1,573.9096	1,573.9096	0.5090		1,586.6355

4800 Long Beach Blvd - South Coast Air Basin, Winter

3.4 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	0.0493	0.0333	0.3696	1.0800e-003	0.1118	8.5000e-004	0.1126	0.0296	7.9000e-004	0.0304		107.2851	107.2851	3.0900e-003		107.3623
Total	0.0493	0.0333	0.3696	1.0800e-003	0.1118	8.5000e-004	0.1126	0.0296	7.9000e-004	0.0304		107.2851	107.2851	3.0900e-003		107.3623

3.4 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7411	7.9589	8.1200	0.0163		0.3989	0.3989		0.3670	0.3670		1,574.1488	1,574.1488	0.5091		1,586.8766
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.7411	7.9589	8.1200	0.0163		0.3989	0.3989		0.3670	0.3670		1,574.1488	1,574.1488	0.5091		1,586.8766

4800 Long Beach Blvd - South Coast Air Basin, Winter

3.4 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0461	0.0300	0.3399	1.0400e-003	0.1118	8.3000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.8151	103.8151	2.7900e-003		103.8849
Total	0.0461	0.0300	0.3399	1.0400e-003	0.1118	8.3000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.8151	103.8151	2.7900e-003		103.8849

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	0.7411	7.9589	8.1200	0.0163		0.3989	0.3989		0.3670	0.3670	0.0000	1,574.1488	1,574.1488	0.5091		1,586.8766
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.7411	7.9589	8.1200	0.0163		0.3989	0.3989		0.3670	0.3670	0.0000	1,574.1488	1,574.1488	0.5091		1,586.8766

4800 Long Beach Blvd - South Coast Air Basin, Winter

3.4 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0461	0.0300	0.3399	1.0400e-003	0.1118	8.3000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.8151	103.8151	2.7900e-003		103.8849
Total	0.0461	0.0300	0.3399	1.0400e-003	0.1118	8.3000e-004	0.1126	0.0296	7.6000e-004	0.0304		103.8151	103.8151	2.7900e-003		103.8849

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

4800 Long Beach Blvd - South Coast Air Basin, Winter

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	6.9400e-003	0.2106	0.0568	5.0000e-004	0.0128	1.0600e-003	0.0139	3.6800e-003	1.0100e-003	4.7000e-003		53.0755	53.0755	3.7300e-003		53.1688
Worker	0.0642	0.0433	0.4805	1.4000e-003	0.1453	1.1100e-003	0.1464	0.0385	1.0200e-003	0.0396		139.4707	139.4707	4.0100e-003		139.5710
Total	0.0711	0.2539	0.5372	1.9000e-003	0.1581	2.1700e-003	0.1603	0.0422	2.0300e-003	0.0443		192.5462	192.5462	7.7400e-003		192.7398

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

4800 Long Beach Blvd - South Coast Air Basin, Winter

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	6.9400e-003	0.2106	0.0568	5.0000e-004	0.0128	1.0600e-003	0.0139	3.6800e-003	1.0100e-003	4.7000e-003		53.0755	53.0755	3.7300e-003		53.1688
Worker	0.0642	0.0433	0.4805	1.4000e-003	0.1453	1.1100e-003	0.1464	0.0385	1.0200e-003	0.0396		139.4707	139.4707	4.0100e-003		139.5710
Total	0.0711	0.2539	0.5372	1.9000e-003	0.1581	2.1700e-003	0.1603	0.0422	2.0300e-003	0.0443		192.5462	192.5462	7.7400e-003		192.7398

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608		2,001.2200	2,001.2200	0.3573		2,010.1517
Total	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608		2,001.2200	2,001.2200	0.3573		2,010.1517

4800 Long Beach Blvd - South Coast Air Basin, Winter

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.9100e-003	0.1911	0.0517	4.9000e-004	0.0128	4.0000e-004	0.0132	3.6800e-003	3.9000e-004	4.0700e-003		52.6748	52.6748	3.5800e-003		52.7642
Worker	0.0600	0.0390	0.4418	1.3500e-003	0.1453	1.0800e-003	0.1464	0.0385	9.9000e-004	0.0395		134.9597	134.9597	3.6300e-003		135.0504
Total	0.0659	0.2301	0.4935	1.8400e-003	0.1581	1.4800e-003	0.1596	0.0422	1.3800e-003	0.0436		187.6344	187.6344	7.2100e-003		187.8146

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608	0.0000	2,001.2200	2,001.2200	0.3573		2,010.1517
Total	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608	0.0000	2,001.2200	2,001.2200	0.3573		2,010.1517

4800 Long Beach Blvd - South Coast Air Basin, Winter

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.9100e-003	0.1911	0.0517	4.9000e-004	0.0128	4.0000e-004	0.0132	3.6800e-003	3.9000e-004	4.0700e-003		52.6748	52.6748	3.5800e-003		52.7642
Worker	0.0600	0.0390	0.4418	1.3500e-003	0.1453	1.0800e-003	0.1464	0.0385	9.9000e-004	0.0395		134.9597	134.9597	3.6300e-003		135.0504
Total	0.0659	0.2301	0.4935	1.8400e-003	0.1581	1.4800e-003	0.1596	0.0422	1.3800e-003	0.0436		187.6344	187.6344	7.2100e-003		187.8146

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.7800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	0.9989	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309

4800 Long Beach Blvd - South Coast Air Basin, Winter

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0138	8.9900e-003	0.1020	3.1000e-004	0.0335	2.5000e-004	0.0338	8.8900e-003	2.3000e-004	9.1200e-003		31.1445	31.1445	8.4000e-004		31.1655
Total	0.0138	8.9900e-003	0.1020	3.1000e-004	0.0335	2.5000e-004	0.0338	8.8900e-003	2.3000e-004	9.1200e-003		31.1445	31.1445	8.4000e-004		31.1655

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.7800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	0.9989	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309

4800 Long Beach Blvd - South Coast Air Basin, Winter

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0138	8.9900e-003	0.1020	3.1000e-004	0.0335	2.5000e-004	0.0338	8.8900e-003	2.3000e-004	9.1200e-003		31.1445	31.1445	8.4000e-004		31.1655
Total	0.0138	8.9900e-003	0.1020	3.1000e-004	0.0335	2.5000e-004	0.0338	8.8900e-003	2.3000e-004	9.1200e-003		31.1445	31.1445	8.4000e-004		31.1655

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4800 Long Beach Blvd - South Coast Air Basin, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.1140	0.6000	1.4751	7.0900e-003	0.7593	4.4100e-003	0.7637	0.2031	4.0900e-003	0.2072		726.0970	726.0970	0.0295		726.8344
Unmitigated	0.1140	0.6000	1.4751	7.0900e-003	0.7593	4.4100e-003	0.7637	0.2031	4.0900e-003	0.2072		726.0970	726.0970	0.0295		726.8344

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	104.58	102.06	87.12	347,612	347,612
Total	104.58	102.06	87.12	347,612	347,612

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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	0.554588	0.041680	0.206638	0.111313	0.012826	0.005773	0.022313	0.034878	0.002168	0.001490	0.004854	0.000717	0.000760

5.0 Energy Detail

Historical Energy Use: N

4800 Long Beach Blvd - South Coast Air Basin, Winter

5.1 Mitigation Measures Energy

Exceed Title 24

Percent of Electricity Use Generated with Renewable 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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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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	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

4800 Long Beach Blvd - South Coast Air Basin, Winter

- Use Low VOC Paint - Residential Interior
- Use Low VOC Paint - Residential Exterior
- Use Low VOC Paint - Non-Residential Interior
- Use Low VOC Paint - Non-Residential Exterior
- No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6564	0.0172	1.4866	8.0000e-005		8.2100e-003	8.2100e-003		8.2100e-003	8.2100e-003	0.0000	2.6739	2.6739	2.5800e-003	0.0000	2.7384
Unmitigated	0.6564	0.0172	1.4866	8.0000e-005		8.2100e-003	8.2100e-003		8.2100e-003	8.2100e-003	0.0000	2.6739	2.6739	2.5800e-003	0.0000	2.7384

4800 Long Beach Blvd - South Coast Air Basin, Winter

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	0.0487					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5628					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0449	0.0172	1.4866	8.0000e-005		8.2100e-003	8.2100e-003		8.2100e-003	8.2100e-003		2.6739	2.6739	2.5800e-003		2.7384
Total	0.6564	0.0172	1.4866	8.0000e-005		8.2100e-003	8.2100e-003		8.2100e-003	8.2100e-003	0.0000	2.6739	2.6739	2.5800e-003	0.0000	2.7384

4800 Long Beach Blvd - South Coast Air Basin, Winter

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	0.0487					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5628					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0449	0.0172	1.4866	8.0000e-005		8.2100e-003	8.2100e-003		8.2100e-003	8.2100e-003		2.6739	2.6739	2.5800e-003		2.7384
Total	0.6564	0.0172	1.4866	8.0000e-005		8.2100e-003	8.2100e-003		8.2100e-003	8.2100e-003	0.0000	2.6739	2.6739	2.5800e-003	0.0000	2.7384

7.0 Water Detail

7.1 Mitigation Measures Water

- Install Low Flow Bathroom Faucet
- Install Low Flow Kitchen Faucet
- Install Low Flow Toilet
- Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

4800 Long Beach Blvd - South Coast Air Basin, Winter

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

4800 Long Beach Blvd - South Coast Air Basin, Annual

4800 Long Beach Blvd
South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	18.00	Dwelling Unit	1.10	28,422.00	51

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	31
Climate Zone	9			Operational Year	2030
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	353.87	CH4 Intensity (lb/MW hr)	0.015	N2O Intensity (lb/MW hr)	0.003

1.3 User Entered Comments & Non-Default Data

4800 Long Beach Blvd - South Coast Air Basin, Annual

Project Characteristics - Adjusted for 2030 RPS

Land Use - taken from project plan

Construction Phase - Per client provided info

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Per client information

Off-road Equipment - per client provided info

Off-road Equipment - Per client information

Grading - per lot size and client info

Architectural Coating - architectural and area code compliance with Rule 1113

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - No fireplaces per client info

Area Coating - compliance w rule 1113

Energy Use - 7% reduction per 2019 building code; net zero energy emissions

Water And Wastewater - City served by sanitary sewer only. 20% reduction per 2016 CALGreen

Solid Waste - Updated to reflect City diversion rate of 70%

Construction Off-road Equipment Mitigation - compliance w rule 403- watering twice a day

Mobile Land Use Mitigation -

Area Mitigation - zero VOC paints for interiors

Energy Mitigation - Per GPR Scorecard

Water Mitigation - Low flow appliances

Waste Mitigation -

Fleet Mix -

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Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	10.00	228.00
tblConstructionPhase	NumDays	200.00	314.00
tblConstructionPhase	NumDays	4.00	27.00
tblConstructionPhase	NumDays	10.00	221.00
tblConstructionPhase	NumDays	2.00	13.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblEnergyUse	NT24NG	6,384.00	0.00
tblEnergyUse	T24E	243.83	226.76
tblEnergyUse	T24NG	10,792.56	0.00
tblFireplaces	NumberGas	15.30	0.00
tblFireplaces	NumberNoFireplace	1.80	18.00
tblFireplaces	NumberWood	0.90	0.00
tblGrading	AcresOfGrading	37.13	1.10
tblGrading	AcresOfGrading	13.00	1.10
tblGrading	MaterialImported	0.00	1,000.00
tblLandUse	LandUseSquareFeet	18,000.00	28,422.00
tblLandUse	LotAcreage	1.13	1.10
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.015
tblProjectCharacteristics	CO2IntensityFactor	702.44	353.87
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblSolidWaste	SolidWasteGenerationRate	8.28	4.97

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tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	1,172,772.46	938,217.97
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	0.90	0.00
tblWoodstoves	NumberNoncatalytic	0.90	0.00

2.0 Emissions Summary

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	7-1-2020	9-30-2020	0.7421	0.7421
2	10-1-2020	12-31-2020	0.9480	0.9480
3	1-1-2021	3-31-2021	0.9949	0.9949
4	4-1-2021	6-30-2021	0.9986	0.9986
5	7-1-2021	9-30-2021	0.7208	0.7208
		Highest	0.9986	0.9986

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	0.1171	2.1300e-003	0.1851	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3104
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	14.5122	14.5122	6.2000e-004	1.2000e-004	14.5643
Mobile	0.0197	0.1079	0.2650	1.2700e-003	0.1320	7.8000e-004	0.1328	0.0354	7.2000e-004	0.0361	0.0000	118.1384	118.1384	4.7000e-003	0.0000	118.2560
Waste						0.0000	0.0000		0.0000	0.0000	1.0089	0.0000	1.0089	0.0596	0.0000	2.4994
Water						0.0000	0.0000		0.0000	0.0000	0.3319	3.2794	3.6113	1.2800e-003	7.5000e-004	3.8668
Total	0.1368	0.1101	0.4502	1.2800e-003	0.1320	1.8100e-003	0.1338	0.0354	1.7500e-003	0.0371	1.3408	136.2333	137.5741	0.0665	8.7000e-004	139.4969

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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	0.1171	2.1300e-003	0.1851	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3104
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0197	0.1079	0.2650	1.2700e-003	0.1320	7.8000e-004	0.1328	0.0354	7.2000e-004	0.0361	0.0000	118.1384	118.1384	4.7000e-003	0.0000	118.2560
Waste						0.0000	0.0000		0.0000	0.0000	1.0089	0.0000	1.0089	0.0596	0.0000	2.4994
Water						0.0000	0.0000		0.0000	0.0000	0.2656	2.8872	3.1528	1.0400e-003	6.0000e-004	3.3581
Total	0.1368	0.1101	0.4502	1.2800e-003	0.1320	1.8100e-003	0.1338	0.0354	1.7500e-003	0.0371	1.2744	121.3289	122.6033	0.0657	6.0000e-004	124.4239

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.95	10.94	10.88	1.29	31.03	10.81

3.0 Construction Detail

Construction Phase

4800 Long Beach Blvd - South Coast Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	7/1/2020	7/15/2020	6	13	
2	Grading	Grading	7/16/2020	8/16/2020	6	27	
3	Paving	Paving	10/1/2020	6/15/2021	6	221	
4	Building Construction	Building Construction	10/15/2020	10/15/2021	6	314	
5	Architectural Coating	Architectural Coating	2/15/2021	11/6/2021	6	228	

Acres of Grading (Site Preparation Phase): 1.1

Acres of Grading (Grading Phase): 1.1

Acres of Paving: 0

Residential Indoor: 57,555; Residential Outdoor: 19,185; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Rubber Tired Loaders	1	8.00	203	0.36
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Skid Steer Loaders	1	8.00	65	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Air Compressors	1	8.00	78	0.48
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Rubber Tired Loaders	1	8.00	203	0.36
Grading	Scrapers	1	8.00	367	0.48
Grading	Skid Steer Loaders	1	8.00	65	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Surfacing Equipment	1	8.00	263	0.30
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

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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
Site Preparation	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	125.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	13.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0348	0.0000	0.0348	0.0189	0.0000	0.0189	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0169	0.1901	0.1065	2.2000e-004	8.2500e-003	8.2500e-003	8.2500e-003	7.5900e-003	7.5900e-003	7.5900e-003	0.0000	19.4416	19.4416	6.2900e-003	0.0000	19.5988
Total	0.0169	0.1901	0.1065	2.2000e-004	0.0348	8.2500e-003	0.0431	0.0189	7.5900e-003	0.0265	0.0000	19.4416	19.4416	6.2900e-003	0.0000	19.5988

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3.2 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	2.9000e-004	3.2100e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.8354	0.8354	2.0000e-005	0.0000	0.8360
Total	3.8000e-004	2.9000e-004	3.2100e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.8354	0.8354	2.0000e-005	0.0000	0.8360

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0157	0.0000	0.0157	8.5000e-003	0.0000	8.5000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0169	0.1901	0.1065	2.2000e-004		8.2500e-003	8.2500e-003		7.5900e-003	7.5900e-003	0.0000	19.4416	19.4416	6.2900e-003	0.0000	19.5988
Total	0.0169	0.1901	0.1065	2.2000e-004	0.0157	8.2500e-003	0.0239	8.5000e-003	7.5900e-003	0.0161	0.0000	19.4416	19.4416	6.2900e-003	0.0000	19.5988

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3.2 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	2.9000e-004	3.2100e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.8354	0.8354	2.0000e-005	0.0000	0.8360
Total	3.8000e-004	2.9000e-004	3.2100e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.3000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.8354	0.8354	2.0000e-005	0.0000	0.8360

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0616	0.0000	0.0616	0.0336	0.0000	0.0336	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0421	0.4665	0.2616	5.6000e-004		0.0200	0.0200		0.0186	0.0186	0.0000	49.1512	49.1512	0.0148	0.0000	49.5203
Total	0.0421	0.4665	0.2616	5.6000e-004	0.0616	0.0200	0.0816	0.0336	0.0186	0.0522	0.0000	49.1512	49.1512	0.0148	0.0000	49.5203

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3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-004	0.0180	3.7300e-003	5.0000e-005	1.0700e-003	6.0000e-005	1.1300e-003	2.9000e-004	5.0000e-005	3.5000e-004	0.0000	4.7421	4.7421	3.4000e-004	0.0000	4.7507
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	1.0800e-003	8.3000e-004	9.2200e-003	3.0000e-005	2.6700e-003	2.0000e-005	2.6900e-003	7.1000e-004	2.0000e-005	7.3000e-004	0.0000	2.4024	2.4024	7.0000e-005	0.0000	2.4041
Total	1.5800e-003	0.0188	0.0130	8.0000e-005	3.7400e-003	8.0000e-005	3.8200e-003	1.0000e-003	7.0000e-005	1.0800e-003	0.0000	7.1444	7.1444	4.1000e-004	0.0000	7.1548

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0277	0.0000	0.0277	0.0151	0.0000	0.0151	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0421	0.4665	0.2616	5.6000e-004		0.0200	0.0200		0.0186	0.0186	0.0000	49.1511	49.1511	0.0148	0.0000	49.5203
Total	0.0421	0.4665	0.2616	5.6000e-004	0.0277	0.0200	0.0478	0.0151	0.0186	0.0337	0.0000	49.1511	49.1511	0.0148	0.0000	49.5203

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3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-004	0.0180	3.7300e-003	5.0000e-005	1.0700e-003	6.0000e-005	1.1300e-003	2.9000e-004	5.0000e-005	3.5000e-004	0.0000	4.7421	4.7421	3.4000e-004	0.0000	4.7507
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	1.0800e-003	8.3000e-004	9.2200e-003	3.0000e-005	2.6700e-003	2.0000e-005	2.6900e-003	7.1000e-004	2.0000e-005	7.3000e-004	0.0000	2.4024	2.4024	7.0000e-005	0.0000	2.4041
Total	1.5800e-003	0.0188	0.0130	8.0000e-005	3.7400e-003	8.0000e-005	3.8200e-003	1.0000e-003	7.0000e-005	1.0800e-003	0.0000	7.1444	7.1444	4.1000e-004	0.0000	7.1548

3.4 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0317	0.3407	0.3226	6.4000e-004		0.0178	0.0178		0.0163	0.0163	0.0000	56.3992	56.3992	0.0182	0.0000	56.8552
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0317	0.3407	0.3226	6.4000e-004		0.0178	0.0178		0.0163	0.0163	0.0000	56.3992	56.3992	0.0182	0.0000	56.8552

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3.4 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	1.7600e-003	1.3500e-003	0.0150	4.0000e-005	4.3300e-003	3.0000e-005	4.3700e-003	1.1500e-003	3.0000e-005	1.1800e-003	0.0000	3.9051	3.9051	1.1000e-004	0.0000	3.9079
Total	1.7600e-003	1.3500e-003	0.0150	4.0000e-005	4.3300e-003	3.0000e-005	4.3700e-003	1.1500e-003	3.0000e-005	1.1800e-003	0.0000	3.9051	3.9051	1.1000e-004	0.0000	3.9079

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	0.0317	0.3407	0.3226	6.4000e-004		0.0178	0.0178		0.0163	0.0163	0.0000	56.3991	56.3991	0.0182	0.0000	56.8551
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0317	0.3407	0.3226	6.4000e-004		0.0178	0.0178		0.0163	0.0163	0.0000	56.3991	56.3991	0.0182	0.0000	56.8551

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3.4 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	1.7600e-003	1.3500e-003	0.0150	4.0000e-005	4.3300e-003	3.0000e-005	4.3700e-003	1.1500e-003	3.0000e-005	1.1800e-003	0.0000	3.9051	3.9051	1.1000e-004	0.0000	3.9079
Total	1.7600e-003	1.3500e-003	0.0150	4.0000e-005	4.3300e-003	3.0000e-005	4.3700e-003	1.1500e-003	3.0000e-005	1.1800e-003	0.0000	3.9051	3.9051	1.1000e-004	0.0000	3.9079

3.4 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0526	0.5651	0.5765	1.1500e-003		0.0283	0.0283		0.0261	0.0261	0.0000	101.3911	101.3911	0.0328	0.0000	102.2109
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0526	0.5651	0.5765	1.1500e-003		0.0283	0.0283		0.0261	0.0261	0.0000	101.3911	101.3911	0.0328	0.0000	102.2109

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3.4 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	2.9500e-003	2.1900e-003	0.0248	8.0000e-005	7.7900e-003	6.0000e-005	7.8500e-003	2.0700e-003	5.0000e-005	2.1200e-003	0.0000	6.7922	6.7922	1.8000e-004	0.0000	6.7968
Total	2.9500e-003	2.1900e-003	0.0248	8.0000e-005	7.7900e-003	6.0000e-005	7.8500e-003	2.0700e-003	5.0000e-005	2.1200e-003	0.0000	6.7922	6.7922	1.8000e-004	0.0000	6.7968

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	0.0526	0.5651	0.5765	1.1500e-003		0.0283	0.0283		0.0261	0.0261	0.0000	101.3910	101.3910	0.0328	0.0000	102.2108
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0526	0.5651	0.5765	1.1500e-003		0.0283	0.0283		0.0261	0.0261	0.0000	101.3910	101.3910	0.0328	0.0000	102.2108

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3.4 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	2.9500e-003	2.1900e-003	0.0248	8.0000e-005	7.7900e-003	6.0000e-005	7.8500e-003	2.0700e-003	5.0000e-005	2.1200e-003	0.0000	6.7922	6.7922	1.8000e-004	0.0000	6.7968
Total	2.9500e-003	2.1900e-003	0.0248	8.0000e-005	7.7900e-003	6.0000e-005	7.8500e-003	2.0700e-003	5.0000e-005	2.1200e-003	0.0000	6.7922	6.7922	1.8000e-004	0.0000	6.7968

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	0.0680	0.4954	0.4418	7.4000e-004		0.0267	0.0267		0.0258	0.0258	0.0000	60.8166	60.8166	0.0113	0.0000	61.0989
Total	0.0680	0.4954	0.4418	7.4000e-004		0.0267	0.0267		0.0258	0.0258	0.0000	60.8166	60.8166	0.0113	0.0000	61.0989

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3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-004	7.1800e-003	1.8100e-003	2.0000e-005	4.2000e-004	4.0000e-005	4.6000e-004	1.2000e-004	3.0000e-005	1.6000e-004	0.0000	1.6391	1.6391	1.1000e-004	0.0000	1.6419
Worker	1.9400e-003	1.4900e-003	0.0165	5.0000e-005	4.7800e-003	4.0000e-005	4.8200e-003	1.2700e-003	3.0000e-005	1.3000e-003	0.0000	4.3055	4.3055	1.2000e-004	0.0000	4.3086
Total	2.1700e-003	8.6700e-003	0.0183	7.0000e-005	5.2000e-003	8.0000e-005	5.2800e-003	1.3900e-003	6.0000e-005	1.4600e-003	0.0000	5.9446	5.9446	2.3000e-004	0.0000	5.9505

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	0.0680	0.4954	0.4418	7.4000e-004		0.0267	0.0267		0.0258	0.0258	0.0000	60.8165	60.8165	0.0113	0.0000	61.0988
Total	0.0680	0.4954	0.4418	7.4000e-004		0.0267	0.0267		0.0258	0.0258	0.0000	60.8165	60.8165	0.0113	0.0000	61.0988

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3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-004	7.1800e-003	1.8100e-003	2.0000e-005	4.2000e-004	4.0000e-005	4.6000e-004	1.2000e-004	3.0000e-005	1.6000e-004	0.0000	1.6391	1.6391	1.1000e-004	0.0000	1.6419
Worker	1.9400e-003	1.4900e-003	0.0165	5.0000e-005	4.7800e-003	4.0000e-005	4.8200e-003	1.2700e-003	3.0000e-005	1.3000e-003	0.0000	4.3055	4.3055	1.2000e-004	0.0000	4.3086
Total	2.1700e-003	8.6700e-003	0.0183	7.0000e-005	5.2000e-003	8.0000e-005	5.2800e-003	1.3900e-003	6.0000e-005	1.4600e-003	0.0000	5.9446	5.9446	2.3000e-004	0.0000	5.9505

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2238	1.6841	1.5931	2.7200e-003		0.0845	0.0845		0.0816	0.0816	0.0000	224.2113	224.2113	0.0400	0.0000	225.2120
Total	0.2238	1.6841	1.5931	2.7200e-003		0.0845	0.0845		0.0816	0.0816	0.0000	224.2113	224.2113	0.0400	0.0000	225.2120

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3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.1000e-004	0.0240	6.0700e-003	6.0000e-005	1.5600e-003	5.0000e-005	1.6100e-003	4.5000e-004	5.0000e-005	5.0000e-004	0.0000	5.9973	5.9973	3.9000e-004	0.0000	6.0070
Worker	6.6700e-003	4.9500e-003	0.0560	1.7000e-004	0.0176	1.3000e-004	0.0178	4.6800e-003	1.2000e-004	4.8000e-003	0.0000	15.3591	15.3591	4.1000e-004	0.0000	15.3694
Total	7.3800e-003	0.0290	0.0621	2.3000e-004	0.0192	1.8000e-004	0.0194	5.1300e-003	1.7000e-004	5.3000e-003	0.0000	21.3564	21.3564	8.0000e-004	0.0000	21.3764

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	0.2238	1.6841	1.5931	2.7200e-003		0.0845	0.0845		0.0816	0.0816	0.0000	224.2111	224.2111	0.0400	0.0000	225.2117
Total	0.2238	1.6841	1.5931	2.7200e-003		0.0845	0.0845		0.0816	0.0816	0.0000	224.2111	224.2111	0.0400	0.0000	225.2117

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3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.1000e-004	0.0240	6.0700e-003	6.0000e-005	1.5600e-003	5.0000e-005	1.6100e-003	4.5000e-004	5.0000e-005	5.0000e-004	0.0000	5.9973	5.9973	3.9000e-004	0.0000	6.0070
Worker	6.6700e-003	4.9500e-003	0.0560	1.7000e-004	0.0176	1.3000e-004	0.0178	4.6800e-003	1.2000e-004	4.8000e-003	0.0000	15.3591	15.3591	4.1000e-004	0.0000	15.3694
Total	7.3800e-003	0.0290	0.0621	2.3000e-004	0.0192	1.8000e-004	0.0194	5.1300e-003	1.7000e-004	5.3000e-003	0.0000	21.3564	21.3564	8.0000e-004	0.0000	21.3764

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0889					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0250	0.1741	0.2072	3.4000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	29.1071	29.1071	2.0000e-003	0.0000	29.1570
Total	0.1139	0.1741	0.2072	3.4000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	29.1071	29.1071	2.0000e-003	0.0000	29.1570

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3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4200e-003	1.0500e-003	0.0119	4.0000e-005	3.7500e-003	3.0000e-005	3.7800e-003	1.0000e-003	3.0000e-005	1.0200e-003	0.0000	3.2718	3.2718	9.0000e-005	0.0000	3.2740
Total	1.4200e-003	1.0500e-003	0.0119	4.0000e-005	3.7500e-003	3.0000e-005	3.7800e-003	1.0000e-003	3.0000e-005	1.0200e-003	0.0000	3.2718	3.2718	9.0000e-005	0.0000	3.2740

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	0.0889					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0250	0.1741	0.2072	3.4000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	29.1071	29.1071	2.0000e-003	0.0000	29.1570
Total	0.1139	0.1741	0.2072	3.4000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	29.1071	29.1071	2.0000e-003	0.0000	29.1570

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3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4200e-003	1.0500e-003	0.0119	4.0000e-005	3.7500e-003	3.0000e-005	3.7800e-003	1.0000e-003	3.0000e-005	1.0200e-003	0.0000	3.2718	3.2718	9.0000e-005	0.0000	3.2740
Total	1.4200e-003	1.0500e-003	0.0119	4.0000e-005	3.7500e-003	3.0000e-005	3.7800e-003	1.0000e-003	3.0000e-005	1.0200e-003	0.0000	3.2718	3.2718	9.0000e-005	0.0000	3.2740

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	ROG	NOx	CO	SO2	Fugitive 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	0.0197	0.1079	0.2650	1.2700e-003	0.1320	7.8000e-004	0.1328	0.0354	7.2000e-004	0.0361	0.0000	118.1384	118.1384	4.7000e-003	0.0000	118.2560
Unmitigated	0.0197	0.1079	0.2650	1.2700e-003	0.1320	7.8000e-004	0.1328	0.0354	7.2000e-004	0.0361	0.0000	118.1384	118.1384	4.7000e-003	0.0000	118.2560

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	104.58	102.06	87.12	347,612	347,612
Total	104.58	102.06	87.12	347,612	347,612

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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	0.554588	0.041680	0.206638	0.111313	0.012826	0.005773	0.022313	0.034878	0.002168	0.001490	0.004854	0.000717	0.000760

5.0 Energy Detail

Historical Energy Use: N

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	90411.7	14.5122	6.2000e-004	1.2000e-004	14.5643
Total		14.5122	6.2000e-004	1.2000e-004	14.5643

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

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- Use Low VOC Paint - Residential Interior
- Use Low VOC Paint - Residential Exterior
- Use Low VOC Paint - Non-Residential Interior
- Use Low VOC Paint - Non-Residential Exterior
- No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1171	2.1300e-003	0.1851	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3104
Unmitigated	0.1171	2.1300e-003	0.1851	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3104

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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	8.8900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1027					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.5400e-003	2.1300e-003	0.1851	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3104
Total	0.1171	2.1300e-003	0.1851	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3104

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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	8.8900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1027					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.5400e-003	2.1300e-003	0.1851	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3104
Total	0.1171	2.1300e-003	0.1851	1.0000e-005		1.0300e-003	1.0300e-003		1.0300e-003	1.0300e-003	0.0000	0.3032	0.3032	2.9000e-004	0.0000	0.3104

7.0 Water Detail

7.1 Mitigation Measures Water

- Install Low Flow Bathroom Faucet
- Install Low Flow Kitchen Faucet
- Install Low Flow Toilet
- Install Low Flow Shower

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	3.1528	1.0400e-003	6.0000e-004	3.3581
Unmitigated	3.6113	1.2800e-003	7.5000e-004	3.8668

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	0.938218 / 0.739357	3.6113	1.2800e-003	7.5000e-004	3.8668
Total		3.6113	1.2800e-003	7.5000e-004	3.8668

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7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	0.750574 / 0.739357	3.1528	1.0400e-003	6.0000e-004	3.3581
Total		3.1528	1.0400e-003	6.0000e-004	3.3581

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.0089	0.0596	0.0000	2.4994
Unmitigated	1.0089	0.0596	0.0000	2.4994

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	4.97	1.0089	0.0596	0.0000	2.4994
Total		1.0089	0.0596	0.0000	2.4994

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	4.97	1.0089	0.0596	0.0000	2.4994
Total		1.0089	0.0596	0.0000	2.4994

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

Greenhouse Gas Emission Worksheet
N2O Mobile Emissions

4800 Long Beach Blvd.

From CalEEMod v.2016.3.2 Vehicle Fleet Mix Output:

Annual VMT: 347,612

Vehicle Type	Percent Type	CH4 Emission Factor (g/mile)*	CH4 Emission (g/mile)**	N2O Emission Factor (g/mile)*	N2O Emission (g/mile)**
Light Auto	0.554588	0.04	0.0221835	0.04	0.022184
Light Truck < 3750 lbs	0.04168	0.05	0.002084	0.06	0.002501
Light Truck 3751-5750 lbs	0.206638	0.05	0.0103319	0.06	0.012398
Med Truck 5751-8500 lbs	0.111313	0.12	0.0133576	0.2	0.022263
Lite-Heavy Truck 8501-10,000 lbs	0.012826	0.12	0.0015391	0.2	0.002565
Lite-Heavy Truck 10,001-14,000 lbs	0.005773	0.09	0.0005196	0.125	0.000722
Med-Heavy Truck 14,001-33,000 lbs	0.022313	0.06	0.0013388	0.05	0.001116
Heavy-Heavy Truck 33,001-60,000 lbs	0.034878	0.06	0.0020927	0.05	0.001744
Other Bus	0.002168	0.06	0.0001301	0.05	0.000108
Urban Bus	0.00149	0.06	0.0000894	0.05	7.45E-05
Motorcycle	0.004854	0.09	0.0004369	0.01	4.85E-05
School Bus	0.000717	0.06	4.302E-05	0.05	3.59E-05
Motor Home	0.00076	0.09	0.0000684	0.125	0.000095
Total	100.0%		0.0542149		0.065854

Total Emissions (metric tons) =

Emission Factor by Vehicle Mix (g/mi) x Annual VMT(mi) x 0.000001 metric tons/g

Conversion to Carbon Dioxide Equivalency (CO2e) Units based on Global Warming Potential (GWP)

CH4 21 GWP
 N2O 310 GWP
 1 ton (short, US) = 0.90718474 metric ton

Annual Mobile Emissions:

	Total Emissions	Total CO2e units
N2O Emissions:	0.0229 metric tons N2O	7.10 metric tons CO2e
Project Total:		7.10 metric tons CO2e

References

- * from Table C.4: Methane and Nitrous Oxide Emission Factors for Mobile Sources by Vehicle and Fuel Type (g/mile). in California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009. Assume Model year 2000-present, gasoline fueled.
- ** Source: California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.
- *** CalEEMod v.2016.3.2 results for mobile sources.

Appendix B

Noise Measurement and Analyses Data

Freq Weight : A
Time Weight : FAST
Level Range : 30-90
Max dB : 78.1 - 2018/08/29 16: 31: 40
Level Range : 30-90
SEL : 90.2
Leq : 62.5

No. s	Date Time	(dB)
1	2018/08/29 16: 23: 57	54.9
2	2018/08/29 16: 23: 58	60.9
3	2018/08/29 16: 23: 59	56.4
4	2018/08/29 16: 24: 00	57.2
5	2018/08/29 16: 24: 01	57.7
6	2018/08/29 16: 24: 02	58.6
7	2018/08/29 16: 24: 03	58.0
8	2018/08/29 16: 24: 04	58.6
9	2018/08/29 16: 24: 05	58.6
10	2018/08/29 16: 24: 06	58.8
11	2018/08/29 16: 24: 07	58.8
12	2018/08/29 16: 24: 08	61.0
13	2018/08/29 16: 24: 09	58.5
14	2018/08/29 16: 24: 10	58.3
15	2018/08/29 16: 24: 11	61.6
16	2018/08/29 16: 24: 12	59.4
17	2018/08/29 16: 24: 13	56.2
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295	2018/08/29	16:41:14	55.8
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565	2018/08/29	16:45:44	59.4
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574	2018/08/29	16:45:53	54.2
575	2018/08/29	16:45:54	54.2
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594	2018/08/29	16:46:13	57.0
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596	2018/08/29	16:46:15	61.0
597	2018/08/29	16:46:16	61.4
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Freq Weight : A
Time Weight : FAST
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Max dB : 85.3 - 2018/08/29 16:52:43
Level Range : 40-100
SEL : 97.7
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535	2018/08/29	16:57:59	73.4
536	2018/08/29	16:58:00	76.1
537	2018/08/29	16:58:01	74.2
538	2018/08/29	16:58:02	76.5
539	2018/08/29	16:58:03	73.9
540	2018/08/29	16:58:04	72.8
541	2018/08/29	16:58:05	69.4
542	2018/08/29	16:58:06	69.8
543	2018/08/29	16:58:07	71.1
544	2018/08/29	16:58:08	73.7
545	2018/08/29	16:58:09	69.9
546	2018/08/29	16:58:10	72.0
547	2018/08/29	16:58:11	71.9
548	2018/08/29	16:58:12	70.7
549	2018/08/29	16:58:13	72.2
550	2018/08/29	16:58:14	72.4
551	2018/08/29	16:58:15	71.8
552	2018/08/29	16:58:16	72.3
553	2018/08/29	16:58:17	71.2
554	2018/08/29	16:58:18	72.9
555	2018/08/29	16:58:19	71.9
556	2018/08/29	16:58:20	70.4
557	2018/08/29	16:58:21	71.4
558	2018/08/29	16:58:22	71.6
559	2018/08/29	16:58:23	72.8
560	2018/08/29	16:58:24	71.7
561	2018/08/29	16:58:25	69.9
562	2018/08/29	16:58:26	71.3
563	2018/08/29	16:58:27	70.7
564	2018/08/29	16:58:28	70.0
565	2018/08/29	16:58:29	70.3
566	2018/08/29	16:58:30	69.0
567	2018/08/29	16:58:31	70.5
568	2018/08/29	16:58:32	70.2
569	2018/08/29	16:58:33	68.8
570	2018/08/29	16:58:34	72.4
571	2018/08/29	16:58:35	71.6
572	2018/08/29	16:58:36	71.2
573	2018/08/29	16:58:37	71.4
574	2018/08/29	16:58:38	72.8
575	2018/08/29	16:58:39	74.4
576	2018/08/29	16:58:40	72.5
577	2018/08/29	16:58:41	66.4
578	2018/08/29	16:58:42	65.6
579	2018/08/29	16:58:43	63.6
580	2018/08/29	16:58:44	64.6

581	2018/08/29	16:58:45	65.0
582	2018/08/29	16:58:46	63.7
583	2018/08/29	16:58:47	69.7
584	2018/08/29	16:58:48	69.6
585	2018/08/29	16:58:49	70.7
586	2018/08/29	16:58:50	70.2
587	2018/08/29	16:58:51	71.9
588	2018/08/29	16:58:52	74.9
589	2018/08/29	16:58:53	69.5
590	2018/08/29	16:58:54	72.4
591	2018/08/29	16:58:55	72.1
592	2018/08/29	16:58:56	70.2
593	2018/08/29	16:58:57	72.0
594	2018/08/29	16:58:58	71.4
595	2018/08/29	16:58:59	69.0
596	2018/08/29	16:59:00	68.7
597	2018/08/29	16:59:01	69.1
598	2018/08/29	16:59:02	68.3
599	2018/08/29	16:59:03	66.5
600	2018/08/29	16:59:04	63.5

Train Vibration Calculation - 4800 Long Beach Boulevard

Project Site Distance to Rail Road 60 Feet

Type of Development

Wood-Frame Houses	-5
1-2 Story Masonry	-7
3-4 Story Masonry	-10
Large Masonry on Piles	-10
Large Masonry on Spread-footings	-13
Foundations on Rock	0
Wood-Frame Houses	-5

Speed Correction

PT Speed	35 MPH
FT Speed	26 MPH
PT Speed Correction	-3.1 VdB
FT Speed Correction	-5.7 VdB

Locomotive Powered Passenger or Freight Curve

Initial Vibration at Distance	VdB	RMS	PPV
	83	0.014	0.057

Speed Reductions

	VdB	RMS	PPV
Passenger Adjusted VdB	80	0.010	0.040
Freight Adjusted VdB	74	0.005	0.021

Structure Reductions

	VdB	RMS	PPV
Passenger Adjusted VdB	75	0.006	0.022
Freight Adjusted VdB	69	0.003	0.012

Source: Federal Transit Administration (FTA). 2018. *Transit Noise and Vibration Assessment Manual*.

Vibration Analysis

$$PPV \text{ (in/sec)} = PPV \{ref\} * (25/D)^{1.5}$$

Where PPV = Peak Particle Velocity
 {ref} = PPV at the reference distance of 25 feet
 D = distance to the receptor

Equipment = Roller

$$PPV\{ref\} = 0.21 \text{ in/sec}$$

$$D = 50 \text{ feet}$$

$$PPV \text{ at receptor} = 0.074 \text{ in/sec}$$

PPV is 1.7x to 6x larger than RMS velocity
 Assume typical conversion factor of 4 PPV:RMS

$$\text{Therefore estimated RMS velocity} = 0.019 \text{ in/sec}$$

$$Lv = 85 \text{ VdB}$$

Equipment = Dozer

$$PPV\{ref\} = 0.089 \text{ in/sec}$$

$$D = 50 \text{ feet}$$

$$PPV \text{ at receptor} = 0.031 \text{ in/sec}$$

PPV is 1.7x to 6x larger than RMS velocity
 Assume typical conversion factor of 4 PPV:RMS

$$\text{Therefore estimated RMS velocity} = 0.008 \text{ in/sec}$$

$$Lv = 78 \text{ VdB}$$

Vibration Source Levels For Construction Equipment

Equipment		PPV at 25 ft (in/sec)	Approximate Lv at 25 feet *
Impact Pile Driver	upper range	1.518	112
	typical	0.644	104
Sonic Pile Driver	upper range	0.734	105
	typical	0.17	93
Clam shovel drop (slurry wall construction)		0.202	94
Hydromill (slurry wall construction)	in soil	0.008	66
	in rock	0.017	75
Vibratory Roller		0.21	94
Hoe Ram		0.089	87
Bulldozer	large	0.089	87
	small	0.003	58
Caisson drilling		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79

* RMS Velocity in decibels VdB with Vref of 1E-6 in/sec and PPV:RMS of ~4

Source: Chapter 12 Noise and Vibration During Construction in *Transit Noise and Vibration Assessment, April 1995*
 Harris Miller Miller & Hanson, Inc.
 Prepared For: USDOT Federal Transit Administration

Criterion

US Bureau of Mines, 1971	
PPV, in/sec	Degree of Damage
<2	Safe
2 - 4	Plaster Cracking
4 - 7	Minor Damage
>7	Major Damage

Canmet, Bauer, and Calder, 1977		
Equipment	PPV Threshold, in/sec	Type of Damage
Rigid Mercury Switches	0.5	Trip Out
House	2	Cracked Plaster
Concrete Block	8	Crack in Block
Cased Drill Holes	15	Horizontal Offset
Pumps, Compressors	40	Shaft Misalignment

Human Response Criteria

Level, Lv in VdB	Equivalent Noise Level, dBA		Human Response
	Low freq (30Hz)	Hi Freq (60 Hz)	
65	25	40	Approximate threshold of perception, low-freq inaudible, but mid-freq excessive for sleeping Approx. dividing line between barely perceptible and clearly perceptible. Annoying vibration for most people. Low-freq acceptable for sleeping areas. Vibration acceptable only if no more than 2 events/day for residential uses. Low-freq annoying in sleeping areas; mid-freq unacceptable for sensitive uses, including schools and churches. Difficulty with tasks such as reading computer screens. Generally annoying for commercial uses.
75	35	50	
85	45	60	
90	50	65	

Impact Criteria

Land Use	Lv in VdB		
	Frequent Events (70+/day)	Occasional Events (30-70)	Infrequent (<30 events/day)
Category 1: Vibration Sensitive			
Concert Halls	65	65	65
TV Studios	65	65	65
Recording Studios	65	65	65
Category 2: Residences, hotels, sleeping areas			
Auditoriums	72	75	80
Theaters	72	80	80
Category 3: Institutional with primarily daytime use only			
	75	78	83

Vibration Analysis

$$PPV \text{ (in/sec)} = PPV \{ref\} * (25/D)^{1.5}$$

Where PPV = Peak Particle Velocity
 {ref} = PPV at the reference distance of 25 feet
 D = distance to the receptor

Equipment = Roller

$$PPV\{ref\} = 0.21 \text{ in/sec}$$

$$D = 90 \text{ feet}$$

$$PPV \text{ at receptor} = 0.031 \text{ in/sec}$$

PPV is 1.7x to 6x larger than RMS velocity
 Assume typical conversion factor of 4 PPV:RMS

$$\text{Therefore estimated RMS velocity} = 0.008 \text{ in/sec}$$

$$Lv = 78 \text{ VdB}$$

Equipment = Dozer

$$PPV\{ref\} = 0.089 \text{ in/sec}$$

$$D = 90 \text{ feet}$$

$$PPV \text{ at receptor} = 0.013 \text{ in/sec}$$

PPV is 1.7x to 6x larger than RMS velocity
 Assume typical conversion factor of 4 PPV:RMS

$$\text{Therefore estimated RMS velocity} = 0.003 \text{ in/sec}$$

$$Lv = 70 \text{ VdB}$$

Vibration Source Levels For Construction Equipment

Equipment		PPV at 25 ft (in/sec)	Approximate Lv at 25 feet *
Impact Pile Driver	upper range	1.518	112
	typical	0.644	104
Sonic Pile Driver	upper range	0.734	105
	typical	0.17	93
Clam shovel drop (slurry wall construction)		0.202	94
Hydromill (slurry wall construction)	in soil	0.008	66
	in rock	0.017	75
Vibratory Roller		0.21	94
Hoe Ram		0.089	87
Bulldozer	large	0.089	87
	small	0.003	58
Caisson drilling		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79

* RMS Velocity in decibels VdB with Vref of 1E-6 in/sec and PPV:RMS of ~4

Source: Chapter 12 Noise and Vibration During Construction in
Transit Noise and Vibration Assessment, April 1995
 Harris Miller Miller & Hanson, Inc.
 Prepared For: USDOT Federal Transit Administration

Criterion

US Bureau of Mines, 1971	
PPV, in/sec	Degree of Damage
<2	Safe
2 - 4	Plaster Cracking
4 - 7	Minor Damage
>7	Major Damage

Canmet, Bauer, and Calder, 1977		
Equipment	PPV Threshold, in/sec	Type of Damage
Rigid Mercury Switches	0.5	Trip Out
House	2	Cracked Plaster
Concrete Block	8	Crack in Block
Cased Drill Holes	15	Horizontal Offset
Pumps, Compressors	40	Shaft Misalignment

Human Response Criteria

Level, Lv in VdB	Equivalent Noise Level, dBA		Human Response
	Low freq (30Hz)	Hi Freq (60 Hz)	
65	25	40	Approximate threshold of perception, low-freq inaudible, but mid-freq excessive for sleeping Approx. dividing line between barely perceptible and clearly perceptible. Annoying vibration for most people. Low-freq acceptable for sleeping areas. Vibration acceptable only if no more than 2 events/day for residential uses. Low-freq annoying in sleeping areas; mid-freq unacceptable for sensitive uses, including schools and churches. Difficulty with tasks such as reading computer screens. Generally annoying for commercial uses.
75	35	50	
85	45	60	
90	50	65	

Impact Criteria

Land Use	Lv in VdB		
	Frequent Events (70+/day)	Occasional Events (30-70)	Infrequent (<30 events/day)
Category 1: Vibration Sensitive			
Concert Halls	65	65	65
TV Studios	65	65	65
Recording Studios	65	65	65
Category 2: Residences, hotels, sleeping areas			
Auditoriums	72	75	80
Theaters	72	80	80
Category 3: Institutional with primarily daytime use only			
	75	78	83

Vibration Analysis

$$PPV \text{ (in/sec)} = PPV \{ref\} * (25/D)^{1.5}$$

Where PPV = Peak Particle Velocity
 {ref} = PPV at the reference distance of 25 feet
 D = distance to the receptor

Equipment = Roller

$$PPV\{ref\} = 0.21 \text{ in/sec}$$

$$D = 150 \text{ feet}$$

$$PPV \text{ at receptor} = 0.014 \text{ in/sec}$$

PPV is 1.7x to 6x larger than RMS velocity
 Assume typical conversion factor of 4 PPV:RMS

$$\text{Therefore estimated RMS velocity} = 0.004 \text{ in/sec}$$

$$Lv = 71 \text{ VdB}$$

Equipment = Dozer

$$PPV\{ref\} = 0.089 \text{ in/sec}$$

$$D = 150 \text{ feet}$$

$$PPV \text{ at receptor} = 0.006 \text{ in/sec}$$

PPV is 1.7x to 6x larger than RMS velocity
 Assume typical conversion factor of 4 PPV:RMS

$$\text{Therefore estimated RMS velocity} = 0.002 \text{ in/sec}$$

$$Lv = 64 \text{ VdB}$$

Vibration Source Levels For Construction Equipment

Equipment		PPV at 25 ft (in/sec)	Approximate Lv at 25 feet *
Impact Pile Driver	upper range	1.518	112
	typical	0.644	104
Sonic Pile Driver	upper range	0.734	105
	typical	0.17	93
Clam shovel drop (slurry wall construction)		0.202	94
Hydromill (slurry wall construction)	in soil	0.008	66
	in rock	0.017	75
Vibratory Roller		0.21	94
Hoe Ram		0.089	87
Bulldozer	large	0.089	87
	small	0.003	58
Caisson drilling		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79

* RMS Velocity in decibels VdB with Vref of 1E-6 in/sec and PPV:RMS of ~4

Source: Chapter 12 Noise and Vibration During Construction in *Transit Noise and Vibration Assessment, April 1995*
 Harris Miller Miller & Hanson, Inc.
 Prepared For: USDOT Federal Transit Administration

Criterion

US Bureau of Mines, 1971	
PPV, in/sec	Degree of Damage
<2	Safe
2 - 4	Plaster Cracking
4 - 7	Minor Damage
>7	Major Damage

Canmet, Bauer, and Calder, 1977		
Equipment	PPV Threshold, in/sec	Type of Damage
Rigid Mercury Switches	0.5	Trip Out
House	2	Cracked Plaster
Concrete Block	8	Crack in Block
Cased Drill Holes	15	Horizontal Offset
Pumps, Compressors	40	Shaft Misalignment

Human Response Criteria

Level, Lv in VdB	Equivalent Noise Level, dBA		Human Response
	Low freq (30Hz)	Hi Freq (60 Hz)	
65	25	40	Approximate threshold of perception, low-freq inaudible, but mid-freq excessive for sleeping Approx. dividing line between barely perceptible and clearly perceptible. Annoying vibration for most people. Low-freq acceptable for sleeping areas. Vibration acceptable only if no more than 2 events/day for residential uses. Low-freq annoying in sleeping areas; mid-freq unacceptable for sensitive uses, including schools and churches. Difficulty with tasks such as reading computer screens. Generally annoying for commercial uses.
75	35	50	
85	45	60	
90	50	65	

Impact Criteria

Land Use	Lv in VdB		
	Frequent Events (70+/day)	Occasional Events (30-70)	Infrequent (<30 events/day)
Category 1: Vibration Sensitive			
Concert Halls	65	65	65
TV Studios	65	65	65
Recording Studios	65	65	65
Category 2: Residences, hotels, sleeping areas			
Auditoriums	72	75	80
Theaters	72	80	80
Category 3: Institutional with primarily daytime use only			
	75	78	83

Vibration Analysis

$$PPV \text{ (in/sec)} = PPV \{ref\} * (25/D)^{1.5}$$

Where PPV = Peak Particle Velocity
 {ref} = PPV at the reference distance of 25 feet
 D = distance to the receptor

Equipment = Roller

$$PPV\{ref\} = 0.21 \text{ in/sec}$$

$$D = 235 \text{ feet}$$

$$PPV \text{ at receptor} = 0.007 \text{ in/sec}$$

PPV is 1.7x to 6x larger than RMS velocity
 Assume typical conversion factor of 4 PPV:RMS

$$\text{Therefore estimated RMS velocity} = 0.002 \text{ in/sec}$$

$$Lv = 65 \text{ VdB}$$

Equipment = Dozer

$$PPV\{ref\} = 0.089 \text{ in/sec}$$

$$D = 235 \text{ feet}$$

$$PPV \text{ at receptor} = 0.003 \text{ in/sec}$$

PPV is 1.7x to 6x larger than RMS velocity
 Assume typical conversion factor of 4 PPV:RMS

$$\text{Therefore estimated RMS velocity} = 0.001 \text{ in/sec}$$

$$Lv = 58 \text{ VdB}$$

Vibration Source Levels For Construction Equipment

Equipment		PPV at 25 ft (in/sec)	Approximate Lv at 25 feet *
Impact Pile Driver	upper range	1.518	112
	typical	0.644	104
Sonic Pile Driver	upper range	0.734	105
	typical	0.17	93
Clam shovel drop (slurry wall construction)		0.202	94
Hydromill (slurry wall construction)	in soil	0.008	66
	in rock	0.017	75
Vibratory Roller		0.21	94
Hoe Ram		0.089	87
Bulldozer	large	0.089	87
	small	0.003	58
Caisson drilling		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79

* RMS Velocity in decibels VdB with Vref of 1E-6 in/sec and PPV:RMS of ~

Source: Chapter 12 Noise and Vibration During Construction in
Transit Noise and Vibration Assessment, April 1995
 Harris Miller Miller & Hanson, Inc.
 Prepared For: USDOT Federal Transit Administration

Criterion

US Bureau of Mines, 1971	
PPV, in/sec	Degree of Damage
<2	Safe
2 - 4	Plaster Cracking
4 - 7	Minor Damage
>7	Major Damage

Canmet, Bauer, and Calder, 1977		
Equipment	PPV Threshold, in/sec	Type of Damage
Rigid Mercury Switches	0.5	Trip Out
House	2	Cracked Plaster
Concrete Block	8	Crack in Block
Cased Drill Holes	15	Horizontal Offset
Pumps, Compressors	40	Shaft Misalignment

Human Response Criteria

Level, Lv in VdB	Equivalent Noise Level, dBA		Human Response
	Low freq (30Hz)	Hi Freq (60 Hz)	
65	25	40	Approximate threshold of perception, low-freq inaudible, but mid-freq excessive for sleeping Approx. dividing line between barely perceptible and clearly perceptible. Annoying vibration for most people. Low-freq acceptable for sleeping areas. Vibration acceptable only if no more than 2 events/day for residential uses. Low-freq annoying in sleeping areas; mid-freq unacceptable for sensitive uses, including schools and churches. Difficulty with tasks such as reading computer screens. Generally annoying for commercial uses.
75	35	50	
85	45	60	
90	50	65	

Impact Criteria

Land Use	Lv in VdB		
	Frequent Events (70+/day)	Occasional Events (30-70)	Infrequent (<30 events/day)
Category 1: Vibration Sensitive			
Concert Halls	65	65	65
TV Studios	65	65	65
Recording Studios	65	65	65
Category 2: Residences, hotels, sleeping areas			
Auditoriums	72	75	80
Theaters	72	80	80
Category 3: Institutional with primarily daytime use only			
	75	78	83

Vibration Analysis

$$PPV \text{ (in/sec)} = PPV \{ref\} * (25/D)^{1.5}$$

Where PPV = Peak Particle Velocity
 {ref} = PPV at the reference distance of 25 feet
 D = distance to the receptor

Equipment = Roller

$$PPV\{ref\} = 0.21 \text{ in/sec}$$

$$D = 380 \text{ feet}$$

$$PPV \text{ at receptor} = 0.004 \text{ in/sec}$$

PPV is 1.7x to 6x larger than RMS velocity
 Assume typical conversion factor of 4 PPV:RMS

$$\text{Therefore estimated RMS velocity} = 0.001 \text{ in/sec}$$

$$Lv = 59 \text{ VdB}$$

Equipment = Dozer

$$PPV\{ref\} = 0.089 \text{ in/sec}$$

$$D = 380 \text{ feet}$$

$$PPV \text{ at receptor} = 0.002 \text{ in/sec}$$

PPV is 1.7x to 6x larger than RMS velocity
 Assume typical conversion factor of 4 PPV:RMS

$$\text{Therefore estimated RMS velocity} = 0.000 \text{ in/sec}$$

$$Lv = 51 \text{ VdB}$$

Vibration Source Levels For Construction Equipment

Equipment		PPV at 25 ft (in/sec)	Approximate Lv at 25 feet *
Impact Pile Driver	upper range	1.518	112
	typical	0.644	104
Sonic Pile Driver	upper range	0.734	105
	typical	0.17	93
Clam shovel drop (slurry wall construction)		0.202	94
Hydromill (slurry wall construction)	in soil	0.008	66
	in rock	0.017	75
Vibratory Roller		0.21	94
Hoe Ram		0.089	87
Bulldozer	large	0.089	87
	small	0.003	58
Caisson drilling		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79

* RMS Velocity in decibels VdB with Vref of 1E-6 in/sec and PPV:RMS of ~

Source: Chapter 12 Noise and Vibration During Construction in
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Criterion

US Bureau of Mines, 1971	
PPV, in/sec	Degree of Damage
<2	Safe
2 - 4	Plaster Cracking
4 - 7	Minor Damage
>7	Major Damage

Canmet, Bauer, and Calder, 1977		
Equipment	PPV Threshold, in/sec	Type of Damage
Rigid Mercury Switches	0.5	Trip Out
House	2	Cracked Plaster
Concrete Block	8	Crack in Block
Cased Drill Holes	15	Horizontal Offset
Pumps, Compressors	40	Shaft Misalignment

Human Response Criteria

Level, Lv in VdB	Equivalent Noise Level, dBA		Human Response
	Low freq (30Hz)	Hi Freq (60 Hz)	
65	25	40	Approximate threshold of perception, low-freq inaudible, but mid-freq excessive for sleeping Approx. dividing line between barely perceptible and clearly perceptible. Annoying vibration for most people. Low-freq acceptable for sleeping areas. Vibration acceptable only if no more than 2 events/day for residential uses. Low-freq annoying in sleeping areas; mid-freq unacceptable for sensitive uses, including schools and churches. Difficulty with tasks such as reading computer screens. Generally annoying for commercial uses.
75	35	50	
85	45	60	
90	50	65	

Impact Criteria

Land Use	Lv in VdB		
	Frequent Events (70+/day)	Occasional Events (30-70)	Infrequent (<30 events/day)
Category 1: Vibration Sensitive			
Concert Halls	65	65	65
TV Studios	65	65	65
Recording Studios	65	65	65
Category 2: Residences, hotels, sleeping areas			
Auditoriums	72	75	80
Theaters	72	80	80
Category 3: Institutional with primarily daytime use only			
	75	78	83

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DNL Calculator

WARNING: HUD recommends the use of Microsoft Internet Explorer for performing noise calculations. The HUD Noise Calculator has an error when using Google Chrome unless the cache is cleared before each use of the calculator. HUD is aware of the problem and working to fix it in the programming of the calculator.

The Day/Night Noise Level Calculator is an electronic assessment tool that calculates the Day/Night Noise Level (DNL) from roadway and railway traffic. For more information on using the DNL calculator, view the [Day/Night Noise Level Calculator Electronic Assessment Tool Overview \(/programs/environmental-review/daynight-noise-level-electronic-assessment-tool/\)](#).

Guidelines

- To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
- All Road and Rail input values must be positive non-decimal numbers.
- All Road and/or Rail DNL value(s) must be calculated separately before calculating the Site DNL.
- All checkboxes that apply must be checked for vehicles and trains in the tables' headers.
- **Note #1:** Tooltips, containing field specific information, have been added in this tool and may be accessed by hovering over all the respective data fields (site identification, roadway and railway assessment, DNL calculation results, roadway and railway input variables) with the mouse.
- **Note #2:** DNL Calculator assumes roadway data is always entered.

DNL Calculator

Site ID	4800 Long Beach Boulevard - Existing
Record Date	9/24/2018
User's Name	Rincon Consultants, Inc.

Road # 1 Name:	Long Beach Boulevard
-----------------------	-----------------------------

Road #1

Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	45	45	45
Distance to Stop Sign			
Average Speed	35	35	35
Average Daily Trips (ADT)	23765	490	245
Night Fraction of ADT	10	3	2
Road Gradient (%)			2
Vehicle DNL	67.8301	59.2232	66.3265
Calculate Road #1 DNL	70.4565	Reset	

Add Road Source **Add Rail Source**

Airport Noise Level

Loud Impulse Sounds?

Yes **No**

Combined DNL for all Road and Rail sources	<input type="text" value="0"/>
Combined DNL including Airport	<input type="text"/>
Site DNL with Loud Impulse Sound	<input type="text"/>

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative:** Cancel the project at this location
- **Other Reasonable Alternatives:** Choose an alternate site
- **Mitigation**
 - **Contact your Field or Regional Environmental Officer** (</programs/environmental-review/hud-environmental-staff-contacts/>)
 - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
 - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
 - Incorporate natural or man-made barriers. See *The Noise Guidebook* (</resource/313/hud-noise-guidebook/>)
 - Construct noise barrier. See the **Barrier Performance Module** (</programs/environmental-review/bpm-calculator/>)

Tools and Guidance

[Day/Night Noise Level Assessment Tool User Guide \(/resource/3822/day-night-noise-level-assessment-tool-user-guide/\)](/resource/3822/day-night-noise-level-assessment-tool-user-guide/)

[Day/Night Noise Level Assessment Tool Flowcharts \(/resource/3823/day-night-noise-level-assessment-tool-flowcharts/\)](/resource/3823/day-night-noise-level-assessment-tool-flowcharts/)

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DNL Calculator

WARNING: HUD recommends the use of Microsoft Internet Explorer for performing noise calculations. The HUD Noise Calculator has an error when using Google Chrome unless the cache is cleared before each use of the calculator. HUD is aware of the problem and working to fix it in the programming of the calculator.

The Day/Night Noise Level Calculator is an electronic assessment tool that calculates the Day/Night Noise Level (DNL) from roadway and railway traffic. For more information on using the DNL calculator, view the [Day/Night Noise Level Calculator Electronic Assessment Tool Overview \(/programs/environmental-review/daynight-noise-level-electronic-assessment-tool/\)](#).

Guidelines

- To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
- All Road and Rail input values must be positive non-decimal numbers.
- All Road and/or Rail DNL value(s) must be calculated separately before calculating the Site DNL.
- All checkboxes that apply must be checked for vehicles and trains in the tables' headers.
- **Note #1:** Tooltips, containing field specific information, have been added in this tool and may be accessed by hovering over all the respective data fields (site identification, roadway and railway assessment, DNL calculation results, roadway and railway input variables) with the mouse.
- **Note #2:** DNL Calculator assumes roadway data is always entered.

DNL Calculator

Site ID	4800 Long Beach Boulevard - Existing plus Project
Record Date	3/27/2020
User's Name	Rincon Consultants, Inc.

Road # 1 Name:	Long Beach Boulevard
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Road #1

Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input checked="" type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	45	45	45
Distance to Stop Sign			
Average Speed	35	35	35
Average Daily Trips (ADT)	23870	490	245
Night Fraction of ADT	10	3	2
Road Gradient (%)			2
Vehicle DNL	67.8492	59.2232	66.3265
Calculate Road #1 DNL	70.4686	Reset	

Add Road Source	Add Rail Source
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Airport Noise Level	
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Loud Impulse Sounds?

Yes No

Combined DNL for all Road and Rail sources	<input type="text" value="0"/>
Combined DNL including Airport	<input type="text"/>
Site DNL with Loud Impulse Sound	<input type="text"/>

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative:** Cancel the project at this location
- **Other Reasonable Alternatives:** Choose an alternate site
- **Mitigation**
 - **Contact your Field or Regional Environmental Officer** (</programs/environmental-review/hud-environmental-staff-contacts/>)
 - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
 - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
 - Incorporate natural or man-made barriers. See *The Noise Guidebook* (</resource/313/hud-noise-guidebook/>)
 - Construct noise barrier. See the **Barrier Performance Module** (</programs/environmental-review/bpm-calculator/>)

Tools and Guidance

[Day/Night Noise Level Assessment Tool User Guide \(/resource/3822/day-night-noise-level-assessment-tool-user-guide/\)](/resource/3822/day-night-noise-level-assessment-tool-user-guide/)

[Day/Night Noise Level Assessment Tool Flowcharts \(/resource/3823/day-night-noise-level-assessment-tool-flowcharts/\)](/resource/3823/day-night-noise-level-assessment-tool-flowcharts/)

SP and G
Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 09/24/2018
Case Description: Site Preparation/Grading

**** Receptor #1 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Multifamily Residences	Residential	65.0	65.0	65.0

Description	Impact Devi ce	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Grader	No	40	85.0		50.0	0.0
Tractor	No	40	84.0		50.0	0.0
Dozer	No	40		81.7	50.0	0.0

Results

Noise Limit Exceedance (dBA) Noise Limits (dBA)

Night	Day	Calculated (dBA)				Day Night	Evening		
		Lmax	Leq	Lmax	Leq		Lmax	Leq	Lmax
Equipment Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Grader	N/A	N/A	85.0	81.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	N/A	N/A	84.0	80.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	N/A	N/A	81.7	77.7	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	Total	85.0	84.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Travel King Motel	Residential	65.0	65.0	65.0

Description	Impact Devi ce	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Grader	No	40	85.0		90.0	0.0
Tractor	No	40	84.0		90.0	0.0
Dozer	No	40		81.7	90.0	0.0

SP and G

Results

Noise Limit Exceedance (dBA)

Noise Limits (dBA)

Night	Day	Calculated (dBA)				Day Night		Evening		
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Grader				79.9	75.9	N/A	N/A	N/A	N/A	N/A
N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor				78.9	74.9	N/A	N/A	N/A	N/A	N/A
N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer				76.6	72.6	N/A	N/A	N/A	N/A	N/A
N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Total		79.9	79.5	N/A	N/A	N/A	N/A	N/A
N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

Description	Land Use	Baselines (dBA)			
		Daytime	Evening	Night	
Daycare/ Motel	LB/ Ministries	Residential	65.0	65.0	65.0

Description	Impact Device	Usage (%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Grader	No	40	85.0		150.0	0.0
Tractor	No	40	84.0		150.0	0.0
Dozer	No	40		81.7	150.0	0.0

Results

Noise Limit Exceedance (dBA)

Noise Limits (dBA)

Night	Day	Calculated (dBA)				Day Night		Evening		
		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Grader				75.5	71.5	N/A	N/A	N/A	N/A	N/A
N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor				74.5	70.5	N/A	N/A	N/A	N/A	N/A
N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Dozer			72.1	68.1	SP and G	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A
		Total	75.5	75.0		N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A

**** Receptor #4 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Shield of Faith (church)	Residential	65.0	65.0	65.0

Description	Impact Devi ce	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Di stance (feet)	Esti mated Shi el di ng (dBA)
Grader	No	40	85.0		235.0	0.0
Tractor	No	40	84.0		235.0	0.0
Dozer	No	40		81.7	235.0	0.0

Results

Noi se Li mi t Exceedance (dBA) Noi se Li mi ts (dBA)

Night	Day	Cal cul ated (dBA)				Day Ni ght	Eveni ng		
		Eveni ng							
Equipment Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Grader			71.6	67.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor			70.6	66.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer			68.2	64.2	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Total	71.6	71.1	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #5 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Single-Family Residences	Residential	65.0	65.0	65.0

Description	Impact Devi ce	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Di stance (feet)	Esti mated Shi el di ng (dBA)
Grader	No	40	85.0		380.0	0.0
Tractor	No	40	84.0		380.0	0.0
Dozer	No	40		81.7	380.0	0.0

SP and G

Results

Noise Limit Exceedance (dBA)

Noise Limits (dBA)

Night	Calculated (dBA)				Day		Evening		
	Day		Evening		Night				
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Grader			67.4	63.4	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor			66.4	62.4	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer			64.1	60.1	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Total	67.4	66.9	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

BC
Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 09/24/2018
Case Description: Building Construction

**** Receptor #1 ****

Description	Land Use	Baselines (dBA)		Night
		Daytime	Evening	
Multifamily Residences	Residential	65.0	65.0	65.0

Estimated Shielding Description	Equipment		Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	(dBA)
	Impact Device	Usage (%)				
Generator 0.0	No	50		80.6	50.0	
Crane 0.0	No	16		80.6	50.0	
All Other Equipment > 5 HP 0.0	No	50	85.0		50.0	
Tractor 0.0	No	40	84.0		50.0	
Welder / Torch 0.0	No	40		74.0	50.0	
Welder / Torch 0.0	No	40		74.0	50.0	
Welder / Torch 0.0	No	40		74.0	50.0	

Results

Noise Limit Exceedance (dBA) Noise Limits (dBA)

Night	Day	Calculated (dBA)				Day		Evening	
		Evening		Night		Night		Evening	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Lmax	Leq								
Generator N/A	N/A	N/A	N/A	80.6	77.6	N/A	N/A	N/A	N/A
Crane N/A	N/A	N/A	N/A	80.6	72.6	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP N/A	N/A	N/A	N/A	85.0	82.0	N/A	N/A	N/A	N/A
Tractor N/A	N/A	N/A	N/A	84.0	80.0	N/A	N/A	N/A	N/A
Welder / Torch N/A	N/A	N/A	N/A	74.0	70.0	N/A	N/A	N/A	N/A
Welder / Torch N/A	N/A	N/A	N/A	74.0	70.0	N/A	N/A	N/A	N/A

Welder / Torch				68.9	64.9	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch				68.9	64.9	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Total		79.9	80.5	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

Description	Land Use	Baselines (dBA)			Receptor Distance (feet)	(dBA)
		Daytime	Evening	Night		
Daycare/ Motel LB/ Mini stores	Residential	65.0	65.0	65.0		
Equipment						
Estimated	Impact	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	(dBA)
Shelding Description	Device	(%)	(dBA)	(dBA)	(feet)	(dBA)
Generator 0.0	No	50		80.6	150.0	
Crane 0.0	No	16		80.6	150.0	
All Other Equipment > 5 HP 0.0	No	50	85.0		150.0	
Tractor 0.0	No	40	84.0		150.0	
Welder / Torch 0.0	No	40		74.0	150.0	
Welder / Torch 0.0	No	40		74.0	150.0	
Welder / Torch 0.0	No	40		74.0	150.0	

Results

Equipment	Night	Day	Calculated (dBA)				Noise Limits (dBA)			
			Evening		Day Night		Evening		Night	
Lmax Leq	Lmax Leq	Lmax Leq	Lmax Leq	Lmax Leq	Lmax Leq	Lmax Leq	Lmax Leq	Lmax Leq	Lmax Leq	
Generator	N/A	N/A	71.1	68.1	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Crane	N/A	N/A	71.0	63.0	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
All Other Equipment > 5 HP	N/A	N/A	75.5	72.4	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Tractor	N/A	N/A	74.5	70.5	N/A	N/A	N/A	N/A	N/A	
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Welder / Torch	N/A	N/A	64.5	60.5	N/A	N/A	N/A	N/A	N/A	

N/A	N/A	N/A	N/A	N/A	BC	N/A	N/A	N/A	N/A	N/A
Welder / Torch	N/A	N/A	N/A	64.5	60.5	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	N/A	N/A	N/A	64.5	60.5	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			Total	75.5	76.1	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #4 ****

Description	Land Use	Baselines (dBA)		Night		
		Daytime	Evening			
Shield of Faith (church)	Residential	65.0	65.0	65.0		
Equipment						
Estimated	Impact	Usage	Spec Lmax	Actual Lmax	Receptor Distance	
Shielding Description	Device	(%)	(dBA)	(dBA)	(feet)	(dBA)
Generator 0.0	No	50		80.6	235.0	
Crane 0.0	No	16		80.6	235.0	
All Other Equipment > 5 HP 0.0	No	50	85.0		235.0	
Tractor 0.0	No	40	84.0		235.0	
Welder / Torch 0.0	No	40		74.0	235.0	
Welder / Torch 0.0	No	40		74.0	235.0	
Welder / Torch 0.0	No	40		74.0	235.0	

Results

Noise Limit Exceedance (dBA)

Noise Limits (dBA)

Night	Day	Calculated (dBA)				Day Night		Evening	
		Evening				Lmax	Leq	Lmax	Leq
Equipment Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Generator N/A	N/A	N/A	N/A	67.2	64.2	N/A	N/A	N/A	N/A
Crane N/A	N/A	N/A	N/A	67.1	59.1	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP N/A	N/A	N/A	N/A	71.6	68.5	N/A	N/A	N/A	N/A
Tractor N/A	N/A	N/A	N/A	70.6	66.6	N/A	N/A	N/A	N/A

Welder / Torch				60.6	56.6	BC	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch				60.6	56.6		N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
Welder / Torch				60.6	56.6		N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A
			Total	71.6	72.2		N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A

**** Receptor #5 ****

Description	Land Use	Baselines (dBA)		Night		
		Daytime	Evening			
Single-Family Residences	Residential	65.0	65.0	65.0		
Equipment						
Estimated	Impact	Usage	Spec Lmax	Actual Lmax	Receptor Distance	
Shelding Description	Device	(%)	(dBA)	(dBA)	(feet)	(dBA)
Generator 0.0	No	50		80.6	380.0	
Crane 0.0	No	16		80.6	380.0	
All Other Equipment > 5 HP 0.0	No	50	85.0		380.0	
Tractor 0.0	No	40	84.0		380.0	
Welder / Torch 0.0	No	40		74.0	380.0	
Welder / Torch 0.0	No	40		74.0	380.0	
Welder / Torch 0.0	No	40		74.0	380.0	

Results

Noise Limit Exceedance (dBA) Noise Limits (dBA)

Night	Day	Calculated (dBA)				Day		Evening	
		Evening		Night		Night		Evening	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Generator		63.0	60.0	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane		62.9	55.0	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
All Other Equipment > 5 HP		67.4	64.4	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		66.4	62.4	N/A	N/A	N/A	N/A	N/A	N/A

						BC				
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wel der	/ Torch			56.4	52.4	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wel der	/ Torch			56.4	52.4	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wel der	/ Torch			56.4	52.4	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Total		67.4	68.0	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

P
Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 09/24/2018
Case Description: Paving

**** Receptor #1 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Multifamily Residences	Residential	65.0	65.0	65.0

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	50.0	0.0
Paver	No	50		77.2	50.0	0.0
Roller	No	20		80.0	50.0	0.0
Tractor	No	40	84.0		50.0	0.0
Pavement Scarifier	No	20		89.5	50.0	0.0

Results

Noise Limit Exceedance (dBA) Noise Limits (dBA)

Night	Day	Calculated (dBA)		Day		Evening			
		Evening	Evening	Night	Night	Lmax	Leq	Lmax	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Concrete Mixer Truck	78.8	74.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	77.2	74.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	80.0	73.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarifier	89.5	82.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	Total	89.5	85.5	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Travel King Motel	Residential	65.0	65.0	65.0

Equipment

Spec Page 1 Actual Receptor Estimated

Description	Impact Device	Usage (%)	P Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	90.0	0.0
Paver	No	50		77.2	90.0	0.0
Roller	No	20		80.0	90.0	0.0
Tractor	No	40	84.0		90.0	0.0
Pavement Scarafier	No	20		89.5	90.0	0.0

Results

Noise Limit Exceedance (dBA)

Noise Limits (dBA)

Equipment	Calculated (dBA)					Day Evening				
	Day		Evening			Day		Evening		
Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	
Concrete Mixer Truck	N/A	N/A	73.7	69.7	N/A	N/A	N/A	N/A	N/A	
Paver	N/A	N/A	72.1	69.1	N/A	N/A	N/A	N/A	N/A	
Roller	N/A	N/A	74.9	67.9	N/A	N/A	N/A	N/A	N/A	
Tractor	N/A	N/A	78.9	74.9	N/A	N/A	N/A	N/A	N/A	
Pavement Scarafier	N/A	N/A	84.4	77.4	N/A	N/A	N/A	N/A	N/A	
Total		N/A	84.4	80.4	N/A	N/A	N/A	N/A	N/A	

**** Receptor #3 ****

Description	Baselines (dBA)		
	Land Use	Daytime	Evening
Daycare/ Motel LB/ Ministries	Residential	65.0	65.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	150.0	0.0
Paver	No	50		77.2	150.0	0.0
Roller	No	20		80.0	150.0	0.0
Tractor	No	40	84.0		150.0	0.0
Pavement Scarafier	No	20		89.5	150.0	0.0

Results

Noise Limit Exceedance (dBA)

Noise Limits (dBA)

P

Ni ght	Day		Cal cul ated (dBA) Eveni ng		Day Ni ght		Eveni ng			
	Equi pment Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Concrete Mi xer Truck	N/A	N/A	N/A	69.3	65.3	N/A	N/A	N/A	N/A	N/A
Paver	N/A	N/A	N/A	67.7	64.7	N/A	N/A	N/A	N/A	N/A
Ro l l er	N/A	N/A	N/A	70.5	63.5	N/A	N/A	N/A	N/A	N/A
Tractor	N/A	N/A	N/A	74.5	70.5	N/A	N/A	N/A	N/A	N/A
Pavement Scarafi er	N/A	N/A	N/A	80.0	73.0	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	Total	80.0	76.0	N/A	N/A	N/A	N/A	N/A
	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #4 ****

Descr i pt i on	Land Use	Basel i nes (dBA)		Ni ght
		Dayti me	Eveni ng	
Shi el d of Fai th (church)	Resi denti al	65.0	65.0	65.0

Descr i pt i on	Equi pment		Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Di stance (feet)	Esti mated Shi el di ng (dBA)
	Impact Devi ce	Usage (%)				
Concrete Mi xer Truck	No	40		78.8	235.0	0.0
Paver	No	50		77.2	235.0	0.0
Ro l l er	No	20		80.0	235.0	0.0
Tractor	No	40	84.0		235.0	0.0
Pavement Scarafi er	No	20		89.5	235.0	0.0

Resul ts

Noi se Li mi t Exceedance (dBA) Noi se Li mi ts (dBA)

Ni ght	Day		Cal cul ated (dBA) Eveni ng		Day Ni ght		Eveni ng			
	Equi pment Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Concrete Mi xer Truck	N/A	N/A	N/A	65.4	61.4	N/A	N/A	N/A	N/A	N/A
Paver	N/A	N/A	N/A	63.8	60.8	N/A	N/A	N/A	N/A	N/A
Ro l l er	N/A	N/A	N/A	66.6	59.6	N/A	N/A	N/A	N/A	N/A

AC
Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 09/24/2018
Case Description: Architectural Coating

**** Receptor #1 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Multifamily Residences	Residential	65.0	65.0	65.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	50.0	0.0

Results

Noise Limit Exceedance (dBA) Noise Limits (dBA)

Night	Day	Calculated (dBA)			Day Night		Evening		
		Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Compressor (air)			77.7	73.7	N/A	N/A	N/A	N/A	N/A
N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	Total	N/A	77.7	73.7	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Travel King Motel	Residential	65.0	65.0	65.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	90.0	0.0

Results

Noise Limit Exceedance (dBA) Noise Limits (dBA)

AC

Night	Calculated (dBA)				Day Night		Evening		
	Day		Evening		Day Night		Evening		
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Compressor (air)	N/A	N/A	72.6	68.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Total	72.6	68.6	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Daycare/ Motel LB/ Ministries	Residential	65.0	65.0	65.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	150.0	0.0

Results

Noise Limit Exceedance (dBA)

Noise Limits (dBA)

Night	Calculated (dBA)				Day Night		Evening		
	Day		Evening		Day Night		Evening		
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Compressor (air)	N/A	N/A	68.1	64.1	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Total	68.1	64.1	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #4 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Shield of Faith (church)	Residential	65.0	65.0	65.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)

Compressor (air) No 40 AC 77.7 235.0 0.0

Results

Noise Limit Exceedance (dBA)

Noise Limits (dBA)

Night	Day	Calculated (dBA)			Day Night		Evening		
		Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Compressor (air)			64.2	60.2	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	Total	64.2	60.2	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #5 ****

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Single-Family Residences	Residential	65.0	65.0	65.0

Description	Impact Device	Usage (%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40	77.7	380.0	0.0	

Results

Noise Limit Exceedance (dBA)

Noise Limits (dBA)

Night	Day	Calculated (dBA)			Day Night		Evening		
		Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Compressor (air)			60.1	56.1	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	Total	60.1	56.1	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A